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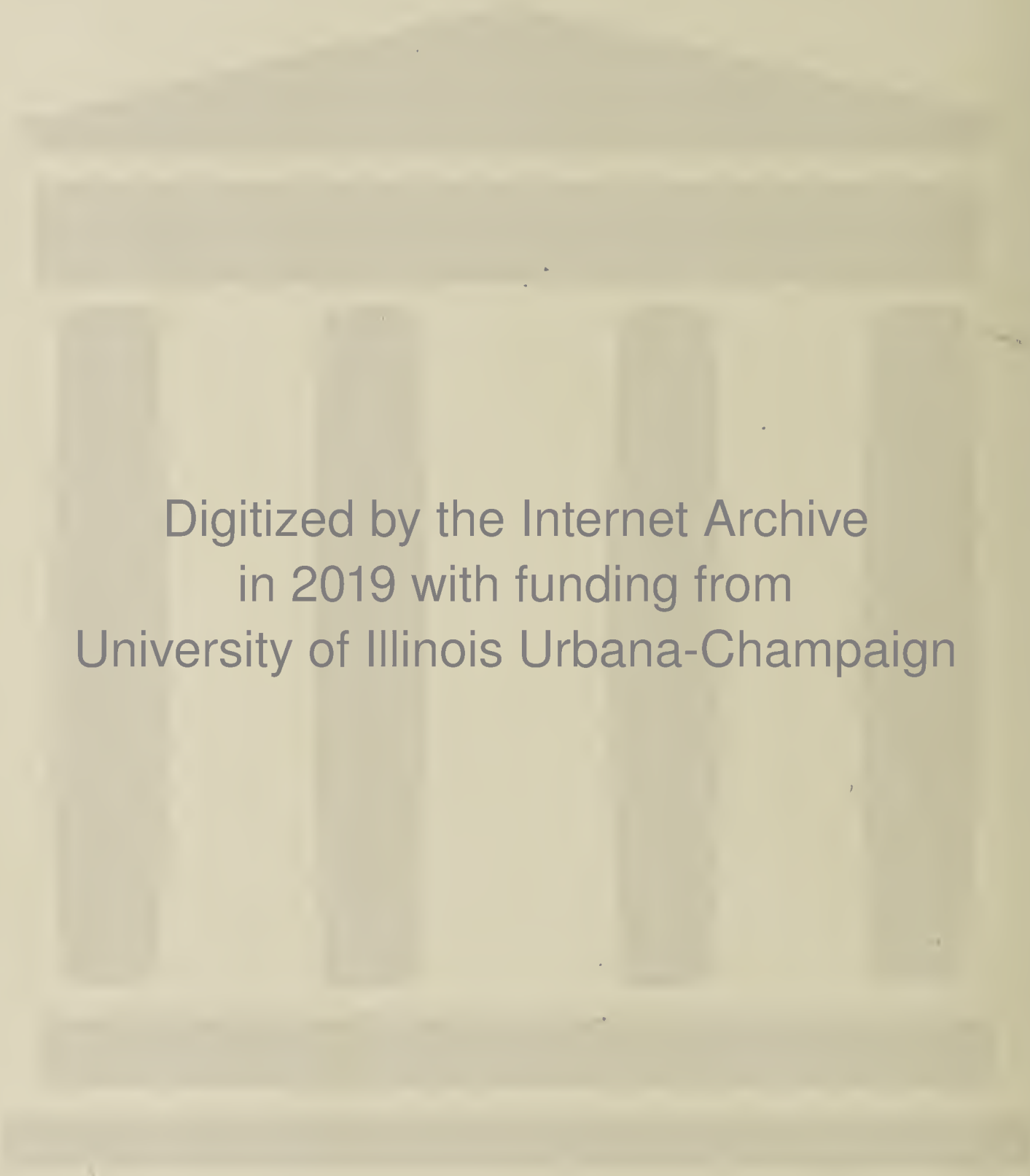
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INFANTILISM AND OTHER HYPOPLASTIC CONDITIONS OF THE UTERUS*

EMIL NOVAK, M.D.

BALTIMORE

Infantilism of the female genital organs may be only a local manifestation of general infantilism (*infantilismus universalis*). More frequently, however, it is observed in women who, aside from the genital organs, present no recognizable defects in development, and who, for that matter, may be unusually well developed. It is this local form of infantilism (*infantilismus partialis* or *genitalis*) with which we are concerned in this paper. Its very great frequency can be attested by every gynecologist, although I know of no figures bearing on this point. The clinical importance of the condition rests chiefly on two considerations: (1) the frequency with which it is associated with aberrations of the menstrual function, and (2) the fact that it often seems to constitute the anatomic basis for sterility.

Strictly speaking, the term "infantile uterus" should indicate that the organ resembles that normally found in the infant. The development of the uterus may, however, be arrested even as early as in the fetal stage, while on the other hand, the inhibition of development may not come until the prepuberal epoch. No practical advantage is to be derived from making very fine distinctions along this line, since the difference between the uterus of the fetus, the infant, and the child up to the prepuberal age is not nearly so great as one might be inclined to expect. Very frequently, the differentiation between the various types is not possible clinically. For this reason, it is perhaps not worth while to criticize the common custom of designating as an "infantile uterus" any uterus that presents noteworthy defects of development.

The observations herein noted are based on the study of twenty-six uteri that were removed at necropsy from subjects varying in age from the twelfth week of fetal life to the fourteenth year of postnatal life. For supplying me with a portion of this material, I am indebted to the members of the Pathological Staff of the Johns Hopkins Hospital. The uteri in the series were derived from nine fetuses, and seventeen infants and children of various ages. Among the fetuses, the age of one was placed at 12 weeks, of

three at 5 months, of two at 6 months, and of three at between 8 and 9 months. Of the babies and children, two were stillborn at term; one was 5 days old; one, 10 days; one, 2½ months; two, 4 months; one, 6 months; one, 8 months; one, 9 months; one, 13 months; one, 15 months; one, 2 years; one, 2½ years; one, 4 years; one, 9 years, and one, 14 years. In studying this material, special attention has been given to the position of the uterus, its relation to the other pelvic organs, its size, its form, the relation existing between its different portions, and the presence or absence of flexions. For microscopic study, sagittal sections of the uterocervical canal have been found most satisfactory. The tubes and ovaries have been studied in most of these cases, but with the results of this study we are not concerned in this paper.

THE UTERUS IN FETAL LIFE

The characteristics of the uterus during the early stages of fetal life are well shown in Figure 1, which represents a sagittal section of the pelvis of an embryo of 76 mm. in length. This corresponds to an age of about 12 weeks. This specimen I was enabled to study through the kindness of Dr. George L. Streeter, acting director of the Carnegie Institute of Embryology. It can be seen that the uterine canal scarcely permits of differentiation into cervix and corpus. It is merely a straight tube of uniform caliber, although the upper sixth or so obviously represents the future fundus. The high position of the uterus at this age can be appreciated by observing that it is almost entirely above the level of the symphysis, that is, that it is essentially an abdominal organ, like the bladder at this stage. It is uncommon to see either sharp ante-flexion or retroflexion at this period, although a moderate antecurvation of the uterus (*uterus antecurvatum*) is very frequent—indeed, it may be said to be the rule in the later stages of fetal life.

Throughout the whole fetal epoch a preponderance of the cervix over the corpus uteri is noteworthy. The well known characteristics of the epithelium in the different portions of the adult canal do not become noticeable until the fetal development is far advanced. As in the adult, the cervix is then lined by tall, slender "picket" epithelium, while the corpus is covered by cells of a shorter and broader columnar type. The time of the appearance of gland elements is quite variable. In some uteri they are as well developed, especially in the cervix, in the last period of fetal life as they are in others during the fifth or six year of extrauterine development. Toward the very end of the fetal phase, the uterus exhibits a rather striking acceleration of growth, affecting the fundus as well as the cervix. After the birth of the child there is a

* From the Gynecological Department of Johns Hopkins University.

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rather pronounced shrinkage or involution of the fetal uterus, as will be discussed later.

THE UTERUS OF INFANCY AND CHILDHOOD

These two epochs are placed together because of the fact that, to all intents and purposes, the uterus is a stationary organ throughout both periods. It would be difficult to distinguish, either from size or from shape, between the uterus of the child of 1 year and the child of 8 or 9 years. As compared with the fetal uterus, there is perhaps a lesser degree of disproportion between the cervix and the corpus, the latter having become a little longer and somewhat more clearly differentiated (Fig. 2). The occurrence of sharp anteflexion, and, to a less extent, of retroflexion, is far more common during this stage than during fetal life. The explanation of this fact will be discussed under another heading.

THE UTERUS AT PUBERTY

With the awakening of the ovaries at puberty comes a very remarkable stimulation of uterine growth. Within a short period, the uterus may almost double its size. A comparison of two of my specimens, one representing the uterus of a 9 year old child, and the other that of a girl of 14, gives a vivid impression of the change in uterine size and form that puberty brings with it. The 9 year old girl's uterus is 35 mm. long, while the uterus of the 14 year old girl, who had just commenced to menstruate, measures 57 mm. in length. There is relatively little difference in the length of the two cervixes, one measuring 22 mm. and the other 27 mm. The body of the 14 year old uterus, however, is more than twice the length of that of the 9 year old organ, measuring 30 mm., while the latter is only 13 mm. long. In addition, there is a very striking difference in the width and in the thickness of the walls of the two uteri. The characteristics of the 14 year old uterus are those of the adult organ—the well developed convex fundus which is at least equal to the cervix in length, the thick musculature, and the regular monthly cycle of histologic changes in the endometrium (Fig. 3).

THE QUESTION OF THE ISTHMUS UTERI

The usual division of the uterus into the corpus uteri and the cervix uteri has much to commend it, especially from the point of view of simplicity. On the other hand, there are some advantages in the less popular plan suggested by Aschoff in 1906,⁵ of considering the uterus to be made up of three segments, namely, the corpus, the cervix and the isthmus uteri. Certainly the isthmus possesses distinctive histologic characteristics which entitle it to separate consideration, and which, as I shall show, are of no little sig-

nificance in the explanation of certain physiologic and pathologic occurrences.

From an obstetric standpoint, this segment of the uterine canal is of great importance by reason of the fact that the lower uterine segment of the parturient uterus is derived from it. A bitter controversy, stretching over a number of years, and still unsettled, has been waged among German obstetricians as to whether the lower uterine segment is to be looked on as derived from the cervix alone or from both the cervix and the corpus uteri. With this discussion we shall not here concern ourselves, except to say that the weight of evidence points to the correctness of the latter view. The problem is made much simpler if we apply to it the three segment conception of the uterus, that is, if we distinguish, in addition to the cervix and corpus, a third connecting segment, or isthmus. The os internum anatomicum, which is the upper limit of the isthmus, corresponds to the contraction ring of Braune (Bandl), while the lower limit of the lower uterine segment is the os internum histologicum. In other words, according to this divi-

sion, the isthmus of the non-pregnant uterus exactly corresponds to the lower uterine segment of the parturient woman.

The gynecologic importance of the isthmus rests principally on the fact that congenital flexions of the uterus probably always take place at the isthmus. Furthermore, although this cannot be stated with the same support of histologic study, it is probable that the acquired flexions of later life also occur at the same segment. Its designation by Aschoff as the *Scharnier* or "hinge" of the uterus would thus seem to be justified. It is common to observe flexion of the uterus, usually in the form of anteflexion, in very early life. In every such anteflexed uterus that I have been able to study microscopically, the angle of flexion has been in the middle of the isthmus and not at the internal os, as has so generally been believed.

Opportunities for study of congenital anteflexion of the uterus in adult women are scarce, as such uteri are rarely removed at operation, and necropsy material of this sort is hard to obtain. Indeed, I know of but one observation along this line, that of Hegar.⁶ The uterus was removed by vaginal hysterectomy from a girl of 24, on account of severe dysmenorrhea that had resisted all other forms of treatment. The uterus was sharply anteflexed—as Hegar terms it, "hyperanteflexio uteri congenita." Examination showed three well marked segments with the histologic characteristics already described. The angle of flexion was within the limits of the well marked isthmus. Congenital retroflexions are far less frequent than anteflexions. No example has been seen in my series. There can be no doubt, however, that, as with anteflex-

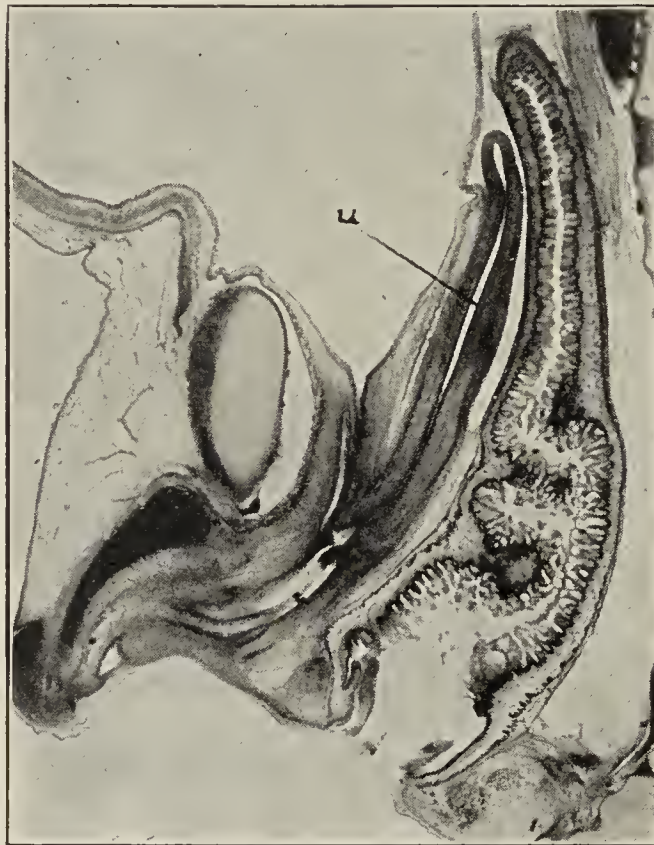


Fig. 1.—Sagittal section of pelvis of 12 weeks old fetus, showing characteristic fetal uterus (u), made up almost entirely of cervix.

5. Aschoff: Ztschr. f. Geburtsh. u. Gynäk., 1906, 58, 328.

6. Hegar: Beitr. z. Geburtsh. u. Gynäk., 1909, 14, 141.

ions, the point of angulation is in the isthmus. The same may be said of lateroflexion, slight degrees of which are very common in fetal and infantile uteri.

Flexions of the uterus are far more commonly observed in the uterus of the infant or young child than during fetal life. I believe that this is due to the fact that in the fetal organ the isthmus is practically undeveloped, while, on the other hand, in the infantile uterus, it forms a large and important segment. It is easy to see how abnormal length and flexibility of the uterine isthmus may result in the production of flexion of one form or another. Once the uterus becomes angulated, the flexion must be looked on as permanent. After the age of puberty the isthmus becomes small and more or less vestigial, so that it is probable that acquired ante flexion rarely occurs during this epoch.

The point that I should like to reemphasize is that it would be of value to the gynecologist to think of the uterus as a composite organ, in the sense that it is made up of three separate segments. At various periods of life one or the other of these segments predominates in size and perhaps in function. Each segment apparently has its own function, and each seems to be under the control of a different endocrine influence. Such a conception as this would seem to be more in accord with fact and more conducive to fruitful observation than the custom of looking on the uterus as merely an organ entity in itself, going through various physiologic and pathologic changes *en masse*, as it were.

TYPES OF UTERINE HYPOPLASIA

Throughout the consideration of this subject it is important to remember that hypoplasia may manifest itself in either one of two principal ways—an arrest of growth or an arrest of differentiation. Perhaps the best analogy to bear in mind in this connection is furnished by the striking work of Gudernatsch⁸ on the effects of thyroid and thymus extracts on tadpoles. On the administration of thymus, the tadpoles grew to very large size, but still remained tadpoles. Feeding with thyroid, however, produced an altogether different result—the tadpoles developed rapidly into frogs. Under normal conditions, the growth and differentiation of the uterus proceed more or less hand in hand. Under certain conditions, however, it would appear that one may lag far behind

the other, so that we may see a uterus equal in size to the normal adult organ, and yet having the form and segmental proportions of the infantile uterus. On the other hand, in those cases in which growth seems to have been retarded, while differentiation has proceeded normally, a very much undersized uterus may have the form of the normal mature organ.

The Uterus Foetalis.—The development of the uterus may be arrested in the fetal, or embryonic, stage, in which case it possesses the characteristics already described for the fetal uterus. This so-called uterus foetalis (uterus embryonalis, uterus rudimentarius) is made up almost entirely of cervix, the

fundus being extremely rudimentary. As a matter of fact, it may be almost impossible to distinguish any differentiation into two segments. The uterocervical canal is either straight or slightly antecurved. Ante flexion is uncommon at this stage. The characteristics of this type of uterine hypoplasia are well shown in Figure 4.

The Uterus Infantilis.—This term, strictly speaking, should be restricted to the uterus whose development has been arrested during the period of infancy or childhood, for as has been shown, the infant uterus does not differ materially in form from that of the child up to the age of puberty. The cervix still definitely predominates over the corpus, but the two are now clearly differentiated. The fundus is much better developed than in the infantile uterus, and its walls are also somewhat thicker. It still lacks, however, the broad convexity that is characteristic of the mature uterus. Ante flexion is a common but by no means invariable finding, the angle of flexion being always within the limits of the isthmus (Fig. 5). The ante flexion is usually of the cervicocorporeal type, the small conical cervix

pointing downward and forward in the axis of the vagina, while the fundus is bent forward on the cervix, often at a very acute angle. Hegar divides infantile uteri into two principal groups: 1. Those in which the uterus possesses the infantile characteristics above enumerated, especially as concerns the predominance of the cervix, but in which the organ is of normal size. This type he calls "the uterus infantilis nonhypoplasticus." 2. Those in which the size and shape of the uterus are infantile, the so-called "uterus infantilis hypoplasticus."

The Uterus Subpubescens.—In some respects the most interesting forms of uterine hypoplasia are those



Fig. 2.—Sagittal section of pelvis of infant of 9 months. The division of the uterus into cervix and corpus is clear, the former still greatly predominating. Note also the ante flexion of the uterus.

8. Gudernatsch: Am. Jour. Anat., 1914, 15, 431.

of mild degree—those in which the inhibition of development does not assert itself until the prepuberal period. The difference between the uterus of this type and the normal pubescent organ is often slight, so that the designation of this group as “subpubescent” would seem fitting. When the ovarian influence, so important at puberty, is tardy in its appearance, the fundus remains undeveloped; that is, there is a persistence of the infantile type already described. In other cases, again, the anatomic defect of the fundus may be very slight, so slight as to be scarcely appreciable clinically. All possible grades of hypoplasia may be distinguished between these two extremes. As in the infantile group, anteversions are very common and are usually of the cervicocorporeal variety (Fig. 6).

CLINICAL CHARACTERISTICS OF UTERINE HYPOPLASIA

Both of the two great functions of the uterus—menstruation and reproduction—are profoundly influenced in the various forms of uterine hypoplasia. As regards the effect on menstruation, we may distinguish two groups of cases. In one type, which may be spoken of as the “amenorrheic,” the predominant symptom is amenorrhea or scanty menstruation, with little or no dysmenorrhea. In the second group, on the other hand, the conspicuous symptom is dysmenorrhea, the amount of flow being most frequently scanty, but sometimes being normal or even excessive. This second type may be designated as the “dysmenorrheic.” No sharp dividing line can, of course, be drawn between the two groups, the symptoms often overlapping to a certain degree.

The amenorrheic syndrome is constant in the extreme forms of uterine hypoplasia, such as uterus rudimentarius. Furthermore, it is often observed with the infantile uterus. On the other hand, menstruation may be normal, or perhaps even excessive, in those cases in which the fundus is only slightly subnormal. Secondarily, of course, amenorrhea may be observed even in large, well developed, and perhaps multiparous uteri, as in the well known Fröhlich's syndrome, which is due to hypopituitarism. Were it possible to exclude in any way the influence of the various extragenital endocrine bodies, which, of course, is not the case, the development of the uterine body could be looked on as, in a general way, an indication of ovarian activity. Certainly, as has already been emphasized, it is the fundus and not the cervix which is functionally linked with the ovaries.

Dysmenorrhea is observed far more frequently in the milder degrees of hypoplasia than in very rudimentary uteri. The reverse is the rule with amenorrhea, which is always seen with the rudimentary type of uterus, but is often lacking in the slightly subnormal. Always remembering, of course, that we are dealing with only the primary types of amenorrhea and dysmenorrhea, the conclusion seems warranted that, as a symptom, amenorrhea is indicative of a greater degree of hypoplasia than is dysmenorrhea.

The clinical manifestations of congenital hypoplasia may be conveniently studied under two headings: (1) symptoms associated with the menstrual function, and (2) those associated with the reproductive capacity.

The Menstrual Symptoms.—Retarded Puberty: In many cases of uterine hypoplasia, as observed in the adult woman, inquiry reveals that menstruation was inaugurated at a period much later than usual. Instead of appearing at the age of 13 or 14 years, the function in many of these cases is established perhaps as late as 17 or even 19. If the age of puberty is very much retarded, and especially if retardation of the menstrual function is associated with absence of such secondary sex characteristics as development of the breast or the appearance of hair over the mons and in the axillae, congenital hypoplasia is usually only a local manifestation of a general underdevelopment, the result of a more or less profound endocrine disturbance.

Amenorrhea or Scanty Menstruation: Menstruation is much more likely to be deficient than excessive in cases of uterine hypoplasia. This, as has already been emphasized, is especially true of the more advanced grades. I have reviewed the histories of sixty cases from this point of view. The cases in this series included uteri that were described by such terms as “infantile,” “small and anteverted,” etc. It was probably made up chiefly of uteri of the infantile and subpubescent groups. A subdivision was made into those in which the menstrual flow was scanty and those in which it was not deficient, that is, those in whom, as far as could be judged from the patient's own statement, the amount of flow was either moderate or profuse. In thirty-eight cases menstruation was scanty, in twenty-two it was either

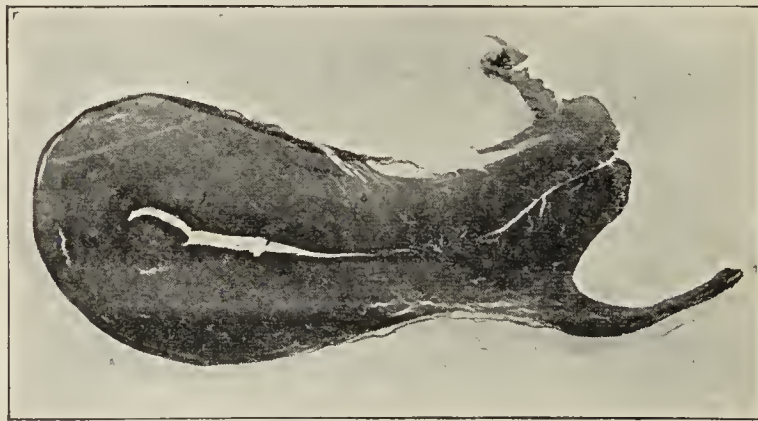


Fig. 3.—The uterus of a girl of 14, showing the great development of the corpus uteri at puberty. Note the convexity and the thick walls of the fundus.

moderate or excessive. The findings in this small series of cases, in spite of the crudity of the method of study, are nevertheless in accordance with general experience. In the marked cases of uterine hypoplasia, in which amenorrhea is practically always seen, there is usually associated with it a greater or less degree of constitutional change, most commonly adiposity. This syndrome—sexual hypoplasia and obesity—is the same as that which is so characteristic of the acquired condition, which is now so clearly recognized as “adiposogenital dystrophy,” or Fröhlich's syndrome. Like the latter, it is probably due to a hypopituitarism, one condition being congenital and the other being acquired. In the less severe forms of hypoplasia, menstruation may not be altogether absent, its rhythm and amount being in a general way indicative of the degree of hypoplasia of the uterus. As to the cause of the amenorrhea in these cases, three factors must be considered:

1. Endocrinopathies of one form or another, involving especially the ovary or the pituitary, may furnish the responsible factor.
2. The small area of the endometrial surface may explain the menstrual deficiency. Since the menstrual blood has its source in the endometrium,

it is easy to understand how a lessening of the latter may, other things being equal, lessen the amount of menstrual blood lost, just as the increase of the endometrial surface in cases of adenomyoma of the uterus may cause excessive menstrual bleeding.

3. It is possible that the anatomic defect in the uterus may be associated with a defect in the physiologic function of the endometrium. As I have elsewhere emphasized, the endometrial hyperemia evoked by the ovarian hormone is not in itself sufficient to explain the bleeding of menstruation. Such an idea would be foreign to our conception of the nature of hyperemia, which is never associated with any such wholesale exodus of blood elements from the vessels to the surrounding tissues as is seen in the course of menstruation. It seems essential to assume that some local physiologic factor in the endometrium must be responsible for the increased permeability of the blood vessels, which allows of this menstrual migration of blood corpuscles from the vessels. While little scientific evidence can as yet be brought forth to support the idea, it is possible that the amenorrhea in cases of uterine hypoplasia is due to a deficiency of this local physiologic factor.

Dysmenorrhea: The existence of even extreme grades of hypoplasia of the uterus, with the amenorrheic clinical syndrome already described, is not incompatible with perfect health and well-being. On the other hand, the milder forms of hypoplasia are often associated with spasmodic dysmenorrhea of so severe a grade as to wreck the physical and nervous constitution of the patient. As a rule, this type of menstrual pain makes its appearance a day or two before the actual onset of the flow, continuing usually until the latter is well established. It is commonly described as cramplike or colicky, differing from the congestive type of dysmenorrhea in that the latter is usually dull, aching and constant. Examination of patients suffering with spasmodic dysmenorrhea often reveals that the uterus is not only hypoplastic but also anteфлекed; hence, it is not surprising that the anteфлекion is usually held responsible for the menstrual pain. As a matter of fact, it was this frequent association of anteфлекion and dysmenorrhea that led Mackintosh, as far back as 1836, to urge the importance of mechanical obstruction in the uterine canal as the cause of dysmenorrhea: "Nulla dysmenorrhea nisi obstructiva," as Marion Sims put it.

Evidence is accumulating, however, to show that the uterine flexion and the dysmenorrhea are not to be looked on in the relation of cause and effect. As many cases of primary dysmenorrhea are observed without anteфлекion as with anteфлекion. Furthermore, it is common to find even sharp anteфлекion without dysmenorrhea. Herman⁹ states that fully one half of all nulliparous women have anteфлекed uteri, so that it is not at all surprising that dysmenorrhea and anteфлекion often coincide. Finally, it has been shown that in dysmenorrheic women in whom there is also an anteфлекion of the uterus, a probe can easily be passed into the uterine canal during the height of the menstrual pain, indicating the absence of any actual

obstruction. The proof seems quite convincing that, while anteфлекion and dysmenorrhea often coexist, there is no direct relationship between them.

As to what is actually the cause of the spasmodic dysmenorrhea so frequently observed in young women with defective uterine development, we are unfortunately not in a position to speak with any degree of certainty. I have elsewhere recorded studies indicating that the endometrium of hypoplastic uteri exhibits the usual menstrual cycle of histologic change seen in normally developed uteri.¹⁰ In the paper referred to I suggested that the hypoplasia involves the uterine musculature more than it does the mucosa, and that the dysmenorrhea may be due to the inability of the endometrium at the time of menstruation to be accommodated within the undersized uterine cavity. The uterine muscle is thereby excited to cramplike contractions in an effort, as it were, to expel its own endometrium. This conception would seem to be borne out by the fact that the menstrual pain in these cases is usually relieved as soon as the menstrual flow is well established, that is, as soon as the swelling of the endometrium diminishes.

Sterility.—As to the cause of the sterility that is observed so frequently in connection with hypoplasia of the uterus, it is difficult to believe that the small size of the uterus or any histologic peculiarity of its mucosa has any important bearing on this matter. If an impregnated ovum can implant itself on the wall of the fallopian tube, which is certainly not adapted for gestation purposes, there would seem to be no anatomic reason why it should not take root in even a very rudimentary uterus; and yet this never happens. In an indirect way, at least, it can be shown that the ovaries may function normally in cases of uterine infantilism, so far

as the menstrual process is concerned.¹⁰ It would seem probable, therefore, that the bar to conception must lie within the uterus and probably within the mucosa. Since the latter is histologically normal, we must apparently explain the sterility as a manifestation of pathologic physiology, rather than pathologic anatomy.

There is now a fairly general acceptance of Fraenkel's view that the corpus luteum, in addition to its menstrual function, is also of importance in maintaining the fixation of the ovum in the early part of pregnancy. It is possible, therefore, that in these cases of genital hypoplasia this local factor in the endometrium is lacking, preventing the implantation of the ovum. Adler's work¹² indicates that the presence of this important local element, whether hormone or enzyme, is dependent on corpus luteum activity, so that, in the final analysis, sterility of this type can perhaps be explained as due to disturbances of the endocrine system.

TREATMENT

What little I shall have to say about treatment will be limited largely to comments on the methods in vogue at present. The treatment of hypoplasia of the uterus is unsatisfactory, because it cannot in the present state of our knowledge be directed to the underlying cause of the condition. As has been brought out, the

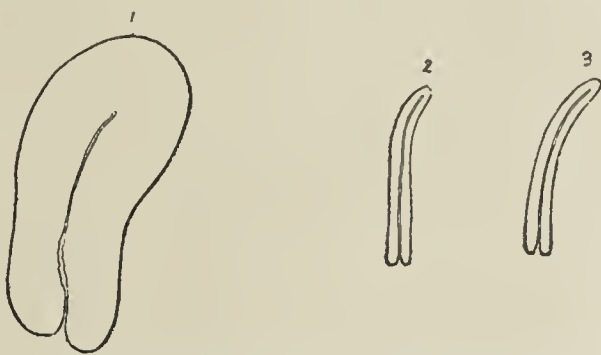


Fig. 4.—Illustrating the fetal type of uterine hypoplasia, (2) and (3), as compared with the normally developed uterus (1).

9. Herman: Brit. Med. Jour., 1909, 1, 937.

10. Novak, Emil: Surg., Gynec. and Obst., 1915, 21, 336.

12. Adler: Arch. f. Gynäk., 1912, 95, 349.

defective development of the uterus in these cases is almost surely due to some form of endocrine disorder. Which of the ductless glands are concerned, what the nature of the disorder is, and how best to correct it—all these are problems still unsolved.

Organotherapy has, of course, already been resorted to by many on the slim basis of the few facts that seem fairly well established. Ovarian extracts of one form or another, either of the whole organ or of the

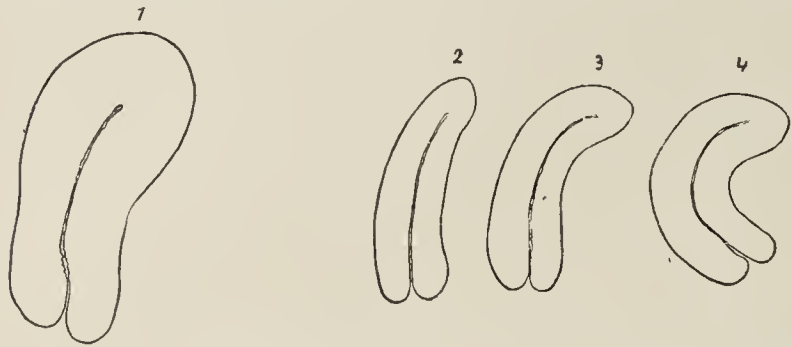


Fig. 5.—Types of infantile uteri (2, 3 and 4), in comparison with the normal uterus (1). In all the cervix predominates over the corpus. In 3 is shown a moderate corporeal antelexion, while 4 illustrates the more characteristic cervicocorporeal antelexion. In some cases the cervix is normal, in others long and conical, with pinhole os. Uteri of infantile form may be of practically normal size.

corpus luteum alone, have been given either by mouth or hypodermically. Important as the corpus luteum is in menstruation, and valuable as its administration may be in certain menstrual disorders, I know of no evidence indicating that this structure plays any part whatsoever in the development of the uterus. As a matter of fact, developmental defects of this organ commonly arise long before puberty, that is, long before corpora lutea are found in the ovary. It seems justifiable to conclude that if organ extracts are to be given in cases of uterine hypoplasia, the ones to be chosen are extract of the whole ovary or extracts of other ductless glands that probably play an important part in the early growth of the genital canal. Pituitary extract suggests itself in this connection, as well as the still unsatisfactory extracts of the pineal and thymus bodies. Suffice it to say that this method of treatment has been carried out by various workers, with very little success. Failure does not, however, necessarily invalidate the correctness of the theories on which this treatment is based. It is far more likely to be due to the imperfection of our knowledge as to the active principles of the various ductless glands and of the technic of preparing extracts for clinical use. Much might be said in the discussing of this one point, but there is little doubt that the persistent groping of clinicians and laboratory investigators will sooner or later lead us into the light. The type of hypoplasia may be of some importance in suggesting the plan of treatment. Theoretically, ovarian extracts would seem to be indicated especially in the subpubescent group, while pituitary extracts suggest themselves in the treatment of the fetal and infantile type of uteri.

Aside from this as yet undeveloped plan of treatment by organ extracts, the treatment of uterine hypoplasia presents a more or less composite problem, being really directed to the treatment of a whole group of symptoms and allied disorders, especially amenorrhea, dysmenorrhea and sterility. One or more of these clinical manifestations usually brings the patient to the physician for treatment, as without them she would be ignorant of the existence of the hypoplasia.

Unfortunately, amenorrhea is often treated by practitioners of medicine as if it were a disease in itself, rather than a mere symptom. Unlike excessive menstrual bleeding, the cause of amenorrhea is far more frequently constitutional than local. In the amenorrhea of uterine hypoplasia, however, we have to deal with a local anatomic defect in the genital system, although this is quite possibly secondary to a constitutional endocrine disturbance. At any rate, little benefit can be expected from hematinics and emmenagogues, so often prescribed in these cases. The administration of the latter is especially to be decried. How a drug supposedly causing merely a pelvic hyperemia can be expected to establish such a regularly recurring physiologic process as menstruation, I have never been able to understand.

As for the treatment of the dysmenorrhea so frequently associated with hypoplasia of the uterus, this also must be looked on as leaving much to be desired. During the actual attack, treatment is, of course, directed to the relief of the menstrual pain. The two drugs most effective for this purpose are the two that for obvious reasons are especially to be avoided, morphin and alcohol. Taken all in all, the drug that has in my experience given the best results in most cases—other than the two I have just mentioned—is atropin. This method of treatment, which I have described elsewhere,¹³ is based on very rational principles, and its results, while not constant, are better than those yielded by any other drug treatment of which I know.

Not infrequently, the aid of surgery is invoked in the effort to relieve the intense suffering of primary dysmenorrhea. The operation most commonly done is that of dilatation of the cervix. Formerly, this was, as a rule, accompanied by curettage, but now, happily, it is seldom that we scrape away the perfectly normal endometrium which is practically always found in these cases. There is neither reason nor advantage in doing so. Holden's study¹⁴ of the results of dilatation of the cervix in ninety-five cases of primary dysmenorrhea treated in the Gynecological Clinic of Johns Hopkins is far from encouraging. Forty per cent. of the patients were relieved for as much as one year, 7 per cent. of these suffering a later recurrence; 30 per cent.

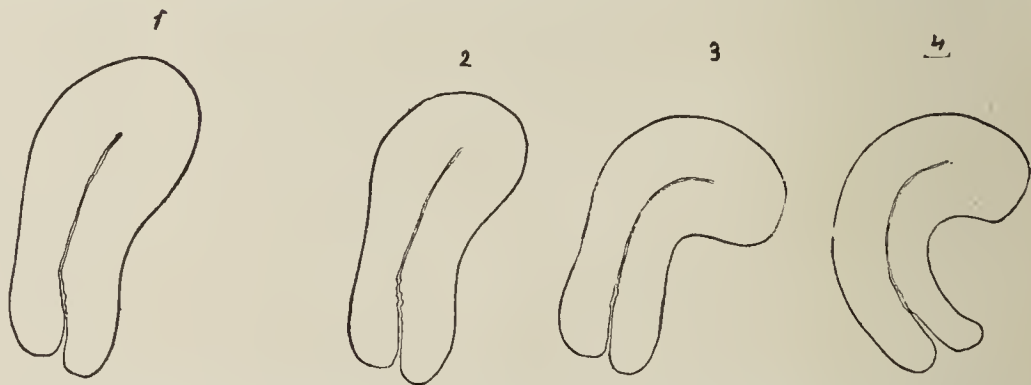


Fig. 6.—Types of subpubescent uteri, showing only slight differences in size and form from normal uterus (1). In 3 and 4 are shown, respectively, corporeal and cervicocorporeal antelexion. Drawings in Figures 4, 5 and 6 by Miss Ethel Norris.

exhibited slight or temporary improvement, while the remaining 30 per cent. were in no way benefited by the operation. These figures, I believe, will about represent the experience of most gynecologists.

The employment of the stem pessary, so enthusiastically advocated by Carstens and others, is based on the idea that the pessary, by causing expulsive efforts

13. Novak, Emil: The Atropin Treatment of Dysmenorrhea, *THE JOURNAL A. M. A.*, Jan. 9, 1915, p. 120.

14. Holden: *Am. Med.*, 1905, **10**, 776.

on the part of the uterine muscle, exercises the latter and causes an increase in the development of the uterus. This plan of treatment is not without danger, as I myself have seen several cases of troublesome endocervicitis following the use of the stem pessary. To judge from the reports in the literature, however, the results are better than those following simple dilatation. As for the various plastic operations on the cervix that have at different times been advised for the relief of dysmenorrhea, such as those of Sims, Dudley, Pozzi, or that recently described by Frank, I can see absolutely no excuse for their performance. All of them are based on the erroneous impression that the dysmenorrhea is due to cervical stenosis; and all of them should, therefore, be abandoned.

Much of what has been said by way of criticism of the present-day treatment of dysmenorrhea applies also as regards the sterility so frequently observed in the same group of patients. Dilatation with or without the subsequent use of the stem pessary, as well as plastic operations of one form or another, have been resorted to in an effort to relieve the sterility, with results even less gratifying than in the case of the dysmenorrhea. The reason for the failure of this method of attacking the problem lies in the fact that the sterility, as has already been discussed, is most likely due to a physiologic defect in the endometrium, that is, the absence of some factor essential to the implantation of the ovum. Here again we hark back to disorders of the internal secretory system as the ultimate cause. This, after all, is the conviction borne in on any one who studies this general problem, whether or not he be a ductless gland enthusiast or "faddist"—the conviction that the day will come when these very numerous cases of primary amenorrhea, primary dysmenorrhea and sterility, which are associated with uterine hypoplasia, will be successfully treated by correcting the endocrinopathy responsible for the uterine defect.

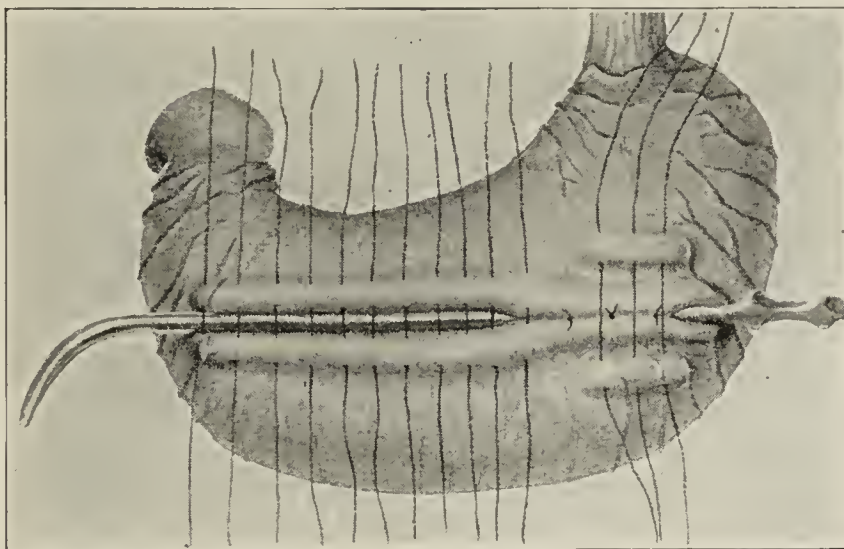


Fig. 1.—Plication of stomach; first line of sutures in place, three tied; three of second line in place.

Utility of Birth Statistics.—The enforcement of legislation for the registration of births and the creation of a sentiment among all classes for the recording of proper vital statistics would, if undertaken at the present time, place us in the position of being able during the approaching census year to measure accurately the mortality among infants throughout the country. Not only should our efforts be confined to a complete registration of births but also to the necessity of more accurate statements of the causes of death on certificates of infants under 1 year of age. Certificates bearing as a cause of death such indefinite statements as marasmus, inanition, asthenia, convulsions and prematurity should, if not tabued, at least be queried as to underlying causes. With a complete registration of births many problems now occupying the public mind can be more intelligently discussed, such as illegitimacy, comparative fecundity of various race-stocks, the effects of hazardous occupations of parents on their generative faculties, and the determination of the ages of greatest fecundity.—W. H. Guilfooy, M.D., Tr. Am. Assn. for Study and Prev. of Infant Mortality.

VISCEROPTOSIS

A NEW OPERATION FOR ITS RELIEF *

J. RIDDLE GOFFE, M.D.

President, International Congress of Obstetrics and Gynecology; Professor and Attending Gynecologist, New York Polyclinic Medical School and Hospital; Consulting Surgeon, Woman's Hospital
NEW YORK

The vicious consequences of visceroptosis, both immediate and remote, are so manifest and so generally accepted by the profession that they need no amplification. The etiology is referred to congenital influences, the lack of proper early training and development, and to careless, indolent habits of standing, sitting, walking and general carriage of the body in all its attitudes. The condition per se may mechanically produce localized pain and distress and interfere deleteriously with nutrition by retention of food in the stomach and by constipation or stasis of the alvine current in its course through the intestine. The only satisfactory etiologic factor that explains the ulterior complex symptomatology is to be found, however, in the little mischief makers that generate ferments and toxins

which, circulating in the blood, poison the nerve centers and the brain.

The neurologists go even further than this. They do not admit that it is necessary to await the appearance of ptosis to afford habitat for noxious bacilli, microbes or parasites—even Glénard referred to a period preceding ptosis and claimed that toxins of alcohol, fermenting food and the puerperium, of typhoid and malarial infections, traumas and even emotions of fright and cha-

grin, all or any one, acting through the autonomic or sympathetic nervous systems might be basic factors in causing structural changes in the viscera and their malposition in the abdominal cavity. This *a priori* theory of Glénard's has, since the establishment of the microbe theory of disease, been satisfactorily confirmed by physiologic experimentation. These structural changes cause stasis in the alvine current which, in turn, affords additional facilities for development of increased supplies of toxins; these, carried to the autonomous nerve centers, intensify in turn the deleterious changes in the viscera. Thus is established the vicious circle, or syndrome. In its complete form it includes the gastrointestinal disturbances arising secondarily in the viscera; the pains in the abdomen due to organic changes in the viscera; kinking and other distortions in their walls; pressure on the nerve ends; the referred pains in other parts of the body; the crisis, accompanied

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

* Because of lack of space, this article is abbreviated in THE JOURNAL by the omission of sixteen case reports and four roentgenograms. The complete article appears in the Transactions of the section and in the author's reprints. A copy of the latter will be supplied by the author on request.

by nausea, vomiting and collapse; and the neuropathic mental state of the patient, with its depressions, its querulousness, its maladjustment to environment and its great susceptibility to fatigue.

The ptosis not only causes a retardation of the alvine current—a stasis—due to redundance, persistent dilatation, sharp angulation and kinks and adhesions that necessarily attend the displacement and the opposition of gravitation to the reversed direction of the current, but also subjects the vertebral ganglions and their connections to torsion, pressure and stretching, while absorption of the toxins overwhelms the sympathetic system, and perchance the brain centers as well.

TREATMENT

Four forms of treatment are to be considered and are indicated in this class of cases: (1) the skill of the internist, with all his resources to eliminate the toxins; (2) the physical culture expert with his gymnastic exercises, his postural treatment, his belts, his corsets and his high heeled shoes; (3) surgical treatment to restore normal position, relieve obstructive angulation, false adhesions, and pressure and drag on the sympathetic ganglions; and (4) neurologic treatment to relieve the depressive emotional disturbances. This does not necessarily imply four distinct specialists but, rather, one broad minded surgeon who embraces them all, and should with reasonable cooperation on the part of indicated specialists actually be able to handle the different phases of treatment in the majority of cases.

The postural, gymnastic and corset treatment is a most excellent prophylactic in early life in patients exhibiting a constitutional hereditary predisposition, what Steller calls the *habitus enteroptoticus* of *asthenia universalis congenita*, that is, patients with forward protrusion of head and chin, long arms, thin neck, narrow elongated chest, sloping shoulders, lack of adipose, flat abdomen and pot belly. A strict regimen, such as described by Reynolds and Franklin Martin, persistently carried out and continued for years will correct much and prevent more; but the rub comes in carrying the patient along to the sticking point beyond which relapses may not occur. It is a tiresome, discouraging job for both patient and physician.

When the patient has reached the stage of actual ptosis of stomach and colon, in which angulations have become obstructive and adhesions have formed, nothing can avail but surgical interference. The extreme colectomy of Arbuthnot Lane is rarely indicated unless we accept the teachings of Reed that therein lies the final efficient corrective for epilepsy. But certainly nothing is more rational than the relief of obstructive angulations, adherent kinks and painful

pressure by the permanent restoration to normal position of the overstretched, tired out, devitalized structures. Many methods have been devised to accomplish this end, some of which have stood the test of time and have apparently become standardized. It is not my purpose to go into an analytic discussion of them or indulge in comparisons. My mission is to present a method which I have evolved in dealing with cases of visceroptosis. It has been put to a sufficient test, I think, to make it worthy of consideration.

My first experience was gained in 1889:

CASE 1.—A woman about 25 years of age, an expert stenographer and typewriter, a nervous dyspeptic and neurasthenic wreck, had a ptosed and dilated stomach. After treating her medicinally and washing out her stomach morning after morning before breakfast for weeks and months without much improvement, she announced to me one day that she was tired of treatment and ready for the operation I had discussed with her some weeks previously. Accordingly she went to the Polyclinic

Hospital and was made ready for the operation. Through a free incision above the umbilicus, I plicated the anterior wall of the stomach, parallel to the long axis. Just above this line two sutures were passed perpendicular to it through the peritoneal and muscular wall of the stomach. Both ends of each suture were then carried up through the peritoneum and fascia of the abdominal wall, but not the skin, and made to appear, each on its own side, in the upper angle of the abdominal wound. After the closure of the peritoneum the two ends of each suture were tied, cut short and buried in the closure of the abdominal incision. I had heard Dr. Emmet tell many a time, during my service at the Woman's Hospital, of suspending the woman slaves of the South between trees in hammocks with their heels higher than their heads for the relief of prolapse of the uterus. It occurred to me that this

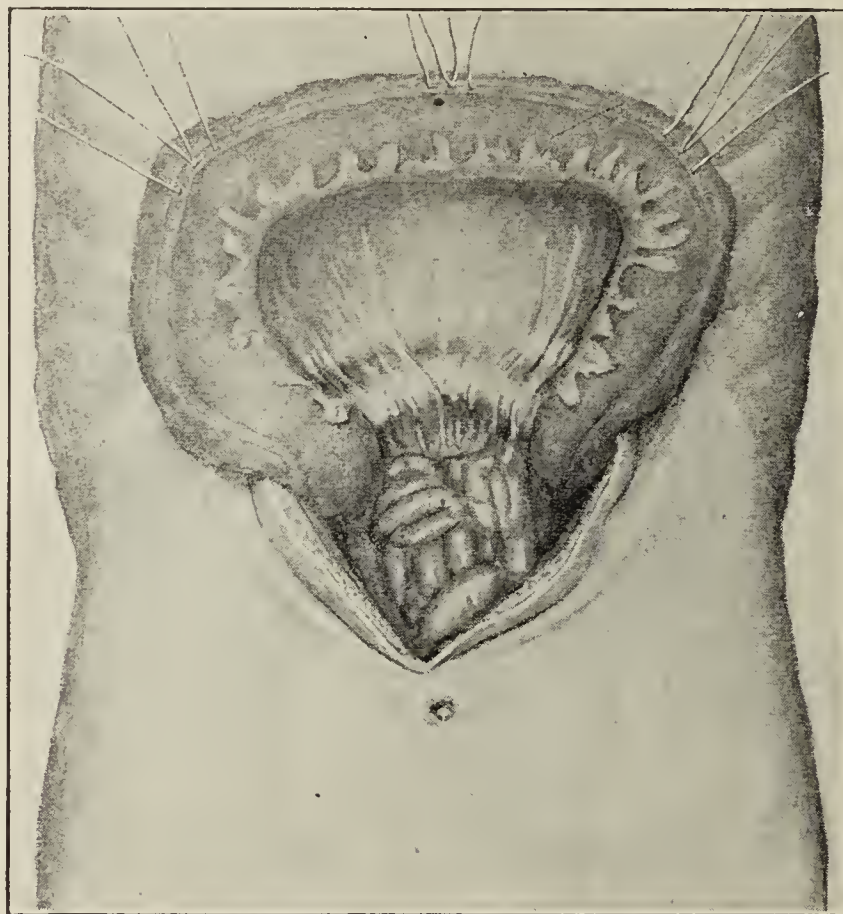


Fig. 2.—The sutures as applied to the colon.

posture would assist in taking the strain off the stomach sutures, and when the patient was put to bed, the foot of the bed was elevated by a chair placed under the foot, thus securing what is familiarly known as the Trendelenburg posture. This was maintained for two weeks, when the bed was gradually lowered to normal at the end of three weeks, the patient leaving the hospital at the end of the month.

Perfect success attended the procedure. The patient gained flesh and nerve power, returned to her work in three months, and continued it successfully while under my occasional observation for several years.

AUTHOR'S METHOD

From this experience I gradually evolved the method I now employ. This description embraces the complete operation in which both stomach and colon are involved in extreme ptosis and adhesions. Of course, not all the steps described are indicated in every case.

A longitudinal or transverse incision is made below the umbilicus. Through this adhesions are severed, the organs

set free, the appendix removed, the caput, if overdilated, plicated; the uterus, which is frequently found displaced, restored to normal position and supported there, and, if necessary, the appendages dealt with as indicated. The incision is closed.

A longitudinal incision is then made above the umbilicus through which the upper abdominal cavity is thoroughly explored with the hand, note being made of the condition of the liver, its ligaments, the gallbladder and ducts especially. Any pathologic conditions discovered are dealt with according to indications, new incisions being made or the original one enlarged if necessary.

The stomach is then delivered through the wound, and inspected and palpated for ulcers and pyloric irregularities. If dilated, the anterior wall is depressed with a sound along the middle line, and over this the stomach wall is plicated in a double row of linen sutures. In a line just above or below this, and midway between the extremities of the stomach, two or more linen sutures are threaded along in the stomach wall, including the peritoneal and muscular coats, each one being buried for from one-half to three-fourths inch. The stomach is returned to the abdominal cavity. The sutures

still untied are left long and protruding from the wound, wrapped in sterile gauze. The transverse colon is now delivered through the wound, the omentum ligated along the border of the intestine and cut away. The hepatic flexure is picked up and two sustaining linen thread sutures are threaded along in its walls similar to those in the stomach, left long and protruding through the wound and protected by sterile gauze. Next the splenic flexure is exposed and treated similarly, and finally the transverse colon at its middle section. These sutures are all passed either just below the attachment of the mesocolon or in the broad band of the colon. The latter is firm and holds well, and is to be preferred when the colon wall is distended and thin. Three incisions, $2\frac{1}{2}$ inches long, are now made through the skin down to the deep fascia, one parallel to the border of the ribs over the seat of the splenic flexure, another corresponding to this over the

hepatic flexure at a slightly lower level, and a third, a transverse incision, at the midline over the stomach. The long sutures are threaded singly into a Peaslee needle, passed successively into the abdomen through the abdominal wound and brought out in the bottom of the skin incisions previously described. First the stomach sutures are passed emerging in the midline incision, the stomach restored to normal position, and the sutures drawn taut, tied and cut short. The three pairs of sutures in the colon are successively passed in the same way, each pair in the three designated loci of the colon being directed to the incision in its corresponding location. All the sutures are drawn taut to straighten out the intestine and make intimate contact between the intestine and the parietal peritoneum, and then tied externally to the fascia in the bottom of the incision and cut short. The three incisions are then closed with a subcuticular catgut suture and sealed with sterile collodion.

It will be observed that the fixation sutures of the stomach and transverse colon are brought out through the same incision. When both organs are to be attached, the fascia in the bottom of the wound is laid bare for half an inch above

and below the middle of the wound and the respective sutures passed at the extreme limits of the denuded space, the stomach sutures above and the colon sutures below. The two sutures composing the various pairs are threaded along in the walls of the viscera in the same line and about one-fourth inch apart. I have thought it advisable in some cases to link these sutures together, thus converting them into a figure of eight suture. This distributes and equalizes the tension over a broader area and diminishes the tendency to cut. The abdominal wound is closed in the usual three layer method. Adhesive plaster and bandages are applied moderately tight and the foot of the bed kept elevated from 6 to 18 inches, according to the tolerance of the patient.

REPORT OF CASES

Including the first case already reported, I have subjected, in all, seventeen women to this operation in one or more of its phases and attended with various complications, with fifteen satisfactory recoveries, some of them quite phenomenal, one unsatisfactory, and one death as a direct result of a complication,

modification or supplemental procedure. All of them had suffered for years from obstinate constipation, loss of flesh and strength; some of them were broken down neurasthenics; two had ptosed kidneys (one tuberculous), one a ptosed liver, and others displaced uteri and diseased appendages. Diagnosis was made from history and symptoms, palpation and percussion, confirmed in some instances by the roentgen ray. In one or two instances the conditions were discovered on opening the abdominal cavity for diseased uterine appendages and displaced uteri. Four patients were between 20 and 30; nine between 30 and 40; three between 40 and 50, and one, 59.

Nine were housewives; three, stenographers; two, servants; three had no occupation except social duties (two of them were daughters of physicians.)

Suppuration of the sustaining sutures occurred in two cases.

One of these patients was a little, thin, poorly nourished, nervous woman with household cares; she had two little boys, and her husband was a newspaper reporter. The walls of the stomach and the intestine were stretched out and thin. The sutures doubtless pierced the lumen of the intestine or stomach, and infection arose from the contents. I removed about half of them one after another at my office during the three months following the operation. Attachment and support, however, were perfectly maintained. Four years later all organs were found in place, the patient had gained 15 pounds, and she pronounced herself perfectly well and equal to all her duties. She has reported at my office within the past month and confirms all I have said.

The patient that died (Case 12) had a most unusual elongation of the transverse colon, and after all the sustaining

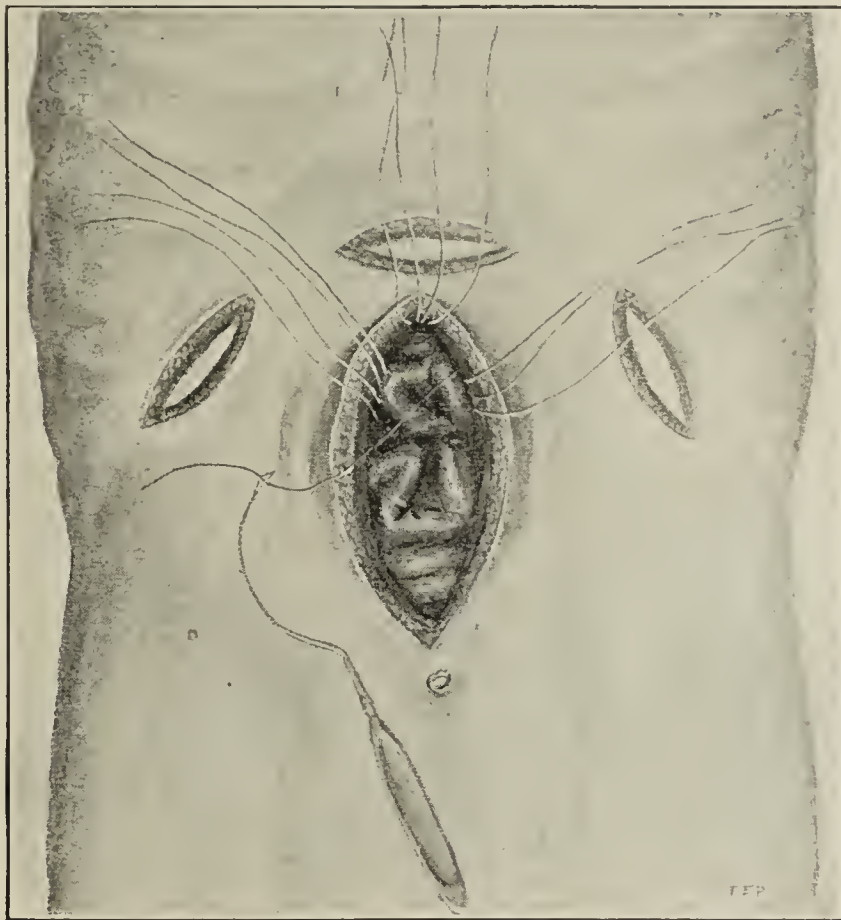


Fig. 3.—The colon has been returned to the abdominal cavity. The Peaslee needle has been threaded with one end of first suture ready for passage through abdominal wall.

sutures had been placed and those at the two flexions drawn taut, the transverse portion looped away down below the umbilicus. It could not be drawn up into place at the middle point without great reduplication and kinking. That seemed to nullify all my work and if possible aggravate the original condition. I therefore resected about 8 inches of the middle section of the transverse colon, making an end-to-end anastomosis. These stitches unfortunately did not hold. There was leakage and in spite of all I could do the patient died of sepsis.

ABSTRACT OF DISCUSSION

DR. C. A. L. REED, Cincinnati: In enumerating the causes of visceroptosis, Dr. Goffe failed to mention that which I have found to be the most frequent cause—trauma of the abdomen. A heavy weight falling suddenly on the relaxed abdominal wall is apt to produce severe ptosis which is persistent. Another frequent cause is occupational in character operating in the case of women who are subjected to long standing or heavy lifting under conditions involving relaxation of the abdominal wall. In referring to the different forms of treatment, Dr. Goffe said we must exhaust the resources of the internist. It is perfectly proper to do this when it is shown that the problem is one for the internist, but in a case distinctly impossible of recovery from such treatment why trifle with medicinal means? The gymnastic line of treatment is very good, but the passive treatment is to be regarded as one of constructive and preoperative methods. Assuming once or twice a day the Trendelenburg position, to which Dr. Goffe has referred, with deep massage of the abdominal wall, working everything toward the waist line, is of value in keeping off the ultimate results because it does relieve the mesentery circulation of its most serious complication. Reference has been made to the bacterial evidence which exists, and I would call attention to the researches made within the last year demonstrating an anaphylatoxin germinated by blood stasis. The splendid results obtained from this fixation operation are due to the liberation of the fecal current, restoration of the normal function of the bowel. We have liberated the static blood of the mesenteric circulation and have thereby removed the cause of the anaphylatoxin factors coming from that source.

DR. NATHAN ROSEWATER, Cleveland: I have had excellent results in the medical treatment of numbers of these patients, so that they never have required operative interference. I refer to the use of adhesive plaster bandages without operation. The results obtained proved that engorgements into the cranial and thoracic cavities could result from spanchnoptosis and might be restored by attention to the originating cause. Such results in all my cases for the past twenty years make me doubt the necessity for operation, except where all else has failed.

DR. W. T. REYNOLDS, Kansas City, Mo.: Dr. Goffe's paper has again brought up the question of what we shall do in these cases of visceroptosis. The modern fluoroscope has made it possible for us to observe these conditions in all their different phases, and one is certainly impressed with the posi-

tion of the colon (especially the transverse) and the stomach. As one watches the movement of the stomach and the colon he at once questions the advisability of any sort of fixation operation. I believe Rovsing's classification of maternal and virginal visceroptosis is one of the best. In operating on women with large uterine fibroid I have often found the transverse colon lying down near the pubes without giving rise to untoward symptoms. I am convinced that only a small percentage of cases with visceroptosis are ever treated, and those who apply for treatment are of that distinct type, the undernourished. Belts no doubt have their place in the treatment of these cases, but, after all, forced recumbency and feeding with the hope that they will accumulate fat on the inside of the abdominal cavity is most important.

DR. A. H. AARON, Buffalo: I have seen a great number of these cases of ptosis and have been impressed with the lack of the tone of the muscles and tissues of the abdominal wall and the contained organs. The abdominal bandage, if properly applied, is curative in the great majority of these cases. You yourself must put the bandage on and see that it relieves the condition as intended, and you must study the cases fluoroscopically at various intervals of time to determine the efficacy of the support. It is desirable to treat the patient constitutionally with rest, abdominal support and forced feeding for a number of weeks, when the tissues will be improved to such an extent that the patient is in better condition for an operation if this is indicated. A greater number of these cases are medical before operation and essentially medical after operation.

DR. J. RIDDLE GOFFE, New York: I spoke of the gymnastic treatment as prophylactic. I have not found that it does much good as a cure. My experience with the abdominal belt is that in ninety-nine cases out of a hundred the kidney will slip down under it. The patient is then worse off than before. The gentlemen who have spoken of the advantage of the belt apparently have had unusual success with it, but

this is not in accord with my experience or with my observation.

Convulsions.—There are two features which, together, cooperate in producing the symptom which we call a "convulsion." One of these we may call the chemical factor; the other the mechanical. The one, the chemical, acts in producing edema of the brain, which so long as there is a sufficient blood supply shows itself in headache, moderate dilatation of the pupils, and other changes which are suggestive of more serious symptoms which are convulsive depending on the amount of blood that reaches the swollen central nervous system. The amount of blood reaching the brain depends on the difference between the intravenous pressure and the intracerebral pressure. As long as the cerebral swelling is not great enough to bring the difference in intravenous and intracerebral pressure too close to zero a convulsion does not occur. Also as long as the intravenous pressure remains enough above the intracerebral pressure to adequately supply the brain with blood, the convulsion will not occur.—*Journal of Laboratory and Clinical Medicine.*



Fig. 4.—Point of Peaslee needle appearing with first suture in abdominal wound. It is unthreaded, the needle is withdrawn, and the same process is repeated with balance of sutures.

THE USE OF SODIUM BROMID IN
ROENTGENOGRAPHY *

E. H. WELD, M.D.

ROCHESTER, MINN.

In the past, various substances have been used as opaque mediums in pyelography. Among such sub-

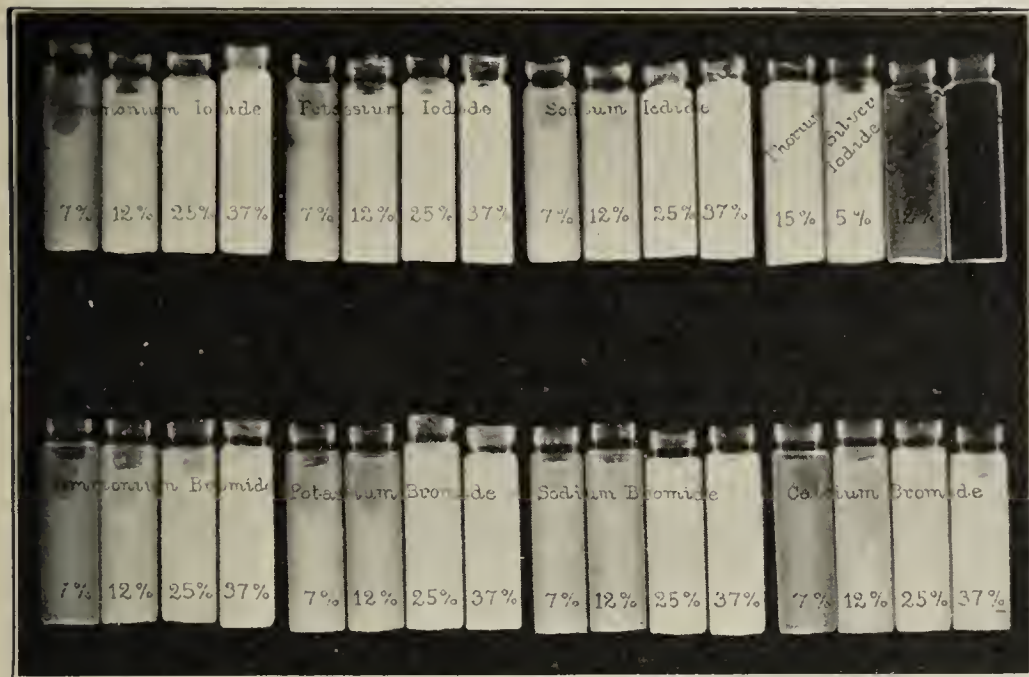


Fig. 1.—Comparison of different solutions; roentgenograms taken in 8 c.c. bottles.

stances may be mentioned bismuth, the colloidal silver solutions (collargol, argyrol, electrargol, cargentos, etc.), and several preparations of silver iodid and thorium. Many of these substances, when retained in the renal pelvis, have a more or less irritating action on the kidneys, as has been demonstrated experimentally by Braasch and Mann, who injected the kidney pelves of sixty-seven dogs, and compared the effects of a variety of solutions. The results of their experiments show that the silver preparations act as foreign bodies, frequently causing multiple foci of necrosis, and that such focal necrosis may also occasionally occur when there is insufficient drainage from a kidney pelvis, even when bland fluids are used. Thorium nitrate in a 15 per cent. solution, as suggested by Burns, caused the least reaction of the various opaque mediums. This medium has been widely used in pyelography, and, until recently was considered the best one available, the greatest objections to it being the chemical difficulties in its preparation and the excessive cost. More recently Cameron has advocated the use of potassium iodid in a

25 per cent. solution, which appears to be fully as opaque to the roentgen ray as thorium; it has the advantage of being easily prepared, and is somewhat less expensive.

The ideal medium for pyelography should be non-toxic, nonirritating and easily soluble in urine—one that is easily sterilized, that keeps well under all conditions, and is easy to procure at a reasonable cost.

In experimenting with various solutions in order to determine their opacity when rayed, we found that the bromids were quite as satisfactory as any of the other solutions, and in many cases it was only necessary to use a 12.5 per cent. solution to obtain a readable pyelogram or cystogram. It would seem that the opacity of various solutions should vary as directly as their atomic weights. However, there is little or no difference in the opacity of the solutions of the same strength, whether bromids or iodids (Fig. 1). Severe reactions have been observed in several patients, when potassium iodid in 25 per cent. solutions was employed. This was evidently due to local irritation. The bromids have not appeared to be so irritating as the iodids. Bromid salts are freely soluble in urine, so that their irritating action is continually lessened by dilution with urine from the time that they are injected. They are excreted very

largely by the kidneys, and no deleterious effect on the substance of the kidneys has been noted. The toxic effect that might be produced may be disregarded, because as much as 8 or 10 gm. of the salts have been given by mouth without producing



Fig. 2.—Pyelogram with 25 per cent. sodium bromid solution; slightly dilated pelvis; normal calices; lead catheter on left.



Fig. 3.—Pyelogram with similar solution; marked inflammatory dilatation of calices and ureter.

any untoward symptoms, and it is unlikely that there is much absorption in the genito-urinary tract. Probably no sedative effect would be noted.

The opacity appears to be due almost entirely to the bromid radical, as it is shown that when sodium

* From the Section of Urology, Mayo Clinic.

chlorid is used, little or no retardation of the roentgen ray is noted. Sodium bromid, apparently, smears over the surface of the ureters, minor calices of the kid-



Fig. 4.—Cysto-ureteropyelogram with 25 per cent. sodium bromid solution; bilateral ascending pyelonephro-ureteritis, cystitis and distorted bladder.

neys, and small saccules of an inflammatory bladder even much better than thorium, and for this reason we believe has a distinct advantage over it. Furthermore, the drug is easily obtained, and costs only 75 cents a pound at the present time, whereas potassium iodid costs \$4.90 a pound, and thorium, even in a 15 per cent. solution, largely because of the difficulty in its manufacture, costs \$2.50 a pound.

We have injected 2 c.c. of 25 per cent. sodium bromid in the ureters of three dogs, in which the ureters were ligated and divided immediately after injection. Six days later, a nephrectomy was performed and a hydronephrotic sac containing approximately half an ounce of fluid was found. Macroscopic and microscopic examinations of these kidneys did not show any irritating effects from the drug. We have used a 12 per cent. solution of sodium bromid in making several cystograms on patients, and a 25 per cent. solution of sodium bromid in making several pyelograms, without noting any injurious effects (Figs. 2, 3 and 4).

Experiments are now under way for the purpose of comparing the effect of thorium, potassium iodid and sodium bromid, when they are retained in kidney pelvis, and also for the purpose of studying the gradual

development of hydronephrosis after the injection into the kidney pelvis of various opaque solutions. The sodium bromid is easily procured, easily sterilized, and is inexpensive. In our experience sodium bromid in a 25 per cent. solution, has offered advantages as a medium for pyelography as follows:

1. It is a bland solution and does not damage the kidney.
2. It casts a clear shadow, outlining the entire pelvis and ureter as well as, if not better than, other mediums thus far advocated.
3. It is less irritating to the pelvic and vesical mucosa than other mediums.
4. It is the least expensive, and is readily procured.
5. It is very easily prepared, and is readily sterilized by boiling.

AN EFFICIENT SUPPORT FOR SACRO-ILIAC RELAXATION*

W. BARNETT OWEN, M.D.

LOUISVILLE, KY.

The importance of sacro-iliac strain or relaxation in the production of partial invalidism has been recognized for several years. The frequency of occurrence and the persistence of pain and discomfort incident to relaxation of the sacro-iliac joint following childbirth, prolonged illness, and also from excessive pelvic strain and distortion, has necessitated the devising of a more efficient type of support than has hitherto been obtainable, that is, one which can be worn continuously and maintained in the proper position. The greatest difficulty that has been experienced in the use of previously devised types of support, including

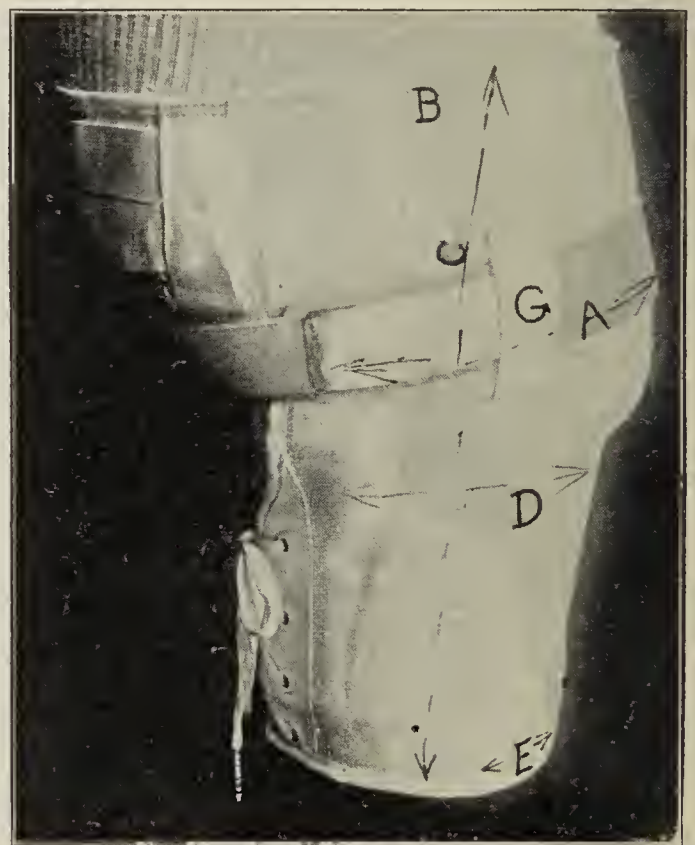


Fig. 1.—Support for sacro-iliac relaxation. Measurements in Figures 1 and 2: A, circumference for belt; B, circumference of crest; C, outside; D, circumference of thigh at gluteal fold; E, circumference of thigh 5 inches below; F, gluteal fold to top; G, loops.

the various belts, braces, etc., has been the maintenance of sufficient continuous support over the sacro-iliac joint.

* Read before the Section on Orthopedic Surgery at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

While I claim no originality for the type of support herewith exhibited, I have never seen another just like it. However, should other identical devices be in existence, I can recommend them most highly in the treatment of sacro-iliac strain and relaxation.



Fig. 2.—Back view of support.

To insure proper results, the device must be maintained in such a position that the lower border is on a line with the greater trochanter and the pubic arch, and at a corresponding level over the sacro-iliac joint. In other words, the support must be maintained as low as possible, and at the same time allow the patient to assume the sitting posture without discomfort. No matter how carefully applied, the ordinary belt will invariably slip upward, and where perineal straps are used to prevent this they cause so much discomfort from pressure on the perineal region that it becomes necessary to loosen them, and the supportive efficiency is thereby lost.

It has been my practice to have the apparatus made of bleached drilling doubled, the fixation skeleton resembling a pair of short pants extending from the crest of the ilium to the middle of the thighs following the gluteal fold, with a loop on each side through which passes a heavy elastic belt $1\frac{1}{2}$ inches wide. The best results will be obtained by having the support fitted directly to the patient before it is completely finished. When this, however, is impossible, the device may be satisfactorily constructed by the measurements indicated in Figures 1 and 2.

I have supervised the application of this particular type of support in more than 200 cases of sacro-iliac relaxation or strain, and the symptoms have been entirely relieved excepting in two instances; but neither of these represented the classical type of sacro-iliac strain.

CASE 1.—A woman, aged 35, attempted suicide by taking morphin, and then by jumping from a second story window astride a picket fence. A number of injuries were inflicted, the most serious of which were separation of the left sacro-iliac joint and separation of the pubic articulation. In this instance it was necessary to apply first a double plaster-of-

Paris spica with the limbs completely extended and abducted to about 45 degrees. The sacro-iliac support was afterward applied as a convalescent splint and was thoroughly satisfactory.

CASE 2.—A man, aged 25, a laborer, who claimed his sacro-iliac strain was due to heavy lifting while performing some work he was not supposed to do but which he had been ordered to execute by his employer—a rich corporation. The supportive device described was applied, and while much benefit resulted he said he could still feel a “slipping motion” of the sacro-iliac joint. Several roentgenograms were taken under attempted pelvic strain, but all the plates in all positions proved negative. The patient insisted on having a surgical operation performed, which I repeatedly refused to do. However, he was later operated on by another surgeon, both sacro-iliac joints being fixed by zigzag wires fastened to pins driven in the opposing bone. The patient claimed that this operation quickly relieved him of all symptoms. I may possibly be mistaken in this case, but it is my firm belief that a satisfactory settlement was the “treatment” most desired from the patient’s point of view.

Of more than 200 patients treated for sacro-iliac strain, twenty-four came to my office on crutches.

CASE 3.—One man from southern Indiana had been confined to his bed for eight weeks; he was sent to me for examination to determine if anything could be done for his relief. He was barely able to walk on crutches with the assistance of his physician and a brother. Arising from a stooped position or from a chair without help was absolutely impossible. Roentgenoscopy was negative. The pain was localized over the sacro-iliac joint and radiated downward posteriorly. The sacro-iliac support was applied and the man was able to walk immediately without the aid of crutches despite his physical weakness from having been in bed eight weeks. He returned ten days later walking without the aid of a cane or other assistance excepting the sacro-iliac support. He walked so well that I did not recognize him when he

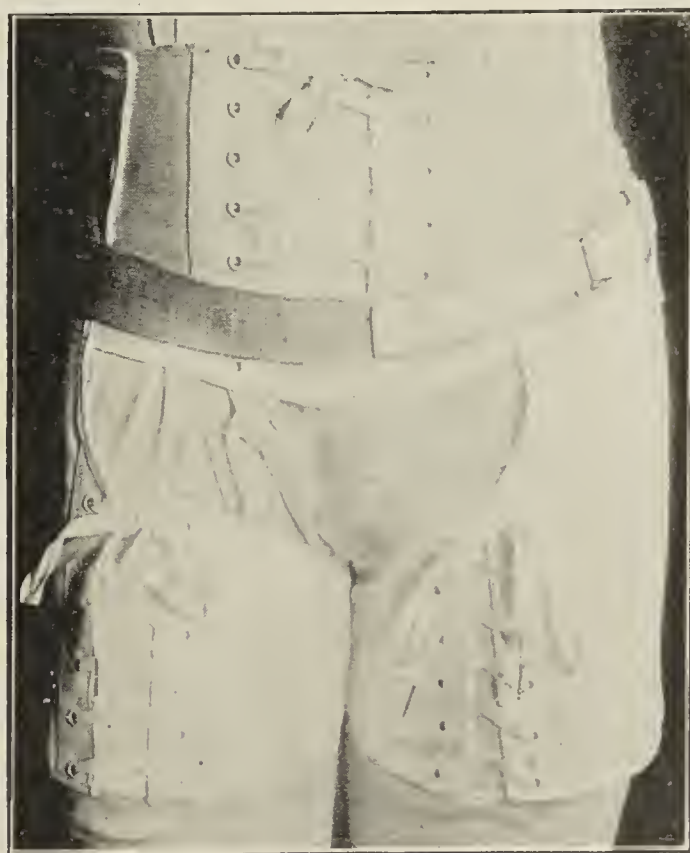


Fig. 3.—Front view of sacro-iliac support with abdominal support.

came into the office; he sat in a chair and arose several times without assistance before telling me who he was. He said that on the sixth day after application of the device he was able to “plow tobacco.” The support was worn continuously day and night.

All the patients coming under my observation for the treatment of sacro-iliac relaxation or strain have

been closely followed, and I am certain that the final outcome has been good in all excepting the two atypical cases mentioned.

ABSTRACT OF DISCUSSION

DR. FRED. J. GAENSLEN, Milwaukee: The author has confined his remarks to sacro-iliac relaxation and to means of supporting this joint. The belt which he has devised answers the purpose admirably, though I would suggest that it be fastened in the back to give greater security. The thigh pieces, while efficient in preventing the belt from slipping up, are not always necessary. As a rule, other and simpler means suffice.

DR. CHARLES A. PARKER, Chicago: Sacro-iliac strain, subluxation or relaxation, is a sort of "bogy man," and when suggested to a patient is dire in its effect on the nervous system. Perhaps there are instances of these sacro-iliac conditions, but these patients can be given a favorable prognosis. This does not, however, relieve us of responsibility for the care of lower-back troubles, and the necessity for most conscientious care in the consideration of these complaints. We must not overlook the occasional static troubles of the back. The more thoroughly we investigate the less frequently shall we have to fall back on such equivocal terms in lieu of definite pathologic entities.

In the treatment the psychology of back pain is often not sufficiently appreciated; for the alarm that goes with a pain in the back, with the ever present specter of increasing disability and final paralysis, heritage of false teaching and superstition, is enough to upset, and often does upset, an otherwise stable nervous system, when the real trouble would be considered insignificant if it occurred with equal intensity in some other supposedly less vital region. What the effect may be on an already depleted nervous system is painful to contemplate. It is in these latter individuals that the devotees of blue lights and pink bands and red lights and hot air accomplish their most wonderful cures. Patients of more stable character can be shown that with an apparently normal anatomy, with no evidence of tuberculosis, cancer or other serious conditions present, their chances for steady improvement and ultimate recovery are great. Relief by this means, while usually not so startling as that by the more spectacular method, is often very striking and is apt to be increasingly efficient. These cases must be treated by such means as their true pathology suggests.

DR. J. P. LORD, Omaha: I agree with everything that has been said, except that I am not so much disposed to make light of the infrequency of this condition. There are cases that will continue to give you trouble until you secure other supports for the sacro-iliac joints than by putting bands about the pelvis. In the severer cases, and those failing to be relieved by ordinary supporting bands, it has been my practice to add to the pelvic metal band a support for the lower part of the chest, so as to get rid of the adverse strain produced by movements of the spine, which is so prone to disturb the sacro-iliac joint. Since I have been adding a "second story" to Osgood's apparatus I have secured a greater amount of relief.

DR. JOHN L. PORTER, Chicago: When it comes to sacro-iliac relaxation I am the worst skeptic that ever was. In twenty years I have seen just two sacro-iliac joints that some one could demonstrate to me were relaxed sufficiently to show movement. Both were in pregnant women. I have never had any one demonstrate to me a sacro-iliac joint with motion in it in a normal individual who had not had some pathologic or physiologic process (such as pregnancy) to produce relaxation of these joints.

DR. ETHAN H. SMITH, San Francisco: Within the last two years I have treated nearly three hundred cases that appeared to have relaxation of the sacro-iliac joint. I think that this term is an undeserved slander on that articulation. These cases will be found to have a tilt of the pelvis in one direction or the other, a tilt of the lumbar spine, with relaxation of the lumbar muscles on one side and a contraction of those on the opposing side. In such cases as need bolstering up I have

used a modification of the corset devised by Dr. Robert W. Lovett, with a great deal of satisfaction. In the last two months I have assisted in the examination of several thousand men for the Army. In certain contingents I found that 10 per cent., and in other contingents 30 per cent., presented a pelvic tilt, with contraction of the muscles on one side and relaxation of those on the opposing side. I also found that two-thirds of those that presented this condition did not know that they had it, and had no pain. I found many of these cases among employees of the Union Iron Works, many of whom have been drafted; and in private practice I found them among saleswomen, especially those handling heavy garments in the suit and coat departments of large stores. It was also common among persons who habitually stand on one foot, and in those who habitually carry little babies on one arm. I have come to the conclusion that in those cases in which we find no pain we do not diagnose a sacro-iliac joint disturbance, while in those who have pain (and there are three times as many that are painless as those that come with pain) the condition is recognized. Dr. Owen's apparatus looks as if it were very efficient. I think that it will have a good effect on these cases, but I still disbelieve in sacro-iliac relaxation.

DR. W. BARNETT OWEN, Louisville, Ky.: I expected exactly what I got; but I still maintain that when you have a patient come to you with extreme pain over the sacro-iliac joint, radiating down the thigh, and that patient has had every form of treatment from electricity to antirheumatics, with no relief, one should give him a support. Dr. Porter mentioned two cases that he had seen in which there was slipping. I only mentioned that one patient said he could feel slipping. Always roentgenographic and otherwise careful examination was made, and in every case all symptoms, except pain in the sacro-iliac region aggravated by attempted strain, were absent. It is immaterial whether you call the condition sacro-iliac relaxation or neurosis. The patient comes for relief. If a proper support will relieve him, give it to him, and select a name later. Nourishment is not kept from babies until they are named.

DERMATITIS LYCOPERSICUM ESCULENTUM (TOMATO PLANT) *

EVERETT S. LAIN, M.D.

OKLAHOMA CITY

When certain plants are brought into proximity or actual contact with the skin of certain individuals, more or less reaction follows. The skins of some persons, however, are not appreciably inflamed even from contact with the most commonly known poisonous plants.

No writer on this subject, so far as I know, has yet attempted to enumerate or classify all such poisonous plants. Some authors do not mention more than a few of the well known plants, such as the poison ivy, the sumac, the wild rose, and the nettle, with their several offending members.

Various other names are continually being added to the list of so-called poisonous plants, namely, plants that are capable of producing a dermatitis venenata on the susceptible skin of certain persons.

ETIOLOGIC FACTORS

A plant that is capable of producing a dermatitis in certain sensitized individuals appears to be less infectious at certain seasons of the year or, in other words, at certain stages of its growth. This is due to the fact that only certain parts of the plant, such as its pollen, hairs, thistles or its expressed juices are poisonous. Botanists have asserted that climatic con-

* Read before the Section on Dermatology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

ditions may favor or retard the development of this poisonous element.

Persons who are susceptible to this form of dermatitis are spoken of as possessing an idiosyncrasy or a special sensitization for this particular plant. The fact that the same individual is not always affected when coming into contact with the same plant has been theorized on by the French school¹ as bearing a relation to the normal or perverted condition of the visceral organs. Walsh² states that it may be due to a temporary lack of a full supply of blood to that locality on which the dermatitis develops. American histopathologists seem more inclined to call it an anaphylactic reaction of a sensitized condition which that persons bears toward that particular chemical or protein poison.

AUTHOR'S OBSERVATIONS

Having practiced in the South, where a large variety of vegetation grows luxuriantly, I have had an opportunity to observe different herbs, plants or vines that are capable of producing this form of dermatitis. During the past several years I have frequently noticed on the hands and sometimes the faces of hucksters and gardeners a form of dermatitis for which it has been difficult to account, other than on the basis that it had been caused by some common garden vegetable.

In the summer of 1916, after having carefully noted the history and development of several of these cases, my attention was directed especially to the ordinary tomato plant, which is found in nearly every garden in its season. Since that time, I have noted several cases which seem to bear a positive relation to the gathering of tomatoes from rank and dewy-laden vines.

At first it seemed posterosus that the plant on which the tomato grew should be capable of doing harm even to the most sensitive of human skins. I made a brief search of textbooks and the literature on skin eruptions which might be caused by plants. I found many plants mentioned by various authors, yet I did not find a single reference to the tomato plant.

I then wrote to the reference department of the American Medical Association and received a reply that it had only one article indexed—a French abstract—that mentioned the tomato plant. I looked up the botany and classification of the tomato plant. It then occurred to me that this plant was a very probable etiologic factor in several of my cases of dermatitis venenata, which had been previously recorded as "cause unknown."

HISTORY AND CLASSIFICATION

After reviewing the history and classification of this vegetable, I find that the name "tomato" is derived

from a Spanish word *tamate*, which was given this plant by the Spanish people of South America, of which countries it is a native. It is botanically known by its Latin name—*Lycopersicum esculentum*. This name, meaning "wolf peach," gives us a brief insight as to the opinion of the South Americans toward this plant, which opinion prevailed until after it was introduced into both Europe and North America. For several centuries it was considered, even by the Europeans, as a poison and was grown only as a garden ornament, which they called "love apples." Not until about the middle of the nineteenth century did this plant become generally cultivated as one of our most harmless and luscious vegetables.

The tomato plant belongs to the *Solanaceae* group and the family of nightshades. One well known member is recalled as the deadly nightshade or belladonna, meaning, "beautiful lady," relating to the practice at one time of certain Italian ladies of making their eyes beautiful by the application of certain parts of this plant. Belonging to the same family, we find the jimson weed, the horse nettle, red pepper, and the egg plant. Some of these plants, we recall, are a most common cause for an urticaria, either from local contact or internal ingestion.

Bailey³ states that nearly all of the *Solanaceae* group contain poisonous narcotic alkaloids or glucosids which may be converted into a certain amount of hydrocyanic acid. According to Pammel,⁴ the tomato plant contains saponin among other active elements. Physiologic chemists state that saponin is a poisonous glucosid, soluble in water, and becomes a violent irritant when applied in soluble form to the mucous membranes or delicate epithelial tissues.

Whether this will account for the dermatitis which this plant appears capable of producing, I am unable to say.

APPEARANCE OF THE ERUPTION

This type of dermatitis venenata that I have observed, is not materially different from that produced by many other poisonous plants, such as the so-called blood weed, or a mild degree of the *Rhus toxicodendron*. The few cases which I have noted during the past two summers have occurred on the dorsum of the hands, wrists and both surfaces of the forearms. The eruption most frequently begins as a mild stinging or itching sensation, followed in a few hours by an erythema on the surface of the skin which has been exposed. The area has no sharp lines of demarcation, such as is sometimes present in *Rhus* poisoning. On this erythema there develop miliary, discrete papules which soon become vesicular. Few



Dermatitis venenata in Case 1. Second attack in the same patient, each time the lesions appearing within a few hours after gathering tomatoes from rank, dewy-laden plants.

1. White, R. P.: Occupational Affections of the Skin, 1915, New York, Paul B. Hoeber Company, p. 12.

2. White, R. P.: Occupational Affections of the Skin, p. 13.

3. Bailey, L. H.: Encyclopedia of Horticulture, 4, 1931.

4. Pammel, L. H.: Manual of Poisonous Plants, 1, 62-63.

of these vesicles reach the size which is observed in many other forms of dermatitis venenata. It is most frequently limited to the surfaces which have been in friction contact with the so-called hairs, and probably the bruised leaves or limbs of the plant.

All of these patients gave a history of having exposed their hands and forearms among rank vines in the morning hours while the plants were yet laden with dew. This moist condition seems also to be a predisposing factor in other infectious plants. A dermatitis due to this plant is not an everyday incident, even in the practice of those in the more rural districts. Nor is it probable that the same plant is equally as infectious in every particular locality or season in which it is grown. Therefore, within two seasons I have noted less than a dozen cases bearing a positive etiology.

I will briefly report only two cases which are fairly representative of each of the others.

REPORT OF CASES

CASE 1.—Mrs. C., aged 45, who had a thin, clear and tender skin, and was in good health, consulted me for an eruption on the backs of both hands and covering both forearms almost to the elbows. She had not been outside of the house except in the garden to pick tomatoes the previous morning. A prickling, itching eruption had begun within a few hours after gathering her tomatoes. At the time of my examination the eruption had the usual clinical symptoms of a mild dermatitis venenata. I made inquiry in regard to all other possible sources of infection or the application of drugs with negative results. I went out and inspected her garden. This garden presented an unusual absence of weeds of all kinds. On inspecting the tomato plants I found them large, rank, thrifty plants, with no evidence of infecting insects, such as the blister bug. I noted, however, that the limbs were bruised in places, also heavily covered with the so-called downy plant hairs.

CASE 2.—Mrs. G., aged 30, who had a blond, fair, tender and well-kept skin, consulted me for an eruption on the dorsum of the hands and arms to the elbows. The eruption presented the usual and clear differential marks of a mild dermatitis venenata. I made inquiry in regard to her whereabouts the previous few days, also particularly concerning the application of any hand or skin lotions, but with negative results. On inquiry in regard to contact with plants, she said she had gathered her tomatoes on the previous morning. The eruption, or the beginning sensations, had begun late the same day. This lady also recalled having had a similar eruption the previous summer, when she had gathered her tomatoes without wearing gloves. I did not go out to inspect this garden, but learned that her garden was free of other possible infecting plants. Also, her tomato plants were considered the finest in the neighborhood.

CONCLUSIONS

I realize that I shall appear as rather premature in presenting any definite conclusions on so few cases observed. Also, it may be reasoned that, if the tomato plant is poisonous to certain individuals, it seems strikingly strange that some dermatologist has not heretofore observed and reported it.

To the first accusation, I plead guilty. To the second, I have only to say that, after seeing these few cases which have a positive etiologic history; after noting the close botanical and chemical relationship between this and other known poisonous and infectious plants; also, after having studied its branches under magnified power, I am fully convinced that the tomato plant is and has been an etiologic factor in some of my cases of dermatitis venenata.

It may be that such cases are extremely rare or that they are confined to certain soils or seasons.

Finally, it is neither my ambition nor my opinion that another new name should be added to an already well known disease—dermatitis venenata. I only trust that this report may cause other dermatologists to observe and that eventually we may learn the full possibilities for harm which may lurk in this common vegetable.

ABSTRACT OF DISCUSSION

DR. ARTHUR W. STILLIANS, Chicago: We must thank Dr. Lain for adding another to the many known causes of dermatitis venenata. The etiology of these cases is so often difficult to determine that there must still be unknown factors, and the discoverer of one of them is a benefactor to dermatology.

DR. FRANK WAUGH, Chicago: A patient I have had under observation had this trouble every fall while working in a florist's shop when chrysanthemums were in full bloom. I do not remember having heard of a dermatitis venenata due to the bloom of the chrysanthemum, which in this case proved to be the etiologic factor.

DR. ERNEST L. MCEWEN, Chicago: Inasmuch as this is one of the first cases reported of dermatitis due to the tomato, I think we should congratulate Dr. Lain that he does not contemplate coining a new name.

DR. FREDERICK G. HARRIS, Chicago: I would like to ask Dr. Lain if he has eliminated the possibility of the trouble being due to some insecticide. This might well occur in picking vegetables that had been sprayed with arsenic or other solution.

DR. DAVID LIEBERTHAL, Chicago: I should like to know if Dr. Lain noticed a recurrence of the dermatitis after a repetition of picking tomatoes. In that case the cause would be established.

DR. RICHARD L. SUTTON, Kansas City, Mo.: Dr. Lain's paper is of great interest, for it gives us a new plant dermatitis. I wish to record another new variety of industrial dermatitis, one which might be designated as "cactus dermatitis." It was first described to me by Dr. George P. Lingenfelter of Denver, and is a comparatively common disorder in the arid regions of the west. The disease develops as a result of the lesions caused by the small, splintered spicules that break off the stalks of cactus plants, and the majority of the victims are gasoline tractor drivers. The wounds, which usually are confined to the patient's arms and legs, frequently become infected and severe ulceration oftentimes ensues.

DR. ROBERT G. WASHBURN, Milwaukee: About a year ago I had the opportunity of observing a case of dermatitis of the hands in a woman, resulting from the handling of the tomato during the process of preserving. This would seem to indicate the presence of the poison in the juices as well as in the stems of the plant and would eliminate any question of poison from insects or insecticides.

DR. HAROLD N. COLE, Cleveland: I was wondering if the dermatitis resulted from the sharp spicules of the tomato vine, which are often so plentiful on these plants.

DR. JAMES HERBERT MITCHELL, Chicago: I would like to ask if transplanting the young tomato plants in the garden is likely to produce this result. Recently I have seen a number of cases of dermatitis venenata which occurred in men who were doing amateur gardening, and close questioning failed to elicit any contributory cause.

DR. WILLIAM ALLEN PUSEY, Chicago: Dr. Lain's paper was extremely timely and I congratulate him for having given us so much information on this subject. I sympathize with him in the manifest inability to answer some of the unanswerable questions that have been put to him. Nevertheless, I have no doubt he is correct in attributing his cases to the tomato. He seems to have made out an undoubted case and to have done all that possibly could be done to establish it. The determination of the local causes of many of the cases of dermatitis that we see is a difficult matter. It requires ingenuity and much of the sort of patience that he has exhibited.

DR. EVERETT S. LAIN, Oklahoma City: Dr. Pusey has come to my aid and suggested the impossibility of replying to all of your questions. As regards the chrysanthemum mentioned

by Dr. Waugh, if he will look up the literature on poisonous plants he will find that the chrysanthemum belongs to the poisonous group, as do also the geranium and the nightshade. As regards eruption from insects, I examined the plants closely for the blister bug, the insect which produces eruptions most frequently in the South, but found none. Most insects which may cause a dermatitis are very well known. I found none of these on any of the plants examined. As regards a second infection, I have been observing this plant for two seasons only. In this time I have seen but one second infection. This was the lady whose photograph I have shown. As regards the infecting parts, I have suggested the hairs of the plant or possibly the glucosid, which is soluble in water; also that some friction seems necessary for the infection to take place. As regards the transplanting of tomato plants in the garden, I have never seen a case caused by such handling. I have experimented on several persons who were not, however, susceptible to the common poisonous plants, without a successful inoculation. Therefore, I am quite sure that most people are immune, or are not susceptible to infection from this plant.

THE USE AND ABUSE OF PITUITARY EXTRACT *

GEORGE W. KOSMAK, M.D.

Attending Surgeon, Lying-In Hospital.

NEW YORK

No addition to the obstetric armamentarium during recent years has created so much attention and interest as the introduction of the solution of the active principles of the posterior lobe of the pituitary body, or hypophysis cerebri. Dale described its action on the uterine muscle in 1906, and later experiments by Frankl-Hochwart and Fröhlich showed that pituitary extract caused marked contraction of the uterus in pregnant animals. It was not until Blair Bell in 1909 employed these experimental results in practice that the therapeutic employment of the drug was begun. He used it in cases of postpartum hemorrhage and to reduce the bleeding in placenta praevia and cesarean section. The physiologic basis for the employment of the drug rests on the knowledge of its stimulating effect on all unstriated muscle tissues, including those of the blood vessels, intestine and bladder as well as the uterus, although it seems to have a more selective action on the latter. At first regarded with doubt, the use of the drug increased by leaps and bounds aided by the supposedly favorable results reported by many clinical observers and by the clever and often unrestricted advertising methods of its manufacturers. Most of the marketed extracts are prepared from the posterior lobe and a few from the whole gland of slaughtered cattle. Different manufacturers employed each their own device in labeling the preparation, and although at first there was believed to be little difference in the activity of these, clinical trials showed that some were more reliable than others. The term "pituitrin" came to be the most widely employed and was soon extended to include all the others notwithstanding the efforts of the competing manufacturers to limit such distinctions. Recently one of the latter firms concluded that it would be advisable to limit the application of its preparation in certain classes of cases and has developed two strengths of pituitary extract, one for general surgical use and the other intended

for obstetric cases. This seems to me a confession of the necessity for adopting a more definite standard.

The literature on the use of the extract of the hypophysis is now so extensive and the drug has been so widely employed that it would appear profitable to come to some definite estimate of its value, especially as the many favorable reports about its use are counterbalanced by those of a more unfavorable character that are continually creeping into the literature on the subject. On the one hand we find enthusiasts who apparently see no limitations in the scope of its employment; on the other hand are those who find that great caution should be exercised in its use. It seems most desirable that a definite middle ground be established along which such indications can be formulated as will impress any one who is inclined to employ the drug in a given case with the necessity for a thorough knowledge and appreciation of its effects.

The hypophysis extract has now been the subject of clinical observation for a sufficient length of time to warrant such determination as to its value. Many of its enthusiastic advocates report series of cases, including in the field of application the relief of almost any condition depending on the contractile stimulation of unstriated muscle fibers. The fulsome praise of these observers has been even more pronounced and, shall we say, daring, than the fervid claims that the manufacturers of the product allowed themselves in the advertising pages of the medical journals. In this category may be placed the exaggerated and dangerous claim that "the use of the drug is remarkably free from danger even when given in enormous doses." This estimate of the value of pituitary extract was published in 1914, but fortunately the sentiment with reference to such assumed harmlessness has undergone a change, and more recent observers have modified and restricted the field of application and the indications for the use of hypophysial extracts. It was soon realized, among other things, that no satisfactory standard existed for measuring the dosage of the drug, and it seems most essential that the strength of the solution used be more or less definitely known. A "physiologically standardized preparation," labeled as such by manufacturers, is a distinction of little account because the potency of the drug in a physiologic sense probably varies with the species of animal from which the raw materials are obtained, and perhaps even with the season during which the animal was slaughtered. In this connection we may recall the fact that the thyroid gland of animals is known to be subject to such variations, and this probably applies to other endocrine structures. The blood pressure method and observations on the isolated guinea-pig uterus have been largely employed, and the official standard for the United States Pharmacopeia is by comparison with the effects of histamin, a substance isolated from ergot and due to the bacterial decomposition of histidin.

Notwithstanding that considerable work has been done with these methods, impartial investigators find much to criticize in their application and do not regard them as entirely reliable for accurate standardization. It has been shown, for example, that other organic substances stimulate the isolated uterine muscle so that the fact that pituitary extract exerts an effect on the excised uterine muscle and also on the gravid uterus may perhaps be merely a coincidence. It is known, moreover, that various oxytocic substances

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

react on all smooth muscle tissue, including the arteries and small veins, as well as the uterus. The action of pituitary extracts on smooth muscle thus brings about increased blood pressure and therefore points to a more satisfactory reaction than can be secured by the other methods referred to.

INDICATIONS FOR USE OF PITUITARY EXTRACT

The indications for the use of pituitary extracts in obstetric practice may be said to be fairly well established, and, employed in a conservative manner, its use should be limited to conditions of simple uterine inertia in which no obstruction to the passage of the child exists either in the cervix or in the bony pelvis. Moreover, the patient must not be in a condition of exhaustion. Its narrower field in the induction of labor with or without other means is now largely given up, and its employment to stimulate labor pains in such malpositions as occiput posterior and face presentations is likewise regarded in a doubtful light. If we accept the indications just stated, the many other recommendations fall aside and it is in this larger class of labor cases that most of the trouble results from the indiscriminate use of the drug. The bad effects vary from laceration of the cervix and perineum to complete rupture of the uterus. In addition, the possibility of postpartum hemorrhage must be guarded against, and likewise a possible asphyxiating effect on the child must be recognized.

A sufficient number of cases that demonstrate the unfavorable effects from the use of pituitary extract have now been reported in the literature, and any additions to the list are merely in the nature of confirmations. My personal experience with the drug in hospital and private practice dates back a number of years. Although somewhat apprehensive of its value, I was led to employ it, and the result of my observations failed to convince me that its use is not attended with considerable danger. This opinion is also based on the result of experiences with the drug in the hands of others in cases seen in consultation, or that were referred to the Lying-In Hospital. It seems to me a duty to disseminate knowledge tending to caution a practitioner in attendance in any given case who is about to resort, merely for the purpose of shortening a labor, to a method that recommends itself because of its apparent simplicity and yet is fraught with great danger unless employed under the strictest indications.

One or two typical examples of a considerable number of cases that have come under my personal observations will serve to explain my position with reference to the use of pituitary extract. The first is a case of fetal asphyxia:

Mrs. P. L., admitted to the Misericordia Hospital in May, 1916, had a moderate toxemia of pregnancy for which labor was induced at term. Slow dilatation was made with bags; labor pains were ineffective; there was nonengagement of the head without pelvic contraction. Extraperitoneal cesarean section was decided on as the only satisfactory method of delivery. The house physician was directed to give 1 c.c. of pituitary extract after the abdominal incision had been made, as I had been doing in recent cases, but it was found that it had been given in error before the incision was begun. When the uterus was exposed it was found to have contracted so firmly around the head of the child that considerable force was needed to extract the head with the forceps, resulting in a tearing of the sutures and entry of the uterine contents into the general peritoneal cavity. The child was deeply asphyxiated and failed to respond to any efforts at resuscitation.

In this instance it is fair to assume that the extreme contraction of a tonic uterus following the too early application of pituitary extract resulted in complete obstruction of the fetal circulation, as the fetal heart was quite normal before the operation was begun.

I have used pituitary extract in a number of other cases of cesarean section as an oxytocic and have been disappointed with the result. Either the uterus failed to contract promptly after the delivery of the child, or severe postpartum hemorrhage with relaxation occurred before the patient left the operating table. At the Lying-In Hospital we have ordinarily injected 40 minims of an ergot preparation in cesarean cases before operation, and I am satisfied that this is a more effective agent for the purpose, being more certain in its effects and less likely to be followed by subsequent relaxation. I have also employed the pituitary extracts in several primiparas in whom labor pains were weak; and although strengthened for a time after the use of 5 or 10 minim doses, there was not sufficient progress to warrant placing much reliance on the drug in cases of this character. One instance of fetal death which could be attributed directly to a prolonged labor and excessive use of pituitary extract occurred in a patient admitted to the Lying-In Hospital:

The patient, a primipara, was given three successive doses of 1 c.c. each by her attendant because of apparent inertia, and on admission to the hospital was in a very much exhausted condition with the head moderately well engaged and the fetal heart not audible. The uterus was in a state of tonic contraction, and examination revealed the presence of a well-marked Bandl's ring, the cervix being almost fully dilated with the membranes ruptured. Under the circumstances a craniotomy was indicated and completed with a moderate laceration of the edematous vulvar outlet.

In this instance pituitary extract was contraindicated by the lack of sufficient engagement of the head and an already exhausted patient. The physician who attended the woman was present during the operation and, I feel, had firmly impressed on him the dangers attending the indiscriminate use of this drug.

Such instances might be multiplied by any one in active hospital service and serve to make one very doubtful of the advisability of recommending this drug to the hurried general practitioner. The shortening of labor may save time for the attendant, but it is certainly at the expense of the patient. The dilatation of the soft parts preliminary to the delivery of the child must be slow and gradually produced, and where this process is halted at any time during the labor, it should not be accelerated by the administration of a drug that often produces tumultuous contractions with rapid expulsion of the fetus and consequent extreme laceration of the soft parts. No one would think of applying the forceps to a head unengaged or with a moderately dilated cervix, and yet in reality the danger is no greater.

We can safely dismiss the contention that pituitary extract renders the forceps unnecessary. When the head is engaged and there are no other contraindications to its use, pituitary extract may stimulate the uterus sufficiently to drive the head down to a lower level; but in nine cases out of ten, the process stops at this point, and forceps are needed anyway. Moreover, a rapid extraction may be called for in advance of this time because of the effect of the more rapidly succeeding contractions on the fetal heart. The only

cases in which forceps might be avoided would be those in which the fetal head is not well engaged and in which the soft parts or the pelvic brim do not interpose any obstacle to the descent; but even here we find that other means of instituting better pains are equally effective and less dangerous. As for its effectiveness in postpartum hemorrhage, I am yet to be convinced that its value is of anything more than a temporary character, giving merely an opportunity for a more reliable oxytocic like ergot to become effective. I have, however, employed it with good results in cases of incomplete abortion when curettage of the retained secundines is undertaken. In these cases the uterus contracts satisfactorily, and undue bleeding is prevented.

The foregoing remarks might lead one to regard me as a pessimist in my attitude toward pituitary extract; but I am less pessimistic about the drug than the possibility of ever getting the profession to use it properly. I firmly believe that in a restricted class of cases, as already noted, pituitary extract is of value; but every means should be taken to combat the unfortunately indiscriminate employment of the drug. We all know the bad effects, and yet pituitary extract is being used in increasing measure. Granting that it is a valuable therapeutic addition, no one is justified in saying that it is harmless; for in every case in which it is employed, the indications must be carefully formulated before its injection. Moreover, the usually accepted dose of 1 c.c. is too large, and a trial dose of $\frac{1}{3}$ c.c., or 5 minims, followed at intervals of an hour with one or two further doses is a preferable method of administration. If the natural forces of labor are unable to expel the child without assistance, it seems to me that their stimulation by the use of pituitary extract is not quite logical; for the resistance if present can better be overcome by forces from below than by forces from above. I make this statement advisedly because I fully admit that in the latter case, by which we mean application of the forceps, equally developed skill and judgment must prevail. The proper preliminary preparation of the patient for her labor, the avoidance of exhaustion by the administration of opiates, postural treatment and other well tried and safe procedures, together with a maximal degree of patience on the part of both mother and attendant, will do more to reduce the number of forceps deliveries or at least the difficult ones, than the means for stimulating uterine contractions depending on the indiscriminate use of hypophysial extracts. When the fetal head refuses to pass beyond the perineal floor, and caput succedaneum with a rigid, edematous outlet supervenes, why not complete the labor by a low forceps operation, which is certain in its results and completely under the control of the operator?

EMPLOYMENT IN OTHER THAN OBSTETRIC CONDITIONS

As for the use of pituitary extract in other than obstetric conditions, little need be said. It has been widely recommended for the relief of tympanites, but in several postoperative cases I found little effect from its use. Neither is it of any particular value as a substitute for the catheter. I am convinced that more cases of postoperative cystitis result from the retention of residual urine than from the proper employment of the catheter. I have had some very good results from the use of pituitary extract in cases

of hemorrhage from the nonpregnant uterus, such as menorrhagia in young girls and in older women presenting small fibroids or adnexal lesions resulting in hyperemia. Here the regular administration during the flow has given excellent temporary results until other measures could be applied.

CONCLUSION

I may summarize my estimate of pituitary extract by describing it as a valuable addition to our therapeutic resources, but one which must be used with great caution, particularly in obstetric cases. Here it is safe only in cases of simple uterine inertia, particularly in multiparas, when there is no obstruction to the passage of the child, no exhaustion, and the presenting part engaged. It should be used in doses of not over 5 minims at a time, repeated only when the effect of the previous dose has worn off. For the induction of labor, or as an accepted substitute for the forceps, it would be best not to consider pituitary extract. Properly used under proper indications, the extract of the hypophysis has a distinct place and value. Indiscriminate and improper use will only tend to relegate a good therapeutic medium to the discard.

23 East Ninety-Third Street.

ABSTRACT OF DISCUSSION

DR. J. B. DELEE, Chicago: I was one of the first to oppose the use of pituitary extract in labor. Further experience of my own and watching the work of others has confirmed the opinion I expressed many years ago, and has also increased my desire to emphasize the importance of the general practitioner's avoiding the use of pituitary extract in his labor cases. Pituitary extract is like a scalpel; good results are obtained with the scalpel, bad ones, too; but pituitary extract is worse than the scalpel; it is like one of those double-edged bistouries—it cuts both ways, and sometimes in the direction least desired. L. G. McNeile collected sixteen cases of rupture of the uterus from pituitary extract. I know of four others. All happened in the city of Chicago and have not been published. Laceration of the cervix is a complication the importance of which is being recognized more and more. It is nearly always caused if pituitary extract is used before the cervix is dilated. Lacerations of the perineum have always been given a great deal of dignity. They, too, are increased by the use of pituitary extract. Pituitary extract is used so indiscriminately by the medical profession that something ought to be done other than the modest complaints and warnings issued in journals. The subject of the endocrinal relations is still theoretical, but I think clinical experience will give many instances that will prove disturbances of the action of the glands of internal secretion of the fetus. Many children are born dead with the symptoms of asphyxia after the administration of pituitary extract, and the death can hardly be explained by an asphyxia caused by the contraction of the uterus produced by pituitary extract. I used to give pituitary extract before cesarean section, but now give it after the child has left the uterus. I also lived through an experience of spasmodic contraction of the uterus during cesarean section, rendering delivery of the child very difficult. In cesarean section, I give pituitary extract as soon as the child has been extracted from the uterus. I inject one ampule of pituitary extract into the deltoid muscle. I think it makes little difference whose extract is used. If the uterus does not contract promptly, it is also injected with one ampule in two or three spots. I do not give pituitary extract in cesarean section cases after the sutures have been put in. In my opinion, some of the cases of peritonitis following cesarean section and some cases of hemorrhage following cesarean section are due to the use of pituitary extract after the uterus has been sutured. We do not use pituitary extract to produce intestinal action after cesarean sections. I have used a great deal of pituitary extract to stimulate the bladder to spon-

taneous urination with no results. Pituitary extract seems to have a hemostatic effect besides its effect on the uterus. I have used it occasionally in the hemorrhages of the new-born without success. There are cases of primary inertia of the uterus. In these cases, with or without rupture of the bag of waters, pituitary extract will do good; but remember that it is a two-edged knife. When I use it I study the indications with special care; the pelvis for contraction, the cervix for unusual rigidity, the child for abnormal position. A careful investigation of all the attending circumstances is required to enable one to make a proper diagnosis and to place the indication for pituitary extract. The greatest care must be exercised, and I give the extract myself. I have a can of ether at hand for immediate use when indicated. The reason for such extraordinary care was my experience in a case of occipito-posterior position and inertia of the uterus lasting nearly three days, with rise of temperature, showing that the patient was beginning to suffer from infection, in which case it was very desirable to empty the uterus without vaginal examination and without the use of instruments or bags. Three drops of pituitary extract were administered, and produced such a tetanic contraction of the uterus that the woman almost went wild with pain until I could anesthetize her. This woman had an idiosyncrasy to the pituitary extract. Pituitary extract is occasionally useful when, having changed a face to an occipital presentation, strong pains are needed to force the occiput down on the perineum. In puerperal infection, where there are clots or pieces of placenta in utero, pituitary extract may also be useful. In the last sixteen cases which I have delivered, which required the use of forceps and in which I anticipated postpartum hemorrhage, I have given an ampule of pituitary extract immediately after the baby was born and ergot as soon as the placenta was out. Previously, my practice had been to clean out the placenta by hand and pack the uterus. That is a little bit risky for the general practitioner. I have thus found it possible to avoid the use of gauze. Of the sixteen cases I had to pack only one.

DR. J. L. BUBIS, Cleveland: During the last six years I have never given more than from 1 to 3 minims of pituitary extract during childbirth. With this dose given intramuscularly into the biceps in any stage of labor, my results have been most satisfactory. The 1 to 3 minim dose stimulates the uterine pains when very often a larger dose would be very dangerous to both mother and child. In postpartum hemorrhage there is no drug that will act so quickly. The danger of relaxation after severe contraction may be overcome by ergot. As a galactagogue pituitary extract has not been satisfactory.

In cases of retention of urine, it has been used with varying success. I have had better results from the introduction of one-half ounce of glycerin into the bladder. This has done away with probably 95 per cent. of catheterization in obstetric and surgical cases. In the removal of retained secundines I have used 1 c.c. of pituitary extract intramuscularly. By the time the uterus is cleaned out with the placental forceps, finger or curet, the pituitary extract has so contracted it that there is practically no bleeding and the uterus remains firm. Hot irrigations and packings are not necessary. At the end of the second stage of labor, pituitary extract is also effectual. We generally use gas anesthesia. Very often, just as the head reaches the perineum, the patient is placed under gas anesthesia and the labor pains cease. With the injection of 1 or 2 minims of pituitary extract the labor pains immediately recur.

DR. JENNINGS C. LITZENBERG, Minneapolis: In 1914 I sounded a warning against the promiscuous use of pituitary extract. My warnings were based on the observation of a relatively small number of cases, but it seemed to me that there was much danger of rupture of the uterus. Another indication, one which has not been mentioned by the essayist or in the discussion, is that of hemorrhage in the brain of the fetus, which we have seen in cases in which labor was entirely normal in every way except that pituitary extract was given at the end, when labor had nearly stopped, with the head on the perineum. The baby, alive at the time the pituitary extract was given, was born dead in a short time, and the postmortem showed hemorrhage of the brain. This paper is certainly

timely for its warning against the promiscuous use of pituitary extract. I hope it will have the effect that no one will ever give an ampule of pituitary extract before the baby is born, but only very small doses before delivery; also, that it shall never be given, except in the most exceptional circumstances, before the cervix is fully dilated, and even after that with the greatest care and with ample preparations for complications.

DR. C. S. BACON, Chicago: One phase of this subject which has not been alluded to is the medicolegal question. I have seen a number of cases in which this phase of the problem was encountered. I know of one case in which a practitioner was blamed because he did not use pituitary extract in place of doing a forceps operation which resulted unfortunately. In a case in which pituitary extract is used and the baby born dead, or where there are serious lacerations of either the cervix or perineum or of the pelvic outlet, there is a greater legal risk. This feature should be considered carefully. The initial dose of pituitary extract should always be small. For some years I have not ventured to give more than from 3 to 5 minims of the extract as the beginning dose. When, however, a patient does not react to this dose, I do not hesitate to give more, but under exceedingly careful observation of the case.

DR. W. P. MANTON, Detroit: I have tried out pituitary extract in a limited number of cases and my findings agree practically with Dr. Kosmak's experience. The period of rehabilitation of which Dr. Litzenberg speaks is one of special importance for the general practitioner, and will probably never arrive.

AVOIDABLE TRAUMATIC ABDOMEN*

JOHN B. DEAVER, M.D.

PHILADELPHIA

At this time when so much unavoidable injury is occupying the attention of the surgical world, the surgeon in civilian practice is more than ever shocked on being confronted with traumatism that could be avoided. This was forcibly brought home to me recently while operating for symptoms of a severe abdominal lesion:

A colored woman, aged 49, had been operated on twelve years previously (operator unknown) for a tumor of the uterus, abscess and appendicitis. After two months at the hospital, she had been dismissed in good condition and had remained perfectly well until her present illness, which had set in with severe abdominal pain six days prior to her coming to the hospital.

I was not a little astounded to find the trouble to have been caused by a pair of hemostatic forceps 8 inches long, one half of which was found in the sigmoid and the other half in the lower ileum which it had perforated, producing a spontaneous ileosigmoidostomy. The instrument was removed and the bowel closed; it was corroded but not covered with a membrane. The entire lower abdomen, the site of a purulent peritonitis, was tied up with adhesions, some of which it was deemed best not to attempt to separate. The patient made an uneventful recovery and was discharged in good condition one month after operation.

The case appears unique, both for the length of time the foreign body had been within the abdominal cavity without causing any trouble and for the unaccountable manner in which the instrument had separated and found lodgment in different parts of the bowel.

CAUSES AND EFFECTS OF OPERATIVE OVERSIGHT

Numerous systems and devices have been suggested to avoid this accident, but they are usually more or

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less cumbersome and often fail of the very purpose for which they are designed. In the last analysis, the proper organization of the operating room is the vital factor in preventing this mishap. The essentials are absolute quiet, a permanent staff of well trained, reliable assistants, each assigned to a particular task, whose conscientious and concentrated attention to this task and unremitting persistence in tracing any piece of gauze or instrument that may be missing is second only to the vigilance of the operator himself. Those of us who are fortunate enough to have at our command such a staff are also fortunate enough not to have such an oversight on record.

Some surgeons, who with commendable frankness have published their sins in leaving a foreign body within the abdomen during operation, have offered extenuating circumstances to explain the misfortune, such as unusually difficult and prolonged operation with threatened collapse of the patient and necessarily hurried termination of the operation in order to save life. The oversight would be possible in such circumstances, especially if the operator was young, but it is here where the training of his staff proves of inestimable worth.

The possible dire results of the occurrence are threefold: death, prolonged suffering and often abscess formation, usually with recovery, and not infrequently a lawsuit, which, no matter how it terminates, means an irretrievable loss of time and of reputation to the surgeon.

Fortunately, a beneficent provision of nature enables the peritoneal cavity to protect itself from the evil effects of a foreign body in its midst, and its presence is often one of the surprises of the postmortem table. In a great many instances, too, the forgotten object is passed spontaneously through the rectum and sometimes it is recovered through an abscess or a sinus. But more often it entails a secondary operation immediately after the primary one, or, as in our case, at some more or less remote period afterward. The outcome is not always so fortunate, for death as the result of the presence of the foreign body and its attendant complications is the result in more than one fourth of the reported cases.

PERFORATION OF THE UTERUS

This type of avoidable traumatism suggests another type which is perhaps less pardonable than the foregoing and which is attended with equally unpleasant possibilities. I refer to perforation of the uterus. The avoidance of this accident is entirely a matter of instruction and technic. The frequency with which it is still reported (and it is probably not reported as often as it occurs) would seem to indicate that curettage is still considered an easy and simple operation which every beginner may safely undertake. The fact of the matter is that it is a serious operation and that only the experienced surgeon is able to recognize when a false passage has been made and can at once proceed to correct it. The tyro in surgery usually does not know what he has done or realizes it only when to his horror he finds that what he is drawing out is not membrane but intestine. In other words, the expert immediately knows when he is encountering unusual conditions, such as soft uterine tissue, which offers no resistance to any instrument, or abnormal anatomic relations, such as retroflexion; and he acts accordingly. In the event of perforation, prompt action usually prevents any untoward result and

recovery takes place. But should the accident happen to one who is not experienced, death is the more common result, due often to imperfect aseptic precautions and lack of training or lack of proper facilities to do an abdominal section to repair the injury.

One way of avoiding the accident is by careful preliminary estimation of the position, mobility, consistency, and, if possible, contractility of the uterus, and by noting the presence of obstruction, such as tumors, and the condition of the adnexa. Another way is to use nature's best curet, the fingers of the experienced surgeon. Should an instrument be required, it should be a dull one, preferably placental forceps. The dull curet may, but the sharp one does do harm. The former removes epithelium but the latter removes mucosa as well, which leads to a permanent loss of substance, for repair in such an event takes place by the formation of connective tissue and produces a focus of reduced resistance and a predisposition to rupture.

It is also well to remember that perforation of the uterus has resulted in some instances from the injection of caustic solutions, such as chlorid of iron or of zinc, tincture of iodine, etc. In the special cases in which such solutions are found necessary, they should be applied with a swab.

RUPTURE OF THE UTERUS

In the list of avoidable abdominal traumatisms, we must also include rupture of the uterus with its shockingly high maternal and fetal mortality. While it is possible that a percentage of the complete traumatic ruptures produced by operation have been preceded by a slight degree of spontaneous rupture of the uterus, there is sufficient evidence to show that by far the greater number of cases are actually traumatic, the direct result of inexperience and ignorance, of failure to recognize that rupture is threatening or at least to recognize that things are not as they should be, of faulty manipulation, hasty instrumentation, and, in not a few instances, of the administration of pituitary solution.

The only hope of improving the dark prognosis of this very serious condition is abdominal section at the first sign of spontaneous rupture. Any other procedure, such as drawing the fetus through the rupture and delivery in the natural way runs the risk of additional injury and of infection and is also contrary to the principles of good surgery which abhors work in the dark, but prefers the light by which it may see well what is to be done and do well what is to be done.

In a few exceptional cases, when the rupture is in the lower uterine segment, packing the uterus and the pelvic cavity with gauze has given good results, but when the rupture is anterior or lateral and when there is marked hemorrhage and the placenta or the fetus has escaped into the abdominal cavity, abdominal section is imperative and most likely a hysterectomy will be required. The safest course in all ruptures is operation.

The advantage of abdominal section is the opportunity it presents of complete cleansing of the operation area, control of hemorrhage, examination and proper treatment of the collapsed intestine, and the possibility of conservative treatment of the ruptured organ. Supravaginal amputation which is advocated by some surgeons, it is true, preserves the pelvic floor intact and permits menstruation, but it removes the

sound and noninfected corpus and allows the lacerated cervix to remain. For this reason, total extirpation is better when the vaginal portion is torn and requires suture.

The best thing, however, is to do everything possible to avoid the accident by careful study of conditions—the comparative size of the fetus and the pelvis and the degree of expulsive power. The ability to recognize impending rupture, and prompt action to resist it are greatly needed.

USE OF NITROUS OXID GAS

A few words with regard to nitrous oxid gas and nitrous oxid and oxygen anesthesia in surgical and obstetric work may not be out of place in this connection.

While I have found this form of narcosis useful in short operations, especially appendectomy in chronic appendicitis, I should not be inclined to advocate it for more extensive and prolonged work. Its great disadvantage seems to me to be that it does not give complete anesthesia, and thus it prevents that perfect relaxation of the patient and at the same time that perfect control by the surgeon, who should be monarch of all he surveys. The amount of gas to be given is also difficult to determine even after extended practice in its administration, and the surgeon's attention is apt to have to be divided between the state of his patient and the work he is doing, at least more so than with ether anesthesia in the hands of a competent anesthetist.

Conservation, the watchword in civilian life today, has ever been the watchword of medicine. It behooves us at this time more than ever, by precept and by example, to leave nothing undone that will avoid unnecessary suffering and unnecessary risk to life, also unnecessary drain on our much depleted hospital and teaching staffs, to say nothing of the drain on the purse of the patients. It is for these reasons that I have chosen to sound this warning note at this time.

ABSTRACT OF DISCUSSION

DR. STEPHEN E. TRACY, Philadelphia: Two or three years ago a patient came under my observation complaining of symptoms from a mass in the middle zone left side of the abdomen. The patient was studied carefully and finally a diagnosis of malignancy of the colon was made. At operation a block dissection was made; over half of the transverse and nearly all of the descending colon was removed. There was an opening between the mass and the lumen of the colon through which a piece of gauze protruded. The cavity when open revealed a considerable quantity of pus and a gauze pad. The patient had had a hysterectomy seventeen years before. She had had no symptoms from the gauze until about six months before she came under our observation.

DR. PETER B. SALATICH, New Orleans: Some time ago a man told me that he had resected 3 feet of bowel and the woman got well. It was learned that he had curetted the womb for abortion. He curetted and curetted and did not recognize the condition until the bowel was hanging out of the vagina. He had taken out 3 feet of bowel and boasted of what a wonderful operation he had performed.

DR. EMIL NOVAK, Baltimore: I saw a case of perforation of the genital tract which was rather striking in that severe injury to the intestine was caused by the patient herself. The patient was brought to the hospital, apparently moribund. A few days before, thinking she was pregnant, she had introduced a rough splinter of wood into the vagina, directing it upward in the general direction of the uterus. A few hours later she had a desire to defecate. During the straining she felt something

come out between her limbs. She did not know what it was, but, nevertheless, she took a pair of scissors and cut it off. It proved to be a loop of her own intestine. Dr. Deaver has done a service to gynecology in emphasizing the dangers of curettage, usually considered a very simple operation. Nevertheless, the dangers of operation are not nearly so great as Dr. Deaver has painted them—certainly not great enough to justify the routine performance of transperitoneal hysterotomy. While the danger of perforation of the uterus is a real one, the accident should not be of very frequent occurrence if the operation is done with the proper care. As a rule, the uterus is perforated on the instroke of the curet. I have often seen men, in using a curet, grasp it as if it were a poker, thrusting it forcibly into the fundus. The instrument should be allowed to slide up toward the fundus practically by its own weight. The outward stroke can be made much more briskly, for there is little danger of perforating the uterus during this step of the procedure.

Dr. Deaver's allusion to the subject of rupture of the uterus interested me, especially because of a recent personal experience. In this case the rupture followed a previous cesarean section, and was noteworthy because of the absence of the shock and hemorrhage usually observed in uterine rupture. I saw the woman in consultation six weeks after the expected date of confinement. At the latter time she had had a spurious labor which had left her with a moderate amount of abdominal soreness. The woman had, however, been walking about the hospital and feeling fairly comfortable up to the time I saw her. In view of the absence of a presenting part or fetal heart sounds, rupture of the uterus, with extrusion of the fetus into the abdominal cavity, was diagnosed. At operation a large macerated fetus was removed from the abdominal cavity, the ruptured uterus having undergone involution and having again become a pelvic organ. Rupture of the uterus had apparently been attended with no hemorrhage, probably on account of the tamponlike action of the fetal head as it was extruded through the uterine wound.

DR. A. E. WALKER, Anthony, Kan.: I was called to curet a woman from whom a young physician had removed 40 inches of bowel. I opened the abdomen and found two perforations in the anterior wall. The uterus was retroflexed, making perforation quite easy.

DR. A. P. BUTT, Davis, W. Va.: I do not think the impression ought to be allowed to go out that these are all avoidable accidents. We are not all surrounded with the appointments which Dr. Deaver has in his operations, and these accidents are bound to occur. Those of us who attended Dr. Murphy's clinics remember how sponges were counted and foreign bodies explored for. He always did that, and I presume Dr. Murphy had some reason for so doing.

DR. JOHN B. DEAVER, Philadelphia: I am much obliged to the gentlemen for discussing my paper. After years of experience in removing foreign bodies, this instance in which the forceps were found, after having separated and perforated the bowel, was unique.

Progress in China.—The usual missionary program, with its threefold emphasis on education, medicine and religious teaching, is in China the agent of reconstructing whole communities and of creating a new type of life. In hundreds of cities and villages today these effects are evident: an increase of general intelligence; a greater capacity on the part of young men and women to support themselves well, due to the training obtained in church and school; a decrease of prevalent diseases; cleaner and more beautiful homes; a new appreciation of the dignity of womanhood; a deeper interest on the part of the community in the welfare of the defectives and of the poor; the breaking down of fixed and hardened social customs and a greater ambition and zest to life on the part of young men and women; a new spirit of unity and cooperation in the Christian community; the breaking down of the bondage of demonology and a release of high spiritual hopes and aspirations. While all these effects are not evident in every community, they are the obvious effects of Christian missions in China.—J. S. Burgess, the *Survey*.

TREATMENT OF PREMATURITY*

ROOD TAYLOR, M.D., D.Sc.

ROCHESTER, MINN.

It is my purpose to present in this paper the method and the results of the treatment of premature infants in the University of Minnesota Hospital. The material studied includes sixty prematurely born infants, all being born at, or otherwise admitted to, the clinic from September, 1914, when the department of pediatrics assumed charge of the new-born infants' clinic, until the close of 1917.

It is noteworthy that Litzenberg's¹ report of the efficacy of the four-hour feeding interval for premature infants, the first report in American literature, came from the obstetric service of the same hospital. As Litzenberg states, he was led to adopt the long interval by observing its success in a premature baby that vomited whenever a shorter interval was tried. No less an authority than Czerny had previously recommended that the premature baby be given no more than six feedings in the twenty-four hours. Since Litzenberg's paper, another by Grulee² has appeared reporting success with, and advocating the use of, the four-hour feeding interval, stating that it tends to prevent overfeeding, to avoid vomiting, a serious complication, and to avoid disturbing the infant.

Our experience supports Grulee's summing up, and we see only one disadvantage of major importance inherent in the practice of four-hour feeding. This is that in certain homes where insufficient effort is made thoroughly to empty the breasts, they will be inadequately stimulated and the milk supply will suffer correspondingly.

The babies in this series were fed breast milk on the four-hour interval, with a few exceptions in the second month, no other food was used. Many of them were tube-fed for varying lengths of time, a procedure first employed by Tarnier,³ and later advocated by Rott⁴ and by Langstein.⁵ The tube, a small, soft rubber catheter attached to a glass funnel, was passed by mouth and inserted about 15 cm. No injury to the babies ever resulted. The tube feeding was continued until the babies were able to nurse or take the bottle successfully. The smaller babies, weighing 2,000 gm. and less, accomplished this, on the average, at the end of the first month. Only one required two months before being able to take the breast. Two thirds of the infants with a birth weight of more than 2,000 gm. took the breast successfully in the first week. Only three needed to be tube-fed in the third week.

Table 1 shows the birth weights of the babies who survived and the day on which they began to take considerable nourishment directly from the breast. Nearly half these babies, however, required complementary feedings for a week or two longer, that is, they were weighed before and after nursing, and the deficiency was made up by tube or bottle. The breast

supply of the mothers was kept up by manual expression or pumping, many of them sending their milk in twice a day by messenger.

Feeding, as a rule, was begun on the second day, the initial amounts being usually from 15 to 30 gm. six times in twenty-four hours. Oberwarth,⁶ Birk⁷ and Ladd⁸ have found the daily caloric need of the premature infant to be slightly in excess of 100 calories per kilogram. Salge⁹ and Budin¹⁰ place the amount about 50 per cent. higher, while Czerny and Keller give figures that lie between the two. According to Birk, after the tenth day, the premature baby needs about one seventh of his body weight in breast milk daily. It would seem—and this was our experience—that no average applies to the individual baby. The chief factor to be considered is that the baby's tolerance for food must not be overstepped. Vomiting (other than an occasional slight regurgitation when the tube is withdrawn) seems to be the first danger signal, and on numerous occasions the baby's ration was temporarily reduced when this appeared. Certainly one should not wait for other evidences of overfeeding, such as diarrhea or irregular temperature.

TABLE 1.—BIRTH WEIGHT, CONTROL OF TEMPERATURE AND DATE OF FIRST SUCCESSFUL NURSING IN SURVIVING INFANTS

Case Number	Birth Weight, Gm.	Day on Which Temperature Was First Controlled	Day of First Successful Nursing
8840	1,505	28	32
8075	1,540	33	48
10577	1,640	30	42
8074	1,670	28	71
10698	1,710	28	21
11744	1,800	—	34
12619	1,800	14	10
11112	1,870	37	19
11457	1,925	21	12
11621	1,930	10	26
9838	1,940	72	67
12490	1,960	—	18
7570	1,965	15	6
6536	2,000	21	34
7992	2,000	8	30
7993	2,050	8	28
12871	2,060	22	12
8073	2,120	29	25
8347	2,135	13	1
11665	2,180	8	10
9165	2,260	17	10
10235	2,280	—	2
9267	2,300	1	4
12876	2,300	—	6
9703	2,370	18	15
8590	2,380	—	3
11390	2,400	3	4
7427	2,440	—	5
9669	2,440	24	5
10926	2,450	—	4
9811	2,455	5	2
8731	2,480	—	2
7870	2,595	3	6
11883	2,620	—	9
7456	2,815	12	4
7514	2,860	3	3

ADJUSTMENT OF TEMPERATURE

Incubators were not used. Instead, the babies, clad in flannel hoods and capes, were kept in blanket-lined clothes baskets containing hot water bottles. The bed temperatures were charted along with that of the baby, and held at between 85 and 90 F. Genersich¹¹ gives this as the optimal temperature for the premature infant's bed. None of our babies that were unable to

* From the Department of Pediatrics of the University of Minnesota, Dr. J. P. Sedgwick, professor and chief of the department.

* Read before the Section on Diseases of Children at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Litzenberg, J. C.: Long Interval Feeding of Premature Infants, *Am. Jour. Dis. Child.*, December, 1912, pp. 391-409.

2. Grulee, C. G.: Care and Feeding of Incubator Babies, *Surg., Gynec. and Obst.*, 1915, **20**, 234-239.

3. Tarnier, quoted by Budin, P.: *The Nursling*, London, 1907, p. 28.

4. Rott: Zur Ernährungstechnik frühgeborener Säuglinge, *Ztschr. f. Kinderh.*, 1912, **5**, 134-174.

5. Langstein, L.: Ernährung und Wachstum der Frühgeborenen, *Perl. klin. Wehnschr.*, 1915, **5**, 631-634.

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7. Birk, W.: Ueber den Nahrungsbedarf frühgeborener Kinder, *Monatschr. f. Kinderh.*, 1910, **9**, 279-323.

8. Ladd, M.: The Results of Substitute Feeding in Premature Infants, *Arch. Pediat.*, 1910, **27**, 416-426.

9. Salge: Einführung in die moderne Kinderheilkunde, Berlin, 1909.

10. Budin, P.: *The Nursling*, London, 1907, p. 6.

11. Genersich: Der Einfluss der Wärme auf die Temperatur der Säuglinge, *Monatschr. f. Kinderh.*, 1910, **9**, 183-199.

maintain a normal body temperature with a bed temperature of 90 were able to do so when the bed temperature was higher. Our charts show that when the baby can maintain a normal monothermia with the aid of hot water bottles, the temperature will remain between 98 and 99 F. without them.

The bed temperatures were taken and charted after artificial heat was discontinued, and in babies that were controlling their body temperatures the bed temperatures were uniformly between 85 and 90 F. The temperatures of the bed of another premature baby, whose own body temperature remained between 97 and 98 F., was constantly in the neighborhood of 80.

Fifteen of the babies who survived had birth weights of 2 kg. or less. On the average, they were able to control their body heat by the twenty-seventh day. Only three required hot water bottles longer than a month. One, however, needed artificial heat until he was 72 days old. None of the premature babies with a birth weight of more than 2,000 gm. required artificial heat after the first month. Twenty-one of these survived and only three needed it in the fourth week. Table 1 shows the day on which the infants began to maintain their body temperature without artificial heat.

The babies were bathed with olive oil and wiped dry with warm flannel. An aseptic nursing technic was followed, nurses and doctors washing their hands before and after contact with the infants, and wearing gauze masks if suffering with any respiratory infection, however mild. The mothers of premature infants were carefully watched, and at the first sign of coryza were made to wear masks while nursing their babies.

STATISTICS OF MORTALITY FOR SURVIVORS AND NONSURVIVORS

Of the sixty premature infants, thirty-six lived and twenty-four died, giving a gross mortality of 40 per cent. Fourteen deaths, however, or 58 per cent. of the total number of deaths, occurred on the first day. Necropsies were done on twelve of the fourteen babies,

TABLE 2.—RECORDS OF PREMATURE INFANTS SURVIVING SIX DAYS

Case Number	Birth Weight, Gm.	Day of Death	Probable Cause of Failure	Pathology
11134	975	8	Gradual decline in body temperature	No necropsy
8385	1,450	13	Gradual decline in body temperature	Necropsy negative
7910	1,500	6	Gradual decline in body temperature	Necropsy negative
7205	1,675	51	Par uterine infection. Mother had open pulmonary tuberculosis	Necropsy negative
9097	1,825	43	Overfeeding with breast milk. Baby's tolerance exceeded, vomiting. Diarrhea, eczema. Mother had tuberculosis	Necropsy negative
10168	2,180	25	Hematemesis. Syphilis.....	No necropsy

and in five instances definite and adequate causes for death were found. There was extensive visceral syphilis in two cases, anencephalus in one, intraventricular hemorrhage in one, and a fractured dorsal vertebra with a lacerated spinal cord in one. Two died on the second day, one on the third, one on the fifth, and one on the sixth, all with cyanosis and a gradual decline in body temperature. One infant survived until the eighth day and another until the thirteenth day, both showing throughout a slowly falling temperature. Necropsies were done in five of the seven cases without a satisfactory cause of death being found. Of the remaining thirty-nine babies,

one with syphilis died on the twenty-fifth day of hemorrhage from the stomach, and one died on the forty-second day because his tolerance for breast milk had been overstepped. This baby apparently had taken his food well and was making a satisfactory gain in weight; but the food was increased too rapidly, the warning signal of vomiting was disregarded, diarrhea and eczema developed, and thereafter a quantity of nourishment great enough to maintain life could not be tolerated. The only other death occurred on the fifty-first day in a baby that contracted rhinitis from

TABLE 3.—RECORDS OF PREMATURE INFANTS SURVIVING LESS THAN SIX DAYS

Case Number	Weight, Gm.	Day of Death	Pathology
7457	.....	1	No necropsy
12900	.....	1	No necropsy
7996	.....	1	No necropsy
868	.....	1	Necropsy negative
7771	630	1	No necropsy
10104	660	1	Necropsy negative
12895	700	1	Necropsy negative
6002	1,060	3	Necropsy negative
11208	1,185	1	Hemorrhage into left lateral ventricle
70	1,210	1	Anencephalus. Pulmonary hemorrhage
303	1,250	5	Necropsy negative
3	1,470	1	Necropsy negative
11439	1,570	1	Necropsy negative
8617	1,885	1	Fracture fifth dorsal vertebra, laceration of spinal cord
34	1,900	1	Syphilis
55	1,910	1	Syphilis
11490	2,200	2	No necropsy
958	2,220	2	Necropsy negative

some careless attendant; the temperature became irregular, the tolerance for food was lost and death ensued. The last two babies were born of mothers each of whom had an open pulmonary tuberculosis. No tuberculosis was found at the necropsies of the infants, but, as Reiche¹² has pointed out, maternal tuberculosis exerts a harmful influence on the premature infant, even when the latter does not suffer from the disease.

Budin pointed out the great importance of initial chilling in producing the death of the premature infant. This most frequently occurs when the baby is born outside the hospital. Consequently, while our mortality rate is much increased by the fourteen infants who were born there and died on the first day, it suffered very little from the deaths of infants who were brought in from outside to die later. Only one such death occurred.

Table 2 shows the birth weight, the age at death and its cause in the six infants who survived longer than five days. Similar data concerning the eighteen infants who died in the first five days is contained in Table 3. It is a question as to how many of these babies were viable.

PROGRESS OF SURVIVING INFANTS

A summary of the more important information gleaned from the records of the surviving babies is presented in Table 4. It shows the progress of each baby, the ability to control temperature, to nurse, and to gain in weight. The age figures are given in days, the weights in grams. The + signs in the tenth column signify that complementary feeding was still necessary at the time of discharge, those in the eleventh, that the baby was nursing well at discharge, and those in the twelfth that at that time he was gaining satisfactorily.

The parallelism between the ability fully to control body temperature and to gain satisfactorily in weight

12. Reiche, A.: Das Wachstum der Frühgeburten in den ersten Lebensmonaten, Ztschr. f. Kinderh., 1915, 12, 369-401.

is noted. Six of the nine babies that were discharged before they were able to maintain a normal monothermia were not yet making a good gain. Because of the advantage of keeping the baby with its mother, all infants were discharged as soon as it seemed safe to discharge them. All but two babies, however, were either nursing well or gaining satisfactorily at the time of leaving the hospital. Only three infants remained in the hospital longer than two months, and two of these developed marked pallor and craniotabes in the third month. As has been pointed out by Rosenstern¹³ and others, the so-called pseudorickets uniformly occurs at this period of premature life. These babies were given iron and cod liver oil and showed improvement. It would seem advisable, if not contraindicated, to start such medication as early as the second month.

ABSTRACT OF DISCUSSION

DR. JOHN ZAHORSKY, St. Louis: I have been much interested in the question of the premature infant for several years. It is much better practice to decide daily how much milk the baby shall have, by any method you choose. Write on the directions just the quantity of milk the baby should have each day, and the nurse should be instructed to give that amount in twenty-four hours. In other words, prescribe daily rations, and then try to get it to the baby. Sometimes you can do it on a four-hour schedule, and sometimes you have to feed more often to get the proper quantity. The feeding is the most important part of the care of the premature infant, not the regulation of the temperature. I always try to work on an energy quotient of 120 to 130 by the tenth day. I commence usually with only one fourth of that quantity—one fourth of 120, or an energy quotient of about 30 the first day, and gradually increase from day to day, until we have worked up to 120 or 130. This varies with the baby. I do not believe the

TABLE 4.—PROGRESS OF SURVIVING INFANTS IN WEIGHT, CONTROL OF TEMPERATURE, NURSING ABILITY, ETC.

Case Number	Weight at Birth, Gm.	Day on Which Babe First Controlled Temperature	Day of First Bottle Feeding	Day of First Breast Feeding	Age at Discharge	Weight at Discharge	Day Artificial Heat Was Discontinued	Complemental Feedings Necessary at Discharge	Nursing Well at Discharge	Gaining Satisfactorily at Discharge	Remarks
8890	1,505	28	32	32	38	1,870	28	—	+	+	
8075	1,540	33	52	48	55	2,360	—	+	—	+	
10577	1,640	30	—	42	49	2,360	31	+	—	+	
8074	1,670	28	—	71	141	4,150	74	+	+	+	
10698	1,710	28	—	21	28	1,860	—	—	+	+	
11744	1,800	—	31	34	59	1,910	—	—	—	—	Much artificial feeding; mother did not cooperate
12619	1,800	14	4	10	59	2,800	15	—	+	+	
11112	1,870	37	18	19	38	2,100	16	—	+	+	
11457	1,925	21	—	12	28	2,640	—	+	—	+	
11621	1,930	10	10	26	39	1,830	27	—	+	+	
9838	1,940	72	67	—	168	3,770	—	—	+	+	Pseudorickets
12490	1,960	—	18	18	32	2,120	—	—	+	—	Temp. not controlled; weight gain slight
7570	1,965	15	..	6	19	1,950	—	+	—	+	Pseudorickets
6536	2,000	21	34	..	151	4,350	—	—	—	+	
7992	2,000	8	29	30	39	2,280	—	+	—	+	
7993	2,050	8	29	28	38	2,380	—	+	—	+	
12871	2,060	22	—	12	31	2,460	—	+	—	+	
8073	2,120	29	25	25	38	2,540	—	+	—	+	
8347	2,135	13	—	1	24	2,030	—	+	+	+	
11665	2,180	8	—	10	13	2,520	—	+	—	+	
9165	2,260	17	—	10	25	2,220	—	+	—	+	
10235	2,280	—	—	2	15	2,210	—	—	+	+	
9267	2,300	1	—	4	11	2,060	—	—	+	—	Temp. slightly subnormal; weight stationary
12876	2,300	—	—	6	10	2,290	—	+	+	+	
9703	2,370	18	—	15	26	2,630	18	—	+	+	
8590	2,380	—	—	3	10	2,220	—	—	+	—	Temp. not controlled; weight stationary
11390	2,400	3	—	4	11	2,310	—	—	+	+	Temperature 97 to 98 F.
7427	2,440	..	.	5	11	2,160	—	—	+	—	Temperature above 97 F.
9619	2,440	24	—	5	33	2,630	—	+	+	+	
10926	2,450	—	—	4	12	2,430	—	—	+	+	
9811	2,455	5	—	2	10	2,430	—	—	+	+	
8731	2,480	—	—	2	12	2,470	—	—	+	+	
7870	2,595	3	5	6	10	2,330	—	—	+	+	
11883	2,630	—	—	9	11	2,580	—	+	—	—	
7456	2,815	12	..	4	16	2,600	—	—	+	+	
7514	2,860	3	..	3	9	2,630	—	—	+	+	

CONCLUSION

It is found that of sixty infants fed breast milk on the four-hour interval, by tube when necessary, kept sufficiently warm and protected against infection, thirty-six lived and twenty-four died, a gross mortality of 40 per cent. When, however, one deducts the fourteen deaths occurring on the first day, the mortality rate of the remaining forty-six cases falls to 22 per cent.

The most favorable view of the treatment employed is gained if only the forty-two babies living longer than five days are considered. Among these, including two who by better judgment and technic could have been saved, there were six deaths, giving a mortality of 14 per cent.¹⁴

interval makes any material difference. What does matter is that you get into the baby the required quantity of food. The symptom of cyanosis which comes frequently is due to apnea, and may frequently be due to exhaustion. There is not enough energy to keep up respiratory efforts. It is necessary to get sufficient food into the baby, regardless of the intervals between feedings.

As to the question of temperature, I think it is a little high in this paper. With a small baby, under 2,000 gm., it is necessary to commence with a temperature of from 85 to 90; you want to gradually reduce this temperature, because slightly overheating a baby often produces cyanosis, and not only that, it seems to diminish the internal power of oxidation. I like to keep the baby as cool as possible, and still maintain a bodily temperature of at least 98 degrees. The most important symptom to combat with a premature baby is apnea. Cyanosis is liable to occur in any feeble infant. To prevent this, in the first place I think a proper fat supply should be maintained. It might occur, of course, from overfeeding or from infection. These cases are always given some respiratory stimulant, in addition to oxygen to dispel the cyanosis, usually caffeine or small quantities of tea. I

13. Rosenstern, I.: Hunger im Säuglingsalter und Ernährungstechnik, Deutsch. med. Wchnschr., 1912, 38, 1834-1839.

14. In addition to the references already given, the following will be found of interest:

La Fetra, L. E.: The Hospital Care of Premature Infants, Arch. Pediat., 1916, 33, 352-356.

think caffeine is very helpful in stimulating the respiratory centers.

DR. ISAAC A. ABT, Chicago: I presume four-hour feedings will work out in a certain number of cases, even with premature babies. It seems to me that if a premature baby is fed only once in four hours, it will have to take a larger quantity at each feeding than if it were nursed every two or three hours. A baby's stomach at this time is naturally limited in size, and it appears to me that one gets better results if the baby is fed small quantities at relatively frequent intervals. I do not believe that the four-hour feeding plan should become a dogma. I see men who believe it is their whole business to have a baby fed only once in four hours, and if they think you order feedings every three hours they stand aghast. After all, we are dealing with individuals, and while a certain number of prematures may do well on four-hour feedings, I believe most prematures should be fed more frequently—possibly every two or three hours. Budin laid down the principles in his little book that prematures suffer from two great troubles—one, difficulty in maintaining body temperature, and secondly, most of them fail to prosper because of insufficient food. It seems to me, in order to supply the amount of food they need, they should be fed small quantities at frequent intervals. Dr. Taylor has already made the point that these babies should receive breast milk. This should be emphasized over and over again. Premature babies who are fed malted milk or condensed milk, or even cow's milk diluted, are extremely difficult to raise. I believe no real success can be obtained with these infants unless they receive breast milk.

DR. LAWRENCE T. ROYSTER, Norfolk, Va.: Most of the work I have done with prematures has been in private practice, outside of hospitals—a number were in outlying country districts where facilities were few and nurses often not available. I have met with some degree of success. As Dr. Abt has said, we must consider the individuality of the patient. The stomach of the premature infant varies just as much as the full-term infant's stomach does. Therefore, the ratio between the quantity given and the size of the stomach must be studied individually. I do not believe I ever fed a premature infant at four-hour intervals. From the standpoint of a private practitioner, outside of hospitals, I do not believe that it is feasible without a stomach tube. I do not use a stomach tube frequently because I have not often a person near who is qualified to do it. Of course, where there is no nursing power, that is essential. My most frequent interval for the first few days is two hours, and 1 to 2 drams is all that we can get in. I have tried a larger amount and a longer interval, but found that the babies did not thrive. Breast milk in these cases is almost a *sine qua non*. Some of the smallest premature babies I have ever reared never had a drop of breast milk. My plan in these cases has been to start with whey. Some will criticize this. However, I am talking from experience. Whey, diluted or whole, according to the patients' ability to assimilate, is a very good substitute for tiding over this time. After they take this, I then go to a straight modification of cow's milk.

Prematurity, of course, is a terrible handicap for a baby. A great many premature babies come as a result of various "accouchement forcé" methods which may be necessary on account of the condition of the mother. I do not wish to enter into a discussion of cesarean section, etc., but we have found that premature babies who have come as a result of cesarean section have given us an easier task than those brought into the world by rapid dilatation, and then the necessitated handling of the child with forceps.

DR. FRANK C. NEFF, Kansas City, Mo.: I think we should not overlook one thing Dr. Taylor has mentioned, and that is the aseptic handling of these babies. As you all know, premature babies are a matter of great curiosity. I have found it very difficult to keep visitors away, and it can easily be seen how infection can occur. As to what Dr. Royster said as to feeding these babies with a tube, I do not think it is particularly difficult. On several occasions I have shown the mother how to use the tube, and she has done it successfully. I want to ask Dr. Taylor one thing: At what period does a gain in weight usually begin?

DR. JANE M. KETCHAM, Indianapolis: Premature babies should not be overhanded. With them I use a stomach tube every four hours for the first week. In the effort to get the child to nurse it is often handled too long and becomes chilled, and thus you defeat your own end. The stomach tube is a great advantage. After the child has the strength to nurse it is better for it to make the effort. It is an advantage to have the baby weighed before and after every feeding, so that we may know how much it is receiving. The symptom of vomiting is of the greatest importance and must not be overlooked, because when a child once begins to vomit it is impossible to know how much food it is retaining or for it to retain sufficient. The symptom of cyanosis can best be treated by oxygen, hypodermically, or by 5 to 20 per cent. glucose solution. The body fluids must be kept up at all costs. This is equally as important as maintaining an equable temperature. Great care must be taken not to overhandle a child.

DR. JULES M. BRADY, St. Louis: When this four-hour interval was first called to my attention in 1910, I did not see how it was possible to get sufficient nourishment into a premature infant in this way. It is like everything else—we have to try it to be convinced. Having had experience in numerous hospital cases, I have been convinced. There is one symptom that will throw a scare into one, and that is vomiting. When this appears, I think the chances of bringing through the premature are diminished. Feeding breast milk at four-hour intervals I think is the best method to prevent the appearance of this vomiting, which is so dangerous to the premature infant. If you cannot get breast milk, as sometimes occurs, I believe it is necessary to feed at shorter intervals.

DR. JAY I. DURAND, Seattle: Hunger is a detriment to a baby, and keeping babies on a starvation diet has, I think, done more damage than any other one fault in our infant feeding. Barley water for more than a twenty-four-hour period is never necessary in gastro-intestinal disturbances, and no variation of the normal feeding need be made in parenteral disturbances except the reduction, which no child voluntarily makes by refusing part of the nursing. The younger the baby, the greater is the danger from hunger. In prematures, the four-hour interval is the best. I had one premature of 2 pounds 3 ounces, which gained beautifully on four-hour feeding intervals, but you must see to it that the infant gets enough to cover its caloric needs. If the baby does not take enough from the breast, bottle, dropper or Breck's feeder, gavage must be used.

DR. EDGAR J. HUENEKENS, Minneapolis: I am especially interested in the rickets or pseudorickets that these premature infants develop. In a recent series of cases, I found 92 per cent. showed evidences of rickets. I believe this depends on a shortage of calcium in the infant's organism. Basing my treatment on the work Schloss has done in the treatment of rickets in breast-fed infants, I give these babies tricalcium phosphate with cod liver oil. I use a 10 per cent. mixture of tricalcium phosphate in an emulsion of cod liver oil. The results seem to warrant further trial.

DR. HARRY LOWENBURG, Philadelphia: Several years ago in discussing this subject, I took the stand that we should treat the individual. It is very dangerous to become dogmatic about anything in medicine, especially infant feeding. Another thing comes to my mind, and that is that in passing the tube to feed these infants, it is much easier in my experience to pass it through the nose. I have also used a 5 per cent. sterile solution of glucose injected through the anterior fontanel directly into the longitudinal sinus, and I feel that it has done some good. Obstetricians are the chief offenders in destroying the maternal milk supply. I think that they should be told that either they should learn the principles of infant feeding, or leave the premature infant alone, as well as other infants.

DR. F. C. WAHRER, Fort Madison, Iowa: Prematurity is the exception, and when we are making rules, let us not forget the exceptions. When you make a rule for all, you must use the rule and the exception; in some cases the rule may apply, in some the exception—and in some others the exception to the exception. Suppose a child is born four weeks too soon. At the end of two months is it 4 weeks old or 2 months? Does it still partake of the condition in utero pertaining

before its birth? If it does, then there is some good sense in feeding a child at four-hour intervals, which would not have been fed anything if it had remained those four extra weeks in utero. I think it is a question whether it even needs to be fed as often as Dr. Taylor suggests. But since we cannot make rules for every child, we must adopt separate rules for each child, as I am sure that some premature children must be fed oftener than other equally premature children.

DR. ABRAHAM JACOBI, New York: I believe, as has been said, that every case has to be treated individually. You have to use your brains. I believe every one who has spoken was correct—correct in his own case—but only in his own case. We should study the babies and study the babies' mothers, and we will be better off. I am not in a position to say that your babies and the other doctors' babies will do well on the same treatment. That is impossible.

DR. ROOD TAYLOR, Rochester, Minn.: I went over the charts of Dr. Sedgwick's patients at the University of Minnesota Hospital. I was so much interested in what I found on those charts that I secured Dr. Sedgwick's permission to report what I found. All those babies happened to be fed on the four-hour interval. All the prematures did well on it. There is this to be said for using a standard interval—it helps one to gage when the tolerance of that particular baby is being overtaxed. Dr. Zahorsky mentioned the importance or non-importance of the baby's maintaining its own temperature. There were nine patients in this series who were not maintaining temperatures very well. Of these, six were not gaining. As regards the small amounts of breast milk taken at a time, I think the reason most often is not the size of the baby's stomach, but the inability of the premature baby to nurse well, whether it is due to lack of the sucking reflex or what not. The stomach of the new-born is much more active than that of the adult, and the stomach of the premature infant is much more active than that of the new-born, as the latter is more active than the stomach of the adult. Although no work has been done on the subject, I believe the stomach of the premature infant empties itself more rapidly than the stomach of the full-term infant.

We do not see in the hospital, nor have I seen outside of it, women with premature babies, who did not have breast milk. Some of these women were very sick, and some septic, but if we wait long enough there will be breast milk. Without exception, we have always had breast milk for the premature baby—that is, provided the mother lived. In regard to the use of the nasal tube, I have had no difficulty in passing the tube through the mouth, and I believe it is generally considered safer to pass through the mouth because of the danger of passing it in to the cranium. These babies gained weight very slowly, but came along all right in the end.

Health and Ethics.—The basis of ethics, then, is the health of the community. That fact we know, but we do not know it fully; we have not exhausted its riches. We have improved sanitation; we have improved the conditions of labor both as regards positive risks and the character of buildings. In these things the best and the most efficient have proved identical; so far economics has supported ethics. But economic production and efficiency are liable to be dangerous allies; we must not be led astray by a false ideal of industrial growth. Nor must we suppose that our duty ends with the physical welfare of the population. Already there are ample proofs that we shall be carried from external to internal conditions, from individual to racial questions, from health of body to health of mind. And by health of mind must be understood much more than crude questions of insanity, crime and feeble-mindedness. The human race tends to emphasize more and more its own peculiar feature; its consciousness becomes more acute and more comprehensive; it cannot, like the animal, merely eat and drink and sleep; while we teach prudence and thrift we are developing, if I may so put it, the organs of worry and anxiety. This too will have its pathology, personal and social, an evil which is far from imaginary and has its witness in much of the present unrest. All these things must be included in our idea of the "public health" and we must organize for nothing less comprehensive.—G. S. Brett, *Public Health Journal*, August, 1918.

A FURTHER CONSIDERATION OF COMPLEMENT FIXATION IN TUBERCULOSIS *

V. H. MOON, M.Sc., M.D.

INDIANAPOLIS

The demonstration of antibodies in the circulating blood by complement fixation was first accomplished by Bordet and Gengou¹ and its application was made to tuberculosis by them several years before Wassermann and Bruck successfully applied the test in syphilis. If medical men should desire a less cumbersome term than the complement fixation test for tuberculosis it seems they could not do better than to term it simply "the Bordet test." The term has the advantage of brevity. It is historically accurate, and would fittingly perpetuate the name of the distinguished French investigator who first demonstrated the part played by complement in immune reactions—a discovery by which his German contemporaries were not slow to profit.

Wassermann and Bruck² made experiments with complement fixation in tuberculosis before they developed the test for syphilis, and subsequently Citron³ made similar experiments. In these earlier tests, Koch's "old tuberculin" was used as antigen. For several years no marked progress was made in applying the test to the diagnosis of tuberculosis, possibly because of variation in the results in the earlier tests. Within recent years numerous articles have appeared reporting favorable results in the application of the test to extensive series of cases. The most significant feature of these reports is that, while there are differences in data and percentages due evidently to the different methods and reagents used, there is agreement that complement fixation under proper conditions gives positive results in the majority of cases of active tuberculosis. The laboratory technic employed in this test is the same in principle and in main details as in complement fixation applied to the diagnosis of syphilis. As in that test there have been many variations in the technic and in the reagents employed, and as would be expected, the results have also varied. The widest variation occurs in the preparation used as antigen, but each of the antigens used successfully has consisted of some preparation of tubercle bacilli. The reaction is one of biologic specificity depending on the presence in the patient's serum of free antibodies specific to tubercle bacilli. In this particular, the situation differs from that in syphilitic infection.

In reviewing the reports of this test, Miller⁴ has classified the antigens into the following groups:

Group I. Antigens consisting of suspensions of whole or ground up tubercle bacilli.

Group II. Antigens which may be classed as tuberculins.

Group III. Antigens consisting of extracts or derivatives of tubercle bacilli.

Group IV. Preparations or extracts of normal and tuberculous organs, as lungs, lymph nodes, spleen, etc.

* From the Department of Pathology, Indiana University School of Medicine.

* Read before the Section on Pathology and Physiology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Bordet and Gengou: *Compt. rend. Acad. de sc.*, 1903, **137**, 350. *Ztschr. f. Immunitätsforsch. u. exper. Therap.*, 1914, **21**, 77.

2. Wassermann and Bruck: *Deutsch. Med. Wchnschr.*, 1906, **32**, 449.

3. Citron: *Berl. klin. Wchnschr.*, 1907, **3**, 1135.

4. Miller: *Jour. Lab. and Clin. Med.*, 1916, **1**, 816.

Such antigens are analogous to the original antigen used by Wassermann in the complement fixation test for syphilis. Their use in tests for tuberculosis has not been attended with success sufficient to warrant serious consideration.

TESTS OF GROUP I ANTIGENS

Among the reported series of tests in which antigens of Group I were employed the following are cited as examples:

Caulfield and Beatty,⁵ using "bacillen emulsion" as antigen, reported positive results in different types of tuberculosis ranging from 33 to 70 per cent. of cases. They also used Koch's old tuberculin as antigen in this same series of cases with positive results in less than 50 per cent. of the cases.

McIntosh and Fields,⁶ after experimenting with various antigens, concluded that a suspension of living virulent tubercle bacilli constituted the best antigen. They reported positive results in pulmonary tuberculosis in 76.6 per cent. of the cases; in "surgical tuberculosis," 80.7 per cent., while among eighty-seven control cases only three were positive. It is of interest to note that two of these three cases were lepers, while the third was Addison's disease, which should be considered as tuberculous.

Radcliffe,⁷ using a suspension of fresh tubercle bacilli as antigen, obtained 88.6 per cent. positive in early tuberculosis, 89.6 per cent. positive in moderately advanced tuberculosis, and 79 per cent. positive in far advanced cases. In 204 control cases there were no positives.

Miller and Zinsser⁸ reported a remarkable series of tests, using as antigen tubercle bacilli from a large number of strains ground for an hour with dry salt and then suspended in distilled water. This antigen has the advantage of great simplicity in its preparation, and they stated that it will not deteriorate if kept for weeks at icebox temperature. They reported 284 cases of pulmonary tuberculosis with positive test in 97 per cent., 140 doubtful and suspicious cases with 22.8 per cent. positive, 113 inactive or arrested cases with 9 per cent. positive, while 144 nontuberculous controls were uniformly negative. Of forty-five Wassermann positive serums, only two were positive with their antigen. The writers stated that tuberculosis could not be positively excluded in these two cases.

Burns⁹ and his colleagues, using Miller's antigen described in the foregoing, obtained equally consistent results, though their percentage was slightly lower than that of Miller and Zinsser. They compared the results of the tests with the patient's clinical condition, whether gaining or losing ground. They noted that patients who are holding their own, or gaining in physical condition, give the highest percentage of strongly positive tests, while those who are losing ground give the highest percentage of weakly positive or negative reactions. They regard the presence of complement-fixing substance in the blood as evidence of the patient's resistance and ability to form antibodies, and interpret the foregoing observations as revealing the amount of resistance the patient has

available with which to combat the infection. Their view seems logical. We can readily understand how, when the system is being overwhelmed by the infection, the antibodies may be combined with the bacilli and their products as rapidly as the patient's system can elaborate them, thus leaving no free antibodies to be demonstrated by complement fixation. Conversely, if the patient is holding his own or gaining in condition, it is not surprising to find strongly positive reactions if the degree of the reaction is in any way dependent on the amount of free antibody in the circulating blood.

TESTS OF GROUP II ANTIGENS

Following are a few examples of reported series of tests using as antigen preparations of tubercle bacilli which may be classed as tuberculins, or Group II antigens.

Besredka¹⁰ used a heated filtrate of tubercle bacilli which had been grown on a special culture medium. He found reactions uniformly positive in incipient and early tuberculosis, almost always positive in moderately advanced tuberculosis, and weakly positive or negative in far advanced cases. He laid stress on this point, since it made the test valuable in two ways: The fact that the test was uniformly strongly positive in early cases made it of especial value in the diagnosis of early and suspicious cases, while in well advanced cases in which the clinical evidence left no doubt as to the diagnosis, a weakly positive or negative test enabled him to offer a prognosis, since it served as an index to the patient's resistance. He observed, however, that the serum of syphilitic patients frequently gave a positive reaction with his antigen.

Inman,¹¹ using Besredka's antigen, obtained a positive reaction in ninety-five out of 100 cases of pulmonary tuberculosis. Of suspected cases in which there was no definite clinical evidence of tuberculosis, thirty out of fifty cases, or 60 per cent., were positive. Of 100 patients who were in the hospital for other conditions and in whom there was no suspicion of tuberculosis, twenty-four gave a positive test. Inman concluded that a positive test should be considered as evidence of an active tuberculous focus, while a negative reaction indicates either a healed lesion or absence of tuberculous infection.

Debains and Jupille,¹² using Besredka's antigen, obtained positive results in 90.5 per cent. of cases in the first and second stages and 81.3 per cent. in the second and third states of tuberculosis. Patients ill of other conditions than tuberculosis showed positive reactions in 17.3 per cent., while normal healthy persons were positive in 3.2 per cent. of the cases. The writers found that Wassermann positive serums gave positive results with Besredka's antigen in 24 per cent. of the cases.

Bronfenbrenner¹³ used Besredka's antigen and conducted an elaborate study of various phases of the Bordet test. He also experimented with antigens prepared by the methods of Craig, Corper and Calmette. His investigations are of such significance that it is difficult adequately to review them in the limited space of this summary. Those who are interested are

5. Caulfield and Beatty: Jour. Med. Research, 1911, **24**, 122.

6. McIntosh and Fields: Lancet, London, 1914, **2**, 485.

7. Radcliffe: Lancet, London, 1914, **2**, 488.

8. Miller and Zinsser: Prac. Soc. Exper. Biol. and Med., 1916, **13**.

134. Miller, H. R.: The Clinical Value of Complement Fixation in Tuberculosis, THE JOURNAL A. M. A., Nov. 18, 1916, p. 1519.

9. Burns, N. B., Slack, F. H., Castleman, P., and Bailey, K.: Application of the Complement Fixation Test to Tuberculosis, THE JOURNAL A. M. A., May 12, 1917, p. 1386.

10. Besredka, A.: Compt. rend. Acad. de sc., 1913, **156**, 633.

11. Inman: Compt. rend. Soc. de biol., 1912, **73**, 120.

12. Debains and Jupille: Compt. rend. Soc. de biol., 1914, **76**, 199.

13. Bronfenbrenner, J.: The Complement Deviation Test with Besredka's Tuberculin and the Occurrence of Tuberculosis Among Syphilitics as Diagnosed by this Test, Arch. Int. Med., December, 1914, p. 786; Science, 1914, **39**, 808; Tr. Nat. Assn. for Study and Prevent. of Tuberc., 1916, **12**, 225; Proc. Soc. Exper. Biol. and Med., 1914, **11**, 92; Jour. Lab. and Clin. Med., 1917, **3**, 50.

referred to his reports for particulars. He found positive results in 72 per cent. of clinically suspicious cases. Clinically tuberculous cases in the first stage were positive in 84 per cent., in the second stage in 94 per cent., while far advanced or third stage cases gave the remarkably low proportion of 15.3 per cent. positive. He found that a high percentage of Wassermann positive serums gave a positive reaction with Besredka's antigen, while 352 nonsyphilitic, nontuberculous controls were positive in 5.6 per cent. of the cases. He found that there is a "strain specificity" in the complement-fixing substance in serums from tuberculous patients, as evidenced by the fact that a given serum will give a positive reaction with antigen prepared from certain strains of tubercle bacilli, and weakly positive or negative reactions with antigens prepared from other strains. This probably accounts for many of the variations in the results of different investigators. It also gives point to the use of an antigen prepared from many strains of bacilli, that is, a polyvalent antigen. As to the fact that a high percentage of syphilitic serums give positive reactions, it is well known that the complement binding substance in syphilitic serum is not an antibody specific to the *Spirochaeta*, but is a lipotropic substance which may bind complement in the presence of the lipoidal substance present in tubercle bacilli, thus giving rise to false positives by cross fixation. Bronfenbrenner showed that the antibody in a tuberculous patient's serum is a specific antibody and that it is not lipotropic in character. This antibody reacts with the protein fraction of the antigen after the lipoidal fraction has been removed. He further showed that the serum of patients having both tuberculosis and syphilis contains both types of antibody, either of which could be exhausted from the serum by allowing it to combine with its appropriate antigen, leaving the other antibody present in the serum in undiminished quantity. On this basis he used Besredka's antigen freed by precipitation from its lipoidal substances, in an attempt to eliminate the false positives by cross fixation in syphilitic serum. His statement of the success of this is not clear. As to the remarkably low percentage of positive tests in far advanced tuberculosis, he stated it may be because (1) the resistance of the patient is exhausted, no new antibody being formed, and (2) the antibody is taken up by combination with the bacilli and their products in the system as rapidly as formed. This view, it will be noted, is in accord with that discussed earlier in this paper. Bronfenbrenner was able to verify this view by animal experimentation. He found that guinea-pigs inoculated with tubercle bacilli frequently gave positive complement fixation test as early as from five to seven days following the inoculation, while in advanced stages, from four to six weeks after inoculation, the test became negative. Bronfenbrenner concluded that positive fixation indicates active tuberculosis and that the application of complement fixation to the diagnosis of early tuberculosis is at hand.

Craig¹⁴ used Besredka's antigen modified by extracting with alcohol. The antigen contained many strains of tubercle bacilli including the bovine type. His results were summarized in three groups.

1. This group consisted of 209 cases of known tuberculosis. The percentages were: incipient cases, 96.7

per cent. positive; moderately advanced cases, 98.3 per cent. positive, and far advanced cases, 96.3 per cent. positive, while inactive and arrested cases showed a much lower percentage.

2. The second group consisted of other clinical conditions. Four hundred and fifty patients, ill of other conditions, including syphilis, gave a positive test in 4.4 per cent. of the cases. Three hundred and fifty cases of syphilis were positive in 5.4 per cent. of the cases. Four of these cases were later diagnosed as tuberculosis by the finding of tubercle bacilli in the sputum.

3. The third group consisted of 200 healthy young soldiers. One case, or 0.5 per cent., gave a positive test and this soldier afterward developed active clinical tuberculosis.

Craig stated that this test will not give positive results in other conditions than tuberculosis, and that his results, together with others, demonstrate that complement fixation in tuberculosis has reached the stage at which it may be used with confidence by practitioners in the diagnosis and as a criterion of cure in tuberculosis. He also stated that a positive test means the presence of an active tuberculous focus, and that as long as the test remains positive the patient cannot be considered cured. He called attention to the fact that his series shows a higher percentage of positive reactions than he himself could obtain in a like series of Wassermann tests in cases of active syphilis. He believes it is only a matter of time until this test will be as widely used as the Wassermann test.

McCaskey¹⁵ used Craig's antigen, but his percentages were much lower. Among thirty-six cases of clinical tuberculosis, twenty-eight cases, or 77.7 per cent., were positive. Among seventy-four cases of other diseases, fifteen cases, or 20.2 per cent., were positive. Among twenty-five cases with positive Wassermann tests, eleven cases, or 44 per cent., were positive. Only two of these had clinical evidence of tuberculosis.

Petroff,¹⁶ using three different antigens, obtained highest results with one of his own modification, which may be classed in the group of tuberculin antigens. He obtained in suspicious or doubtful cases 65 per cent. of positives; in incipient cases 81.2 per cent. were positive; in moderately advanced cases 91 per cent. were positive. Far advanced cases were 100 per cent. positive, although his number of cases in this group was too small to be conclusive. In fourteen normal controls and seven cases of arrested tuberculosis the test was uniformly negative.

TEST OF GROUP III ANTIGENS

Following are a few examples of Group III antigens consisting of extracts or derivatives of tubercle bacilli.

Calmette and Massol¹⁷ used a special water and peptone soluble preparation of bacilli with which they obtained positive results in 124 out of 134 known tuberculous cases, or 92.5 per cent.

Corper¹⁸ used an antigen in which tubercle bacilli were autolyzed for days at incubation temperature in salt solution. His percentage of positive results was not so high as that of others, possibly because of the fact that his antigen was prepared from a single strain of tubercle bacilli, while the prevailing opinion is that

14. Craig, C. F.: Am. Jour. Med. Sc., 1915, **150**, 781; The Complement Fixation Test in the Diagnosis of Tuberculosis, THE JOURNAL A. M. A., March 10, 1917, p. 773.

15. MacCaskey: Am. Jour. Med. Sc., 1917, **154**, 648.
16. Petroff: Tr. Nat. Assn. for Study and Prevent. of Tuberc., 1916, **12**, 214; Am. Rev. Tuberc., 1917, **1**, 33.
17. Calmette and Massol: Compt. rend. Soc. de biol., 1912, **73**, 120.
18. Corper, H. J., and Sweany, H. C.: Jour. Infect. Dis., 1916, **19**, 315; Tr. Nat. Assn. for Study and Prevent. of Tuberc., 1916, **12**, 205; Complement Fixation Tests in Tuberculosis, THE JOURNAL A. M. A., June 2, 1917, p. 1598.

a number of strains should be represented in the antigen. This point is especially emphasized by the work of Bronfenbrenner, Craig and Miller. Corper reported a considerable percentage of false positives resulting from cross fixation with syphilitic serum, and concluded that this occurred with sufficient frequency that a Wassermann test should be performed on all serums tested for tuberculosis, and in the presence of a positive Wassermann test a positive result with tuberculous antigen must be regarded as inconclusive. Dudgeon, Meek and Wier,¹⁹ after experimenting with a number of antigens, published their highest percentage of positive results from an alcoholic extract of tubercle bacilli. This gave 89.3 per cent. positives out of 234 cases of known tuberculosis.

If space permitted, many other equally valuable reports might be reviewed. I will close this section of the discussion by quoting one opinion from the clinical viewpoint. Dr. Meyer,²⁰ under whose clinical supervision this test was used diagnostically in hospitals for tuberculosis in New York, stated that the test was positive in 96 per cent. of tuberculous cases under his supervision, and that those cases in which it was negative were clinically arrested cases. He concluded as follows: "It is no exaggeration to say that the method equals in value the Wassermann test for syphilis. It is

that the antigen should contain many strains of tubercle bacilli.

ANTIGEN PREPARED BY MILLER'S METHOD

My own experiments with this test began with experiments with antigen prepared by Miller's method. In the beginning, serums were used from known tuberculous cases only, and variations in technic were employed to establish a satisfactory working technic. It was soon found that specific antibody in tuberculous serum is often present in very small amount and that extreme care is necessary in the technic in testing for it. The sheep hemolytic system was used and the reagents were adjusted as follows before each test: Fresh sheep corpuscles, after repeated washing with salt solution, were centrifuged at a fixed speed for a fixed time, fifteen minutes. This was to secure a uniform packing of the corpuscles in order that quantitative measurement of them would be more accurate. A 2 per cent. suspension of these packed corpuscles was then made and the amount of fresh guinea-pig serum was determined which would cause complete hemolysis in thirty minutes at 38 C. of 0.5 c.c. of the 2 per cent. corpuscle suspension in the presence of two carefully determined units of hemolytic amboceptor. The total volume in all titrations and tests was brought to 1 c.c. by the addition of physiologic sodium chlorid solution.

RESULTS OF EXPERIMENTS BY DIFFERENT WORKERS

Name	Suspicious		Early Tuberculosis		Moderately Advanced		Far Advanced		Other Conditions		Normals	
	Cases	%+	Cases	%+	Cases	%+	Cases	%+	Cases	%+	Cases	%+
Caulfield.....	...	....	...	33.0	...	70.0	...	63.0	...	....	204	0
Radeliffe.....	...	....	...	88.6	...	89.6	...	79.0	...	....	144	0
Miller.....	140	22.8	32	100.0	110	98.0	83	98.0	45	4.4	...	3.2
Inman.....	50	60.0	...	....	100	95.0	...	...	100	24.0	...	0.5
Debains.....	...	....	...	....	...	90.3	...	81.3	...	17.3	...	11.1
Bronfenbrenner.....	50	72.0	...	....	65	93.8	...	...	375	8.0	...	0
Craig.....	...	....	30	96.7	61	98.3	54	96.4	450	4.4	200	12.0
McCaskey.....	8	25.0	...	....	36	77.7	...	...	74	20.2	9	...
Petroff.....	20	65.0	64	81.2	123	91.0	2	100.0	14	7.0	14	...
Corper.....	69	43.6	28	35.7	61	70.5	63	61.0	31	19.3	...	...
Moon.....	61	60.0	24	87.5	49	85.7	83	84.3	23	26.0	100	...
Calmette.....	...	....	...	...	134	92.5*	...	...	...	....	...	...
Dudgeon.....	...	....	...	....	234	89.3*	...	...	...	....	87	3.5
McIntosh.....	...	....	...	....	...	76.7*	...	...	...	....	...	...

* Various stages grouped.

most important that complement fixation tests be made on as large a scale as possible both in sanatoriums and private life."

COMPARISON OF ANTIGENS

The foregoing reports, summarized in the accompanying tabulation, agree in the main particulars. Antigens prepared by widely different methods have given high percentage of positive tests especially in early tuberculosis, while the percentage of positives in normal individuals approaches zero. There is agreement that the test is most useful in detecting early cases, but there is difference in the evidence regarding far advanced cases, Bronfenbrenner and others finding a decrease in the percentages of positives in this group, while Miller, Craig and others find no such decrease. There is also a difference in the data regarding tests on syphilitic serum. This difference seems unexplainable when several investigators have used antigen prepared by the same method.

As to the antigens, it is difficult to draw conclusions as to their relative merits. Antigens from Groups I and II, however, seem to have produced the highest percentage of satisfactory tests. It seems to be agreed

In the making of the tests, two units of complement, determined as described, were incubated with 0.1 c.c. of the patient's serum and a suitable quantity of antigen for one hour, after which two units of amboceptor and 0.5 c.c. of 2 per cent. corpuscle suspension were added and again incubated for one hour. Suitable controls were made on each reagent used, and the antigen was never used in greater quantity than one third of the smallest amount that would give evidence of slight anticomplementary action. The objection is raised against using the sheep hemolytic system that it is necessary to inactivate the patient's serum by heating, and that this lessens considerably the activity of its antibodies. We found by trial that a temperature of 55 C. for five minutes is sufficient to destroy complement, so inactivation of the serums to be tested was done by heating to 55 C. for ten minutes. The shortened time of heating probably has less effect on the antibody content of the serum than the thirty minute period usually employed. It was found that 1 c.c. of the patient's serum was sufficient for the tests, as no positive tests were obtained by using a larger quantity of serum which was negative in 0.1 c.c. quantity.

The antigen employed was prepared by taking an equal quantity by weight of fresh tubercle bacilli from each of twelve different strains of the human type and

19. Dudgeon, Meek and Wier: Jour. Hyg., London, 1914, 1, 72.
20. Meyer: Tr. Nat. Assn. for Study and Prevent. of Tuberc., 1916, 12, 219.

four strains of the bovine type. This was mixed with sodium chlorid, C. P., according to Miller's formula: 20 mg. of bacilli plus 90 mg. salt, ground for an hour with a glass rod, then suspended in 10 c.c. of distilled water. The antigenic and anticomplementary quantities were determined by suitable titration. We allowed this suspension to autolyze for several days at 38 C., as suggested by Corper, with improvement in the quality of the antigen in some cases. However, unless strict asepsis was maintained in the preparation of the antigen the autolyzing process allowed contaminating organisms to develop causing undesirable qualities to appear in the antigen. I have convincing evidence that contaminated antigen causes false positives in the test. This objection also applies to antigen which is kept for a long time at icebox temperature. In attempting to produce an antigen that would keep indefinitely without deterioration, we tried the following method. Tubercle bacilli and salt in the foregoing proportion were desiccated for twenty-four hours over sulphuric acid. This greatly facilitated the grinding which resulted in an extremely fine white powder. Microscopic examination of smears made from this powder showed that most of the bacilli were fragmented. The powder would keep indefinitely in a sealed tube. The antigen was prepared by dissolving 50 mg. in 5 c.c. of distilled water and either used directly or after forty-eight hours' autolysis at 38 C. The antigen seemed to give satisfactory results, and one specimen of powder tested after two years' storage at icebox temperature seemed as usable as when first prepared. I was so satisfied with this antigen that I used it for many months in routine tests, and the great majority of the cases here reported were tested with this antigen. However, I noticed that the percentage of known tuberculous cases which gave a negative test was running continuously higher than other workers had reported. In seeking an explanation for this, an antigen was prepared from fresh young cultures of the same strains of bacilli. These were fully virulent and were not attenuated by heating or desiccation. These two antigens were run simultaneously on a series of cases and it was found that the number of positives among known tuberculous cases was distinctly higher with the fresh antigen and that the reactions were more distinct. I have abandoned the dried antigen in favor of that prepared fresh from young virulent cultures. This antigen in a limited series of the cases has given 96 per cent. positive reactions. The results from this antigen will be reported later. The experience with antigen prepared from desiccated bacilli is here reported, but its use is not recommended, since it lacks in delicate antigenic properties.

RESULTS IN ONE HUNDRED AND FIFTY-SIX TUBERCULOUS CASES

There were 156 cases diagnosed clinically as tuberculosis. Of these, 133 cases, or 85.2 per cent., gave a positive test. These were subdivided as follows: Twenty-four cases of incipient tuberculosis were positive in twenty-one cases, or 87.5 per cent.; forty-nine cases classed as moderately advanced were positive in forty-two cases, or 85.7 per cent.; eighty-three cases classed as far advanced were positive in seventy cases, or 84.3 per cent. It is noticed that there is a more frequent occurrence of negative tests in the far advanced cases. This point has been observed by others as discussed above. However, this feature

does not seem to have direct value as indicating the degree of the patient's resistance in our experience, as in four cases which terminated fatally, the serum gave a strongly positive test within two weeks prior to death.

There were sixty-one cases in which there was clinical suspicion of tuberculosis, or at least the clinician felt it necessary to consider tuberculosis before making a diagnosis. These cases had no definite evidence of tuberculosis and hence belonged to the class in which this test will probably be of greatest service as an aid to diagnosis. Twenty-four of the sixty-one cases, or 40 per cent., gave a positive test.

There were twenty-three cases which presented other clinical conditions in which tuberculosis was not suspected; six of these, or 26 per cent., gave positive test.

The Bordet test was applied to 100 serums which were strongly positive by the Wassermann test. Of these, thirty-eight reacted positively. Histories of all these cases were not obtainable, but in view of the recognized frequency of occurrence of tuberculosis in syphilitics, it is probable that many of them were tuberculous. However, it is not fair to assume that all of them were, and I agree with the opinion of others, that a Wassermann test should be made on each serum tested for tuberculosis, and that in the presence of a positive Wassermann test, a positive result with tuberculous antigen should be regarded as inconclusive. This practice has been followed in the series here reported. It has resulted in establishing a positive diagnosis of syphilis in several cases in which tuberculosis, not syphilis, was suspected. An attempt was made to eliminate the positives occurring with Wassermann positive serum, by extracting the tubercle bacilli with absolute alcohol and ether and preparing the antigen from the insoluble residue. Such antigen showed no difference from that containing the whole tubercle bacilli either in tests on known tuberculous serum or on Wassermann positive serum.

There were 100 young healthy adults, for the most part medical students, who submitted themselves as controls. Of these, there were twelve who have positive reactions, on repeated tests. Two of these, on submitting to a careful physical examination without the examiner's knowing the result of the test, were found to have physical signs sufficient to class them as suspicious. Those who have had a wide experience concerning necropsy examinations will substantiate the statement that a high percentage—60 per cent. according to some reports—of adults dying from other causes show evidence of previous tuberculous infection. The opinion is that these small healed lesions were active in early or young adult life. Often the lesions are so small as to escape even the most searching physical examination. Personally, I am of the opinion that it would be difficult to find a group of 100 young adults chosen at random, which would not contain a few members with slight, active tuberculous lesions. It is probable that some of the positives in this group were tuberculous, and that the remainder were false positives due to an imperfect antigen.

CONCLUSIONS

Complement fixation in tuberculosis should be regarded as an established technic, well past the experimental stage. Its value will be greatest as an aid in the early diagnosis of tuberculosis. It should be regarded in the same manner as the Wassermann

test, not as a test on which alone the diagnosis may rest, but as evidence which, considered together with other evidence, will be of real value in establishing the diagnosis. Its value will be great or small exactly in proportion to the use made of it by practitioners in an attempt to detect early incipient tuberculosis, and to aid in establishing the diagnosis of doubtful or suspicious cases.

I have found that a freshly prepared antigen containing living virulent bacilli is superior to one containing dried organisms, although the latter will keep indefinitely.

Until some antigen is devised which will not give false positives by fixation with the lipotropic antibodies of syphilitic serum it will be necessary to exclude the presence of the latter by the Wassermann test before basing conclusions on the results. Craig and Miller seem to have prepared such an antigen. I was unable to verify this statement with antigen prepared by Miller's method.

ABSTRACT OF DISCUSSION

DR. AUGUSTUS B. WADSWORTH, Albany, N. Y.: There are so many reactions in the complement fixation of the tubercle bacillus that it is difficult to tell just which of the reactions are significant in the diagnosis of the disease. We ought to proceed cautiously and conservatively in accepting all of the results. There has been considerable difference of opinion and considerable difference in the statistics of the results that some observers have had in the course of their investigations. At the time of the early work with the Wassermann test in the diagnosis of syphilis it was not possible, for the purpose of comparison, to use accurately controlled experimental investigations of the reaction of the test based on infection in animals. The Wassermann test was practically established before this became possible, but it is now possible to study the results of these tests of complement fixation in tuberculosis infection by experimentation on animals. The previous work has failed to take into account the value possibly of comparative study in animals. The immunization of animals, not only with the dead tubercle bacilli or cultures, but the study and development of immunity with specific antigens, can be used to determine just what reactions are obtained.

In my laboratory we have taken up the work quite extensively, and, while we have made little progress with it, we have found that it is practical to carry on parallel experiments with animals. I do not know but what we may meet with some insurmountable obstacles, but it looks to me now as though it would be possible to prepare the antigens. I should like to ask Dr. Moon if he has had any experience in his work with animal tests of the antigens which he has used, or tested the reactions that may develop in the serum of inoculated or tuberculosis animals.

DR. J. J. SEELMAN, Milwaukee: In the complement fixation test for tuberculosis, just as in the Wassermann test for syphilis, we must consider the findings in connection with the clinical aspects of the case. It would be unjustifiable to make a diagnosis of tuberculosis purely on the findings of a complement fixation test, because the symptoms for which a patient presents himself may have little or no relation to his tuberculous process. We must consider the test merely as an additional symptom which may or may not be of value in arriving at a diagnosis in a given case.

I recently had occasion to review the literature on tuberculosis of the past few years and found only one clinician who, in the discussion of the diagnosis of tuberculosis, mentioned the complement fixation test. This, in view of the fact that for a period of at least two years the test has been on a dependable basis, seemed to me remarkable. What we need now is propaganda to impress on the clinician the value of this test and to teach him how to use it effectively.

DR. H. J. CORPER, Chicago: We have lived through periods when certain observers believed the complement fixation test

in tuberculosis was equal to the Wassermann test. We have come now to a period when we seem to be agreeing better than before. In the beginning reports from Craig and Miller and Bronfenbrenner intimated that we did not need clinicians' findings. Petroff, who also at the beginning felt he could make an absolute diagnosis, recently admitted he erred a little on the side of positive results, probably because of his enthusiasm. Miss Lange, with Dr. Krause, obtained results which agreed well with those of Elizabeth Frazer, who was the first to compare the results obtained with a number of different bacillary antigens. Dr. Paul Lewis of Phipps Institute has tried any number of ways and antigens in an attempt to increase the percentage.

The sum total of the findings and conclusions of these observers can be stated briefly: That the complement fixation test in tuberculosis, varying slightly with different observers, does not give more than about 50 to 70 per cent. positive reactions, regardless of what antigen is used. In these experiments there were reported observations with Craig's, Miller's and Petroff's (multiple) antigens. Today tuberculosis workers feel that the complement fixation test in tuberculosis is not an absolute test; that its only value lies, as in most laboratory tests, in giving the clinician aid. The clinician must make a diagnosis with all the data at hand, both clinical and laboratory. Another striking point brought out revealed how cautious we must be in using this test. It is a fact that 10 per cent. of negative clinical cases of tuberculosis (normal individuals) will give positive complement fixation tests for tuberculosis. Therefore, we can only regard this test as a danger sign, and use it guardedly, indicating that the doctor must go further in his observations to see whether he can find anything else to corroborate the serologic diagnosis. It is not as reliable as the Wassermann reaction.

DR. R. B. H. GRADWOHL, St. Louis: My personal experience with this test has been fairly extensive. I have taken the precaution of working with a number of different antigens made by different men and preferably furnished by the men who recommend it. My experience with the test in advanced cases (and it has been the advanced cases with which I have worked particularly—I have not had the opportunity to get hold of many beginning cases) has given, averaging about five antigens, a very low percentage of positives—I think fifty or lower, at least in advanced tuberculosis.

In the last six months I have been working with all of Petroff's antigens, and there is quite a disagreement at times between the results of his antigens. My best results have been with Petroff's glycerin extract, which is quite stable and reliable. Up to the time Petroff was good enough to furnish me with this last antigen, Miller's antigen had been the best. I emphatically oppose the statements of those clinical and laboratory men who have stated that this test can be used as a criterion of arrest of a tuberculous process. It is a valuable test for diagnostic purposes in incipient cases; it has a definite value when negative, but a negative result can neither exclude tuberculosis nor can it prove an "arrest" of the process. The test has a great value within these limitations.

DR. CARL C. WARDEN, Ann Arbor, Mich.: I want to ask Dr. Moon two questions. He said that the readings were taken after one-half hour's time. Is that right?

Did hemolysis take place on standing with those reactions which were at that time positive? Did he use as antigen any suspensions of organisms other than the tubercle bacillus?

I ask these questions for this reason: I worked with these tuberculous antigens for a year—antigens prepared by the methods described and many others, including the fat antigens. When we got through we came to the conclusion that while it was possible to produce antibodies in the blood of animals by experimental inoculations there was nothing to show that antibody is present in the human individual at any time during the course of the disease.

The pathology of the disease tends to support this question because the response of the human body to the invasion of the tubercle bacilli is a process wholly different from that of other invasions. We have obtained just as good reactions with suspensions of anthrax bacilli, with an organism obtained

from scarlet fever patients, and particularly with lepra bacilli, as we did from any of the tubercle bacilli we used.

DR. V. H. MOON, Indianapolis: I have had no opportunity to conduct experiments with animals. The experience I cited of Dr. Bronfenbrenner seemed to point to the fact that the animals form antibodies against the tubercle bacilli very early and that late in the course of the disease, as it approaches a fatal termination of the infection, the antibodies disappear.

As to details for the preparation of the antigen, I followed quite closely Dr. Miller's published account of the preparation of it. I used fresh virulent young organisms from twelve different strains of human bacilli and four strains of the bovine type. These were desiccated with salt and then pulverized by grinding. This antigen had fine keeping qualities and I was falsely led to think that it was a very desirable antigen. But it is not so sensitive as that prepared from the freshly grown bacilli without desiccation.

As to the consideration of the amount of evidence or the amount of significance which should be placed on the positive test: We should not regard this as definite evidence that the patient is suffering markedly from tuberculosis any more than we should consider a positive Wassermann test as indicative that the patient is suffering from syphilis. The syphilitic is not immune to the other ills to which the flesh is heir. A man may have other ailments as readily as if he did not have syphilis. If a doctor should ask you to make a Wassermann test in a case and should base his entire diagnosis on your positive Wassermann he might think a patient who was about to die of typhoid was purely a syphilitic. The situation is entirely similar regarding complement fixation in tuberculosis. I agree with the statement that we cannot place absolute reliance on it. But I am convinced that this test will give a much higher percentage of positive results than the figure mentioned by Dr. Corper. A certain percentage of apparently normal persons may give a positive test. As evidence of this I cited the twelve out of 100 medical students who reacted positively. Two of them did show evidence which might be regarded as suspicious of tuberculosis, but it would not be fair to send the remaining ten to the West or the South on a diagnosis of tuberculosis on the strength of this test. This test is merely evidence which the clinician shall weigh in correct proportion with other evidence in making his diagnosis. If he is suspicious of a case as being one of early tuberculosis, if he secures a positive complement fixation test he will have additional suspicion that his case may be one of tuberculosis, but he will not have absolute evidence. We may regard it as absolute if we find the tubercle bacilli in the sputum. That, of course, is a higher grade of evidence than any evidence which may be obtained from serum tests.

I have not tried as antigens bacteria of any other varieties, such as the colon bacillus or the *Bacillus subtilis*. I tested only for antibodies against the tuberculosis antigen.

As to incubation period, I was misunderstood. In making the test, an hour incubation period before adding amboceptor and corpuscles, and an hour incubation after adding the amboceptor and corpuscles was the method followed regularly.

I may answer Dr. Warden's question by saying that occasionally tests were slightly positive in thirty minutes which later cleared up. Usually the result was the same after thirty minutes' reading as it would be at the end of the hour. My readings were all taken at the end of an hour.

Nutritive Value of Dried Milk.—The growth curves of children fed exclusively on dried milk from birth closely resemble the average growth curve of breast-fed children, although at somewhat lower levels by reason of the more delicate condition of these children. The conclusion is reached "that cow's milk, during the process of desiccation, loses none of the characters which are necessary for the support of normal growth in infants." Teething and walking begin at normal ages, and there is no greater liability of rickets and scurvy. The experiments on rats led to the conclusion that dried milk as a sole food maintains the animal in good health and permits normal growth for periods which long outlast those corresponding with infancy and early childhood in the human subject.—Food Report 24, Local Government Board.

Military Medicine and Surgery

ANTHRAX AT CAMP HANCOCK, GA.

JOHN B. LUDY, A.M., M.D. (PHILADELPHIA)
Major, M. R. C., U. S. Army

AND

EUGENE C. RICE, M.D. (WASHINGTON, D. C.)
Lieutenant, M. R. C., U. S. Army
CAMP HANCOCK, AUGUSTA, GA.

The possibility of the appearance of the skin manifestations of anthrax from time to time is admitted, and the necessity of having a clear idea of the classic picture of an anthrax pustule is therefore apparent.

In reporting three cases of anthrax occurring in this camp within four weeks, we hope to impress on the reader the distinguishing points in diagnosis, and the necessity for early treatment.

Anthrax is definable as a specific and highly contagious disease due to *Bacillus anthracis*.

Fortunately the organism never enters the unbroken skin, but gains entrance at the site of an abrasion. Any commercial animal product—hide, hair or wool—and the articles manufactured therefrom afford the source of contagion.

SYMPTOMS

The usual appearance of the skin manifestations of anthrax is as follows:

Following a period of incubation varying from one to five days, a small red papule appears at the site of abrasion, with symptoms of itching and burning, though these are sometimes absent.

After the lapse of from twelve to twenty-four hours, a small vesicle appears on the papule, surrounded by a red areola and edema. The vesicle ruptures in from two to four hours, its site being marked by a small ulcer exuding a small amount of clear serum.

After from twelve to twenty-four hours, the crater of the ulcer will harbor a carbon-like (coal-like) eschar. Numerous vesicles appear on the edge of the crater.

The classic picture, therefore, would show a black eschar lying in a crater surrounded by vesicles—a red areola and an edema usually out of proportion to the size of the lesion. Some of these symptoms may be wanting, but the black eschar is always present and is diagnostic. The lymphatic glands draining this area are usually greatly swollen.

The subjective symptoms are malaise, fever, headache, prostration, and slight itching or burning at the site of the lesion.

The objective symptoms are early weak, rapid and intermittent pulse; a rise in temperature varying from normal to 105; occasional vomiting and diarrhea; occasional signs of fluid in the abdomen or pleural cavity; early cyanosis, and delirium usually absent or late. Death may, however, suddenly intervene, the symptoms being disproportionate to the gravity of the case.

The "edema maligna" of anthrax occurring about the eyes, lips or neck is characterized by diffuse, painless, semitransparent edema, with vesicles appearing on the surface, some often containing blood. These, however, rapidly disintegrate, and the carbon-like eschar appears. Constitutional symptoms are early and correspondingly fatal.

DIAGNOSIS

The diagnostic points are:

1. Carbon-like eschar from 1 to 3 cm. in diameter, reposing in a crater bordered by numerous vesicles surrounded by a red areola and considerable edema.
2. Absence of suppuration and pain.
3. Systemic symptoms—malaise, headache, fever, prostration.
4. The finding of the *Bacillus anthracis* in the vesicles or edema about the lesion, or the appearance of the organism in films taken from beneath the eschar.
5. The occurrence of a lesion on parts of the body habitually uncovered. These will serve to differentiate anthrax from furuncle, follicle, carbuncle, chancre, granuloma pyogenicum, phenol or cautery burns and poison wounds.
6. The absence of pain, a diffuse, semitransparent edema covered with vesicles filled with blood or the ulcer harboring the carbon-like eschar, and the finding of *Bacillus anthracis* will differentiate the edema maligna of anthrax from phlegmonous erysipelas, cellulitis or angioneurotic edema.

TREATMENT

As soon as the diagnosis is clinically established and films and cultures have been made, the following procedure should be immediately instituted:

1. The tissues about the lesion should be infiltrated with from 30 to 50 c.c. of antianthrax serum, a large needle and Luer syringe being used.
2. The lesion should be dissected, a nose cautery being used, and an effort made to remain at least one-half inch from its border.
3. Seventy-five c.c. of antianthrax serum with 50 c.c. of physiologic sodium chlorid solution, should be given intravenously.
4. Seventy-five c.c. of antianthrax serum should be given intramuscularly.
5. The wound should be dressed once in twenty-four hours with a solution of phenol (carbolic acid), 3 parts; camphor, 7 parts; glycerin, 40 parts, and alcohol, 180 parts.
6. The serum therapy should be repeated every eight hours, according as circumstances may require.

REPORT OF CASES

CASE 1.—A soldier, admitted, June 7, 1918, noticed a small pimple on the left cheek, June 4. He used a new shaving brush, June 2, and his razor caused an abrasion. June 6, the lesion had increased in size and was described by the patient as a sore with a black center.

June 7, on admission, he complained of headache, fever, malaise and a feeling of dizziness and prostration, which symptoms were the reason for his admission. The temperature at 2 p. m. was 101.2, the pulse, 98. At 4 p. m. the temperature was 104.6 and the pulse, 120. The pulse was fair in volume but intermittent. At 7 p. m. after the laboratory examination had been made the patient was given ether anesthesia, the ulcer was cauterized, and the whole area was excised, the excision going wide of the border of the lesion. The wound was not closed and was dressed with neutral solution of chlorinated soda. No antianthrax serum was obtainable, so 60 c.c. of horse serum with a like amount of physiologic sodium chlorid solution was given intravenously.

June 8, at 8 a. m., an abdominal examination revealed free fluid, and an examination of the chest revealed beginning edema of both lungs. At 4 p. m. the fluid in the abdomen had greatly increased. The temperature was 97.6, the pulse, 160, weak and intermittent, and unaffected by digitalin. At 8 p. m. the patient developed a low type of delirium.

June 9, at 2:15 a. m., the patient died.

CASE 2.—A soldier, admitted, June 19, 1918, presented the subjective symptoms of frontal headache, malaise, fever, dizziness and extreme prostration. The temperature was 99.8, and the pulse, 96. No anthrax lesion was noted by the patient or the attendant at the time of admission.

From June 20 to June 22, the symptoms were the same.

June 22, a blister on the side of the neck was noticed. The temperature was 101.4 and the pulse, 88.

June 23, the patient felt a pain in the neck and noticed glandular enlargement in addition to the appearance of an ulcer at the site of the blister of the previous day. A clinical diagnosis of anthrax was made and confirmed by laboratory findings. The temperature was 101.8 and the pulse, 84. At noon, the area about the lesion was infiltrated with 50 c.c. of antianthrax serum, a large needle and a Luer syringe being used; under ethyl chlorid general anesthesia the lesion was dissected with a nose cautery and the base seared with the cautery, with no bleeding. The wound was dressed with a solution of camphor, phenol and alcohol. Fifty c.c. of antianthrax serum, together with a like amount of physiologic sodium chlorid solution, were given intravenously. At 4 p. m. the axillary temperature was 103.2 and the pulse, 96. At 8 p. m. the temperature was 101 and the pulse, 104.

June 23, at 8 p. m., 50 c.c. of antianthrax serum with 50 c.c. of physiologic sodium chlorid solution were given intravenously.

June 24, at 11 a. m., the temperature was 100.4 and the pulse, 96. Fifty c.c. of antianthrax serum were given intravenously into the gluteal region. At 5 p. m. the temperature was 100 and the pulse, 86. Fifty c.c. of antianthrax serum were given intramuscularly.

June 25, at 9 a. m., the temperature was 98.4, the pulse, 80 and the respirations, 24. Fifty c.c. of antianthrax serum were given intramuscularly.

June 26, no further treatment was given except local treatment. At 9 a. m. the temperature was 98, the pulse, 62; at 9 p. m., 98 and 60.

June 27, at 9 a. m. the temperature was 97.4, the pulse, 50; at 9 p. m., 98 and 52.

June 28, at 9 a. m. the temperature was 97, the pulse, 58; at 9 p. m., 97.4 and 52.

June 29, at 9 a. m. the temperature was 97.4, the pulse, 50; at 9 p. m., 97 and 60.

June 30, at 9 a. m. the temperature was 98.4, the pulse, 60; at 9 p. m., 98 and 60.

July 1, at 9 a. m. the temperature was 98, the pulse, 60; at 9 p. m., 98 and 60.

July 7, the wound was healed in the normal manner. This patient was not at any time delirious. He was nauseated only the first day, and showed no reaction from serum therapy.

His recovery is believed due to the early use of antianthrax serum and the manner in which the lesion was removed.

CASE 3.—A soldier, admitted, July 3, 1918, had accidentally cut his right cheek while shaving on the morning of June 30. He had been using a new brush.

July 1, the patient noticed a papule at the site of the cut.

July 2, as stated by the patient, the papule had appreciably increased in size, associated with swelling in the neck.

July 3, the lesion showed a black area in its center. The patient stated that he felt tired, and that he went on sick call because he was worried concerning the rapidly growing ulcer on his cheek. On admission, at 10:20 a. m., the temperature was 100, the pulse, 100. The patient complained of headache, dizziness and nausea. The lesion on the right cheek was one-half inch in diameter and was surrounded by numerous vesicles; in the center was a black eschar. The tissues of the right side of the neck showed considerable tumefaction. The patient did not complain of any pain at the site of the lesion. At 1:15 p. m. the tissues surrounding the lesion were infiltrated with antianthrax serum, and the lesion dissected with a nose cautery. The base was cauterized. This was done under ethyl chlorid general anesthesia. Seventy-five c.c. of antianthrax serum, with 50 c.c. of physiologic sodium chlorid solution were given intravenously. Seventy-five c.c. of antianthrax serum were given intramuscularly into the gluteal region. The wound was dressed with phenol and camphor

solution. The temperature was 101.2 and the pulse, 84, at 10 p. m.

July 4, 75 c.c. of antianthrax serum and 50 c.c. of physiologic sodium chlorid solution were given intravenously. Fifty c.c. of antianthrax serum were given intramuscularly. At 9 a. m. the temperature was 97.6, the pulse, 80; at 9 p. m., 100 and 84.

July 5, 50 c.c. of antianthrax serum were given intramuscularly. At 9 a. m. the temperature was 99, the pulse, 82; at 9 p. m., 99 and 74.

July 6, at 9 a. m. the temperature was 97, the pulse, 68; at 9 p. m., 97.6 and 60.

July 7, at 9 a. m. the temperature was 96.6, the pulse, 60; at 9 p. m., 97 and 68.

July 10, the wound was granulating in the normal manner. The pulse still continued to be around 68, but was of good volume, and the patient had no subjective symptoms of any kind.

BACTERIOLOGIC DIAGNOSIS

In view of the ruling of the Surgeon-General of the Army, that diseases of known bacterial origin cannot be diagnosed as such by the clinician until his provisional diagnosis has been confirmed bacteriologically, Case 1 is of interest because of the difficulty encountered in making a positive bacteriologic diagnosis of infection by the anthrax bacillus.

A few hours after the patient had been admitted to the hospital, several films were made from the serum exuding from the vesicles about the circumference of the lesion, but no organisms resembling *B. anthracis* were seen. It was only after the gangrenous central area had been raised by means of forceps and smears made from the underlying tissue that an organism similar to the anthrax bacillus was found. This bacillus was gram-positive and occurred in chains of two or three, the average size being 1 by 7 microns, a few measuring 1.5 by 2.5 microns. The ends of the bacilli were square, and a few appeared to show slight cupping. One or two centrally placed spores were seen. A number of gram-negative, coccoid bacilli and a few pus cells were also seen. Cultures were made on plain and blood agar at the same time that the direct films were prepared. A blood culture was made at this time.

Twelve hours later the cultures made from the lesion were examined, and a large number of gram-negative coccoid bacilli with central nonstaining areas were seen. A large number of the gram-positive bacilli were also present. The majority of the latter were in long chains, the average size being 1 by 4 microns. Very few of these organisms had square ends; the majority were rounded. No spores were seen at this time, but twelve hours later they appeared in large number. An emulsion of the mixed culture was plated for the purpose of obtaining the various organisms in pure culture. No growth was obtained in the blood culture after seventy-two hours' incubation.

Morphologically and culturally, the gram-positive bacillus corresponded to *B. anthracis*, the absence of motility in the hanging drop, the inverted fir-tree appearance of the growth in stab agar cultures, the Medusa head appearance of the colony on agar, etc., being typical. Suspensions of the bacteria in physiologic sodium chlorid solution were boiled for varying periods of time, and the emulsion then plated. It was found that two minutes' boiling was required to kill all organisms in a twenty-four hour culture containing spores.

In determining the degree of pathogenicity of the bacillus, a total of seven animals were used. The results are given in the accompanying table.

In view of the pathogenicity of the organism and its marked similarity to the anthrax bacillus, the clinical diagnosis of infection by *B. anthracis* was confirmed.

No necropsy was performed, but several splenic punctures were made several hours after death with negative results, no anthrax bacilli being found in films or culture. The undertaker reported that on opening the peritoneal cavity a fairly large amount of clear, light brown fluid was found. A firm, dark colored tumor, 4 by 8 cm. in size was found attached to the mesentery of the small intestine. Microscopic

PATHOGENICITY OF BACILLUS

Animal	Inoculating Material and Site of Injection	Result
White Rat 1..	Serum from lesion; intraperitoneal injection	No visible effects; animal still living
Guinea-Pig 1..	1.5 c.c. of 12 hour mixed culture* from lesion; intraperitoneal injection	Death after 80 hours; hemorrhagic condition of muscles of thorax and abdomen, viscera somewhat congested; cultures from abdominal muscles and all organs showed motile, gram-negative, coccoid bacilli with central non-staining area; no anthrax bacilli were present in films from organs or culture; organism responsible for death was a bacillus of the hemorrhagic septicemia group
White Rat 2..	1 c.c. of 24 hour mixed culture* from lesion, second on agar; injected in tail	No visible effects; animal still living
Rabbit 1	1.5 c.c. of 24 hour mixed culture* from lesion; intraperitoneal injection (8 hours prior to injection, 10 c.c. of blood were removed by cardiac puncture)	Death in 2 hours; necropsy 8 hours after death; cultures from all organs and a variety of bacteria were present; bacilli of the hemorrhagic septicemia group predominated; no anthrax bacilli were found in culture; primary cause of death was shock
Rabbit 2	1 c.c. of 24 hour mixed culture,* third on agar; subcutaneous and intraperitoneal injection	Death in 20 hours; peritonitis found at necropsy; bacilli of the hemorrhagic septicemia group were present in pure culture from all organs; death due to hemorrhagic septicemia
Guinea-Pig 2..	1 colony of gram-positive bacilli; subcutaneous injection in abdominal wall	Killed 25 hours after injection; pig was apparently in good health at time of death; muscles of thorax and abdomen were markedly edematous; no other macroscopic changes; pure culture of the same organism as injected obtained from all organs
Guinea-Pig 3..	Same as for Pig 2	48 hours after injection, animal seemed to be in normal state of health; death 70 hours after inoculation; necropsy revealed a hemorrhagic and edematous condition of the abdominal muscles about the site of injection; peritoneal cavity contained blood-tinged fluid; pure cultures of the same organism as injected obtained from all organs

* Emulsion of growth on agar slant.

examination of sections demonstrated it to be a partially organized blood clot.

Cultures made of the bristles of the shaving brushes used by the patients were negative for anthrax bacilli.

In the Cases 2 and 3, no difficulty was encountered in making a bacteriologic diagnosis of anthrax infection, for the organisms isolated from the lesions were characteristic and were pathogenic for guinea-pigs, death occurring in twenty-three and twenty-nine hours, respectively.

CONCLUSION

The difficulty in confirming the clinical diagnosis of anthrax infection in the first case was due to two factors, (a) the use of animals (white rats) possessing a high degree of immunity to infection by *B.*

anthracis and (b) the presence in cultures from the facial lesion, which were used for inoculating purposes, of a bacillus of the hemorrhagic septicemia group, a rare coexisting organism possessing a marked degree of virulence for certain laboratory animals.

It is possible that the bacilli of the hemorrhagic septicemia group exert an antagonistic influence on the growth of *B. anthracis*, and possibly they accounted for the absence of anthrax bacilli in the animals that died of hemorrhagic septicemia. It was noted that the longer the two were grown together, the greater the disproportion between the two, the anthrax bacilli diminishing in number.

Therapeutics

EPIDEMIC INFLUENZA

Under various names, epidemics corresponding to epidemic influenza have occurred at irregular intervals since accurate descriptions have been made of disease. It is likely that at still earlier times this disease was combined and confused with other epidemic disorders, and so did not stand out as an entity until a relatively modern period. In early English literature this disease is spoken of under a variety of terms. Creighton¹ recognizes it under the name "ague," used by the British seventeenth century authors. In 1658, Cromwell died from this disease, when Morton says the country was "one vast hospital." The Italian term "influenza" first came to England in association with the epidemic of 1743, and it has been employed in connection with the great epidemics of 1833, 1847 and 1889-1890.

About 1712 the French term "la grippe" came into use and has been periodically revived ever since. The great pandemics usually originated in the Far East, and gradually extended westward. The rate of human travel and the degree of intercourse between various parts of the world determined the rapidity of the extension. Besides the great pandemics, scarcely a year has passed without local outbreaks which have been classed under the term "influenza." Whether these are identical with the more widespread epidemics it is impossible to say.

The severity of the disease has varied greatly; some epidemics are very mild; others have been severe. Influenza has embraced America in several pandemics. In his remarkable work on epidemic diseases, published in Hartford in 1799, Noah Webster locates the first American epidemic of which he could find an account in 1647. It passed through the whole country and extended to the West Indies. There were between 5,000 and 6,000 deaths in Barbados and St. Kitts. In 1655 a second severe epidemic occurred in America. Benjamin Rush described an epidemic in 1789 in Philadelphia, which was brought there by members of the first Congress, which had assembled in New York. Daniel Drake records a widespread epidemic in the West in 1807.

The history of epidemics of influenza does not differ so much from that of other diseases spread by human intercourse that are usually called contagious. A widespread epidemic follows the introduction of a

specially virulent virus, and there follows a general immunity among those of the population who have been infected. As the epidemic dies out, the infection decreases in virulence and only sporadic cases occur. From such cases and probably chronic carriers, local outbreaks occur; but the general immunity prevents any general epidemic. After a period of years a new susceptible population has replaced the immune one, and with the introduction of a fresh virulent virus a general epidemic is again brought about. This would account for the great susceptibility of young persons, and as it is twenty-eight years since the last great epidemic, we should not expect many individuals above 30 years of age to be now affected.

CAUSATION

The causative agent of epidemic influenza has not been certainly recognized. The attachment of the name "influenza bacillus" to a small bacillus described by Pfeiffer in 1892 has been followed by its frequent reception as the actual specific agent. There is, however, much uncertainty as to its etiologic rôle. It is to be hoped that the study of the present epidemic may lead to some certain knowledge regarding the essential cause of the disease. This should enable us to determine whether the endemic cases and those of limited mild epidemics are really identical with the ones observed in the great periodic outbreaks.

COURSE OF THE DISEASE

The cases in the present epidemic begin usually quite suddenly with pain in the head, back, eyes, limbs and joints. With the pains there is great prostration, chilliness and a fever of from 101 to 104 F. The pulse does not become very rapid, and the patient often is drowsy. Vomiting may occur. Sometimes there may be diarrhea, but usually there is constipation. After the disease has become established the mucous membranes of the nose and throat become reddened, and there is sneezing and redness of the conjunctiva. Involvement of the larynx causing hoarseness, and of the bronchi causing cough are common. There is an associated leukopenia or a normal leukocyte count. A leukocytosis points to some complication. The fever gradually falls to normal after a few days and more or less prostration is present during convalescence. A transient albuminuria is frequent. Many of the cases have hemorrhages of the mucous membranes of the nose some of the urethra or bowel.

SECONDARY PNEUMONIA

Not infrequently a lobular pneumonia develops after a few days, and this is responsible for most of the fatalities. The pneumonia differs from the usual picture of pneumonia, in that the temperature may be very slight, and the pulse rate may give little indication of the gravity of the condition. These cases, instead of subsiding, may come down to practically normal temperature for twelve hours; then there may be a sharp rise in temperature, not followed by a chill, backache, boneache, headache or nausea.

About this time there may also be expectoration containing bright red blood. As a rule, twelve or twenty-four hours after the second rise of temperature on physical examination in the lower lung, in a preponderance of cases on the left side, as seen at

1. Creighton: History of Epidemics in Britain, 1894.

Great Lakes, small areas about the size of a silver dollar of typical pneumonic consolidation are found by auscultation. These areas may become marked so that by the second day of the second rise scattered through the lung, probably both lungs, ten or fifteen of these small areas may have appeared. In the epidemic at Great Lakes, if the patient did well these would gradually disappear. They did not resolve as a pneumonia would resolve. The clearing up of the lung after this in the recovered patients was remarkable as to its rapidity. Other cases went on to a typical lobar, massive consolidation, as far as the physical signs were concerned, with dullness, increase in fremitus, typical tubular voice and breathing and all the signs, except that there was not a very marked increase in the pulse rate, and the respirations were not up to this time markedly increased. Cases with almost complete consolidation of the lung, as to the lower lobes, with a temperature of 105, would have a pulse around 100, with respirations 24 or 26. There may be rapidly developing toxemia and vasomotor depression, with death of the patient resulting in many cases.

INCUBATION PERIOD

The incubation period in these influenzas is probably very short, but it is difficult to obtain accurate figures on this point. The disease is probably spread entirely by contact infection, the virus of the disease being disseminated for short distances through droplets driven into the air in coughing and sneezing. Circumstances which favor this means of spread, such as crowding in cars, favor the spread of the disease.

TREATMENT

The treatment of the disease is largely symptomatic. Acetylsalicylic acid or similar remedies may be required to relieve the pain. The acetylsalicylic acid may be given in a dosage of 1 gm. (15 grains) every three hours, as advised by Hewlett, or a smaller dose combined with 0.1 gm. (2 grains) of acetphenetidin, until symptomatic relief is secured. Warm baths may give relief, although in numerous cases seen at the Cook County Hospital hydrotherapeutic methods failed and were discarded. The mouth should be kept clean, and elimination stimulated by the free ingestion of water and hot drinks. The patient should be kept in bed in a well ventilated room until the fever has disappeared. Chilling should be avoided. The latter precautions will do much in avoiding the occurrence of complications.

When pneumonia develops, as indicated by moist râles in the base of the lungs, with or without dullness on percussion, the patient demands particular care. Every effort must be made to provide for an adequate intake of fluids, and for nourishment, which must be given in fluid form to a large extent. Warm packs are often useful, combined with the application of cold to the head. With any indication of failing heart, stimulants are indicated.

In the cases of secondary pneumonia, many of which result fatally, the chief conditions to be combated are the severe toxemia and the vasomotor depression. The toxemia may be combated by the usual methods, getting fluids into the body by mouth or proctoclysis or even by hypodermoclysis. Small doses of epinephrin may be given at the same time. The removal of the toxemia may be aided by securing elimination, giving

large doses of salts, such as magnesium citrate, or by the giving of calomel. In severe cases, venesection may prove extremely valuable. If a marked cyanosis occurs, as is frequently the case, this may be combated by the use of oxygen by inhalation, perhaps according to the method devised by Meltzer,¹ or even as has been suggested by Dr. F. Tice, by injection of oxygen under the skin. The prostration is to be combated by the use of the usual stimulants, such as caffeine and sodium benzoate, digitalis, strophanthus or camphorated oil, usually hypodermically. The final stages in this pneumonia are frequently a massive exudation into the lungs and bronchi. At the Great Lakes Naval Training Station efforts have been made to combat this by the use of morphin and large doses of atropin, in some cases as much as 0.0025 gm. or $\frac{1}{25}$ grain, being used.

Specific measures are not available in the treatment of influenza. With certain identification of the causal agent, we may hope for some specific protective measures, and perhaps for some specific therapeutic serum.

In the absence of a specific virus to be used in immunizing animals, there remains but one source of a therapeutic serum at the present time. This is in the blood of persons recently recovered from the disease. It is quite probable that the blood of convalescent patients contains antibodies for the specific agent of the disease. It would be desirable to inject citrated convalescent blood into the muscles of patients with pneumonia at least. Naturally such blood should be known to give a negative Wassermann reaction. In view of the strikingly beneficial results from convalescent serum in scarlet fever secured by a number of observers, it seems reasonable to try this in influenzal pneumonia, especially as it is devoid of any harmful effects.

PROPHYLAXIS

The measures to be taken to prevent the spread of the disease comprise all those which interfere with the transfer of the infectious materials from the sick to the uninfected. This includes isolation of the patient, and the intelligent use of proper gauze masks by the attendant. In the time of an epidemic, prompt and efficient isolation of the first cases in a community could accomplish much. If this has been neglected and the infection has spread among the population, measures which prevent the coming together of numbers of persons in close quarters are to be employed. The desirability of closing schools in a large city in the presence of an epidemic is a measure of doubtful value. In smaller places this is more reasonable, and the danger of infection when children are outdoors should be less than when they are brought together in a schoolroom.

1. Meltzer, Samuel: The Therapeutic Value of Oral Rhythmic Insufflation of Oxygen, *THE JOURNAL A. M. A.*, Oct. 6, 1917, p. 1150.

The Toll of Tuberculosis.—Though the sacrifice of lives in the present war has been so enormous as to make all previous losses on the battlefield appear slight in comparison, it nevertheless appears to be a fact that this frightful war mortality does not greatly exceed, and indeed may be exceeded by, the deaths from tuberculosis under ordinary conditions, if equal areas and periods be considered. In the four years since the war began, the total number of deaths from tuberculosis among the civilian population and in the armies of all the countries engaged has at least approximated the total number of soldiers killed in battle.—Dr. Livingston Farrand.

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SATURDAY, OCTOBER 5, 1918

THE INFLUENZA OUTBREAK

As set forth elsewhere in this issue,¹ widespread outbreaks of acute respiratory infection have occurred at irregular intervals for many centuries. The general clinical manifestations and the complications have been always practically the same. Owing to conditions that are far from being adequately understood, such infection now and again spreads over the world with great rapidity and in a manner that was altogether mysterious and disconcerting until we learned that it never spreads faster than human travel. It seems as if in the course of evolutionary processes there suddenly is liberated a form of infectious agent against which large numbers of people offer little or no resistance and which is transmitted readily from person to person under the most diverse hygienic and geographic circumstances. That the peculiarly subtle nature of these outbreaks was recognized long before the bacteriologic era is indicated by the introduction of the name influenza, which means, literally, influence. The question as to the real nature of this "influence," it must be acknowledged, is not settled definitely. The discovery by Pfeiffer in 1890, at the time of the last pandemic, of the influenza bacillus (*B. influenzae*) in the sputum and respiratory tract of influenza patients seemed, it is true, to have settled the matter. At any rate, Pfeiffer's claim that he had discovered the cause of influenza secured fairly general acceptance except possibly in France.

Since then, however, the influenza bacillus has been found to be present in practically all cases of whooping cough and in a large percentage of the cases of measles and scarlet fever, as well as in tuberculosis and chronic bronchitis. Minor epidemics of acute respiratory infection, clinically regarded as epidemics of influenza, have occurred in which the influenza bacillus was not present regularly in the sputum² or the respiratory tract. In such epidemics, as well as in the great pandemic of 1889-1890, streptococci and pneumococci occurred quite regularly in the respiratory tract;

indeed, a large group of French and German investigators regarded the great pandemic as a streptococcus or mixed streptococcus and pneumococcus infection. We see that as a matter of fact the only evidence that influenza is caused by the influenza bacillus, up to the time of the present outbreak, is the demonstration by Pfeiffer and others of the presence of the bacillus among other bacteria in the respiratory tract of patients with influenza. The production of influenza in animals by injections of pure cultures of the bacillus has not given any decisive results. No distinctive immunologic reaction has been discovered, showing that the body reacts specifically to the influenza bacillus in the course of influenza. In truth, the evidence in favor of the influenza bacillus is not any stronger or different from that which can be urged in favor of the streptococcus, pneumococcus or other bacteria. And if we grant the possibility that the influenza bacillus may cause outbreaks of influenza, wherein lies the deep difference between such strains of the bacillus and the strains found in whooping cough, measles and other conditions?

The "influence" in influenza is still veiled in mystery. It is also too early to consider in detail the outcome of the etiologic investigations of the present outbreak; already contradictory results have been recorded, and for the present we await further developments. We may anticipate, however, highly valuable and interesting contributions when the full observations on the outbreaks at the Great Lakes Naval Training Station and other military camps, as well as in civil groups, are published. The recent remarkable work on the spread and prevention by selective isolation of streptococcus bronchopneumonia in measles and other conditions in our Army camps sets a fine example, which we believe will be duplicated in connection with influenza.

THE DEFENSE OF CORN AS A WAR TIME FOOD

The United States Food Administration, as we have pointed out, has been particularly careful to fortify its pronouncements and dietary admonitions by reference to the judgment of scientific experts, and has frankly stated that so far as nutritional value is concerned it makes practically no difference whether we eat wheat or oats, rye or barley. Wheat flour, which people are asked to conserve, has just one advantage over the other cereals: it can be made into lighter and more durable bread.

Since our entry into the war, corn has become the most important and popular substitutive cereal. The mill products of maize are rapidly obtaining vogue in the nutrition of large numbers of our population. The value of dependable information is thus manifoldly emphasized. It may rightly be admitted that the maize kernel, by itself, is by no means an adequate

1. Epidemic Influenza, Therapeutics Department, this issue, p. 1136.
2. Mathers, George: Etiology of the Epidemic Acute Respiratory Infections Commonly Called Influenza, Proc. Inst. Med. Chicago, 1916, 1, 84; Bacteriology of Acute Epidemic Respiratory Infections Commonly Called Influenza, Jour. Infect. Dis., 1917, 21, 1.

or complete food. If we except milk, few individual foods are sufficiently perfect in chemical make-up to satisfy the definition of an adequate diet. Neither sugar nor butter are all sufficient foods when used alone, and no one possessing the rudiments of physiologic education regards them as such. Since it has been learned that corn contains a considerable proportion of a protein which is unquestionably inadequate as the sole source of nitrogen to the organism, this cereal has acquired an unintended reputation of dietary inferiority.

But corn contains more than one protein, and the true value of its combination can be ascertained only by physiologic studies with the products of the entire kernel as it is popularly used, rather than by feeding experiments with isolated proteins. We have already referred to the experiments of Sherman, Wheeler and Yates¹ indicating that the substitution of maize protein for that of wheat to the extent of from one fifth to one third of the total protein intake was found to be without unfavorable effect on the nitrogen balance, whether the test was made by abrupt substitution in a low protein diet, or by ability to maintain equilibrium for a long time on a low protein diet of which the protein was largely that of corn meal. In each of these cases there was some discomfort of digestion attributed at the time to the unaccustomed use of relatively large quantities of corn meal, but perhaps at least equally attributable to the fact that the diet as a whole was too bulky and too starchy for the summer weather in which the experiments were performed.

In later experiments, likewise conducted in Professor Sherman's laboratory at Columbia University,² New York, corn meal replaced all other starchy food and actually furnished from 73 to 97 per cent. of the total nitrogen intake. The investigators found that, in the maintenance metabolism, the efficiency of the maize protein was about the same as that reported for the prized wheat. Nitrogen equilibrium was maintained over long experimental periods with a low protein intake, the largest part of which consisted of maize protein. This must not be construed into an argument for the exclusive use of such protein in the dietary of growth, whether it be during adolescence, pregnancy or lactation. It is more than likely that small supplements of other protein foods will greatly enhance the value of the diet. But the lesson of this investigation will be properly presented by quoting in part Sherman's conclusion that certainly one need not hesitate on the score of the protein intake to substitute maize products entirely for the corresponding products of wheat, even when these make up the main part of the food supply. Physicians need to be armed with such opinions when their can't-eat-substitutes-for-wheat patients importune them.

THE REGULATION OF BODY TEMPERATURE

It requires little analysis to discern that the temperature of an object represents the resultant of two factors: the gain of heat from without or within and the loss of heat. The body temperature of an animal may therefore be conceived to represent a balance between heat production and heat dissipation. In some organisms which we term cold-blooded animals, like the frog, the temperature of the body is ordinarily only slightly higher, at most, than that of their environment. Among the so-called warm-blooded animals, including man, on the other hand, the balance is so adjusted that it remains fairly constant for the individuals and the species, despite wide variations in the temperature of their surroundings.

To account for this unique regulatory phenomenon it has become popular within recent years to assume the existence of a special "center" which acts analogously to a thermoregulator. To recall the various precise locations of this hypothetical spot in the central nervous system, which have been postulated since the classic experiments of Aronsohn and Sachs in 1885 on "heat puncture," would take us too far astray in the fields of physiologic literature. Latterly the complications of uncertain location have been increased by the claim of a duality of mechanisms—a thermogenic or heat center and a thermolytic or cold center in the midbrain. The difficulties of those who defend the existence of such well defined heat-regulatory centers are augmented by the fact that any form of experimental stimulation which results in an increase in muscular activity thereby produces an otherwise explicable augmentation of heat; furthermore, the advocates of heat centers have found it difficult to account for the often repeated assertions of experimentalists that large portions of the postulated brain areas can be removed without consequent loss of temperature regulation.

Thus the problem under consideration has been left in great uncertainty—in that state in which textbooks marshal the significant evidence for and against a hypothesis and leave to the reader the discovery of the true solution. In such cases the only hope of success lies in the acquisition of new facts such as have recently been contributed by Lillian M. Moore¹ from the Spreckels Physiological Laboratory of the University of California. She has directed her attention to the corpora striata, the favored location of the centers. Puncture of this portion of the brain, the classic method of stimulation, was not attended by hyperthermia in more than a few cases out of many trials. Furthermore, she found that after removal of the caudate nucleus in rabbits and the cerebral hemispheres

1. Corn in the War Time Dietary, editorial, *THE JOURNAL A. M. A.*, June 15, 1918, p. 1865.

2. Sherman, H. C., and Winters, J. C.: Efficiency of Maize Protein in Adult Human Nutrition, *Jour. Biol. Chem.*, 1918, **35**, 301.

1. Moore, Lillian M.: Experimental Studies on the Regulation of Body Temperature, I, Normal Temperature Variations and the Temperature Effects of Operative Procedures, *Am. Jour. Physiol.*, 1918, **46**, 24; II, Relation of the Corpus Striatum to the Regulation of Body Temperature, *ibid.*, 1918, **46**, 253.

in pigeons—both warm-blooded species—a normal body temperature still was maintained. Evidently, then, the corpora striata are not essential for the maintenance of a constant body temperature. As this research offers no confirmation of the existence of special "heat centers" in the brain we may well ask whether the regulation of temperature is perhaps accomplished in some way analogous to that of blood pressure reaction, osmotic pressures, etc., in the organism. The uniform behaviors of these are not ascribed to specific centers, but have been attributed to equilibrium reactions involving physicochemical phenomena. The correct solution of the question of temperature regulation is of more than academic interest to the physician who is desirous of understanding the scientific basis underlying his use of antipyretic drugs as well as the genesis of fevers.

THE SIGNIFICANCE OF URINARY AMMONIA

Among the nitrogenous constituents of the urine, derivatives of ammonia are practically always present. Under normal conditions the quantity of ammonia thus eliminated by a healthy adult is not large; it usually amounts to less than half a gram per day. In certain diseased states, however, multiples of this quantity may be found in the urine. We do not refer here to the ammoniacal urines that result from bacterial decomposition of urea in the bladder and genito-urinary passages, but rather to a metabolic component directly secreted by the kidneys.

There was a time, not many years ago, when this ammonia in the urine was looked on as the result of a pathologic disturbance in urea formation. In consequence of the deaminization of amino-acid complexes, ammonia is presumably continually being formed in the body and promptly synthesized into the characteristic final end-product of nitrogenous metabolism, urea. It is easy enough to suppose that an upset in the later stage would leave the precursor of urea to be eliminated as such. A growing mass of experimental evidence has made it seem more than doubtful whether the urea-forming function is ever so severely impaired. Indeed, it appears to be efficient under many tested conditions of severe tissue damage. A better explanation of the appearance of ammonia has been afforded by the indication that it serves to neutralize acid either formed in the body by metabolic processes or introduced as such.

A classic research by Janney¹ has made it probable that the ammonia in the urine has as its sole function the neutralization of acid products and ceases to be formed in the presence of an excess of fixed alkali. He gave sodium bicarbonate or citrate to men and found that the quantity of ammonia in the urine was reduced to almost undeterminable traces. If any doubt

as to the significance of the results remains, it must be dispelled by the latest contribution to this subject. Denis and Minot² of the Massachusetts General Hospital have found that it is not possible in normal subjects to obtain urines absolutely ammonia-free by the long continued administration of alkalis. But when the test is made on nephritics under comparable conditions of diet, even the last traces of ammonia disappear. Evidently the nephritics retain the drug for a longer time, thus allowing the alkali more time to exert its neutralizing effects. This is substantiated by the actually demonstrated lag in the excretion of the excess of the carbonate. As further indication of the rôle of acids formed in the metabolism of protein, it was observed by Denis and Minot that during periods of high protein feeding less than 50 per cent. of the ingested alkali was recovered, whereas after diets lower in protein the percentage of recovered bicarbonate amounted to nearly 90. There is no reason today for believing otherwise than that the sole function of the ammonia found in the (undecomposed) urine lies in the neutralization of acids arising during the normal metabolic process.

Current Comment

FOOD CONSERVATION FOR 1918-1919

Mr. Hoover, as food administrator, has given our allies the notable message of President Wilson, telling them that we will eat this year at a common table with them, and has pledged the American people to add an additional 5,000,000 tons to the 10,000,000 tons we sent last year, or 15,000,000 tons in all. We are to eat a common war bread with them made with a 20 per cent. substitution of flours from other grains mixed with that from wheat. The people of France, Great Britain and Italy have learned how to use substitutes so well that we can send them our quota from any of our durable foods. The bountiful wheat harvest will meet the present war needs and permit of the storage of a reserve for emergencies or against a short crop next year if we are all wise and careful. We dare not again see the national flour barrel as it was last summer when, just before the new crop came in, we had only ten days' supply in the country. Our margins must not be so narrow hereafter, particularly as we decrease our productive man power to build up the Army. Conservation for the coming year, aside from sugar, will probably be less dramatic than last year with its "wheatless days" and "meatless days," but it will have to be even more intense than before. All must reduce their intake to the physiologic limit that permits of the necessary hard war work. There must be no waste, less must be bought and less consumed, and the clean plate of our New England ancestors must again be the symbol of American thrift and American endeavor to serve by saving. Physicians

1. Janney, N. W.: *Ztschr. f. physiol. Chem.*, 1910-1911, **76**, 99.

2. Denis, W., and Minot, A. S.: *Ammonia Excretion as Influenced by Alkalis*, *Jour. Biol. Chem.*, 1918, **35**, 101.

must needs more and more advise their patients as to the use of foods and of the amounts actually needed for health. They can become active and sane exponents of the national food conservation program. The great results from the voluntary savings of the past year show the high intelligence and sensitive conscience of the American people. The majority of them need only to be told what to do. With our allies and ourselves at the common table, with the gross division of our food supplies based on the fundamental needs of the body in calories, the physician, reaching as he does into innumerable homes, has a new and inspiring opportunity for that guidance that should be his right because of superior knowledge.

THE PROPAGANDA OF THE V. M. S. C.

The latest Press Bulletin issued by the Volunteer Medical Service Corps, just received, consists of a letter of transmittal, "To the Editor," signed by the Assistant Secretary of the General Medical Board; an "Official Announcement" from the President of the V. M. S. C. and the Chairman of the General Medical Board; and five foolscap pages in the form of questions and answers concerning the V. M. S. C. This Bulletin seems to have been issued to emphasize what the name of the organization indicates—that is, that this society is purely voluntary. To quote from the "Official Announcement":

No official or committeemen representing the Volunteer Medical Service Corps or the General Medical Board of the Council of National Defense is now authorized or has been authorized to favor any organized or unorganized method of coercion in inducing members of the medical profession to join the Medical Corps of the Army or Navy, or the Volunteer Medical Service Corps. Our committeemen are especially urged against favoring any movement that would threaten to impair a medical man's standing in his local, state or national society because he refused to enroll in the Army or Navy, or the Volunteer Medical Service Corps.

It must be made clear that the Volunteer Medical Service Corps is a volunteer organization which has for its object the enrolment and classification of the profession.

THE JOURNAL is glad that there is to be a change in the propaganda in the procedure of building up this organization. Our profession is no longer to be threatened and coerced into it, as has been the case, especially during the more recent "drive" since the reorganization on August 2. Not only have physicians been threatened with having their names published in the newspapers, thus publicly branding them as "slackers," but the methods of promotion of this society finally reached the stage in which physicians who were not commissioned and who did not join this organization were threatened with loss of membership in county societies.¹ The medical profession is to be congratu-

lated that these coercive measures are no longer to be employed. The general and hearty response of physicians from the time we entered the war to every call for the service should have forbidden the employment of measures which reflect on our profession and which the V. M. S. C. itself is now forced to decry.

UNCERTAINTY REGARDING PREMEDICAL STUDENTS

There is considerable confusion in colleges and universities regarding the courses for premedical students, but definite instructions on this point have not as yet been sent out. Paragraph 3 of the circular letter from the Committee on Education and Special Training, of August 28, specifically says that "the student soldiers will be given military instruction under officers of the Army and will be kept under observation and test to determine their qualification as officer-candidates, and technical experts such as engineers, chemists and doctors." This indicates that the committee had not forgotten the importance of safeguarding the supply of physicians. The circular letter in regard to curricula, however, makes no provision for premedical education. Five programs of instruction were prescribed, these being to prepare students for the five following services: A, Infantry, Field Artillery and Heavy Coast Artillery; B, Air Service; C, Ordnance Corps and Quartermaster Corps; D, Engineer Corps, Signal Corps, and Chemical Welfare Service, and E, Transport Service and Tank Service. Program D, which was arranged for engineers, the signal corps and chemical welfare service, might readily provide also for premedical education if the Committee on Education and Special Training would permit it. If special instructions are intended regarding premedical students they should be issued at the earliest possible moment. Otherwise premedical students will be forced to enter one of the five forms of service referred to above and confusion may result.

THE ORIGIN OF CERTAIN ANEURYSMS

It has been noted as a seemingly remarkable result in studies of experimental pathology conducted by Halsted¹ at the Johns Hopkins Medical School that, after constriction of large arteries in suitable degree by metal bands, a dilatation of the blood vessel occurs distal to the obstruction rather than proximal to it and where it might have been expected. Halsted believes that this helps to explain in a measure the not uncommon occurrence of aneurysms of the subclavian artery distal to a cervical rib. In an analysis of 525 clinical cases of cervical rib, 106 were found in which the subclavian had been compressed; and in twenty-one of these, aneurysm or dilatation of this vessel distal to the site of constriction had been noted. The attempts to explain the phenomenon have assumed as a possible cause either weakening of the wall of the artery from erosion by the rib, variable or intermittent pulse pressure occasioned by the normal excursions of

1. As an illustration the following notice appears in the Bulletin of the Buchanan (Missouri) County Medical Society, Sept. 17, 1918: Notice is hereby given that at the coming meeting of the society the following resolution will be introduced in accordance with request from the National Council of Defense, Medical Section.

Resolved that, (a) After November 1, 1918, applicants for membership in the Buchanan County Medical Society shall be rejected unless they are members of the Medical Reserve Corps of the Army or Navy, or of the Volunteer Medical Service Corps.

(b) The membership of any physician in this society who is not a member of the M. R. C. of the Army or Navy, or of the V. M. S. C. shall terminate as soon after Nov. 1, 1918, as his membership for the current year expires.

1. Halsted, W. S.: Dilatation of the Great Arteries Distal to Partially Occluding Bands, *Proc. Nat. Acad. Sc.*, 1918, 4, 204.

the arm, or vasomotor or vasa vasorum disturbances leading to modified nutritional conditions in the wall of the vessel. Halsted is inclined to reject these explanations. He believes that what he describes as the abnormal, whirlpool-like play of the blood in the relatively dead pocket just below the site of the constriction, and the lowered pulse pressure may be the chief factors concerned in the production of the dilatation. The validity of this conclusion must be established before a rational method of cure can be instituted in the management of such aneurysms.

Medical Mobilization and the War

Work of Advisory Boards

A telegram addressed to all draft executives calls attention of Local Boards to Section 123 as amended and as appearing in the second edition of the Selective Service Regulations and to the fact that a registrant no longer has the right or privilege of applying to be sent to a Medical Advisory Board.

Women Physicians Wanted for Anesthetic Service

Dr. F. H. McMechan, secretary of the Interstate Anesthetists and the American Anesthetists, Avon Lake, Ohio, states that he is authorized to secure qualified women physicians under 45 years of age as anesthetists for war service. Women physicians desiring to enter this service may communicate directly with Dr. McMechan.

Gas Hospital Unit Starts for France

The first hospital unit designed exclusively for gassed victims has started recently for France. This unit is the unit of the Women's Overseas Hospitals. The chief of the medical staff is Dr. Marie Louise Lefort, New York City, and with her are associated Dr. Adah McMahan, Lafayette, Ind., Dr. Irene M. Morse, Clinton, Mass., Dr. Elizabeth A. Bruyn, Brooklyn, and Dr. Alice M. Flood, New York City. The hospital has accommodation for 300 patients, the equipment is mobile, and has for its immediate needs, two ambulances, one 3-ton truck and one 2-ton truck.

Division Surgeons Appointed

Lieut.-Col. William T. Cade, Jr., has been appointed division surgeon at Camp Sherman, Chillicothe, Ohio; Major William W. Pretts has been appointed sanitary inspector, and Lieut. Harry H. Sumner, assistant to the division surgeon.

Lieut.-Col. James F. Johnston has been appointed division surgeon at Camp Wadsworth, Spartanburg, S. C.; Major Thomas W. Maloney has been appointed inspector, and Lieut. John F. Schafmeister, assistant to the division surgeon.

Lieut.-Col. John J. Roddy has been appointed division surgeon at Camp Cody, Deming, N. M.; Capt. Alvin M. Fortney has been appointed sanitary inspector, and Lieut. L. M. Spalding, assistant to the division surgeon.

Officers' Uniforms Available Through Quartermaster's Department

A general order makes the following announcement relative to the supply of officers' uniforms:

III. Section IV, G. O. 56, W. D., 1918, is rescinded and the following is substituted therefore:

1. The following cloths are adopted as standard for officers' uniforms, and all uniforms for officers made in the United States after Dec. 31, 1918, will be one of these prescribed standards:

For coat and breeches, summer wear in the United States and in the tropics only: a, an O. D. cotton; b, a 13-ounce all wool worsted gaberdine. For coats, breeches and overcoats: a, a 12-ounce worsted serge; b, a 16-ounce worsted serge; c, a 16-ounce whipcord; d, a 21-ounce whipcord or elastique; e, a 20-ounce melton. For riding breeches: a, a 23-ounce Bedford cord. For overcoats: a, a 32-ounce melton or kersey.

2. The quartermaster corps will after Dec. 1, 1918, carry a supply of these cloths, and officers can purchase their personal requirements

at the government prices. Samples of cloths with the issue prices will be kept on hand by all camp, cantonment and post quartermasters and may be examined by officers on request after the date mentioned. For the present stock will be carried at the following depots only, but this list will be extended from time to time as cloth becomes available: New York depot, Washington depot, Atlanta depot, Sam Houston depot, San Francisco depot, Chicago depot, St. Louis depot.

3. The quartermaster general will determine by thorough investigation a schedule of fair prices for making uniforms, including all necessary trimmings, linings, etc., but not including the cloths, and prepare a list of responsible tailors who agree to make uniforms for officers at the schedule rates, the quartermaster general guaranteeing to the tailors the collection of bills for all uniforms ordered through the representatives of the quartermaster general. The schedule of prices, the list of tailors agreeing to make uniforms at these prices and the regulations governing the sale to officers of the standard cloths, the placing of orders, the acceptance of uniforms ordered and the payment of bills will then be published to the service.

4. The quartermaster corps will arrange to supply from stock at cost made up (ready to wear) officers' uniforms. These will be provided in only two types of cloth for coats and breeches, namely: The 12-ounce worsted serge and the 20-ounce melton and 32-ounce melton for overcoats. It is expected that an adequate supply can be provided at the principal depots mentioned in Paragraph 2 by Nov. 1, 1918, and later at other depots and camps.

The Epidemic of Influenza in the A. E. F.

The *Weekly Bulletin* of the Medical Service in the American Expeditionary Forces contains the following statement relative to the epidemic of influenza. "This disease which was mentioned previously as 'Three Day Fever' is now known to be due to the true Pfeiffer bacillus, although evidently of a much milder strain than the type which prevailed in the pandemic of 1889. This epidemic, though of remarkable mildness in the two months from April 15 to June 15, has within the past four weeks shown certain characteristics which indicate the kind of increasing virulence with which bacteriologists are familiar in the case of strains of pneumococcus passed rapidly through a succession of susceptible animals such as the rabbit. Onset with temperature of 104, projectile vomiting, severe headache, Kernig's sign and high tension spinal fluid, flowing freely up to 100 c.c. has not been uncommon and many cases have been mistaken for, and some have been treated as, meningitis with antimeningococcus serum. No harm, apparently, has come from the use of the treatment and symptomatic relief has often followed the withdrawal of the excess fluid, but confusion is likely to arise when the fluid clear on the tap becomes turbid with leukocytes from the reaction following the introduction of the antimeningococcus serum. If the meningococcus is not found on smear or culture it is well to be satisfied with withdrawal of fluid and not to give serum. Pneumonias have been more common sequelae in July than in April.

Prompt hospitalization effectively guards against serious sequelae and is still the best treatment to be offered. Relief from headache by aspirin, abundant use of water internally, gentle laxative, and, when the temperature has fallen, a nourishing diet, have seemed to be the approved treatment. The same warning should be given now as always in treating influenza, that is, warn against premature return to hard work. The epidemic is about at an end so far as A. E. F. troops are concerned and has been throughout of a benign type, though causing considerable noneffectiveness."

Medical Teachers Registered Under Selective Service Act

A circular letter from the Committee on Education and Special Training sent on Sept. 19, 1918, to all institutions having units of the Students' Army Training Corps.

1. Men heretofore or hereafter classified in Class I, Group A, and called to military service will not be granted furloughs.

2. Teachers who are essential are eligible to claim deferred classification under Section 80, Selective Service Regulations, and they are encouraged to do so. Such deferred classification should be claimed for them by the educational institutions by which they are employed.

3. Teachers who are denied deferred classification by the district board and who are liable to call to military service will be encouraged to request voluntary induction in the unit of the S. A. T. C. stationed at the institution where such instructors are employed.

4. In very exceptional cases and on the recommendation of the educational department of the committee teachers who have already been drafted and are now at mobilization camps will be transferred back as soldiers on active duty to the unit of the S. A. T. C. where needed; provided such instructors do not object to return as soldier instructors, have not been permanently assigned in a capacity wherein their ser-

vices will be of great value to the Army, and have not already been designated to attend officers' training schools.

5. Since the colleges are under contract with the War Department to train enlisted men in the U. S. Army, essential teachers are obviously engaged in occupations that are strictly "necessary to the maintenance of the military establishment." It is, therefore, expected that the really essential professors and teachers will be granted deferred classification under the new law on this account. Heads of institutions should see to it that district boards and their industrial advisers are fully informed of all the facts in every case.

Disease Bulletin for A. E. F.

Some interesting notes regarding the Medical Service for the American Expeditionary Forces appear in the weekly *Bulletin of Disease*, September 9, published by the chief surgeon, A. E. F.:

Gas Fright in the Fifth Division.—In a recent attack 251 patients were sent to the field hospital as gassed cases. It was found that over half of these were not sufficiently gassed to require evacuation. It is pointed out the greatest discretion must be used by surgeons in sorting these cases. Where concentrated gases are employed, short exposure only is required to produce severe poisoning. When gases are highly diluted the men may be exposed for some time and still be able to continue on duty. Many men are suffering, not from gassing, but from gas fright. All they need is reassurance. Surgeons must base their diagnoses on physical sense rather than on statements made by patients: place more reliance on statements made by the patient's lungs than on statements made by his mouth.

Influenza Epidemic in the 37th Division—Spitting.—An inspection of this division showed that some men were billeted in an ill ventilated and dusty loft over a stable. The men were working long hours under pressure and returned at night always fatigued and wet from their work in the dugouts. The first cases occurred on July 28, the third case on August 7, and fourteen cases between August 9 and 13. The daughter of the woman who owned the billet fell ill with the disease and the mother made the significant remark that she felt that her daughter had been infected because of the terrible American habit of spitting; that her courtyard had been kept constantly wet by the spitting of the men billeted in the stable. This was an interesting commentary on one of the few but, nevertheless, very serious breaches of hygiene practiced by American troops. It was recommended as a result of this inspection that an effort be made to start a campaign of education to diminish the spitting habit among troops.

Trench Foot.—This is largely a matter of discipline. The cause is constant standing in wet places and impairment of the circulation. Twenty-four hours is the limit for a tour of duty in a water logged trench. Rubber boots are useful when actually working in the trenches, but they are to be used only for this purpose and are to be removed when the necessity is passed. Rubber boots are not suitable for dry cold. If trench foot develops in a command the commanding officer is to be grilled on the following questions, in the form of a report which he makes out every time for each man acquiring trench foot: (1) frequency of baths; (2) frequency of change of socks; (3) length of time on duty and where; (4) condition of trenches; (5) efforts made to improve trench conditions; (6) reason for failure to attain improvement; (7) were unfavorable conditions reported? if not, why? (8) with what result? (9) condition of dugouts; (10) condition of other men of platoon.

This army evacuated in 1915-1916, 3,311 trench foot cases. In 1916-1917 there were 395 evacuated for this trouble. This is due to better care of the feet and better trenches. One should remember always that in the case of trench foot you should use antitetanic serum.

Notes on Venereal Disease from Base Section No. 2.—

	Prophylactic Treatments Given	New Cases	Cases Developing Following Failure to Take Prophylaxis
Total white troops.....	76,011 4,959	95	37
Total colored troops.....	11,008 1,611	41	23
Since organization of B. S. No. 2 there have been	93,343	2,549	1,025

Watch Out for Imported Cooties.—We have enough of the European varieties for experimental purposes. On a transport

arriving recently in one organization there were the following number of cases of well established pediculosis pubis: 338th Labor Battalion, Co. A, 22 cases; Co. B, 26 cases; Co. C, 37 cases; Co. D, 27 cases.

Missing

Lieut. Leonidas Barkdull Faulk, M. C., U. S. Army, Monroe, La., is reported in the Official Bulletin of July 5, to be missing in action.

In Captivity

Notification has been received of the capture of Capt. Arthur A. Mitten, Milwaukee, at Fismes, August 4.—Dr. Howard F. Kane, Washington, D. C., on duty in the British Expeditionary Forces, is reported to be a prisoner at Rastatt, Germany.

Wounded

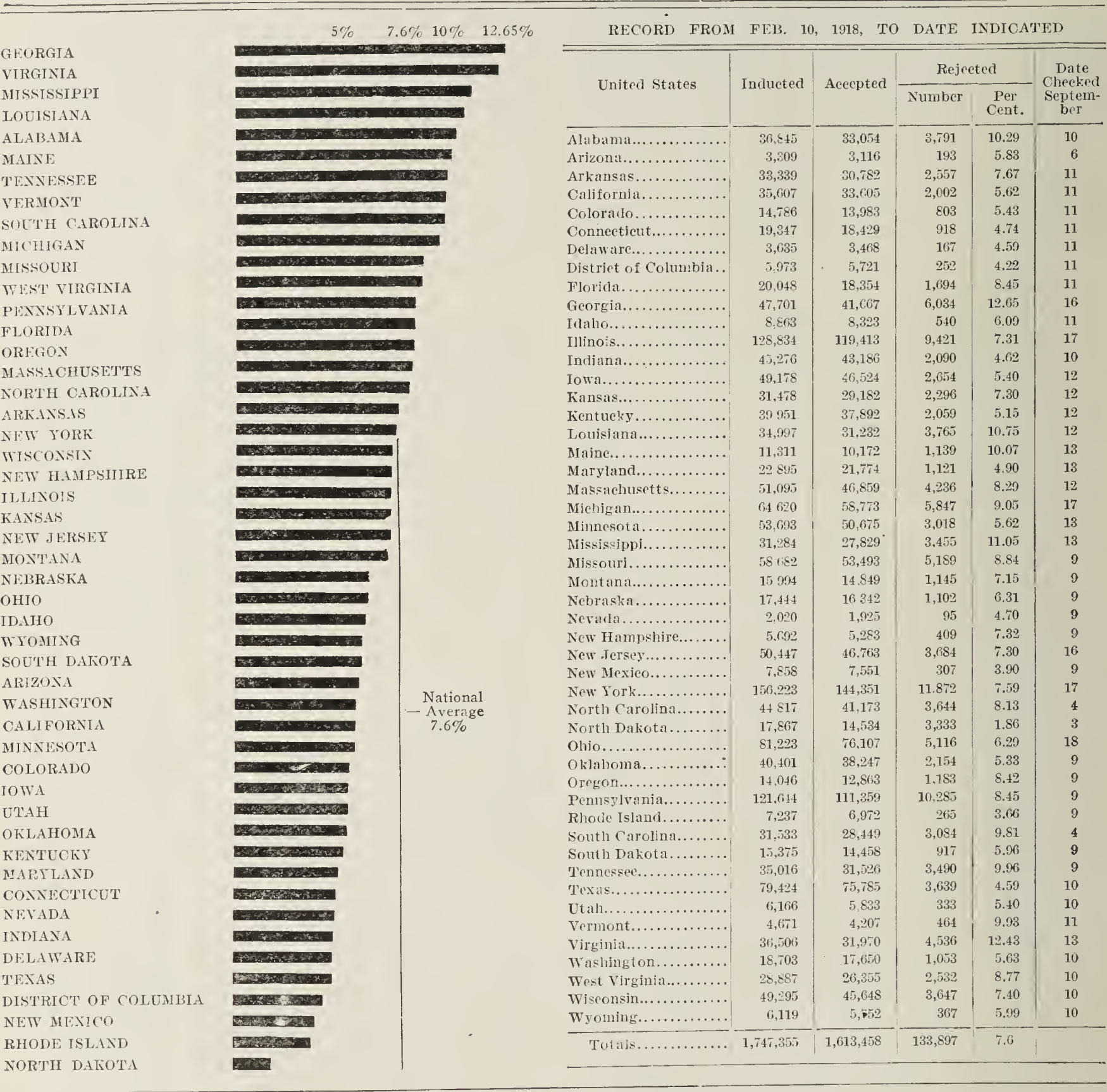
The following medical officers are reported to have been wounded: Lieut. Wesley Lewis Boyden, M. C., U. S. Army, Seymour, Wis., September 6, severely; Lieut. William Wallace Dodge, M. C., U. S. Army, Washington, D. C., severely; Capt. James V. Nelson, M. C., U. S. Army, Logansport, Ind., severely; Lieut. Hugh Rannell Hildebrant, M. C., U. S. Army, Dundee, Mich., severely; Lieut. William Edwin Park, New Milford, Pa., degree undetermined; Lieut. Fred B. Shaffer, Somerset, Pa., wounded in the head; Lieut. William E. Lawhead, U. S. Navy, on duty with the Marine Corps, severely; Lieut. Finis E. Rushing, Coalgate, Okla., degree undetermined; Lieut. Charles A. Jenkins, M. C., U. S. Army, Willimantic, Conn., wounded and gassed; Lieut. Charles C. Ryan, Republic, Pa., slightly; Lieut. Holland T. Ground, Virginia, Minn., severely; Lieut. Shores Erastus Clinard, Sorrento, Fla., degree undetermined; Lieut. Raymond Gene Tuck, Marlette, Mich., severely; Lieut. Frederick J. Cullen, Naparine, Wash., severely.

Awards for Valor

The Distinguished Service Cross has been awarded to Lieut. Thomas M. Barber, M. C., U. S. Army, on duty with the infantry. "On May 28 to 30, 1918, near Cantigny, France, he repeatedly demonstrated heroic self-sacrifice by caring for wounded under enemy fire and with apparent contempt for his own safety. When his aid station had been destroyed by shell fire he promptly moved into a shell hole nearby and continued his faithful work."—Lieut. Frank H. McGregor, M. C., U. S. Army, Mangum, Okla., has been awarded the British Medal for bravery.—Major John T. Barbee, M. C., U. S. Army, Jackson, Tenn., has been decorated for bravery.—Major Wilbur M. Phelps, Staunton, Va., has been awarded the Croix de Guerre.—Capt. Alson J. Hull, M. C., U. S. Army, Williamstown, Mass., has been awarded the British Military Cross.—Lieut. William A. Toertmeyer, M. C., U. S. Army, Cincinnati, has been awarded the Distinguished Service Cross. "At the battle of Cantigny, France, May 28-30, 1918, he readily, on his own initiative, left the security of the trench to administer first aid under fire and in full view of the enemy snipers and machine gunners. His brave conduct was a noble example and his ministrations relieved suffering and saved lives."—Private John B. When, medical department, assigned infantry, has been awarded the Distinguished Service Cross. "For three nights at Cantigny, France, May 28 to 30, 1918, he worked unceasingly under fire, bringing the wounded to safety, ministering to them under his own initiative. He repeatedly left shelter to help wounded men."—Private Frank J. Reynolds, medical department, assigned infantry, "During the fight of Cantigny, France, May 28 to 30, 1918, while acting as stretcher bearer, he constantly and fearlessly exposed himself to machine gun fire to attend wounded, frequently under his own initiative when he might have remained in shelter himself."—Lieut. Leo J. Crum, M. C., U. S. Army, Kalamazoo, Mich., has been cited in orders. At Cierges he had his first aid station in a house at the extreme edge of the village under continuous shelling and was successful in evacuating all his patients.—Drs. Mary Lee Edward, Caroline Sandford Finley, New York City, and Anna I. Von Sholly, Flushing, N. Y., have received the Croix de Guerre from the French government for "excellent surgical work performed under heavy barrage in France."

REJECTIONS AT CAMPS FOR PHYSICAL DEFECTS

The subjoined chart and table, prepared at the office of the Provost Marshal-General, indicate the relative number of registrants inducted and rejected in the various states for the period from Feb. 10 to September, 1918 (date checked):



COMMISSIONS ACCEPTED, MEDICAL CORPS,
U. S. ARMY

Previous lists published in THE JOURNAL, June 1, 22 and 29, July 13, 20 and 27, August 3, 10, 24 and 31, September 7, 14, 21 and 28.

- ALABAMA

Anniston—Cleveland, C. H., Jr.

Birmingham—McQuiddy, R. C.

McFall—Thwoatt, D. H.

Montgomery—Pollard, C. T.
- ARIZONA

Bisbee—Fitzgerald, G. H.
- ARKANSAS

Fort Smith—Thompson, E. M.

Gurdon—McLain, C. W.

Marked Tree—Baird, J. L.

Roland—Brooks, C. M.

Rasboro—Baker, W. P.

Searcy—Edrington, D.
- CALIFORNIA

Fresno—Martin, W. P.

Holtville—Wimp, W. H.

Los Angeles—Ferry, F. C.

Frees, B. M.

Gilbert, W. H.

May, H. C.

Monteleone, J.

Pinkerton, B. G.

Tebbetts, H. B.

Madera—Ranson, D. H.

Ontario—Titus, J. H.

Placentia—Thibodo, F. H.

Sacramento—Davis, H. J.

San Jose—Dickinson, A. E.

Gerlach, F. C.

Hablutzel, C. E.

- SAN JOSE

San Jose—Smith, A. S. J.

Sonora—Pleth, V.

South Pasadena—Browning, C. C.

Metcalf, C. F.

Susanville—Walsh, F. D.
- COLORADO

Denver—Bell, C. C.

Holden, G. W.

Fort Collins—Norton, D. O.

Pueblo—Lucas, W.

Swink—Miller, C. L.
- CONNECTICUT

Hartford—Brayton, H. W.

Pendleton, E. B.

Litchfield—Page, C. I.

Ridgefield—Lowe, R. W.
- DELAWARE

Milford—Marshall, S. M. D.
- DISTRICT OF COLUMBIA

Washington—Harvison, D. B.

Larkin, P. E.

Poole, T. A.
- FLORIDA

Bronson—Markey, M. R.

Jacksonville—Smith, M. H.

Lake City—Bates, T. H.
- GEORGIA

Cuthbert—Patterson, L. K.

Hawkinsville—Bailey, C. B.

Hazelhurst—Curtman, W. M.

Quitman—McMichael, J. R.

Sycamore—Moore, J. T.

Tifton—Hendricks, W. H.

Woodbury—Allen, W. P.
- IDAHO

Mackay—Farrell, N. H.
- ILLINOIS

Aledo—Smeltzer, C. E.

Atlanta—Brock, G. W.

Batchtown—Wood, H.

Bloomington—Hawks, J. K. P.

Bushnell—Griffith, J. C.

Champaign—Miller, L. C.

Chicago—Albrecht, C. A.

Beil, H. H.

Chicago—Epstein, A. I.
Graybeal, J. M.
Hartwell, B. O.
Huber, J. M.
Lipshultz, G. U.
Luse, H. D.
Lynch, S. E.
Piper, L. P.
Porter, J. L.
Stackable, J. B.
Whitaker, W. B.
Wicks, S.
Zaborktsky, J.
Crystal Lake—Hull, H. D.
East St. Louis—Bozarth, J. A.
Galesburg—Ripley, C. B.
Geneseo—Murphy, J. H.
German Valley—Miller, P. M.
Highland—Kaiser, A. F.
Joppa—Roberts, T. W.
Kankakee—Pratt, E. C.
Kansas—Roberts, J. B.
Libertyville—Martin, F. H.
Oak Forest—Morris, E.
Odell—Tombaugh, J. L.
Oregon—Roe, J. B.
Paris—Gumm, A. G.
Williams, B. G. R.
Peru—Yoder, O. C.
Pleasant Plains—Fink, F. C.
Ramsey—Staff, E. P.
Shelbyville—Monroe, H. E.
Spring Valley—Miltenberger, R. E.
St. Anne—Ayling, G. H.
Waukegan—Ambrose, C. S.
Gourley, F. L.

INDIANA

Alexandria—Kellar, F. G.
Anderson—Austin, M. A.
Azalia—DeLong, O. A.
Bicknell—Staley, T. M.
Converse—Brookie, R. W.
Dana—Strong, D. S.
Dunkirk—Heller, N. L.
Elkhart—Bassler, C. R.
Hoover, E. M.
Gilman—Armstrong, P.
Hammond—Greenleaf, G. F.
Hillsboro—Bunnell, E. G.
Indianapolis—Jackson, F. E.
Kokomo—Lung, B. D.
Lafayette—Schreiber, A. W.
Logansport—McCully, C. H.
Monroeville—Steinman, H. E.
Napoleon—Heath, E. E.
Rochester—Taylor, H. W.
Rockport—Ehrman, C. D.
Versailles—Comes, M. J.
Vincennes—Edwards, E. T.

IOWA

Algona—Burke, C. H.
Charter Oak—Huber, S. A.
Dubuque—Bronson, O. A.
Linehan, L. J.
Moes, M. J.
Grinnell—Lauder, C. H.
Talbott, E. F.
Washington—Masson, H. F.

KANSAS

Kingman—Haskins, H. E.
Lexena—Nesselrode, C. C.
Moline—Shaffer, C. E.
Norcatur—Knox, W. E.
Wichita—Carter, W. H.

KENTUCKY

Henderson—Jones, G. F.
Louisville—Baker, M. C.
Clem, J. G.
Kahn, L. H.
Madisonville—Long, R. W.

LOUISIANA

Marksville—LaFogue, L. D.
Plaquemine—Holloway, E.

MAINE

Hebron—Frisbee, E. B.
Lewiston—Morin, R. J.
Limerick—Carpenter, L. W.
South Windham—Moulton, O. G.

MARYLAND

Baltimore—Cole, J. W.
Lancaster, G. E.
Princess Anne—Lankford, H. M.

MASSACHUSETTS

Boston—Fairbanks, A. W.
Flagg, E.
Flagg, H. H.
Martin, D. L.
Chicopee—Agnew, J. R.
Lawrence—Allen, G. S.
Lynn—Underhill, S. G.
Malden—Hunt, W. E.
Melrose—Plumb, D. G.
North Billerica—Forhan, N. K.

Springfield—Benner, R. S.
Boyd, J. V.
Ober, R. B.
Ritter, H.
Yerbury, C. C.
Taunton—Fox, W. Y.
Waltham—Dascobe, O. L.
Wollaston—Curtis, W. G.
West Springfield—Steele, G. L.

MICHIGAN

Calumet—Joy, H. M.
Detroit—Cowen, L. B.
Jentgen, C. J.
McRae, D. H.
Myers, G. P.
Van Hee, J.
Otsego—Whitney, H. E.
Richmond—Greene, I. W.
Whitehall—Smith, C. F.

MINNESOTA

Barnum—Anderson, A. R.
Mazeppa—Radabaugh, R. C.
Minneapolis—Booth, A. E.
McKinney, F. S.
Morton, H. M.
Ziskin, T.
Slayton—Benoit, F. T.
St. Paul—Greene, C. L.
Pearson, F. R.

MISSISSIPPI

Meridian—Touchstone, A. G.

MISSOURI

Bronson—Mitchell, G. B.
Centralia—Hickerson, J. T.
Flat River—Sample, W. D.
Granby—Wilbur, H. L.
Jefferson City—Bedford, S. V.
Kahoka—Bridges, J. R.
Kansas City—Green, L. B.
Orr, T. G.
Wattenberg, J. E.
La Clede—Caldwell, J. C.
Mound City—Perry, D. C.
Neosho—Roseberry, E. M.
Richland—Monday, L. R.
Sedalia—Barnum, K. R.
Dwyer, F.
Dyer, D. P.
St. Charles—Weleh, G. N.
St. Joseph—Hunt, W. J.
St. Louis—Davis, F. L.
Gayler, W. C.
Harnagel, F. H.
Hartman, J. A.
Hughes, A. J.
Kieffer, V. B.
McDonald, J. W.
Miller, H. B.
Wilhite, G. O.
Washington—Seibert, D. A.

MONTANA

Butte—McCarthy, P. H.
Cascade—Stratton, O. T.
Great Falls—Porter, E. M.

NEBRASKA

Clatonia—Deardorf, B. M.
Hastings—Carson, W. T.
Kearney—Gibbons, C. K.
Omaha—Follman, J. C.
Kadvay, G. J.
Sumney, H. C.
Weeping Water—Reed, F. P.

NEVADA

Stewart—Morrow, W. B.

NEW HAMPSHIRE

Hampton—Thompson, E. H.
Walpole—Craig, W. P.

NEW JERSEY

Jersey City—Birdsall, C. A.
Millville—Mayhem, C. H.
Newark—Greenwald, M.
Mockridge, O. A.
Streen, M. E.
Roselle Park—Wait, H. N.
Summit—Clark, C. P.
Keeney, C. B.
Trenton—Richardson, H. T.

NEW MEXICO

Dexter—Hubbard, E. J.
East Las Vegas—Crail, F. H.

NEW YORK

Albany—Vogel, H. A.
Albion—Cooper, D. G.
Branchport—Costello, M. E.
Brooklyn—Breitling, C. W.
Hargitt, C. A.
Kranzer, L. L.
Long, J.
Piquet, S. D.
Thompson, J. E.
Buffalo—Scibetta, S. L.
Elmira—Kinner, J. L.

New York City—Armstrong, A. S.
Duffy, J. E.
Dunham, H. G.
Getman, J. E.
Halpern, T.
Keil, F. C.
Mills, W. S.
Muller, E. F.
Nathan, P. W.
Nicholson, A. O.
Polak, M. S.
Prioleau, P.
Rudderow, E. D.
Schwartz, H. J.
Steinbach, L.
Perry—Brownell, J. R.
Verona—George, J. D.
Watertown—Montgomery, H. C.
West Henrietta—Ames, J. A.

NORTH CAROLINA

Canton—Pegram, R. W. S.
Hickory—Menzies, H. C.
Rowland—Carmichael, T. W.
Wilmington—Bolles, C. P.

OHIO

Bloomdale—Sheldon, E.
Bloomville—Fellers, D. W.
Cincinnati—Hulick, T.
Cleveland—Birge, R. H.
Blahd, M. E.
Cohen, A.
Luck, H. C.
McDonald, C. L.
Sharp, W. D.
Timberlake, H. P.
Columbus—Bates, L. V.
McGarvan, C. W.
Englewood—Furnas, E. E.
Frankfort—Maag, W. D.
Kenton—Bowman, D. H.
Middletown—Bauer, E. O.
Silver, H.
Nevada—Dwire, H. E.
Newcomerstown—Hays, S. B.
New London—Cranston, B. S.
New Paris—Harris, C. H.
Norwood—Sauer, L. O.
Painesville—Barnett, G. F.
Port Clinton—Brindley, A. A.
Portland—Henderson, O. C.
Somerset—Fountain, J. C.
Toledo—Burritt, C. A.
Kahn, D.
Tiffin—Williard, G. W.
Williamstown—Tombough, A. A.

OKLAHOMA

Bokhoma—Oliver, R. B.
Bokoshe—King, J. T.
Granite—Nunnery, A. W.
Norman—Thurlow, A. A.
Okmulgee—Bercaw, J. E.
Ponea City—Arrendell, C. W.
Sapulpa—Harris, B. C.
Shawnee—Colvert, G. W.
Tryon—Gayman, S. E.
Tulsa—Mohrman, S. S.
Wapanucka—Ellis, J. M.
Weatherford—Gordon, J. M.

OREGON

Salem—Walton, R. W.

PENNSYLVANIA

Bellevue—Henry, E. B.
Walker, G. H.
Carlisle—Whistler, E. L.
Christiana—Kyle, E. V.
Dickson City—Cantor, A. S.
Harrisburg—Kreider, J. H.
Johnstown—Sagerson, R. J.
Lancaster—Brown, H. F.
Leacock—Keylor, W. N.
Ligonier—Johnson, J. B.
Monaca—Gormley, J. R.
Narbeth—Faries, C. T.
New Castle—McCune, S. R. W.
New Holland—Hendrickson, L. H.
Philadelphia—Bedrossian, E. H.
Brooke, J. A.
Carey, H. K.
Forman, H. J., Jr.
Goodman, R.

Philadelphia—Kuehner, H. M.
Williams, C. S.
Pittsburgh—Anderson, R. L.
Carroll, T. B.
Denslow, W. B.
Gaggin, V. S.
Hodgkiss, J.
Jennings, C. W.
Maxwell, W. C.
Nicholson, H. S.
Sharon—Heilman, R. S.
Hyde, A. P.
Springville—Diller, W. L.
Washington—Dunkle, G. B.
Lewis, O. G.
Ramsey, G. W.
Wilkes-Barre—Gustites, F. W.

RHODE ISLAND

Providence—Doten, C. R.

SOUTH CAROLINA

Charleston—Guess, J. D.
Hartsville—Edleston, W.
McCormick—Harmon, J. S.
Spartanburg—Myers, D. V.
Woodruff—Workman, B. J.

SOUTH DAKOTA

Brookings—Green, B. T.
Flk Point—Bushnell, W. F.
Howard—Collins, W. H.
Winifred—Barthell, J. F.

TENNESSEE

Ducktown—Kimsey, W. W.
Memphis—Blue, J. B.
Simpson, W. L.
Nashville—Hardy, W. M.
Rockwood—Clack, W. S.

TEXAS

Abilene—Alexander, S. M.
Belton—Crain, A. B.
Dallas—Boyce, W. A.
De Kalb—Beck, J. W. E. H.
Detroit—Caton, J. H.
Hico—Durham, C. E.
Quinlan—Goode, E. P.
Red Oak—Rogers, J. O.
San Angelo—Rush, H. P.
Seminole—Bell, M. C.
Sherman—Ridings, A. L.
Sweetwater—Fortner, A. H.
Waco—Lanham, H. M.

UTAH

Delta—Broadus, C. A.
Logan—Budge, E. S.
Salt Lake City—Felts, H. B.
Hammond, E. D.

VERMONT

Montpelier—Tindall, W. J.
White River Junction—Stanley, M. P.

VIRGINIA

Litwalton—Pierce, C. T.
Lowesville—Whitehead, W. H.
Middletown—Williams, T. A.
Purcellville—Hirst, V. B.
Richmond—Bear, J.
Swoope—Hartman, W. F.
University—Peterson, W. C.

WASHINGTON

Fort Steilacoom—Keller, W. N.
Seattle—Baldwin, L. B.
Spokane—Wallace, J. E.
Vancouver Barracks—McClurg, C. B.

WEST VIRGINIA

Kempton—Lanish, L. J.

WISCONSIN

Glidden—Law, W. G.
Lake Mills—Lichte, P.
Loganville—Westedt, O. E. A.
Milwaukee—Madison, J. D.
Montford—Ketterer, E. A.

WYOMING

Sheridan—Hamilton, O. P.
Newcomer, N. B.

COMMISSIONS OFFERED AND ORDERS TO DUTY ON ACCEPTANCE

Alabama

To Camp McClellan, Ala., Lieuts. T. S. McDIERMID, Brilliant; P. K. TAIT, Dora.
To Camp Sheridan, Ala., Lieuts. A. M. WALDROP, Cordova; J. C. MORGAN, Fairfax; J. E. BECK, Mobile.
To Camp Sherman, Ohio, Lieut. J. H. WINN, Huntsville.
To Fort Oglethorpe for instruction, Major J. M. MASON, Birmingham; Capt. J. H. JONES, Camden; R. C. JONES, Mobile; Lieuts. L. B. FARISH, Brewton; S. D. ARMISTEAD, Foley; M. S. WHITE, Hamilton; J. U. REAVES, J. M. WILSON, Mobile; R. C. BAINS,

Siluria. For instruction in military training, urology and dermatology, Lieut. C. E. FARISH, Mobile.

Arkansas

To Camp Logan, Texas, base hospital, Capt. J. I. SEARBOROUGH, Little Rock.

To Camp MacArthur, Texas, Lieut. E. L. HANEY, Hackett.

To Fort Oglethorpe for instruction, Capt. A. BRUNSON, Pine Bluff; Lieuts. A. H. COOK, Hot Springs; R. R. DALE, Texarkana.

To Fort Riley for instruction, Lieuts. D. C. ROBERTS, Huntsville; E. E. SCOTT, Magazine; R. A. HARKINS, Ratcliff; J. D. THORNTON, Willow.

California

To Camp Fremont, Calif., base hospital, Capt. C. D. HUBBARD, Huntington Park.

To Camp Kearney, Calif., Capt. C. B. DIRKS, Eagle Rock; J. S. DERRICK, Los Angeles; Lieuts. C. E. GAGE, Los Angeles; S. J. FITCH, Pasadena; A. F. WELIN, Rio Vista; E. N. CRABTREE, San Diego; J. McCAULEY, Santa Ana. Base hospital, Capt. K. R. SLEEPER, Los Angeles; Lieuts. C. A. ROBINSON, Ione; E. P. WALLACE, Pomona; R. A. JONES, San Francisco.

To Camp Sherman, Ohio, to examine the command for nervous and mental diseases, Capt. G. L. CHAMBERLAIN, Camino.

To Fort Riley for instruction, Lieuts. K. L. SCHAUPP, Palo Alto; B. J. LASSWELL, Quincy.

To Mendocino, Calif., Mendocino State Hospital, Capt. J. A. COLLIE, LaManda Park.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. S. R. DANNEBAUM, San Francisco.

To report to the commanding general, Hawaiian Department, Capt. J. W. WILSON, Oroville. Western Department, Capt. J. L. ARBOGAST, Sacramento.

To San Francisco, Calif., Capt. W. R. MOLONY, Los Angeles.

Colorado

To Camp Logan, Texas, Capt. E. D. BURKHARD, Delagua.

To Fort Oglethorpe for instruction, Lieut. P. C. GEISSLER, Colorado Springs.

To Fort Riley for instruction, Lieut. A. H. PETERS, Colorado Springs.

Connecticut

To Camp Meade, Md., to examine the troops for cardiovascular diseases, Lieut. H. A. MARTELLE, Hartford.

To Fort Oglethorpe for instruction, Capt. C. K. PETERSON, Lakeville; Lieut. G. E. PORTER, Warehouse Point.

To Fort Totten, N. Y., Capt. H. L. WELCH, New Haven.

District of Columbia

To Camp Meade, Capt. A. C. NORCROSS, Washington.

To Camp Wadsworth, S. C., Lieut. J. A. MURPHY, Washington.

To Fort Oglethorpe for instruction, Lieuts. S. BRICKER, J. T. MANN, H. W. MOFFITT, Washington.

To Walter Reed General Hospital, Capt. W. J. MALLORY, Washington.

Florida

To Camp Sheridan, Ala., Lieut. J. C. ELLIS, Perry.

To Fort Oglethorpe for instruction, Capt. E. S. ESTES, St. Augustine; Lieuts. J. F. CRANFORD, Inverness; W. C. BUFFALOW, Jacksonville; J. C. DAVIS, JR., Quincy.

Georgia

To Camp Jackson, S. C., Lieut. J. O. STRICKLAND, Pembroke. Base hospital, Capt. St. J. RAOUL DE CARADEUC, Savannah.

To Camp McClellan, Ala., Lieuts. S. W. CARTER, SR., Thomaston; C. L. AYERS, Toccoa.

To Camp Sheridan, Ala., Lieuts. C. H. PINSON, Stockbridge; W. L. BEAUCHAMP, Williamson.

To Camp Wadsworth, S. C., Lieut. J. P. TURK, Nelson.

To Fort Oglethorpe for instruction, Capt. J. M. BARNETT, Albany; J. R. GARNER, Atlanta; Lieuts. M. WARD, Albany; W. M. RILEY, Americus; H. L. BARKER, Carrollton; M. S. RICHARDSON, Cedar-town; M. F. PENNINGTON, Columbus; M. E. WINCHESTER, Ochocknee; J. A. WARD, Quitman; R. L. JOHNSON, Waycross.

To report to the commanding general, Southeastern Department, Lieut. L. BEASON, Dot.

Idaho

To Fort Oglethorpe for instruction, Capt. E. T. ANDERSON, Weiser; Lieut. E. S. PRINDLE, Spirit Lake.

To Fort Riley for instruction, Lieut. F. M. RAY, Pocatello.

Illinois

To Ann Arbor, Mich., State Psychopathic Hospital, Lieut. H. E. RANDOLPH, East Moline.

To Camp Bowie, Texas, Lieut. J. F. CLARK, Chicago.

To Camp Custer, Mich., Lieuts. R. B. ANDREWS, Belvidere; C. BERFIELD, Toulon. Base hospital, Capt. J. F. BRESNAHAN, Chicago.

To Camp Grant, Ill., Capt. O. L. HANSON, C. M. POHL, Chicago; S. F. HENRY, Effingham; Lieuts. H. L. DAY, Bluffs; W. D. CHRISMAN, Bradford; T. W. RENNIE, Chicago; T. J. FLATELY, Moline.

To Camp McClellan, Ala., Capt. A. PARSONS, Genesee; Lieuts. E. M. PRICE, Astoria; R. F. BARKER, East St. Louis; J. R. SHOLL, Peoria.

To Camp Pike, Ark., Major B. S. ROGERS, Chicago.

To Camp Sevier, S. C., Lieut. O. CARAKER, Olmstead.

To Camp Sheridan, Ala., Lieut. H. L. FISCHER, Kewanee.

To Camp Zachary Taylor, Ky., Lieut. R. F. WRIGHT, Chicago.

To Fort Oglethorpe for instruction, Capt. G. L. ALT, Chicago; C. W. BAILEY, Hebron; J. C. PAINE, Peoria; Lieuts. E. AUSTIN, Benton; C. R. BENNER, J. CRAYBEAL, G. HALPERIN, J. W. KAIL, S. MANN, I. S. SEGALL, R. E. STOBIE, Chicago; J. D. BYRNE, Du Quoin; J. C. KASSMEYER, Durand; J. C. R. WETTSTEIN, Effingham; W. B. McCLURE, Evanston; F. WOLTMAN, Kampsville; P. H. WESSEL, Moline; L. F. BOWMAN, J. J. McINTOSH, Mount Carroll; O. B. ORMSBY, Murphysboro; J. H. SPENCER, Murrayville; D. M. LITTLEJOHN, Pana; C. E. ROBB, Rock Island; O. L. EDWARDS, Roodhouse; W. H. McCANDLESS, Sterling; A. H. CLAE, Waukegan.

To Fort Riley for instruction, Lieuts. C. H. BAKER, Altamont; C. A. ROBINS, H. D. SHELDON, Chicago; E. M. MONTGOMERY, Cowden; G. C. KLEIN, Kincaid; H. A. LITTLEFIELD, Littleton; G. W. CAMPBELL, Louisville; C. M. MURRELL, Matherville; C. H. McPHERSON, Middletown; F. B. SCHROEDER, Princeton; C. M. FLEMING, Rushville; S. C. LORTON, Shumway.

To New Haven, Conn., Lieut. I. P. RICE, Chicago. Yale Army Laboratory School for instruction, Capt. E. SARGENT, Moline. C. WAKEFORD, Norris City.

To New York, Neurological Institute, for instruction, Capt. G. B. HASSIN, Chicago.

Indiana

To Camp Dodge, Iowa, as orthopedic surgeon, Capt. I. M. WASHBURN, Rensselaer.

To Camp Grant, Ill., Capt. E. A. STURM, Jasper; H. M. BOUNNELL, Waynetown.

To Camp Greene, N. C., Lieut. A. B. THOMPSON, Lake.

To Camp Jackson, S. C., base hospital, Capt. J. A. MacDONALD, Indianapolis.

To Camp Sherman, Ohio, Lieuts. C. J. BIEDENKOFF, Grand View; G. C. CONGLETON, Terre Haute.

To Fort Oglethorpe for instruction, Capt. C. C. ROBINSON, Indiana Harbor; O. S. DEITCH, Indianapolis; A. T. DAVIS, Marion; W. H. BAKER, South Bend; Lieuts. G. F. BICKNELL, Indiana Harbor; J. C. CARTER, J. L. JACKSON, H. J. LEMMON, Indianapolis; Z. M. LAUGHLIN, Linton; G. C. COULBOURN, Marion Station; J. V. KERRIGAN, Michigan City; C. J. MUNNS, Newburgh; B. F. DERR, South Bend; L. G. SPRADLEY, Tennyson; N. L. REYNOLDS, Warsaw.

To Fort Riley for instruction, Capt. D. J. CUMMINGS, Brownstown; J. W. IDINGS, Lowell; Lieuts. J. R. CARNEY, Delphi; J. E. WIER, Evansville; W. B. RICE, J. W. THIMLAR, Fort Wayne; C. A. ENDICOTT, Frankfort; R. S. GALBRAETH, Huntington; F. W. KERN, Kurtz; J. H. HAUCK, J. S. SHAFFER, Terre Haute; E. P. FLANAGAN, Walton.

To Washington, D. C., Surgeon-General's Office, Capt. H. M. EVANS, Chattanooga.

Iowa

To Camp Abraham Eustis, Va., base hospital, Capt. E. F. LAFORCE, Burlington.

To Camp Dodge, Iowa, Capt. R. H. WOODRUFF, Charles City; Lieut. R. M. WALLACE, Titonka.

To Camp Grant, Ill., Lieut. W. H. REDMOND, Cedar Rapids.

To Camp Lee, Va., base hospital, Capt. I. G. ROBERTS, Oskaloosa.

To Fort Des Moines, Iowa, Lieut. M. C. MACKIN, Knoxville.

To Fort Oglethorpe for instruction, Capt. F. LAMBACH, Davenport; Lieuts. M. E. ANDERSON, Clinton; C. M. BRAY, Iowa Falls; M. F. JOYNT, Marcus; C. E. DAKIN, M. J. FITZPATRICK, Mason City; L. G. STUHLER, Monticello; M. S. CORLETT, Westgate.

To Fort Omaha, Neb., Lieuts. B. POWELL, Albia; J. D. SIMONS, Indianola; J. L. COLLINS, Sheffield; A. H. SCHOOLEY, Terrill.

To Fort Riley, Capt. G. H. SOLLENBARGER, Corydon; E. T. WICKHAM, Washington; Lieut. F. E. SIMERAL, Brooklyn. For instruction, Major F. L. LOVE, Iowa City; Capt. F. T. SCANLON, Clear Lake; C. T. LESAN, Mount Ayr; Lieuts. P. B. GLEW, Dallas Center; E. G. MYRICK, Fairfield; C. E. SIMPSON, Norway; B. J. VOIGT, Spencer.

Kansas

To Camp Logan, Texas, Lieut. C. N. PETTY, Altamont.

To Fort Riley, Capt. W. H. WALKER, Kansas City. For instruction, Capt. D. G. BULEY, Sedgwick; Lieuts. L. E. HENDERSON, Coyville; S. BAILEY, Garden City; I. E. HARDER, Kansas City.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. R. W. VAN DEVENTER, Wellington.

Kentucky

To Camp Greene, N. C., Capt. E. S. ALLEN, Louisville; Lieut. C. B. WITT, Big Spring.

To Camp Jackson, S. C., Lieut. J. C. HARTMAN, Turners Station.

To Camp McClellan, Ala., Lieut. J. P. SIMPSON, Auburn.

To Camp Meade, Md., Lieut. S. L. STULL, Louisville.

To Camp Pike, Ark., base hospital, Capt. C. D. MORRIS, Louisville.

To Camp Sherman, Ohio, Capt. H. C. DORROH, Ashland.

To Camp Zachary Taylor, Ky., Capt. B. J. O'CONNOR, Louisville; Lieut. E. H. MILLER, Vine Grove.

To Fort Oglethorpe for instruction, Capt. C. W. BARNES, J. A. O. BRENNAN, R. L. WOODWARD, Louisville; Lieuts. H. J. SLOCUM, Carrollton; J. W. HOLT, Eminence; H. C. BLOUNT, Leesburg; J. M. BECK, Louisville; H. P. LINN, Paducah; V. C. GILLESPIE, Wilmore; E. B. DRISKELL, Worthville.

Louisiana

To Camp Beauregard, La., base hospital, Capt. T. E. WRIGHT, Monroe; Lieut. E. S. KEITZ, New Orleans.

To Camp Logan, Texas, Capt. A. F. BARROW, St. Francisville.

To Camp MacArthur, Texas, Lieuts. H. A. ELDRIDGE, Abbeville; E. K. HARRIS, Converse; E. EHLERT, Waterproof.

To Camp Sheridan, Ala., Lieut. R. P. THAXTON, Pleasant Hill.

To Fort Oglethorpe for instruction, Lieuts. C. DEAN, Bogalusa; M. J. GELPI, New Orleans.

To Leon Springs, Texas, Lieut. W. P. SINGLETARY, Wilson.

Maine

To Boston, Mass., Psychopathic Hospital, Lieut. F. E. ROWE, Augusta.

To Fort Oglethorpe for instruction, Lieuts. H. V. BICKMORE, Portland; H. W. FROHOCK, Rockland.

Maryland

To Camp A. A. Humphreys, Va., Lieut. J. L. VALENTINI, Baltimore.

To Camp Greene, N. C., Lieut. D. E. STONE, Jr., Emmitsburg.

To Camp Lee, Va., Lieut. H. J. STRICKLER, Baltimore.

To Camp Sherman, Ohio, Lieuts. F. G. COWHERD, Cumberland; F. A. CAMALIER, Leonardtown.

Massachusetts

To Camp A. A. Humphreys, Va., Capt. A. C. Eastman, Springfield; Lieut. W. E. BUCK, Wilmington.

To *Camp Devens, Mass.*, Lieuts. S. E. RYAN, Springfield; M. J. SHEALEY, Westboro. Base hospital, Capt. F. L. EVERETT, Springfield. For instruction, Capt. F. T. CLARK, Westfield.

To *Camp Gordon, Ga.*, Capt. F. J. MCKENZIE, Springfield.

To *Camp Jackson, S. C.*, Lieut. J. C. SULLIVAN, Webster.

To *Fort Oglethorpe* for instruction, Capt. F. R. ABBE, H. J. FITZSIMMONS, H. F. MACLEOD, Boston; F. J. SEXTON, Brookline; J. E. BRINDAMOUR, Holyoke; H. C. KIRBY, New Bedford; Lieuts. J. H. DEVENNY, Boston; T. J. CAHILL, Cambridge; T. B. DELANEY, Lowell; E. A. BARROWS, Plymouth; M. B. RADDING, Springfield.

To *Fort Totten, N. Y.*, Lieut. I. W. RICHARDSON, Wakefield.

To *New Haven, Conn.*, Yale Army Laboratory School, Capt. W. W. FULLERTON, Brockton.

To *Plattsburg Barracks, N. Y.*, Lieut. D. F. DOWNING, Westborough.

Michigan

To *Ann Arbor, Mich.*, State Psychopathic Hospital, Capt. P. J. DEPREE, Grand Rapids.

To *Camp Dodge, Iowa*, base hospital, Capt. H. T. WHITE, New Lathrop.

To *Camp Sherman, Ohio*, Lieut. J. F. CROFTON, St. Joseph.

To *Fort Oglethorpe* for instruction, Capt. F. B. MINER, Flint; I. BOWDEN, Port Huron; J. B. CAMPBELL, Stanwood; Lieuts. H. P. POSTON, Detroit; J. H. HOUTON, Flint; E. W. DALES, H. J. PYLE, Grand Rapids.

To *Fort Riley* for instruction, Lieuts. F. M. HUNTLEY, Lansing; C. J. DURHAM, Muskegon; R. HENDERSON, Niles.

To *Fort Wayne, Mich.*, Lieuts. W. F. COURIE, Detroit; E. D. HUNDERMAN, Grand Rapids.

Minnesota

To *Camp Dodge, Iowa*, base hospital, Capt. G. I. TWEEDY, Winona.

To *Camp Lee, Va.*, base hospital, Capt. E. J. HORGAN, Rochester.

To *Fort Oglethorpe* for instruction, Lieuts. E. S. O'HARE, Milroy; H. D. NEWKIRK, E. OBERG, Minneapolis.

To *Fort Riley* for instruction, Capt. A. C. TANNER, Minneapolis.

To *New Haven, Conn.*, Yale Army Laboratory School, for instruction, Lieut. L. BAKER, Minneapolis.

Mississippi

To *Camp MacArthur, Texas*, Capt. C. P. MOSBY, Meridian; Lieut. L. J. COPPEDGE, Rosedale.

To *Camp McClellan, Ala.*, Lieut. J. P. KENNEDY, Greenwood.

To *Camp Sheridan, Ala.*, Lieuts. E. E. SHIVERS, Boyle; J. WELCH, Collins; R. R. WELCH, Kola; H. P. HOPPER, Sancier.

To *Fort McPherson, Ga.*, Lieut. W. W. MERRITT, Fondren.

To *Fort Oglethorpe* for instruction, Lieuts. W. G. BERRY, Jackson; J. S. MOORE, Magnolia.

To *Fort Riley* for instruction, Lieut. L. H. SENTEFF, State Line.

Missouri

To *Camp Custer, Mich.*, Capt. J. C. LYTER, St. Louis.

To *Camp Dodge, Iowa*, Capt. R. E. CASTELAW, Kansas City.

To *Camp Jackson, S. C.*, Lieut. J. P. BURKE, Jr., California.

To *Camp MacArthur, Texas*, Lieut. R. H. BURNEY, Kansas City.

To *Camp Travis, Texas*, base hospital, Capt. A. W. GIFFORD, Springfield.

To *Fort Oglethorpe* for instruction, Capt. B. G. BENSON, D. B. GARSTANG, G. W. KOENIG, St. Louis; J. A. SWEARINGEN, Wyaconda; Lieuts. J. T. McLARNEY, Brookfield; J. H. WILLIAMS, Hume; E. D. TWYMAN, Independence; A. L. HEARST, H. F. VANORDEN, J. E. WATTENBERG, Kansas City; L. I. SHUCK, Nelson; B. F. MAY, St. Louis.

To *Fort Omaha, Neb.*, Lieut. H. C. KIMBERLIN, Trenton.

To *Fort Riley* for instruction, Capt. A. J. MCNEES, Clinton; H. A. BREYFOGLE, H. H. LANE, Kansas City; T. J. RAGSDALE, Lee's Summit; E. BARRYMORE, Silex; E. W. EBERLEIN, St. Louis; Lieuts. W. C. ANDERSON, A. G. KOCH, Kansas City.

To *New Haven, Conn.*, Yale Army Laboratory School, for instruction, Capt. F. COHEN, Kansas City.

Montana

To *Camp Lewis, Wash.*, Capt. J. M. SCANLAND, Warm Springs.

To *Camp Sherman, Ohio*, Lieut. H. J. MCGREGOR, Chateau.

To *Fort Omaha, Neb.*, Lieut. P. A. SCHULBERG, Rudyard.

To *Fort Riley* for instruction, Capt. J. I. WERNHAM; Lieuts. J. D. BARRETT, Billings; F. E. ABBOTT, Broadview; C. W. BICE, Great Falls; T. L. COCKRELL, Hindale.

To *Helena, Mont.*, as medical aide, Capt. E. G. BALSUM, Billings.

To report to the commanding officer, Western Department, Lieut. E. F. ROSS, Harlowton.

Nebraska

To *Fort Oglethorpe* for instruction, Capt. L. RILEY, Wisner; Lieut. J. J. SRB, Dwight.

To *Fort Omaha, Neb.*, Lieut. L. C. HILSABECK, Gretna.

New Hampshire

To *Fort Oglethorpe* for instruction, Capt. C. B. COTTON, Woboro; Lieut. M. H. TOWLE, Manchester.

New Jersey

To *Camp A. A. Humphreys, Va.*, camp hospital, Capt. J. M. JONES, Jersey City.

To *Camp Colt, Pa.*, Lieut. F. L. BIRD, Netcong.

To *Camp Jackson, S. C.*, Lieuts. C. H. CANNING, Atlantic City; E. J. CHAPMAN, Jersey City.

To *Camp Meade, Md.*, Capt. G. W. LAWRENCE, Lakewood.

To *Camp Upton, N. Y.*, base hospital, Lieut. C. TEN BROECK, Princeton.

To *Fort Oglethorpe* for instruction, Capt. E. ACKERMANN, Dover; G. S. WILLIS, Morristown; C. W. EVELETH, West Orange; Lieuts. W. P. DAVIS, JR., Atlantic City; R. W. RANDALL, Hackettstown; M. AURIEMMA, Hoboken; P. BRANCATO, C. B. RUSSELL, F. J. T. WAS, Paterson; W. H. McCORMICK, JR., Perth Amboy; H. H. BOWLES, Summit; J. M. MacKELLAR, Tenafly; P. A. D'ACIERENO, West Hoboken.

To *New Haven, Conn.*, Yale Army Laboratory School, for instruction, Capt. W. F. CIMIOTTI, West Hoboken.

To report to the commanding officer, Eastern Department, Lieut. A. STAHL, Newark.

To *Washington, D. C.*, St. Elizabeth's Hospital, Capt. D. E. WARREN, Passaic; Lieut. E. H. SNAVELY, Cedar Grove.

New Mexico

To *Leon Springs, Texas*, Lieut. J. H. SANFORD, Socorro.

New York

To *Camp A. A. Humphreys, Va.*, Capt. G. L. BRANCH, Catskill; T. F. DENAULEY, New York; Lieuts. R. F. BLISS, Brooklyn; A. GOLDBERG, Rockaway Beach. Camp hospital, Capt. A. A. EPSTEIN, New York.

To *Camp Devens, Mass.*, base hospital, Capt. F. W. SEYMOUR, Rochester; Lieuts. E. F. WALSH, R. H. WHITCHER, New York.

To *Camp Dix, N. J.*, Lieut. R. O. BAKER, Montour Falls. Base hospital, Lieut. S. B. DOYLE, Brooklyn.

To *Camp Gordon, Ga.*, base hospital, Lieut. W. J. MCNERNEY, Syracuse.

To *Camp Greene, N. C.*, base hospital, Capt. I. H. ALEXANDER, New York.

To *Camp Jackson, S. C.*, Lieut. C. W. JOHNSON, Mount Vernon.

To *Camp Meade, Md.*, Capt. F. M. BOYLE, Buffalo; J. S. WILSON, Poughkeepsie; Lieuts. E. E. BABCOCK, Adams Center; W. W. HALL, Henderson.

To *Camp Sevier, S. C.*, Capt. J. G. MORRIS, Groveland Station.

To *Camp Shelby, Miss.*, base hospital, Lieut. H. D. MANLEY, New York.

To *Camp Sherman, Ohio*, Lieut. J. R. FOSHAY, Peekskill.

To *Camp Wadsworth, S. C.*, Capt. B. P. ALLEN, Oriskany; Lieuts. E. A. DAWSON, Brooklyn; H. T. CRONK, New York.

To *Columbia, S. C.*, base hospital, Lieut. H. R. MINSELL, New York.

To *Edgewood, Md.*, Lieut. J. M. HALL, New York.

To *Fort Oglethorpe* for instruction, Major F. T. ROBESON, New York; Capt. C. A. LUBRECHT, Brooklyn; L. HENDEE, Buffalo; A. MARK, Elmira; M. L. HAVILAND, Glens Falls; H. E. MERRIAM, Ithaca; F. A. WICKER, Livonia; J. J. SINNOTT, Mount Vernon; E. C. THOMPSON, Newburgh; T. FARNAM, New York; M. J. STEARNS, Ogdensburg; T. F. FOREMAN, J. H. KEVAND, A. S. RULAND, Syracuse; Lieuts. E. R. RICHIE, Brewster; H. C. FUHRMAN, A. E. GILMARTIN, B. GROSS, W. J. DURKIN, O. J. RUZICKA, E. G. SILVERMAN, M. R. SIUDZINSKI, Brooklyn; R. P. HIGGINS, Cortland; G. M. GLENN, Fonda; F. J. LEONARD, Iton; S. BRODY, H. M. COX, A. EISENBUD, S. EPSTEIN, C. GLUCK, I. MILLER, M. SOLETSKY, M. B. SPONSER, W. H. STANDER, New York; F. A. TREIBER, Port Jarvis; G. H. CLARK, E. B. COOK, J. G. HART, Rochester; C. L. SCHLOSSOR, Syracuse; H. W. JONES, Utica; E. R. GLADSTONE, Walton.

To *Fort Porter, N. Y.*, Capt. A. J. CAPRON, Oswego.

To *Fort Totten, N. Y.*, Lieut. H. KLARFELD, New York.

To *Lakehurst, N. J.*, Lieut. J. BLINDER, Brooklyn.

To *Lakewood, N. J.*, Lieut. L. FRISCHMAN, Yonkers.

To *New Haven, Conn.*, Lieut. C. M. MANN, Petersburg. Yale Army Laboratory School, for instruction, Capt. H. GREELEY, Brooklyn; E. MOSCHCOWITZ, New York; W. H. VEEDER, Rochester; Lieut. J. H. GLOBUS, New York.

To *Plattsburg Barracks, N. Y.*, Capt. D. S. SPELLMAN, Ward's Island; Lieuts. J. E. BURKE, Schenectady; P. M. CHAMPLIN, Syracuse.

To report to the commanding officer, Eastern Department, Capt. E. E. WILSON, Lieut. S. G. BLUM, Brooklyn.

To *Rockefeller Institute*, Lieut. E. G. STILLMAN, New York.

To *Washington, D. C.*, St. Elizabeth's Hospital, Lieut. T. J. VOSBURGH, Warwick.

North Carolina

To *Camp Greene, N. C.*, Capt. F. A. CARPENTER, Statesville; Lieuts. C. M. BYMUN, Goldston; J. B. HAGAMAN, Todd.

To *Camp Sevier, S. C.*, Lieut. S. S. IRVIN, Vanceboro.

To *Camp Wadsworth, S. C.*, base hospital, Lieut. M. H. BRAWLEY, Salisbury.

To *Fort Oglethorpe* for instruction, Lieuts. F. B. SPENCER, Salisbury; T. C. KERNS, West Durham.

To *New York, Neurological Institute*, for instruction, Capt. N. D. BITTING, Durham.

North Dakota

To *Fort Oglethorpe* for instruction, Lieut. J. P. MILLER, Mandan.

To *Fort Riley* for instruction, Capt. D. A. FISK, Carpio.

Ohio

To *Camp A. A. Humphreys, Va.*, Lieut. W. E. BLAIR, Lebanon.

To *Camp Custer, Mich.*, Capt. G. W. WOODS, Columbus; Lieuts. F. M. OXLEY, Cincinnati; E. F. BRANDON, Edon. Base hospital, Capt. W. A. GOING, Toledo.

To *Camp Dix, N. J.*, Lieut. E. S. FOLK, Canton.

To *Camp Grant, Ill.*, Lieuts. D. THOMAS, Lorain; R. A. DALBEY, Youngstown.

To *Camp Greene, N. C.*, Lieuts. A. M. DUNLAP, Cleveland; I. S. WILLIAMS, Massillon; H. H. AUSTIN, Springfield; A. P. SMYTH, Youngstown.

To *Camp Jackson, S. C.*, Lieut. H. S. RHU, Marion. Base hospital, Capt. E. H. PORTER, Tiffin.

To *Camp Meade, Md.*, Lieuts. W. G. STINCHCOMB, Bellefontaine; J. R. PARRY, Lima.

To *Camp Sevier, S. C.*, Lieuts. L. F. MUTSCHMAN, Alliance; F. E. SEXTON, Cleveland; J. J. HEATON, McCutchenville; B. L. CASEY, Toronto; O. D. CRITCHFIELD, West Unity.

To *Camp Sherman, Ohio*, Lieuts. W. C. LANGDON, Cincinnati; J. B. POLING, Lima; F. E. MAHLA, Marion; I. D. BAXTER, Spencerville. Base hospital, Lieut. S. S. QUITTNER, Cleveland.

To *Camp Zachary Taylor, Ky.*, Lieuts. C. E. EXLINE, Canton; R. H. FIRTH, Dayton.

To *Fort Oglethorpe* for instruction, Capt. G. F. McKIM, Cincinnati; C. E. Welch, Nelsonville; L. A. LEVISON, Toledo; E. M. BROWN, Zanesville; Lieuts. G. P. RIEBEL, Ashland; H. A. MARCH, Canton; D. W. PALMER, H. M. SCHNEIDER, Cincinnati; E. V. BISHOP, H. A. BUDD, E. D. ROSEWATER, Cleveland; J. M. BOWMAN, J. G. SHERMAN, H. R. WRIGHT, Columbus; W. H. SWISHER, Dayton; G. HARTNAGEL, Delphos; W. R. CRUME, Gratis; D. C. FOX, Kenton; G. W. PULLEN, JR., Lakewood; R. M. BLAIR, Lebanon; E. B. SCHNEIDER, Norwood; E. A. YATES, Piqua; S. L. ZURMEHL, Rushsylvania; J. S. TETER, Toledo; J. S. SHINN, Troy; L. W. POTTS, Warrensville.

To New Haven, Conn., for instruction, Lieut. H. J. POWELL, Bowling Green. Yale Army Laboratory School, for instruction, Lieut. F. W. RILEY, Akron.

To report to the commanding officer, Eastern Department, Lieut. F. F. BARGER, Urbana.

Oklahoma

To Camp Logan, Texas, Capt. D. M. LAWSON, Nowata; Lieut. H. J. WEEDN, Sasakwa.

To Camp MacArthur, Texas, Capt. A. T. HILL, Tamaha; Lieuts. J. T. MORELAND, Idabel; W. A. SIBLEY, Tar River; A. W. PIGFORD, Tulsa; E. B. THOMASSON, Velma.

To Fort Oglethorpe for instruction, Lieut. R. E. WAGGONER, Pawnee.

To Fort Riley for instruction, Capt. H. M. STRICKLEN, Tonkawa; Lieuts. L. H. RITZHAUPT, Guthrie; J. N. HARBER, Mekusky.

Oregon

To Camp Lewis, Wash., Lieuts. B. BLACKFORD, A. K. HIGGS, Portland.

Pennsylvania

To Camp Colt, Pa., Capt. O. T. CRUIKSHANK, Pittsburgh.

To Camp Dix, N. J., Capts. F. C. DUVALL, Monessen; L. C. FULTON, W. J. LAND, Pittsburgh.

To Camp Jackson, S. C., Lieut. S. M. WINTER, Duryea.

To Camp Meade, Md., Lieut. P. K. HELLER, Dixmont. Base hospital, Capts. W. B. KENWORTHY, Milford; A. J. WAGERS, Lieut. W. J. GREIGHTON, Philadelphia.

To Camp Sevier, S. C., Capt. W. C. WILSON, Morris Run; Lieuts. R. G. FURLONG, Donora; W. H. HUBER, Glenside.

To Camp Wadsworth, S. C., Lieuts. S. S. JORDAN, McKeesport; R. M. JOHNSTON, New Kensington; L. F. KROH, Rural Valley.

To Camp Zachary Taylor, Ky., Capt. J. S. DEMUTH, Pittsburgh.

To Fort Bliss, Texas, base hospital, Capt. J. W. McKENNAN, Washington.

To Fort Oglethorpe for instruction, Capts. E. M. COWELL, Athens; W. A. McCALL, Butler; W. O. WILSON, Clearfield; J. L. IRELAND, Erie; L. C. SMITH, Lawrenceville; H. H. BIRNEY, C. E. TEGMEIR, Philadelphia; F. C. S. BLESSING, A. J. HESSER, Pittsburgh; J. B. ROGERS, Pottsville; J. H. RORKE, Reading; C. FALKOWSKY, Jr., Scranton; Lieuts. W. E. LOFTUS, Carbondale; C. W. JOHNSTONE, DuBois; J. L. McBRIDE, Emsworth; R. S. HINCHMAN, McKeesport; R. GOODMAN, L. H. JACOB, J. D. SCHOFIELD, A. STRAUSS, Philadelphia; A. W. BARKLEY, J. E. FLINN, H. M. GANGLOFF, H. C. HIEBER, Pittsburgh; S. L. DRIEBELBIS, Reading; W. M. YOST, Rochester; J. B. MILLER, Sligo; B. W. GENUNG, Ulysses; A. I. SLAGLE, Vandergrift; D. A. RUPERT, Webster.

To Fort Totten, N. Y., Lieut. S. GOLDBERG, McKeesport.

To Pittsburgh, Pa., Lieut. C. J. BOWEN, Pittsburgh.

To Plattsburg Barracks, N. Y., Majors T. H. WEISENBURG, Philadelphia; C. H. HENNINGER, Pittsburgh.

To report to the commanding general, Hoboken, N. J., Lieut. H. S. WEIGLE, Muncy.

To Washington, D. C., St. Elizabeth's Hospital, Lieuts. C. A. KOENIG, C. A. LEY, Pittsburgh.

Rhode Island

To Camp Devens, Mass., Lieut. C. H. GANNON, Howard.

To Camp Dix, N. J., Capt. F. R. JENKS, Lieut. J. V. CHATIGNY, Pawtucket.

To Camp Jackson, S. C., Lieut. H. C. MESSINGER, Providence.

To Camp Meade, Md., base hospital, Lieut. J. E. McCABE, Providence.

To Camp Wadsworth, S. C., Lieut. C. B. O'ROURKE, Providence.

To Fort Oglethorpe for instruction, Lieut. P. H. RUSHTON, Providence.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Capt. H. G. PALMER, Providence.

South Carolina

To Camp Jackson, S. C., Lieut. W. R. WYNNE, Charleston. Base Hospital, Capt. W. WESTON, Jr., Columbia.

To Camp Sevier, S. C., base hospital, Lieut. W. E. MILLS, Sumter.

To Camp Wadsworth, S. C., base hospital, Lieut. S. C. DEAN, Anderson.

To Fort Oglethorpe for instruction, Capt. H. W. DE SAUSSURE, Charleston.

South Dakota

To Fort Oglethorpe for instruction, Lieut. H. H. CORNFORTH, Hot Springs.

To Fort Riley for instruction, Lieut. A. A. SORESEN, Aberdeen.

Tennessee

To Camp Jackson, S. C., Lieut. W. B. EASON, Bells.

To Camp MacArthur, Texas, Lieut. H. P. RIEGER, Nashville.

To Camp McClellan, Ala., Lieut. R. WEBB, St. Bethlehem.

To Camp Sevier, S. C., Lieut. J. F. GOFF, Chesterfield.

To Camp Sheridan, Ala., Lieut. A. J. GUINN, Ducktown.

To Fort Oglethorpe for instruction, Capts. D. GERMAN, Franklin; J. A. HARDISON, Lewisburg; Lieuts. H. L. CARROLL, Knoxville; J. D. CARLTON, Union City.

To Fort Riley for instruction, Lieut. L. C. HARRIS, Mockeson.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. W. F. LAKE, Chattanooga.

Texas

To Camp John Wise, Texas, Lieut. J. H. BARNETT, Walnut Springs.

To Camp Logan, Texas, Capts. J. W. GERMANY, Ennis; T. B. ASKOW, San Antonio; C. M. MacNELLY, Weatherford; J. H. THOMAS, West; Lieuts. J. K. WEBSTER, Athens; G. L. EADS, Marshall; E. O. NICHOLS, Plainview; S. I. STURGES, Springtown.

To Camp MacArthur, Texas, Capts. W. H. MACKAY, Fort Worth; O. R. MARSHALL, Moody; Lieuts. F. H. KLIEFETH, Blanco; E. G. SMITH, Gatesville; R. A. DUNCAN, Graham; W. J. MASTERS, Knox City; H. A. WINTER, Port Arthur. Base hospital, Major H. B. JESTER, Corsicana.

To Camp Travis, Texas, base hospital, Capt. F. W. SORELL, San Antonio.

To Canal Zone, Lieut. T. T. PARKER, San Antonio.

To Dallas, Texas, Love Field, Lieuts. F. E. STONE, Paducah; J. A. McCONNELL, Poolville.

To Fort Oglethorpe for instruction, Capt. J. VANCE, El Paso; Lieuts. L. SCHELLER, Beaumont; L. F. BLAND, R. H. MILLWEE, Dallas; M. B. BADT, Fort Worth; R. C. WHIDDON, Gainesville.

To Leon Springs, Texas, Lieuts. T. H. BLACKWELL, Dickens; A. C. SURMANN, Post.

Utah

To Camp Kearney, Calif., Lieut. C. F. SWANSON, Milford.

To Camp Pike, Ark., Lieut. G. H. CHRISTY, Vernal.

To Fort Oglethorpe for instruction, Lieut. H. R. HATCH, Heber.

To Fort Riley for instruction, Lieut. H. FINCH, Park City.

Vermont

To Fort Oglethorpe for instruction, Lieut. W. H. CLANCY, Burlington.

Virginia

To Camp Greene, N. C., Lieuts. H. S. HENKEL, Brownsburg; J. J. CRUMM, Louisa; C. B. FOX, Monterey.

To Camp Lee, Va., Lieut. J. B. MUNCY, Richmond.

To Camp Meade, Md., Capt. T. A. KIRK, Roanoke.

To Camp Sevier, S. C., Lieut. S. R. JORDAN, Virgilina.

To Camp Sherman, Ohio, for instruction, Lieut. W. A. McGOWAN, Richmond.

To Fort Oglethorpe for instruction, Capts. W. H. SAUNDERS, Roanoke; P. W. BOYD, Winchester; Lieuts. W. S. FERGUSON, Lynchburg; J. L. GRANT, Midland; J. H. MABRY, Newport News; R. W. STONEBURNER, Toms Brook.

Washington

To Camp Lewis, Wash., Capt. G. A. DAVIS, Redmond. Base hospital, Capts. E. C. LEE, Seattle; F. R. FURSEY, Spokane; Lieut. J. W. MITCHELL, Seattle.

To Fort Riley for instruction, Lieut. E. M. BEVIS, Republic.

To New York, Neurological Institute, Lieut. L. R. QUILLIAM, Seattle.

To San Francisco, Calif., Lieut. J. H. EGAN, Tacoma.

West Virginia

To Camp Greene, N. C., Lieut. R. K. BRAGONIER, Shepherdstown.

To Camp Meade, Md., Lieut. J. A. STRIEBICH, Moundsville. Base hospital, Capt. S. H. PHILLIPS, Charleston.

To Camp Sherman, Ohio, base hospital, Lieut. I. FAWCETT, Wheeling.

To Fort Oglethorpe for instruction, Capt. W. L. VAN SANT, Hinton; Lieut. F. E. MARTIN, New Martinsville.

Wisconsin

To Fort Oglethorpe for instruction, Capt. O. H. FOERSTER, Milwaukee; Lieuts. F. L. GRISWOLD, Mazomaie; J. H. CARROLL, Milwaukee; W. C. COMEE, Seymour.

To Fort Riley for instruction, Capt. M. A. BAILEY, Fennimore;

Lieuts. J. M. ROSS, Bloom City; F. H. BALDWIN, Bloomington;

W. J. WALDSCHMIDT, Fond du Lac; R. R. RATH, Granton; R. C. GODFREY, Lancaster; R. C. WESTHOFEN, Milwaukee; G. A. NATVIG, Prairie Farm; G. W. CURLESS, Walworth.

Wyoming

To Fort Riley for instruction, Lieut. W. H. HASSED, Lusk.

ORDERS TO OFFICERS OF THE MEDICAL CORPS, U. S. ARMY

Alabama

To Camp Beauregard, La., from Camp Forrest, Lieut. H. BOXER, Birmingham.

To Camp Crane, Pa., from Camp Sheridan, Lieut. H. F. McLAURINE, Fitzpatrick.

To Camp Greene, N. C., base hospital, from Camp McClellan, Lieut. C. D. MYERS, Birmingham.

To Camp Upton, N. Y., base hospital, from Fort McPherson, Lieut. E. C. SINIARD, Birmingham.

To Fort Oglethorpe for instruction, Lieut. J. A. USSERY, Courtland.

Arizona

To Camp Custer, Mich., base hospital, from Camp Travis, Capt. V. A. SMELKER, Nogales.

To Camp Logan, Texas, from Fort Riley, Lieut. R. E. POOLE, Mayer.

To Denver, Colo., from New Haven, Lieut. E. J. RICHSTEIN, Bisbee.

To Fort Snelling, Minn., base hospital, from Camp Fremont, Lieut. W. O. SWEET, Phoenix.

Arkansas

To Camp Crane, Pa., from Camp Fremont, Lieut. T. W. SANDERS, Hot Springs.

To Camp Logan, Texas, from Fort Riley, Lieut. C. V. POWELL, Round Pond.

To Camp Newton D. Baker, Texas, base hospital, from Camp MacArthur, Capt. O. J. T. JOHNSTON, Batesville.

To Fort Benjamin Harrison, base hospital, from Camp Pike, Major F. VINSONHALER, Little Rock.

To New Haven, Conn., from Camp Jackson, Capt. E. E. HOLT, Mena.

California

To Camp Crane, Pa., from Army Medical School, Lieut. T. L. ROGERS, Long Beach; from Camp Fremont, Lieuts. A. L. COHN, W. E. KAY, Jr., San Francisco; from Camp Lewis, Capt. H. K. FABER, San Francisco; from New Haven, Lieut. M. B. WOLFF, San Francisco.

To Camp Greene, N. C., base hospital, from Camp Bowie, Capt. J. L. LOHSE, Oakland.

To Camp Kearney, Calif., Lieuts. F. E. McCANN, Corning; W. W. TOURTILLOTT, Lindsay; J. A. McKENNEY, Parlier; from Fort Riley, Capts. R. MOTHERAL, Hanford; M. CAMPBELL, Los Angeles;

L. GRAHAM, Wagner; Lieuts. M. CLEEVES, S. A. MARSDEN, Los Angeles. Base hospital, Capt. P. A. JORDAN, San Jose; and for instruction, Capt. S. M. MILLER, Los Angeles.

To Camp Logan, Texas, from Fort Riley, Lieut. E. R. HARVEY, Long Beach.

To Camp Sherman, Ohio, base hospital, from Camp Jackson, Capt. J. EAVES, San Francisco.

To Camp Upton, N. Y., from Camp Kearney, Major R. B. WILLIAMS, San Francisco.

To Fort Douglas, Utah, from Camp Lewis, Capt. W. B. DEAS, San Francisco.

To Fort Oglethorpe, evacuation hospital, from San Francisco, Major P. M. THOMAS, San Francisco. For instruction, from Fort Riley, Lieut. F. C. SWEARINGEN, Pomona.

Canal Zone

To Newport News, Va., from Fort Oglethorpe, Lieut. W. C. GIBSON, Pedro Miguel.

Colorado

To Azalea, N. C., from New Haven, Capt. S. SIMON, Denver.

To Camp Kearney, Calif., from Fort Riley, Capt. H. J. HOLLISON, Denver; B. B. BLÖTZ, Rocky Ford.

To Camp Sherman, Ohio, base hospital, from Camp Wadsworth, Capt. L. H. McKINNIE, Colorado Springs.

To Denver, Colo., from New Haven, Capt. M. J. KEENEY, Pueblo.

To Walter Reed General Hospital, D. C., Lieut. J. F. WILLIAMS, La Junta.

Connecticut

To Camp McClellan, Ala., as tuberculosis examiner, from Camp Jackson, Lieut. T. P. MURDOCK, Meriden.

To Camp Sevier, S. C., as tuberculosis examiner, from Camp Jackson, Lieut. M. C. BECK, Bridgeport.

To Camp Upton, N. Y., base hospital, from Walter Reed General Hospital, Lieut. S. MAISLEN, Hartford.

Honorably discharged, on account of physical disability existing prior to entrance into the service, Capt. W. H. GRAY, Mystic.

District of Columbia

To Camp Crane, Pa., from Camp Jackson, Lieut. S. R. KARPELES, Washington.

To Fort Benjamin Harrison, base hospital, from Camp Custer, Capt. H. L. SCHURMEIER, Washington.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Camp Meade, Md., base hospital, from Washington, Major R. Y. SULLIVAN, Washington.

Florida

To Lakewood, N. J., for instruction, Lieut. A. J. WOOD, St. Petersburg.

Georgia

To Camp Crane, Pa., from Fort McPherson, Major W. A. CHAPMAN, Cedartown.

To Camp Joseph E. Johnston, Fla., Capt. H. RESPESS, Mason; Lieuts. C. G. HOOTEN, Bronwood; W. A. HARRISON, Sycamore.

To Camp Meade, Md., evacuation hospital, Capt. J. H. BUTLER, Augusta.

To Camp Sevier, S. C., from Fort Oglethorpe, Lieut. F. J. GIUFFRIDA, Atlanta.

To Camp Sherman, Ohio, base hospital, from Fort Oglethorpe, Lieuts. T. B. WILSON, Brunswick; S. T. R. REVELL, Louisville.

To Fort Oglethorpe, evacuation hospital, from Camp Sheridan, Capt. W. R. DANCY, Savannah.

To Lakewood, N. J., for instruction, and on completion to his proper station, from Camp Wadsworth, Major J. W. DANIEL, Savannah.

Illinois

To Camp A. A. Humphreys, Va., Lieut. F. E. SENEAR, Chicago.

To Camp Crane, Pa., from Army Medical School, Lieut. H. E. LUTYENS, Farmingdale; from Camp Custer, Capt. E. L. HENDRICKS, Lanark; from Camp Dix, Lieut. H. L. SCHULTZ, Decatur; from Camp Grant, Lieuts. L. C. BASSETT, Farina; A. A. MERT, Pawnee; from Camp Sheridan, Capt. F. C. WALSH, Rock Island; from Camp Wheeler, Lieut. J. H. EDGCOMB, Ottawa.

To Camp Knox, Ky., from Fort Oglethorpe, Lieut. G. D. BRAND, Chicago.

To Camp Newton D. Baker, Texas, base hospital, from Camp Bowie, Lieut. J. F. BOONE, Chicago.

To Camp Sevier, S. C., from Lakewood, N. J., Lieuts. C. J. McMULLEN, E. F. MIELKE, Chicago.

To Camp Sherman, Ohio, base hospital, from Camp Zachary Taylor, Lieut. T. G. CHARLES, Beardstown; from Fort Oglethorpe, Capt. W. W. VAN WORMER, Springfield.

To Camp Zachary Taylor, Ky., base hospital, from Camp Dodge, Major W. G. ALEXANDER, Evanston.

To Denver, Colo., from New Haven, Capt. H. C. MILLER, Chicago; Lieuts. E. LEVY, Chicago; V. MAURICAN, Rockton.

To Fairfield, Ohio, Wilbur Wright Field, from Middletown, Pa., Capt. C. L. MONTGOMERY, Blue Mound.

To Fort Benjamin Harrison, base hospital, from Camp Dodge, Lieut. M. S. COFFLER, Chicago.

To Fort Oglethorpe, evacuation hospital, from Camp Gordon, Lieut. J. M. WASHBURN, Chicago. For instruction, Lieut. H. C. FORTUNE, Rochester.

To Fort Riley to examine the command for nervous and mental diseases, from Jefferson Barracks, Capt. E. Z. LEVITIN, Peoria.

To Fort Snelling, Minn., base hospital, from Camp Grant, Lieut. A. S. SANDLER, Chicago.

To Fort Thomas, Ky., from Lakewood, N. J., Lieut. G. H. ANDERSON, Chicago.

To Jefferson Barracks, La., to examine the command for nervous and mental diseases, from Camp Sheridan, Capt. W. K. DYER, Kanakee.

To Lakewood, N. J., for instruction, Lieut. E. S. MELOY, Highland.

To Newport News, Va., from Camp Dodge, Capt. L. W. ROSENBAUM, Chicago.

To Washington, D. C., for consultation, and on completion to Fort Oglethorpe, as instructor, from Fort Riley, Capt. E. W. RYERSON, Chicago.

To Waynesville, N. C., from New Haven, Capt. A. R. TRAPP, Springfield.

Indiana

To Camp Crane, Pa., from Camp Grant, Lieuts. V. GORDON, Blountsville; J. F. SWAYNE, Mecca; from Camp Hancock, Capt. C. C. DUBOIS, Warsaw; from Camp Sevier, Lieut. E. G. WINTER, Indianapolis; from Camp Wadsworth, Lieut. C. H. BRUNER, Greenfield; from Fort Omaha, Capt. B. W. RHAMY, Fort Wayne.

To Camp Grant, Ill., from Fort Oglethorpe, Capt. J. W. BENHAM, Columbus; J. T. McFARLIN, Williams.

To Camp Greene, N. C., base hospital, from Camp Beauregard, Lieut. H. L. COOPER, South Bend.

To Camp Hancock, Ga., base hospital, from Camp Beauregard, Lieut. H. H. JONES, Salamonia.

To Camp Kearney, Calif., from Fort Riley Lieuts. E. C. GRAY, Greensburg; H. S. BOWLES, Muncie.

To Camp Knox, Ky., from Fort Oglethorpe, Lieut. E. E. BROCK, Anderson.

To Camp Lee, Va., from Fort Oglethorpe, Lieut. C. C. MARSHALL, Aurora.

To Fort Benjamin Harrison, base hospital, from Camp Travis, Capt. H. ELLIOTT, Brazil.

To Hoboken, N. J., base hospital, from Camp Custer, Capt. J. C. GLACKMAN, Hatfield.

To Lakewood, N. J., for instruction, Lieut. G. N. DRULEY, North Webster.

Iowa

To Camp Greene, N. C., from Camp Meade, Lieut. G. H. STEELE, Belmond. Base hospital, from Camp Bowie, Capt. P. E. SAWYER, Sioux City.

To Camp Hancock, Ga., base hospital, from Camp Shelby, Capt. A. KATHERMAN, Sioux City.

To Camp Kearney, Calif., from Fort Riley, Capt. H. M. HOAG, Mason City.

To Camp Logan, Texas, from Fort Riley, Capt. A. M. SHERMAN, Clarinda; Lieut. F. H. DIERKER, West Point.

To Camp Newton D. Baker, Texas, base hospital, from Camp Bowie, Lieut. W. C. HAND, Hartley.

To Fort Benjamin Harrison, base hospital, from Camp Cody, Capt. E. L. ROHLF, Waterloo.

To Lakewood, N. J., for instruction, Lieut. J. B. KNIPE, Armstrong.

To Waynesville, N. C., from New Haven, Capt. S. C. BUCK, Grinnell.

Kansas

To Camp Crane, Pa., from New York, Lieut. E. H. SCHLEGEL, Wichita.

To Camp Grant, Ill., from Fort Oglethorpe, Lieut. L. J. PIERCE, Englewood.

To Camp Kearney, Calif., from Fort Riley, Capt. W. DOSTER, Coldwater.

To Camp Logan, Texas, from Fort Riley, Capt. C. L. RANDALL, Neodesha.

To Camp Newton D. Baker, Texas, base hospital, from Camp Bowie, Lieut. R. S. PICKLER, Beloit.

To Denver, Colo., from New Haven, Lieut. C. F. ENSIGN, Lawrence.

To Fort Oglethorpe, evacuation hospital, from Camp Beauregard, Lieut. A. J. O'LEARY, Burr Oak; from Fort Logan H. Roots, Capt. M. HAHN, Arkansas City.

To Fort Riley for instruction, Lieut. H. W. GOOTEE, Topeka.

To Jefferson Barracks, Mo., Lieut. D. C. DODDS, Summerfield; from Fort Logan H. Roots, Lieut. A. B. OECHSLI, Stockton.

To Newport News, Va., from Fort Oglethorpe, Capt. J. W. CHENEY, Wichita.

Kentucky

To Camp Joseph E. Johnston, Fla., from Fort Oglethorpe, Lieut. G. G. HUNTER, Covington.

To Camp Pike, Ark., from Camp Bowie, Major G. H. DAY, Louisville.

To Camp Zachary Taylor, Ky., Capt. H. A. DAVIDSON, Louisville.

To Fort Sam Houston, Texas, base hospital, from Camp Hancock, Lieut. Z. G. JONES, Bowling Green.

To Newport News, Va., Lieut. W. LAKE, Simmons.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. D. H. DANIEL, Paintsville; A. H. KELLY, Shively.

The following order has been revoked: To Camp Dodge, Iowa, base hospital, Lieut. J. E. WILSON, Butler.

Louisiana

To Camp Lee, Va., from Fort Oglethorpe, Lieut. P. T. THIBODAUX, Donaldsonville.

To Fort Oglethorpe, evacuation hospital, from Camp Beauregard, Lieuts. D. B. DAVIS, Bunkie; W. H. HAMLEY, Lake Providence; G. B. DICKSON, Shreveport.

Maine

To Astoria, New York, from Fort Oglethorpe, Lieut. E. G. A. STETSON, Brunswick.

Massachusetts

To Camp A. A. Humphreys, Va., Capt. G. G. SMITH, Boston.

To Camp Crane, Pa., from Camp Devens, Capt. R. H. VOSE, Boston; W. J. HARKINS, Quincy; from Camp Dix, Lieut. N. B. McWILLIAMS, Williamstown.

To Camp Dix, N. J., base hospital, from Lakewood, Lieut. F. C. HALL, Boston.

To Camp Greene, N. C., base hospital, from Camp Sheridan, Lieut. A. H. GALVIN, Springfield.

To Camp Lee, Va., from Fort Oglethorpe, Capt. J. W. CLARKE, Attleboro.

To Camp Sevier, S. C., from Fort Oglethorpe, Lieut. A. E. ST. CLAIR, Framingham. As tuberculosis examiner, from New Haven, Lieut. N. J. HEYWOOD, Williamsett.

To Camp Sherman, Ohio, base hospital, from Fort Oglethorpe, Lieut. F. L. GIBSON, Holyoke.

To Camp Upton, N. Y., base hospital, from Fort McPherson, Lieut. J. M. LYNCH, Boston.

To Fort McHenry, Md., from Camp Lee, Capt. A. M. DODGE, Boston.

To Fort Oglethorpe, evacuation hospital, from Camp Wadsworth, Lieut. R. H. PHILBRICK, East Northfield. For instruction, Lieuts. J. L. DOWLING, L. STRAHLMANN, Boston.

To *Mincola, N. Y.*, Hazelhurst Field, from Cambridge, Major C. S. BUTLER, Boston.

To *New Haven, Conn.*, Yale Army Laboratory School, for instruction, Lieut. F. PARKER, JR., Bedford; from Rockefeller Institute, Lieut. G. L. BUNNELL, Foxboro.

To *New York*, Neurological Institute, for instruction, Lieut. S. COBB, Cotuit.

Michigan

To *Camp Sherman, Ohio*, base hospital, from Camp Lee, Lieut. I. O. SHAW, Detroit.

To *Camp Zachary Taylor, Ky.*, Lieut. M. C. HUBBARD, Vestaburg.

To *Columbia, Ohio*, from Columbus Barracks, Capt. B. F. A. CRANE, Saginaw.

To *Fort Riley* for instruction, Capt. J. W. BACHELOR, Oxford.

Minnesota

To *Camp Cody, N. M.*, as tuberculosis examiner, from Vancouver Barracks, Lieut. L. W. POLLOCK, Rochester.

To *Camp Crane, Pa.*, from Camp Grant, Lieut. J. A. DAHL, Minneapolis.

To *Camp Custer, Mich.*, base hospital, from Camp Dodge, Lieut. T. GRATZKE, St. Paul.

To *Camp Logan, Texas*, from Fort Riley, Capt. J. V. JOHNSON, Morgan Park; Lieut. E. A. RUMREICH, Mahanomen.

To *Camp Sevier, S. C.*, from Fort Oglethorpe, Lieut. G. W. DAHLQUIST, Lancaster.

To *Fort Benjamin Harrison*, base hospital, from Fort Riley, Capt. K. H. SCHMIDT, Minneapolis.

To *Fort Oglethorpe* for instruction, from Fort Riley, Capt. M. J. KERN, St. Cloud.

To report to the governor of the Panama Canal, from Camp Pike, Major H. G. BICKFORD, Minneapolis.

To *Washington, D. C.*, Capt. C. L. GREENE, St. Paul. Surgeon-General's Office, from Rochester, Col. C. H. MAYO, Rochester.

To *Waynesville, N. C.*, from New Haven, Capt. R. I. HUBERT, St. Paul.

The following order has been revoked: To *Camp Meade, Md.*, from Camp Lee, Major J. C. SESSIONS, Minneapolis.

Mississippi

To *Camp Dix, N. J.*, base hospital, from Lakewood, Lieut. R. L. BEADLES, Coffeeville.

To *Camp Grant, Ill.*, from Fort Oglethorpe, Capt. J. B. MAGEE, Preutiss.

To *Camp Joseph E. Johnston, Fla.*, Lieut. D. S. SMITH, Rodney.

To *Camp Logan, Texas*, from Fort Riley, Lieut. J. D. WINTER, Stover.

To *Denver, Colo.*, from New Haven, Lieut. B. C. BERNARD, Indianola.

Honorably discharged on account of physical disability not incurred in line of duty, Lieut. M. PORTER, Water Valley.

Missouri

To *Camp Dick, Texas*, from Mineola, Capt. A. L. LUDWICK, Kansas City.

To *Camp Forrest, Ga.*, Lieut. C. A. KELLY, St. Louis.

To *Camp Greene, N. C.*, base hospital, from Camp McClellan, Capt. A. G. WICHMANN, St. Louis.

To *Camp Kearney, Calif.*, from Fort Riley, Capt. J. F. KOOGLER, Kansas City; E. C. HILL, Smithville; Lieut. E. F. KEARNEY, Oregon.

To *Camp Logan, Texas*, from Fort Riley, Capt. E. H. CARPENTER, Helena; W. E. RUDD, Salem; Lieut. W. E. LOCKWOOD, Potts; C. A. TUCKER, Springfield; N. N. YAHLEM, St. Louis; C. E. BENHAM, Tarkio.

To *Camp McClellan, Ala.*, base hospital, from Camp Pike, Capt. M. L. UNDERWOOD, St. Joseph.

To *Camp Sevier, S. C.*, as tuberculosis examiner, from Camp Jackson, Capt. F. B. SPENCER, Hannibal.

To *Camp Sherman, Ohio*, base hospital, from Camp Beauregard, Lieut. P. A. BRICKEY, St. Louis.

To *Fort Benjamin Harrison*, base hospital, from Camp Cody, Capt. L. RASSIEUR, St. Louis; from Camp Travis, Lieut. W. H. WAGNER, Berger.

To *Fort Oglethorpe* for instruction, Capt. E. R. WALKER, Sedalia; L. C. HERCHENROEDER, St. Louis.

To *Jefferson Barracks, Mo.*, Capt. O. S. McCALL Wheaton.

To *Leon Springs, Texas*, from Fort Riley, Capt. V. B. JANES, Cameron.

The following order has been revoked: To *Camp Gordon, Ga.*, base hospital, Capt. L. G. BEHRONS, St. Louis.

Montana

To *Camp Lewis, Wash.*, Capt. C. E. BELTZER, Washoe.

To *Fort Benjamin Harrison*, base hospital, from Camp Kearney, Lieut. J. L. TREACY, Helena.

To *Fort Oglethorpe* for instruction, Lieut. S. E. LEARD, Livingston.

Nebraska

To *Camp Crane, Pa.*, from Camp Devens, Capt. J. A. HENSKE, Omaha.

To *Camp Upton, N. Y.*, base hospital, from Jefferson Barracks, Lieut. J. C. DAVIS, JR., Omaha.

To *Fort Oglethorpe* for instruction, Lieut. J. H. BOYES, Hebron; D. C. SIGWORTH, Stanton; from Fort Riley, Capt. F. H. KUEGLE, Omaha.

To *Fort Riley* for instruction, Lieut. F. S. SALISBURY, Broken Bow.

Resignation of Major J. P. LORD, Omaha, accepted.

New Hampshire

To *Camp Crane, Pa.*, from New Haven, Lieut. R. J. BENNETT, Dover.

To *Camp Sherman, Ohio*, base hospital, from Fort Oglethorpe, Lieut. W. E. SMITH, Franklin.

New Jersey

To *Camp Crane, Pa.*, from Fort Benjamin Harrison, Lieut. E. W. ILL, Newark.

To *Camp McClellan, Ala.*, as tuberculosis examiner, from Camp Dix, Capt. E. S. KRANS, Plainfield.

To *Camp Sevier, S. C.*, as tuberculosis examiner, from Camp Jackson, Lieut. E. N. COWAN, Merchantville.

To *Camp Shelby, Miss.*, from Camp Logan, Lieut. M. COHEN, Paterson.

To *Camp Upton, N. Y.*, from Fort Oglethorpe, Capt. P. A. POTTER, East Orange.

To *Fort Hamilton, N. Y.*, Lieut. R. G. M. EHLERS, Ocean Grove.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. W. H. WARREN, Newark.

The following order has been revoked: To *Camp Wheeler, Ga.*, base hospital, Lieut. A. E. OLPP, West Hoboken.

New Mexico

To *Camp Dodge, Iowa*, from Fort Des Moines, Capt. G. K. ANGLE, Albuquerque.

To *Camp Logan, Texas*, base hospital, for instruction, Lieut. F. H. CRAWL, East Las Vegas.

New York

To *Camp Cody, N. M.*, from Fort Riley, Lieut. L. M. VINCENT, New York.

To *Camp Crane, Pa.*, from Army Medical School, Lieut. G. G. DAVIS, Arcade; from Camp Devens, Capt. A. H. TERRY, New York;

from Camp Lee, Lieut. F. J. CLUNE, Yonkers, from Camp Sheridan, Capt. W. R. THOMSON, Warsaw; from Fort Oglethorpe, Lieut. J. A. BILELLO, Brooklyn; from New Haven, Lieut. F. W. PALMER, Buffalo; from Walter Reed General Hospital, Capt. J. E. CONBOY, New York.

To *Camp Custer, Mich.*, base hospital, from Camp Sheridan, Capt. T. H. CURTIN, New York; from Camp Sherman, Lieut. T. C. MCCOY, New York.

To *Camp Fremont, Calif.*, base hospital, from Camp Lee, Major T. B. SPENCE, Brooklyn.

To *Camp Greene, N. C.*, base hospital, from Camp Jackson, Lieut. A. LACOVARA, New York.

To *Camp Joseph E. Johnston, Fla.*, from Fort Oglethorpe, Capt. G. F. CLARK, Brooklyn.

To *Camp Lee, Va.*, Capt. F. N. DEALY, Brooklyn.

To *Camp McClellan, Ala.*, as tuberculosis examiners, from Camp Jackson, Capt. S. A. MAHADY, Utica; from Hoboken, Capt. H. C. DREW, Brooklyn.

To *Camp Sevier, S. C.*, as tuberculosis examiner, from New Haven, Lieut. B. C. BULLEN, New York.

To *Camp Upton, N. Y.*, base hospital, from Camp Sevier, Lieut. D. TROPAUER, New York; from Fort McPherson, Lieut. L. SZERLIP, Rockaway Beach; F. S. O'BRIEN, Wappingers Falls; from Fort Sill, Lieut. A. J. ANDERSON, Long Island City.

To *Denver, Colo.*, from New Haven, Lieut. S. A. BINDERMAN, New York.

To *Fort Douglas, Utah*, from Camp Lewis, Capt. R. M. JONES, New York.

To *Fort Hamilton, N. Y.*, from Eastern Department, Capt. A. S. DRISCOLL, Staten Island; from New York, Lieut. S. L. SIEGLER, New York.

To *Fort Oglethorpe* for instruction, Capt. E. C. FASSETT, New York; Lieut. N. M. McFARLAND, Brooklyn; D. N. COTT, Buffalo; W. J. GIBSON, Rochester.

To *Lakewood, N. J.*, for instruction, Lieut. R. WEST, New York.

To *Middletown, Pa.*, from Fairfield, Ohio, Lieut. M. H. GOLDBERG, Buffalo.

To the retired list, from New York, Lieut.-Col. M. C. WYETH.

Honorably discharged on account of physical disability incurred in line of duty, Capt. A. A. MENDEZ, Brooklyn. On account of physical disability existing prior to entrance into the service, Capt. C. F. KIVLIN, Troy; Lieut. W. W. MILLIAS, Rome.

North Carolina

To *Camp Crane, Pa.*, from Camp McClellan, Lieut. J. W. DAVIS, Statesville.

To *Camp McClellan, Ala.*, as tuberculosis examiner, from Camp Jackson, Capt. J. R. WILLIAMS, Asheville.

To *Camp Sevier, S. C.*, as tuberculosis examiner, from Camp Jackson, Capt. G. B. MORRIS, Mount Olive.

To *Camp Sherman, Ohio*, base hospital, from Fort Oglethorpe, Capt. M. A. BOWERS, Thomasville; Lieut. W. W. JOHNSTON, Manteo.

To *Fort Oglethorpe* for instruction, Lieut. M. A. McIVER, Gulf.

North Dakota

To *Camp Kearney, Calif.*, as assistant to camp surgeon, from Fort Oglethorpe, Lieut. A. PEAKE, Grand Forks.

To *Fort Benjamin Harrison*, base hospital, from Camp Dodge, Lieut. W. S. CHERRY, Enderlin.

Ohio

To *Camp A. A. Humphreys, Va.*, from Fort Oglethorpe, Lieut. H. H. WEBSTER, Dayton.

To *Camp Abraham Eustis, Va.*, as camp surgeon, from Camp Perry, Major A. FREER.

To *Camp Crane, Pa.*, from Camp Custer, Lieut. G. T. MEEK, Columbus; from Camp Dix, Lieut. A. N. SMITH, Columbus; from Camp Grant, Lieut. E. H. McDonald, Bloomington.

To *Camp Custer, Mich.*, base hospital, from Camp Grant, Lieut. L. G. SHEETS, Cleveland.

To *Camp Dix, N. J.*, from Fort Oglethorpe, Lieut. W. J. SMITH, Arcanum; H. L. WELLS, Cambridge.

To *Camp Grant, Ill.*, from Fort Oglethorpe, Capt. E. L. LEONARD, Fulton.

To *Camp Greene, N. C.*, base hospital, from Fort Oglethorpe, Lieut. J. J. SWEENEY, Toledo.

To *Camp Hancock, Ga.*, base hospital, from Fort Oglethorpe, Lieut. R. B. BOWEN, Toledo.

To *Camp Knox, Ky.*, from Fort Oglethorpe, Lieut. E. M. COLLIER, Toledo.

To *Camp Lee, Va.*, from Fort Oglethorpe, Capt. H. W. BLAIR, Mount Vernon; Lieut. E. P. KENNEDY, Cleveland; W. N. ROGERS, Hamilton.

To *Camp Logan, Texas*, from Fort Riley, Lieut. M. M. CRITCHLOW, Cincinnati.

To *Camp McClellan, Ala.*, as tuberculosis examiner, from Camp Dix, Lieut. C. B. HAMMA, Springfield.

To *Camp Meade, Md.*, to examine the command for nervous and mental diseases, from Camp Shelby, Lieut. C. W. SAWYER, Marion.

To Camp Sevier, S. C., from Fort Oglethorpe, Lieuts. S. A. CONRAD, Leetonia; J. W. CROFT, West Liberty.

To Camp Upton, N. Y., base hospital, from Camp Dix, Lieut. W. L. LATHROP, Metamora.

To Fort Benjamin Harrison, base hospital, from Camp Sherman, Capt. W. C. GATES, Bucyrus.

To Fort Oglethorpe, evacuation hospital, from Camp Beauregard, Lieut. D. H. COLEMAN, Cincinnati; from Camp Wadsworth, Lieut. W. J. GRAF, Cincinnati. For instruction, Lieut. W. A. KOCH, Bucyrus.

To Syracuse, N. Y., from Lakewood, Lieut. R. A. THORNTON, Columbus.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. L. FAST, Paulding.

Oklahoma

To Camp Beauregard, La., Lieut. A. A. THURLOW, Norman.

To Camp Crane, Pa., from Camp Sevier, Lieut. R. R. HUME, Minco; from Camp Travis, Lieut. H. B. JUSTICE, Sapulpa; from New Haven, Lieut. E. T. BALLANTINE, Muskogee.

To Camp Custer, Mich., base hospital, from Camp Dodge, Lieut. W. B. CATTO, El Reno.

To Camp Grant, Ill., from Fort Oglethorpe, Lieut. J. ASHLEY, Fletcher.

To Camp Hancock, Ga., base hospital, from Camp Gordon, Capt. H. REED, Oklahoma.

To Camp Kearney, Calif., from Fort Riley, Lieut. E. W. KING, Bristow.

To Camp Meade, Md., evacuation hospital, from Camp Beauregard, Lieut. F. R. FIRST, Cashion.

To Camp Newton D. Baker, Texas, base hospital, from Fort Bliss, Capt. J. A. WALKER, Shawnee.

To Fort Benjamin Harrison, base hospital, from Camp Travis, Lieut. A. W. HARRIS, Muskogee.

To Fort Oglethorpe, evacuation hospital, from Camp Kearney, Capt. O. HOVENDEN, El Reno.

To Fort Reno, Okla., from Fort Sill, Lieut. W. W. D. AKERS, Tyrone.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Capt. W. E. WRIGHT, Tulsa.

Honorably discharged, Lieut. W. C. THRELKELD, Ada.

Oregon

To Camp Crane, Pa., from Camp Lewis, Capt. C. E. SEARS, Portland.
To Fort Riley for instruction, from San Francisco, Major G. E. DARROW, Eugene.

Pennsylvania

To Camp Beauregard, S. C., base hospital, from Camp Jackson, Lieut.-Col. A. C. ABBOTT, Philadelphia.

To Camp Cody, N. M., as tuberculosis examiner, from Vancouver Barracks, Lieut. U. H. REIDT, Jeanette.

To Camp Crane, Pa., from Camp Devens, Lieut. S. J. GLASS, Jr., Pittsburgh; from Camp Hancock, Lieut. J. S. MORGAN, Canton; from Camp Meade, Lieuts. C. B. LININGER, Erie; J. H. BARTLEY, Jr., Philadelphia; from Camp Sheridan, Capt. M. W. REED, Bellefonte.

To Camp Grant, Ill., from Fort Oglethorpe, Lieuts. W. H. KOHLER, Milroy; C. A. YOCOM, Reading; G. M. B. BRADSHAW, Sugar Grove. Evacuation hospital, from Fort Bayard, Capt. S. J. REPPLIER, Philadelphia.

To Camp Greene, N. C., base hospital, from Camp Jackson, Lieut. F. J. CONAHON, Morea; from Camp McClellan, Lieut. P. S. STOUT, Philadelphia; from Camp Wadsworth, Major S. C. BURNS, Philadelphia.
To Camp Jackson, S. C., base hospital, Capt. T. C. DAVIS, Philadelphia.

To Camp Joseph E. Johnston, Fla., from Fort Oglethorpe, Capt. A. F. B. MORRIS, Pittsburgh.

To Camp Lee, Va., from Fort Oglethorpe, Lieut. C. E. LERCH, Wyoming.

To Camp Sevier, S. C., from Fort Oglethorpe, Lieut. E. B. COOPER, Sunbury. As tuberculosis examiner, from New Haven, Lieut. I. Z. STALBERG, Philadelphia.

To Camp Sherman, Ohio, base hospital, from Camp Beauregard, Lieut. A. B. SMITH, Wyoming. As assistant to camp surgeon, from Camp Meade, Capt. C. JACOBOSKY, Wilkes-Barre.

To Camp Upton, N. Y., base hospital, from Camp Dix, Capt. L. D. SARGENT, Washington; from Walter Reed General Hospital, Lieut. D. M. ROTHROCK, Altoona.

To Colonia, N. J., Lieut. W. J. HAWKINS, Millsboro.

To Fort Hamilton, N. Y., from Camp Laurel, Lieut. B. H. HOKE, Coalport.

To Fort Oglethorpe, evacuation hospital, from Camp Beauregard, Lieut. C. A. PAULUS, Telford; from Camp Wadsworth, Lieut. M. FRISHMAN, Pittsburgh. For instruction, Capt. P. R. CORRELL, Easton; Lieuts. A. B. BRUNER, Columbia; C. A. McNEILL, Erie; J. A. GORMLY, Meadow Lands; R. S. CLARK, J. S. LOGAN, L. W. MILFORD, Pittsburgh; W. R. LOVERING, Stroudsburg; W. C. BYERS, Webster; from Pittsburgh, Lieut. J. S. LOGAN, Pittsburgh.

To Lakewood, N. J., for instruction, Lieut. J. G. FLYNN, Ridgway.

To Philadelphia, Pa., to take charge of university instruction in orthopedic surgery, from Washington, Lieut.-Col. J. T. RUGH, Philadelphia.

To report to the commanding general, Panama Canal Department, from Fort Oglethorpe, Lieut. C. RODRIGUEZ, Easton.

Porto Rico

To Camp Las Casas, P. R., Lieut. P. A. RIVERA, Guaynabo.

To Washington, D. C., for instruction, from Camp Las Casas, Lieut. C. S. MOSS, Ponce.

South Carolina

To Camp Grant, Ill., from Fort Oglethorpe, Capt. G. W. POOVEY, Lancaster.

To Camp Jackson, S. C., base hospital, from Panama Department, Capt. M. C. PALMER, Tyron.

To Camp Joseph E. Johnston, Fla., from Fort Oglethorpe, Capt. C. C. GAMBRILL, Abbeville.

To Camp Lee, Va., Capt. H. H. WYMAN, JR., Aiken.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. J. A. HAYNE, Columbia.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. J. W. PARKER, Greenville.

South Dakota

To Camp Crane, Pa., from Camp Grant, Lieut. T. J. DEVEREAU, Aberdeen.

To Camp Custer, Mich., base hospital, from Camp Grant, Lieut. S. A. DONAHOE, Sioux Falls.

To Camp Dodge, Iowa, base hospital, for instruction, Capt. J. F. GARRISON, Oldham.

To Camp Grant, Ill., from Fort Oglethorpe, Capt. W. F. KELLER, Sioux Falls.

To Camp Joseph E. Johnston, Fla., base hospital, from Fort Oglethorpe, Lieut. L. J. BROOKMAN, Vermilion.

To Fort Benjamin Harrison, base hospital, from Camp Dodge, Capt. E. M. STANSBURY, Vermilion; Lieut. L. HARE, Spearfish.

To Fort Riley for instruction, Lieut. N. J. NESSA, Sioux Falls.

To Fort Snelling, Minn., base hospital, from Camp Dodge, Lieut. H. L. CRANE, Lead.

Tennessee

To Camp Crane, Pa., from Camp Meade, Lieut. H. E. THOMAS, Memphis.

To Camp Hancock, Ga., base hospital, from Camp Gordon, Capt. J. A. PRICE, Jasper.

To Fort Oglethorpe for instruction, Lieut. W. STEELE, Chattanooga.

To New Haven, Conn., Yale Army Laboratory School, for instruction in bacteriology, from Fort Monroe, Lieut. J. H. LITTERER, Nashville.

To Newport News, Va., Lieut. C. H. CARMICHAEL, Knoxville; from Camp Dodge, Lieut. E. C. MATTHEWS, Trenton.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion to Camp Custer, Mich., base hospital, for instruction, Lieut. C. R. CRUTCHFIELD, Nashville.

Texas

To Astoria, N. Y., from Fort Oglethorpe, Capt. C. P. COOK, Ennis.

To Auburn, Ala., Alabama Polytechnic Institute, from Camp Logan, Major G. A. McBRIDE, Harlingen.

To Camp Cody, N. M., as tuberculosis examiner, from Fort Logan, Lieut. W. E. CAMPBELL, Cedar Creek.

To Camp Crane, Pa., from Army Medical School, Lieut. E. ACKER, Pasadena.

To Camp Greene, N. C., base hospital, from Camp Beauregard, Capt. R. T. MORRIS, Houston; Lieut. T. N. JARMON, Terrell.

To Camp Logan, Texas, from Fort Riley, Capt. C. P. JONES, Bay City.

To Camp Shelby, Miss., base hospital, Lieut. J. V. HOPKINS, Victoria.

To Camp Travis, Texas, base hospital, Capt. H. G. WALCOTT, Dallas.

To Denver, Colo., from New Haven, Capt. J. T. BERNARD, Dallas; Lieut. C. R. GOWEN, Carlsbad.

To Fort Benjamin Harrison, base hospital, from Camp Bowie, Capt. T. T. JACKSON, San Antonio.

To Fort Oglethorpe for instruction, Lieut. D. M. STONE, San Antonio.

To Fort Riley, from Camp Bowie, Lieut. A. E. WHITE, Houston.

To Leon Springs, Texas, from Fort Riley, Lieut. P. C. PLUENNEKE, Cranfills Gap.

To Newport News, Va., from Camp Dodge, Lieut. E. C. SCHULZE, Shiner.

Honorably discharged, Lieut. H. BRADBROOK, Cat Springs. On account of physical disability existing prior to entrance into the service, Capt. N. T. MOORE, El Paso.

The following order has been revoked: To Hoboken, N. J., from Camp Dix, Lieut. H. L. BROWN, Sherman.

Utah

To Washington, D. C., Surgeon-General's Office, from Fort Douglas, Lieut.-Col. E. G. NORTHINGTON.

Vermont

To Camp Sherman, Ohio, base hospital, from Lakewood, Lieut. R. E. AVERY, Burlington.

Virginia

To Camp Travis, Texas, as camp surgeon, from Camp MacArthur, Capt. E. L. FLANAGAN, Richmond.

To Fayetteville, N. C., from Camp Abraham Eustis, Lieut.-Col. D. W. McENERY.

To Roland Park, Md., from Camp Jackson, Capt. N. ARDAN, Bristol.

Washington

To Camp Kearney, Calif., from Fort Riley, Capt. C. S. HOOD, Ferndale; C. E. KEELER, Yakima.

To Fort Snelling, Minn., base hospital, from San Francisco, Lieut. S. E. ROSENTHAL, Spokane.

To Jefferson Barracks, Mo., from Newport News, Capt. K. WINSLOW, Seattle.

West Virginia

To Camp Crane, Pa., from Camp Meade, Capt. G. YOST, Huntington.

Wisconsin

To Camp Crane, Pa., from Camp Grant, Capt. H. M. KAY, Madison; Lieut. J. T. KLEIN, Columbus; from Camp Meade, Lieut. A. A. CHARBONNEAU, Green Bay.

To Camp Custer, Mich., base hospital, from Camp Grant, Lieut. W. F. GROTTAN, Milwaukee.

To Camp Grant, Ill., from Fort Oglethorpe, Lieut. L. E. YOUMANS, Mukwonago.

To Camp Lee, Va., from Fort Oglethorpe, Capt. W. D. HARVIE, Oshkosh.

To Camp Logan, Texas, from Fort Riley, Lieuts. J. M. BAASEN, Mount Calvary; E. L. SCHROEDER, Shawano.

To Denver, Colo., from New Haven, Lieut. L. F. RUSCHHAUPT, Milwaukee.

To Fort Benjamin Harrison, base hospital, from Camp Travis, Lieut. F. J. KORTHALS, Milwaukee.

To Fort Riley for instruction, Lieut. P. G. McCABE, Dotyville.

Wyoming

To Raleigh, N. C., as camp surgeon, from Western Department, Lieut. F. H. SPARRENBARGER, Fort Yellowstone.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARKANSAS

District Meeting.—The Tenth District Medical Association met at Fort Smith, September 17. In addition to the regular program a surgical clinic was conducted by Dr. Harry C. King at the Sparks Memorial Hospital.

CALIFORNIA

Hygiene Bureau Established.—The state board of health has created a bureau of child hygiene to study the child health of the state, to cooperate with existing agencies now devoted to that cause. Miss Amy D. Steinhard has been placed in charge of the bureau.

New Laboratory Established.—A building for a research laboratory and clinic is to be erected at the Cottage Hospital, Santa Barbara, similar in its exterior architecture to the other buildings. It will be known as the Memorial Laboratory and Clinic for the Study and Treatment of Nephritis, Shock, and Diabetes, and will be under the care of Dr. Nathaniel Bowditch Potter. It is expected that the building will be ready for occupancy early next year.

Personal.—Dr. J. Perry Lewis, San Diego, who has been ill in the Agnes Hospital on account of septicemia, is reported to be improved.—Dr. William W. Crawford, formerly health officer of San Diego, has been appointed a member of the state board of health.—Capt. Theophilus C. Robinson, Los Angeles, who recently entered the Medical Reserve Corps, was operated on at Fort Riley, Kan., September 6, for the removal of a tumor of the bladder, and is reported to be making satisfactory progress toward recovery.—Dr. Reginald S. E. Murray, San Jose, has been gazetted captain in the Canadian Expeditionary Forces.

ILLINOIS

College Suspended.—Reports state that the Hahnemann Medical College and Hospital of Chicago has suspended for the duration of the war.

Red Cross Commission to Greece.—Drs. Samuel J. Walker, Chicago, and Charles B. Gibson, Chicago, are members of the Red Cross Commission that has started for Greece.

State Conference of Charities.—The Department of Public Welfare announces that the State Conference of Charities and Correction will be held at Decatur, October 25 and 27; that the Charity Organization Federation and State Probation Officers' Association will meet, October 24, and that the State Association of County Home Superintendents will hold its annual meeting, October 24 to 26.

Personal.—Major Milton Mandel, M. C., U. S. Army, has been relieved from duty with Base Hospital No. 12, and has been appointed senior division consultant in general medicine to the Second Army Corps.—Dr. Jonathan L. Wiggins, East St. Louis, has been appointed by the director of the Registration and Education of the State of Illinois a member of the examining committee of medicine in place of Dr. Carl E. Black, Jacksonville, who has resigned to go abroad with the Red Cross commission to Greece.

Licenses Revoked.—An official notice from the Department of Registration and Education of Illinois states that, September 24, the license of Dr. Charles E. Cessna, Oak Park, was revoked because of his connection with an alleged quack concern—the J. Russell Price Company of 9 South Clinton Street, Chicago. At the same time the department revoked the license of Dr. Edward D. Porter of Indianapolis, Ind., for having loaned his Illinois certificate for a specified sum to Mr. Emil Pelisher for use in an office in Joliet. It appears that Mr. Pelisher had been conducting a chain of doctors' offices. The license of Dr. George W. Farver of Hammond, Ind., was revoked recently for a similar offense.

INDIANA

Addition to Tuberculosis Camp.—Former Mayor Boehne has given to the Vanderberg County Antituberculosis Society an additional building for the Boehne Camp which will

accommodate forty patients and in case of emergency sixty patients. The estimated value of the camp is now \$52,000. With the completion of the new building the camp will be able to care for 110 patients. The new hospital is 151½ feet long, 28½ feet wide and will contain besides the school-room and wards, dressing rooms, toilet rooms and other facilities.

Child Welfare Work.—Under the auspices of the Child Welfare Committee, Marion County Council of Defense, consisting of Drs. Jane M. Ketcham, chairman, Edgar F. Kiser, Walter D. Hoskins, Charles O. McCormick and J. Don Miller, all of Indianapolis, there were held during 1918 in Marion County 212 clinics for children, at which 5,304 children were examined and 17,000 children enrolled. Of those examined there were 3,058 children of normal weight, 3,859 children of normal height and 2,858 with no defect. Ninety-seven physicians volunteered services for this work. Follow-up work is to be done and four additional weekly clinics are to be held for children of from 2 to 6 years of age. A report of all defective children has been put into the hands of the Public Health Nursing Association and all such children are to be visited at regular intervals.

New State Officers.—At the annual meeting of the Indiana State Medical Association held in Indianapolis, September 25 to 27, under the presidency of Dr. J. Rilus Eastman, Indianapolis, the following officers were elected: president, Dr. William H. Stemm, North Vernon; vice presidents, Drs. Lindsay C. Whiteside, Franklin, Stephen B. Sims, Frankfort, and Henry B. Hill, Logansport; secretary-treasurer, Dr. Charles N. Combs, Terre Haute (reelected); delegate to the American Medical Association, Dr. J. Rilus Eastman, Indianapolis; alternate, Dr. Miles F. Porter, Ft. Wayne, and councilors, first district, Dr. James Y. Welborn, Evansville, third district, Dr. Walter J. Leach, New Albany, fourth district, Dr. August G. Osterman, Seymour, fifth district, Dr. Spencer M. Rice, Terre Haute, ninth district, Dr. William R. Moffitt, West Lafayette, and twelfth district, Dr. Elmer E. Morgan, Ft. Wayne. Indianapolis was chosen as the next place of meeting.

LOUISIANA

State Clinics.—Arrangements are being made for the establishment of municipal, parish, and state clinics for the treatment of communicable diseases in Shreveport and other principal cities of the state.

New Home for Sanatorium.—Plans for a new building for The Pines, the Shreveport sanatorium of the antituberculosis league, have been completed and ground will be broken this month. The building will be located on a site of 54 acres, 8 miles from Shreveport.

MARYLAND

Epidemic of Influenza Under Control.—Although the number of cases of influenza in the military camps around Baltimore is increasing, it is increasing very slowly and the medical authorities, both of the government service and the state and city, are of the opinion that they have the situation under control and that there is no great danger of an epidemic in the city. Two hundred cases have developed at Camp Holabird, at the Curtis Bay ordnance depot and at the Quartermaster's station at Riverview, and there are about 300 cases at U. S. Army General Hospital No. 2 at Fort McHenry, to which cases from these stations are immediately sent. There are also 1,900 cases at Camp Meade, although there have been but two deaths in all that number of cases, and an outbreak has been reported at Edgewood to the city health authorities, involving 1,100 soldiers and forty civilian employees. Notwithstanding the large number of cases, Dr. C. Hampson Jones, chief of the bureau of communicable diseases of the state board of health, stated that he did not consider the situation alarming. At this time the influenza does not appear to have spread generally throughout the state. Most of the reports received by the department of health have come from military camps, from Baltimore and Annapolis. There are about 500 cases in Annapolis.

MASSACHUSETTS

District Society Meeting.—The quarterly meeting of the Essex North District Medical Society was held at Amesbury Club, September 25. Lieut.-Col. Fred B. Lund, M. C., U. S. Army, Boston, read a paper on "The Present Needs of Our Country for Physicians," and Lieut.-Col. Channing Frothingham, Boston, M. C., U. S. Army, commanding the base hos-

pital at Camp Devens, read a paper on "The Clinic Advantages of an Army Officer."

Personal—Dr. Llewellyn H. Rockwell, Boston, has been appointed resident physician at Long Island Hospital, succeeding Dr. Arthur L. Kinne.—Dr. John F. O'Brien, Taunton, has been appointed a trustee of the consumptives' hospital.—Dr. George McL. Waldie, for many years assistant physician at the State Infirmary, Tewkesbury, Mass., and later connected with the New Bedford Tuberculosis Sanatorium, has been appointed superintendent of the Fair Oaks Lodge Sanatorium, Wadena, Minn., and medical director of Sand Beach Sanatorium.—Dr. Arthur T. Schoomaker is under treatment in the Noble Hospital, Westfield, on account of tumors of the neck, and Dr. George V. Wager, Russell, is ill with pneumonia in the same institution.—Dr. Charles H. Winn, Roxbury, Boston, was appointed high medical examiner of the Massachusetts Catholic Order of Foresters, September 14, succeeding Dr. Francis J. Hanley, Whitman, resigned to accept a commission in the United States Service.—Dr. Arthur V. Pierce, New Bedford, has been commissioned First Lieutenant, M. C., Massachusetts State Guard, and has been assigned to the Seventh Infantry, succeeding Capt. Holder C. Kirby, New Bedford, resigned.

NEW YORK

Personal—Dr. and Mrs. James H. Jackson, Danville, celebrated the fifty-fourth anniversary of their wedding, September 13.—Dr. Arthur D. Jaques, Lynbrook, has been appointed sanitary supervisor in Long Island, succeeding Dr. Overton.—Dr. Mary Walker, Bunker Hill, who has been seriously ill at the General Hospital, Fort Ontario, is convalescent.

Nurses Wanted—The Womens' Chapter of the Division of the State Defense Council is cooperating with the State Hospital Commission in its effort to secure 1,000 nurses for the Hospital for the Dependent and Insane. The State Hospital Commission has a three-year course which leads to the registered nurse certificate, and a two-year course, candidates for which need only a grammar school education.

Health Commissioner Condemns Garbage Plant—After a long and bitter fight waged for several years by the residents of Staten Island to force the Metropolitan By-Products Company to change its methods of handling garbage inasmuch as they constituted a public nuisance, Commissioner Copeland has given the company five days in which to abate the nuisance and unless it complies with this order or appeals to the health department for a modification of this ruling, the street cleaning department will be notified that no more garbage is to be taken to the plant for reduction. This plant has been the source of a very large part of the country's glycerin supply and it is probable that some less objectionable method of garbage reduction will be devised that will permit the company to continue to operate.

New York City

Personal—Dr. Frank J. Monaghan, Brooklyn, has been appointed deputy commissioner and sanitary superintendent of the department of health, succeeding Dr. B. Franklin Knause, Brooklyn, resigned to accept a commission in the Army.

Work of Eye Clinics Curtailed—The department of health is about to curtail its clinical work on the eyes of children to the extent of suspending the fitting of glasses. This step has been taken as a war measure and a policy to be pursued only for the period of the war. Clinics where the fitting of glasses has been the exclusive work in the past will be closed, but other eye clinics where diseases of the eye are treated will be continued.

The Influenza Epidemic—The number of cases of influenza reported to the health department has increased day by day during the week of September 23. The largest number of cases thus far reported for one day was 324 new cases, September 27, this being double the number reported for the previous day. Although the health commissioner, Dr. Royal S. Copeland, asked the board of estimate for only \$5,000 with which to combat the influenza epidemic, he was granted an appropriation of \$25,000.

Borough Autonomy—In October a radical change came in force in the administration of the health department. Health Commissioner Copeland has authorized the chief health officer in each borough to assume full responsibility and these officers will be known as assistant sanitary superintendents. This change is made in conformity with the charter requirements.

The purpose is not to afford power in the part of the assistant sanitary superintendent, but to make clear the question of disciplinary authority.

OHIO

Convicted of Illegal Drug Sale—Dr. Thomas E. Burgess, Toledo, is said to have been found guilty of the illegal sale of morphin by a jury in the probate court, September 13.

Reporting Venereal Disease—According to a bulletin of the state department of health, Akron reports nearly 500 of the 2,000 cases of venereal disease reported to the registrar during August. This city has made the most complete report of any. It is believed that these diseases are not more prevalent in Akron than in Toledo, Cleveland and Cincinnati, larger cities, from which reports are very incomplete.

Physical Training Among Schoolchildren—The *Ohio Public Health Journal* declares that 75 per cent. of the schoolchildren of Ohio have remediable physical defects. Only the larger cities of the state have such medical supervision in the schools as would improve the condition of most of these children. As shown by the Health and Old Age Insurance Commission of the state, there are 60,000 children in the rural schools who have very little physical supervision. About half of those in the city schools have some degree of supervision.

Personal—Dr. Harley E. Ward and Cephas C. Greiner, both of Pemberville, sustained severe injuries by the overturning of their automobile while making a professional call near Pemberville, September 14.—An effort is being made to induce Dr. Augustus Ravogli to assume the professorship of dermatology in the medical department of the University of Cincinnati.—Dr. Frank H. Lamb, Cincinnati, who went to France last April under the auspices of the Child Welfare Bureau of the American Red Cross, will soon return to America to enter the Medical Reserve Corps.—Dr. William H. Peters has been appointed acting health officer of Cincinnati, pending the election of a successor to the late Dr. John H. Landis.

PENNSYLVANIA

Personal—Dr. David Nathan, Norristown, has been commissioned a captain in the Canadian Army Medical Corps.—Dr. Edward H. Harris, Snow Shoe, is in the Bellefonte Hospital on account of chest injuries received in a recent automobile collision.

New State Dispensaries Open—Five additional state dispensaries have been opened at York, Lancaster, Williamsport, Wilkes-Barre and Altoona, for the treatment of venereal diseases. The dispensaries are in connection with the state tuberculosis service, and the clinics are held in the same buildings.

Officers Elected—At a recent meeting of the Union County Medical Society the following officers were elected: president, Dr. Harry R. Thornton, Lewisburg; vice president, Dr. Thomas C. Thornton, Lewisburg, and secretary-treasurer, Dr. Amos V. Persing, Allenwood.—At a recent meeting of the Lehigh Valley Medical Association the following officers were elected: president, Dr. Noah W. Reichard, Bangor; vice president, Dr. Frederick A. Fetherolf, Allentown; secretary, Dr. Alexander Armstrong, White Haven, and assistant secretary, Dr. Roger P. Batchelor, Palmerton.

State Medical Meeting—The sixty-eighth annual session of the Medical Society of the State of Pennsylvania held in Philadelphia, September 23 to 27, had a smaller attendance than usual owing to the fact that many of its members are in the United States service. The officers elected for the ensuing year are as follows: president, Dr. Cyrus Lee Stevens, Athens; vice presidents, Dr. William Duffield Robinson, Philadelphia; Dr. John N. Sproul, Claysville; Dr. Julius H. Comroe, York, and Dr. Wesley Kunkle, Williamsport; secretary, Dr. Walter F. Donaldson, Pittsburgh; assistant secretary, Dr. Christian B. Longenecker, Philadelphia, and treasurer, Dr. George W. Wagoner, Johnstown. Harrisburg was chosen as the next place of meeting. Dr. Cyrus L. Stevens, the president-elect, has served the association for twenty-three years as its secretary and was voted a purse of \$2,000.

Philadelphia

Personal—Dr. Caroline M. Purnell has sailed for France as head of the second unit of the American Women's Hospitals.—Dr. Solomon Marks has been appointed assistant school medical inspector, health department, at a salary of \$600.—Dr. Joseph M. Asher has been elected instructor in surgery at the Temple University.

Influenza Increases.—Two hundred new cases of "Spanish" influenza were reported to the bureau of health within twenty-four hours ending September 27. The records of the health department show that 123 of this number are civilians. The remaining seventy-seven are in the Fourth Naval District. Of the civilian cases, sixty-eight are in South Philadelphia, forty-six in North Philadelphia and nine in West Philadelphia.

VIRGINIA

Personal.—Drs. Frank G. Wilson, Norfolk, and James W. Reed, Ocean View, whose terms expired last month, have been requested by Dr. Ennion G. Williams, Richmond, secretary of the state board of health, to remain in office for the time being.—Dr. Roy K. Flannagan, chief of the Richmond Health Department, has declined the position of health officer of Hopewell.

Public Health Campaign.—An intensive health campaign was carried on in Gloucester County, September 20 to 28, under the auspices of the Virginia Anti-Tuberculosis Association and the state board of health. During the week leaders of the Virginia Anti-Tuberculosis Association will visit all the public schools in the county, and stimulate the interest of the public in behalf of the public health organizations.

New Clinics.—Dr. Powhatan S. Schenck, health commissioner of Norfolk, has requested that the venereal clinic conducted by the City Health Commission in conjunction with the federal authorities be provided with more adequate quarters.—The clinic for the treatment of the eye, ear, nose and throat was opened at Norfolk last month in charge of Dr. B. D. Downing. The hours for the clinic are from one to two o'clock, on Tuesday and Thursday afternoons.

Diploma and License Stolen.—Secretaries of state licensing boards and others interested, are requested to be on the lookout for a diploma from the Kentucky School of Medicine, Louisville, issued June 12, 1907, and a certificate from the Virginia State Board of Medical Examiners issued in June, 1915, both of which bore the name of Samuel L. Stallard. It appears that these papers were stolen while Dr. Samuel L. Stallard, Newport News, was on the train recently.

WEST VIRGINIA

In Memory of Dr. Megrail.—A special meeting of the Ohio county Medical Society was held in Wheeling, September 14, to adopt suitable resolutions of respect for the late Dr. William P. Megrail.

Personal.—Dr. Floyd F. Farnsworth, Frenchton, has resigned as a member of the state public health council and Dr. Herbert E. Sloan, Clarksburg, has been made his successor.—Dr. Vincent T. Churchman, Charleston, has been elected to succeed Dr. Farnsworth as president of the council.—Dr. Walter Van Ness, in charge of the tuberculosis eradication department of the Bureau of Animal Industry, Washington, D. C., has located at Clarksburg, and will direct the work there.

Venereal Disease Campaign.—A bureau of venereal diseases has been established in the state in connection with the Public Health Council, and Dr. Floyd F. Farnsworth, Charleston, has been appointed acting assistant surgeon, U. S. P. H. S., and placed in charge of this bureau. The regulations of the Public Health Council include a declaration that venereal diseases are dangerous to the public health, the reporting of venereal diseases, instruction of patients, investigation of cases, protection of others from infection by venereally diseased persons, the prohibition of prescribing for venereal disease by druggists, the giving of certificates of freedom from venereal disease is prohibited, and it is declared that all records concerning persons infected with venereal disease should be inaccessible to the public except in so far as publicity may attend the performance of the duties in accordance with the regulations and laws of the state.

CANADA

Most Ontario Doctors Observe Temperance Act.—According to the returns for the month of August, about 10 per cent. of the doctors of Ontario are issuing most of the prescriptions for liquor in that province. One doctor in Hamilton is said to have issued 725 in the month. Six issued an average of 456. Ninety per cent. of the doctors of the province issued an average of 5.6.

Personal.—Dr. Frederick N. G. Starr, Toronto, has been appointed consulting surgeon with the British forces in

France, and has reached there in safety.—Col. Murray MacLaren, C.M.G., St. John, N. B., who has been overseas some years, has been appointed commanding officer of Granville Hospital, Buxton, England.—Lieut. Henry C. Pearson, Toronto, has returned on three months' leave. He enlisted the first month of the war and has been serving in France for the past three years.—Lieut.-Col. Charles S. McVicar, Toronto, was recently recalled for duty in Canada and has arrived home. He was one of the six members of the University of Toronto Base Hospital mentioned in dispatches when it was at Saloniki.—The following lieutenants in the medical service will go from the Third Military District, Kingston, Ont., with the Siberian contingent: Hendry Connell, J. H. Munroe, J. A. Lalonde, S. J. R. Horne, J. Sharp and F. S. Tisborne.

GENERAL

Prevention of Infant Mortality.—The ninth annual meeting of the American Association for the Study and Prevention of Infant Mortality will be held at Asheville, N. C., November 12 to 14. The program pays especial attention to war subjects.

Industrial Medicine.—At the meeting of the Seventh Annual Safety Congress in St. Louis, September 20, Dr. Clarence D. Selby, U. S. P. H. S., discussed industrial medicine as an increased production in war times, and urged increasing cooperation by employers, employees, medical schools, and the medical profession generally.

Railroad Relief Committee Appointed.—Director-General McAdoo has announced the appointment of the following committee on health and medical relief for the railroad administration: Dr. J. E. Dunott, chairman, and Drs. George W. Cale, Jr., St. Louis; Victor G. Heiser, New York City; Thomas R. Crowder, Chicago, and Henry M. Bracken, St. Paul. The committee is charged with recommending all necessary measures to protect the health of employees of the railroads under federal control, based on a survey of conditions.

Leprosy Expert Dies.—Moses Tran Clegg, superintendent of the Queen's Hospital, Honolulu, noted as a bacteriologist and especially for his research work in leprosy, died in Honolulu, August 14. Mr. Clegg was the assistant director of the Bureau of Sciences of the Philippines in 1908, and a year later succeeded in isolating and 'propagating' the leprosy bacillus. He also spent considerable time in work on bubonic plague in San Francisco and New Orleans, and served for eighteen months as laboratory director in the port of New York in the United States Public Health Service.

Influenza.—Influenza, up to September 26, had been reported to the Public Health Service in twenty-six states. It continues to spread rapidly and probably cases will be found in all of the states. September 25, there were 5,000 new cases reported in the Army camps, with 155 deaths. The total cases in the camps to that date were about 30,000. It is believed, however, that as far as the Army camps are concerned, the situation is under control, and in some camps the disease is distinctly on the wane. At the Great Lakes station, near Chicago, among the 45,000 men in camp there had been about 500 deaths from influenza and pneumonia since the beginning of the epidemic, September 9. The disease first appeared in Illinois at Great Lakes, September 9, and since that date there had been about 9,000 cases in the camp.

The Chemical Convention.—The National Exposition of Chemical Industries, held in New York City during the week of September 23, was the most successful ever held in this country, owing to the many developments and advances in chemical science during the war period. One of the most interesting addresses from the medical standpoint was that of Dr. Charles H. Herty in which he suggested a plan for the establishment of a national research laboratory for chemists similar to that of the Rockefeller Institute for Medical Research and providing facilities for experimental work in the chemistry of medicine. This suggestion proposes an institution in which adequate provision would be made for laboratory tests of all kinds, and through which cooperation should be established with the organic laboratories of universities and with the hospitals of the country.

FOREIGN

The Golgi Scholarship.—In honor of Professor Golgi, senator, who retires this year from the chair of pathology and histology at the University of Pavia, it is proposed to found a scholarship in the medical department for the orphan of some physician, preferably one whose father was lost dur-

ing the present war. Contributions may be sent to the treasurer, Tesoriere dell' Ordine dei Medici della Provincia di Pavia.

Welfare Work for the Young.—An exchange quotes the *Münchener medizinische Wochenschrift* to the effect that the Prussian authorities have decreed that every city and rural district is to organize an official board for welfare work for the young. The board is to comprise the governor or mayor, the district physician, some members of the clergy, and twelve experienced men and women, including some medical men or women. They are to have oversight of orphans, illegitimate children, the aid for indigent minors, etc.

Medical School for French West Africa.—According to a report of U. S. Consul W. J. Yerby at Dakar, Senegal, the French government has authorized the establishment of a medical school at Dakar, which was to be opened, Oct. 1, 1918. The school will be under the direct authority of the governor general of French West Africa and under the technical control of the inspector-general of the health medical services of that colony. The object in establishing the school is to supply the needs of the country, especially on account of the war, as thousands will return from the battlefields wounded and in bad health, requiring special medical treatment.

Influenza in Europe.—The epidemic of "Spanish influenza" seems to have been mild in Italy. The cases among the troops on active service have been few and mild. In Switzerland the disease was unusually severe and pneumonia was frequent. Several deaths among physicians were mentioned. One Swiss physician states that in his fifty-three fatal cases, forty-one of the patients were between 15 and 30 and nearly all absolutely healthy young people. This same prevalence of the severer cases among the young is mentioned in the reports from Germany cited in the *Hospitaltidende* of Copenhagen. The fatality is said to be highest between 20 and 40. Besides pneumonia and empyema, serous meningitis, sinusitis and otitis media were observed, but infants seemed to escape entirely. This was noticed also in Spain, infants showing no trace of the disease when both parents and the nurse had it. Even Pfeiffer, the discoverer of the influenza bacillus, was not certain whether the bacteriologic findings were positive for this bacillus, and others in Germany, Sweden and Norway were also dubious about their findings. Lubarsch found pseudomembranes in the throat in some cases. In the Netherlands, in a certain proportion of the cases, diarrhea and abdominal pains were the predominant symptoms. A writer in the *Nederlandsch Tijdschrift* remarks that after this no one can refer to influenza as a "harmless disease." The cry comes also from Portugal that "grippe kills with its pneumonia."

SOUTH AND CENTRAL AMERICA, MEXICO AND WEST INDIES

Brazilian Medical Mission in France.—An exchange states that the Brazilian minister announces that Brazil is sending a medical mission to France. The party is to consist of fifty doctors besides a number of students. They are to be attached to the Brazilian Hospital already installed near the front.

Home for Medical Society at Rio de Janeiro.—With appropriate ceremony the cornerstone was laid recently for the building destined to be the home of the Sociedad de Medicina e Cirurgia of Rio de Janeiro. The president of the society, Dr. O. de Oliveira, is said to have been chiefly responsible for this realization of the long cherished dream of the members. The society was founded thirty-three years ago, and it has its own museum and library. The funds for the construction of the building, it is said, have all been subscribed, the national authorities having presented the society with the site, and the municipality having appropriated 6 *contos* for the purpose. The society and its friends in medical and pharmacist circles have raised the balance needed.

CORRECTION

Director Base Hospital No. 53.—The adjutant of Base Hospital No. 53 in France informs us that Lieut.-Col. Daniel A. Sinclair, M. C., U. S. Army, assumed command of this hospital at Camp Hancock, Ga., on May, 1918, and has been in command continuously since that date. The item in THE JOURNAL of July 20, 1918, stating that Lieut.-Col. Albert E. Halstead, M. C., U. S. Army, had been placed in charge of this hospital is incorrect.

PARIS LETTER

PARIS, Sept. 5, 1918.

The American Crusade Against Tuberculosis

In a previous letter (THE JOURNAL, June 8, 1918, p. 1784), mention was made of the crusade begun in France against tuberculosis by the Rockefeller Foundation under the direction of Dr. Livingston Farrand, president of the University of Colorado. Work was begun in one of the densely populated arrondissements or districts of Paris, the nineteenth, and in the département d'Eure-et-Loir. A dispensary system was established, with visiting nurses, and an ingenious method of popular education was inaugurated by means of demonstrative conferences, striking posters, and amusing as well as persuasive pamphlets. The département d'Eure-et-Loir has been traversed effectively during the past two or three months by a dispensary autotruck, provided with everything needed to teach the public and to carry conviction to them (cinematography, etc.). The same outfit has also been taken through the départements of Loir-et-Cher, Indre-et-Loir, and Cher, and is at present covering the département de l'Allier. Another outfit after being taken through the départements d'Ille-et-Vilaine and du Finistère, is now covering the département des Côtes-du-Nord. These educational and prophylactic tours have met with great success, more than half of the population having participated in the conferences.

Physics, Chemistry and Biology as Required Premedical Studies

In France, before entering on medical studies proper, one year is spent in the Facultés des sciences in the study of physics, chemistry and natural sciences—called familiarly the P. C. N. The value of this premedical work as now organized is questionable. These courses are not intended for future medical students alone; hence it is not right to impose this premedical requirement on them. Without a doubt these subjects are indispensable to physicians, but some people contend that it would be better to revert to the system which was in vogue twenty-five years ago under which one year was devoted to the study of physics, chemistry and biology taught in the medical department by physicians, who emphasized particularly the medical application of these sciences.

A Flying Operating Unit

At a recent meeting of the Académie de médecine, Dr. Walther presented the plans and photographs of a surgical avion designed by M. Nemiowski and Dr. Tilmant as capable of rendering service to the severely wounded on the battlefield itself. This avion, the idea for which was encouraged by the late Professor Pozzi, can transport its load anywhere. It is designed to carry a complete surgical equipment—personnel of three—a complete roentgenographic outfit, sterilized instruments, gowns, dressings, in fact everything needed to perform eight emergency operations. The entire outfit, including an autoclave, a reservoir of sterilized water, accumulators and steam sterilizer, weighs only 360 kilograms and occupies a very limited space. The first avion is ready for service. On the initiative of Dr. Stepinski, director of the Polish Service de Santé, a committee has been formed which will present a group of complete surgical avions of this kind to the French army. It will be known as the "escadrille Pozzi" in honor of the man who encouraged the initiative of its inventors.

Antigas Measures

At a conference held recently at l'Ecole d'application de médecine et de pharmacie militaires du Val-de-Grâce, consideration was given the properties of the gases now used by the enemy, protective measures against these gases, and the best means for disseminating such knowledge to the physicians now in service. This conference was attended by the medical directors of the Services de Santé of the army, the chiefs of the medicolegal and hygienic centers of the zone of the interior, the chiefs of special services, etc.

The American Red Cross at Lyons

M. Edouard Herriot, mayor of Lyons, gave a dinner in honor of the commandant Marshall Hale, appointed director of the southern intermediate zone of the American Red Cross, of which Lyons is headquarters. The notables of the region were present at this dinner, also the United States consul. Marshall Hale stated that it was his intention to make Lyons a center of large activities, aiding in the most extensive way the numerous institutions and agencies now in operation. In the name of Lyons and the region, the mayor expressed his liveliest thanks to the speaker.

The Vacation Colonies

The Oeuvre des colonies de vacances was founded in 1882 by Mme. Edmond de Pressensé for the purpose of removing poor children from the pernicious surroundings of the large cities and giving them an opportunity to benefit from the clean, healthy atmosphere of the country, the mountains and the sea, strengthening them physically as well as morally (THE JOURNAL, Nov. 12, 1910, p. 1745). Since the beginning of the war, 22,000 children of both sexes, from 5 to 14 years of age, orphans, children of refugees or of men in the service, have benefited from this movement.

Japanese Red Cross Mission in France

The Japanese Red Cross has sent a commission to France to study the French Service de Santé and to convey to the French aid societies (*sociétés de secours*) the good wishes of our ally of the extreme Orient. This mission visited the principal formations of the Red Cross societies in Paris and then left for the front.

Red Cross Postage Stamps

According to the terms of an agreement with the "*administration des postes*" (postal authorities) of Belgium, England, Italy and Serbia, it has been decided that the stamps used in France for the benefit of the Red Cross may also be used for postage stamps on mail whose destination is the countries mentioned. Likewise, the Red Cross special postal stamps issued in these countries will be accepted as franking mail destined for France.

The War Blinded

A group of *aveugles de guerre* (war blinded) has issued a call to all soldiers who have sustained eye wounds, inviting them, as other classes of the maimed have done, to organize and found *syndicats professionnels* whose object will be to establish and maintain uniformity and cooperation between all the various agencies looking after the war blind and the schools engaged in their reeducation. Such an organization would be able to purchase raw materials at lower prices, and would also reduce the selling expense considerably.

Gift of Cuban Physicians to the War Medical Aid Fund

Prof. José A. Presno of Havana, Cuba, has sent to the Association des médecins de France, for its fund for *assistance confraternelle de guerre*, 7,000 francs contributed by physicians of Cuba, with a message stating that they wish to "reaffirm their admiration of the glorious Latin nation and their gratitude to French medical science, the most faithful guide and the best inspiration of all medical culture."

LONDON LETTER

LONDON, Sept. 3, 1918.

Medical Students and the War

The effect of the war on the number of medical students has been described from time to time in previous letters. The approaching opening of a new medical session affords the opportunity of reviewing the present position. Before the war, in the years 1910-1914, the average annual entry of first year medical students was about 1,440. During the war the number of entries has been increased to about 2,000. Thus the number of students pursuing their curriculum in the medical schools has steadily increased. In May, 1916, the total was 6,103; in January, 1917, 6,682; in October, 1917, 7,048, and in May, 1918, 7,630. Notwithstanding this increase, the great withdrawal of students from the medical schools for combatant service or for service as surgeon probationer in the navy has resulted in a considerable deficiency in fourth and fifth year students, who can furnish only about three fourths of the yearly entry into the profession considered desirable to make up for the wastage. The numbers of medical students now studying are, for the various years: first year, 1,378; second year, 1,249; third year, 1,050; fourth year, 759; fifth year, 944. In 1920, when the present fourth year students are due to qualify, the deficiency of entries into the profession will be at its maximum. Another effect of the war is a great increase in the number of women students. Their percentage of the total is: first year, 32; second year, 33; third year, 32; fourth year, 27; fifth year, 18. Thus, although the percentage of women has remained almost constant during the four war years, it shows a considerable increase on the prewar figure, which corresponds to the fifth year students. The total number of physicians on the register is 43,819, which is thus distributed in the United Kingdom: England, 54 per cent.; Scotland, 32 per cent.; Ireland, 14 per

cent. Urgent representations have been made to the government as to the threatened shortage of physicians due to the withdrawal of students for combatant service, a number of third year students have been allowed to return from active service to complete their studies, and students on their way to qualification, liable to be called to the colors, are being allowed to complete their studies. The minister of national service has undertaken to provide that if possible the number of students in training shall be kept at a level sufficient to give an annual yield of 1,000.

Tetanus Following the Subcutaneous Injection of Gelatin

The subcutaneous injection of gelatin is supposed to increase the coagulation of the blood and therefore has been used as a hemostatic and also to promote coagulation in aneurysms. For the latter object it was introduced in 1898 by two French workers, Lancereaux and Paulesco. But gelatin sometimes contains the spores of tetanus bacilli, and cases of tetanus have followed its subcutaneous injection. A case that occurred in a London hospital has just been the subject of a coroner's inquest. A man, aged 25, supposed to be suffering from typhoid fever, had severe intestinal hemorrhage for which 20 c.c. of gelatin (guaranteed to be sterilized for subcutaneous use) was injected into the left thigh. Five days later he began to complain of inability to open his mouth properly, and stiffness and pain in the muscles of the back of the neck and trunk. A typical attack of tetanus developed and proved fatal on the following day. The spasms notably affected the left thigh. The necropsy revealed intestinal typhoid ulcers, and a small abscess in the thigh, apparently at the site of the injection. From this Dr. Spilsbury, the medicolegal expert, who made the necropsy, obtained bacilli resembling those of tetanus. A verdict of death by misadventure due to tetanus was returned. Dr. Parkes Weber, under whose care the patient was, suggests the possibility that the bacilli might not have come from the gelatin but from an imperfectly sterilized syringe or by way of the ulcers from ingested food.

Marriages

LIEUT. JAMES EDWARD McDOWELL, M. C., U. S. Army, Philadelphia, on duty with the American Expeditionary Forces in France, to Miss Lillian Dauphney of Montreal, in London, June 18.

LIEUT. JAMES EDDY ARNOLD, M. C., U. S. Army, Miles City, Mont., to Miss Laina Louisina Laury of Louisville, Ky., September 7.

CAPT. OLIVER LINWOOD STRINGFIELD, JR., M. C., U. S. Army, Marshall, N. C., to Miss Lois Wood of New Canaan, Conn., August 28.

LIEUT. SAMUEL WILSON McEWAN, U. S. N. R. F., Cincinnati, to Miss Ethel Belle Allee, also of Cincinnati, September 11.

CLARENCE ALBERT BUTLER, Dell Rapids, S. D., to Miss Daisy Dean Carr of Marison, S. D., at Sioux Falls, S. D., July 11.

LIEUT. CLAYTON WILLARD ELEY, U. S. Navy, Detroit, to Miss Katie Brinkley of Suffolk, Va., September 11.

FRANK OSCAR BURK to Mrs. Anne Applegren, both of Davenport, Iowa, at Galesburg, Ill., September 6.

JOSIAH SHAFTESBURY DAVIES, Tacoma, Wash., to Miss Ruth E. Irle, at Jacksonville, Ore., September 11.

THOMAS B. HORTON, Curtis Bay, Md., to Mrs. Grace H. Norwood of Baltimore, September 21.

IRWIN WILSON VOORHEES to Miss Hazel Letitia Coleman, both of New York City, September 7.

JOHN JOSEPH BURKE to Miss Catherine F. Lynd, both of Schenectady, N. Y., September 14.

GRACE LYNDE MEIGS, Washington, D. C., to Thomas Crowder, at Keokuk, Iowa, recently.

WALTER J. PELLETT, Manitowoc, Wis., to Miss Ellen Kikulski of Chicago, August 7.

JULIAN HERMAN LEWIS to Miss Eva Overton, both of Chicago, September 4.

EUGENE C. HAMLEY to Mrs. Alice Dyer, both of Pasco, Wash., in August.

FRARAY HALE, Bridgeport, Conn., to Mrs. Mabel Camp Dorsey, recently.

Deaths

Col. Joseph Basil Girard, M. C., U. S. Army (retired), San Antonio, Texas; University of Michigan, Ann Arbor, 1867; aged 71; a Fellow of the American Medical Association, and a member of the Association of Military Surgeons of the United States; who entered the United States service as assistant surgeon in 1867; major and surgeon in 1888, lieutenant-colonel and deputy surgeon-general in 1901, and colonel and assistant surgeon-general in 1902; retired in 1910, on attaining the age of 64 years; was with General Crook in the Apache Campaign in 1873, and for nine years saw almost continuous service in Indian warfare; died at his home, August 25.

Major Walter Whitney, M. R. C., U. S. Army, Augusta, Ga.; Columbian College, Washington, D. C., 1872; aged 69; at one time a Fellow of the American Medical Association; a member of the Association of Military Surgeons of the United States; acting assistant surgeon, U. S. Army, from 1880 to 1890, and from 1898 to 1901, during which time he served in Indian campaigns in Arizona and New Mexico, and later in the Philippine Islands; prior to his Army service, Indian agency physician from 1875 to 1879, and from 1893 to 1896 an officer of the U. S. P. H. and M.-H. Service; since 1913 on duty at the Augusta Arsenal, Augusta, Ga.; died in that place, September 4, from heart disease.

Charles Barnsdall Parker, Cleveland; University of Wooster, Cleveland, 1877; M.R.C.S. (Eng.), 1880; aged 65; a Fellow of the American Medical Association; one of the founders of the Cleveland General, and St. Luke's hospitals, and visiting surgeon to St. John's Hospital; dean and professor of clinical surgery in Ohio Wesleyan University Medical School, Cleveland, from 1894 to 1898, and thereafter senior professor of clinical surgery in Western Reserve University, Cleveland; local surgeon of the Lake Shore and Michigan Southern Railroad; died at his summer home on Wooster Road, Rocky River, September 18, from heart disease.

Capt. William Burrows Hudson, M. R. C., U. S. Army, Washington, D. C.; George Washington University, Washington, D. C., 1905; aged 40; a Fellow of the American Medical Association; formerly major, M. C., N. G. D. C.; who went overseas in the autumn of 1917, in command of an ambulance company of the National Guard of the District of Columbia, incorporated in the Rainbow Division; while caring for the wounded on the western front in France, was instantly killed, August 1, by the explosion of a shell.

Edgar Miller Holmes, Boston; Harvard Medical School, 1895; aged 50; a Fellow of the American Medical Association; associate professor of otology and laryngology in Tuft's College Medical School, Boston; aural surgeon in the Boston City Hospital and Boston Dispensary; consulting aural surgeon to the Massachusetts Infants' Asylum; and ear, nose and throat surgeon at St. Elizabeth's Hospital; was drowned by the overturning of his canoe at Point Allerton, Mass., September 19.

Emerson K. Kellenberger, Yates Center, Kan.; Medical College of Ohio, Cincinnati, 1871; aged 68; a Fellow of the American Medical Association and president of the Woodson County Medical Society in 1914; for twenty years local surgeon of the Missouri Pacific Railway Company; for two years coroner of Franklin County, Kan., and secretary of the first board of medical examiners of his judicial district in Arkansas; died at his home, September 11, from cerebral hemorrhage.

William Pickard Megrail, Wheeling, W. Va.; Western Reserve University, Cleveland, 1888; aged 59; a Fellow of the American Medical Association; a specialist in obstetrics and diseases of children; local surgeon for the Baltimore and Ohio System, and the Wheeling Traction Company; a member for several years and president of the first branch of the Wheeling City Council; died at his home, September 30, from cerebral hemorrhage.

Charles Henry Norred, Minneapolis, Minn.; Jefferson Medical College, 1886; aged 76; a veteran of the Civil War, in which he served as surgeon in the Seventh Illinois Volunteer Cavalry; formerly medical director for the department of Minnesota of the Grand Army of the Republic; surgeon to the Soldiers' Home; died at the Battle Mountain Sanatorium, Hot Springs, S. D., September 16.

Robert Edward McCullough, Flint, Mich.; Starling Medical College, Columbus, Ohio, 1898; aged 50; a Fellow of the American Medical Association; while driving his motor car over a grade crossing over the Corunna Road, near Lansing, Mich., August 28, was struck by a passenger train and received injuries which caused his death a few minutes later.

Robert Jarvis Mitchell, Girard, Ill.; Rush Medical College, 1871; aged 74; a Fellow of the American Medical Association, and a charter member of the Macoupin County Medical Society, of which he was once president; for ten years president of the Girard board of education; died at his home, September 8.

Alfred Mahlon Bigelow, Mansfield, Mass.; Boston University School of Medicine, 1900; aged 55; also a graduate of Harvard Veterinary College; at one time town physician of Mansfield; died in the Massachusetts General Hospital, Boston, from adenocarcinoma of the sigmoid, July 30.

James E. T. Holiman, Little Rock, Ark.; College of Physicians and Surgeons, Little Rock, 1907; aged 51; a member of the Arkansas Medical Society; associate professor of theory and practice of medicine in his alma mater; died at his home, September 17, from cerebral hemorrhage.

John H. Demarest, White Plains, N. Y.; New York Homeopathic Medical College, New York City, 1865; aged 81; for thirty years a member of the staff of the Metropolitan Hospital, Blackwell's Island, and at one time president of the medical board; died at his home, September 14.

Lieut. Gordon Trevor Courtenay, U. S. N., San Diego, Calif.; Northwestern University Medical School, Chicago, 1908; aged 31; a Fellow of the American Medical Association; died in the New York Naval Hospital, September 23, from pneumonia following influenza.

Jacob Samuel Price, Beaumont, Texas; Tulane University, New Orleans, 1891; aged 53; a member of the State Medical Association of Texas; at one time a member of the state board of health; died in the Hotel Dieu, Beaumont, September 12, from heart disease.

Samuel Allan Lacock, Canonsburg, Pa.; Jefferson Medical College, 1877; aged 69; a member of the Medical Society of the State of Pennsylvania; postmaster and once burgess of Canonsburg; died in the West Penn Hospital, Pittsburgh, September 18.

Ralph Emerson Stevens, Marlboro, Mass.; Harvard Medical School, 1897; a member of the Massachusetts Medical Society; aged 48; for fifteen years chairman of the local board of health; died at his home, September 18, from uremia.

Julius Edward Block, Rembrandt, Iowa; Detroit College of Medicine and Surgery, 1904; aged 38; was found dead in his office, September 3. The coroner's verdict was that he died about August 28, from an overdose of intoxicants.

James Wallace Ford, Jr., Mount Carmel, Pa.; Hahnemann Medical College, Philadelphia, 1905; aged 37; a member of the Medical Society of the State of Pennsylvania; died in his office, September 17, from acute dilatation of the heart.

Albert Marvin Hutton, Kalamazoo, Mich.; Detroit Homeopathic Hospital, Detroit, 1905; aged 45; at one time a Fellow of the American Medical Association; died at the Fairmount Hospital, Kalamazoo, August 8, from diabetes.

Ross B. Rowe, Reading, Pa.; University of Pennsylvania, Philadelphia, 1885; aged 57; a member and once vice president of the staff of St. Joseph's Hospital, Reading; died at his home, September 20.

Mott Dwight Cannon, New York and Greenwich, Conn.; New York Homeopathic Medical College, New York City, 1882; aged 59; died suddenly at Poughkeepsie, N. Y., September 21.

George Volney Bush, Dawson, Ala.; Southern Medical College, Atlanta, Ga., 1890; aged 49; died in Chattanooga, Tenn., August 18, a day after an operation for cholelithiasis.

Charles E. Smith, Colorado Springs, Colo.; Louisville (Ky.) Medical College, 1878; aged 63; also a druggist; died at his home, September 6.

Joseph T. Bright, Covington, Ky.; University of Pennsylvania, Philadelphia, 1866; aged 76; died at his home, September 3.

Francis A. Woodward, Springfield, Tenn.; University of Louisville, Ky., 1882; aged 60; died at his home, September 18.

John Barton Sanders, LaGrange, Ga.; a nongraduate practitioner since 1888; aged 55; died at his home, September 15.

Zachariah C. Myers, York, Pa.; University of Maryland, Baltimore, 1881; aged 59; died at his home, September 9.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

MEDICAL SOCIETY OF THE UNITED STATES

From "Division of Fees" to "Down With Autocracy"

The "Medical Society of the United States" has for its "Honorary President" one A. H. Ohmann-Dumesnil, A.M., M.D., M.E., Sc.D., Ph.D., and for its "Secretary and Treasurer" one Emory Lanphear, M.D., C.M., Ph.D., LL.D. As originally planned, the "society" seems to have been based on the idea of organizing the "fee-splitters." In May, 1916, the birth of the organization was announced to the medical profession through a letter signed Emory Lanphear, written on the stationery of the "Medical Society of the United States." Even in its embryonic state the society had A. H. Ohmann-Dumesnil, A.M., M.D., M.E., for its president, and Emory Lanphear, M.D., Ph.D., LL.D., as its treasurer. The letter read in part:

"We—the majority of the medical profession—who believe in division of fees (i. e., that the surgeon should not 'hog' the whole of a patient's money and leave nothing for the family doctor), are no longer welcome in the A. M. A. We are therefore organizing the Medical Society of the United States, which will not be conducted for the benefit of a few selfish egotists. We would like to have you with us.

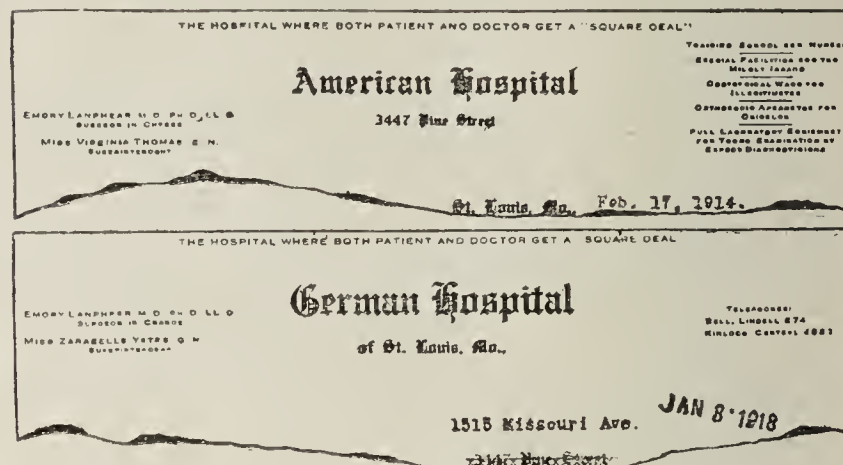
"It costs only \$1.00 to join. This covers dues for 1916, and includes expense for the beautiful certificate of membership (suitable for framing), which you will receive on admission. Fill enclosed blank and return to me with \$1.00."

But presumably the idea of organizing on a basis of "fee splitting" did not make a hit, so the lure was changed. Today physicians are approached with the plea that the "Med-

Membership costs "only \$1.00 . . . including the cost of a beautiful certificate of membership." No penalties or punishments are involved for belonging to other societies, and:

"Joining our body need not affect your membership in any other society—even the A. M. A., if you wish to belong to it, and be 'bossed' by the 'Simmons Gang'."

The dollar for the "beautiful certificate" and membership is solicited by means of circular letters signed "Emory Lanphear," coming from 3447 Pine St., St. Louis, Mo., the address of what has been variously called the "American Polyclinic," the "American Hospital," and later, the "Ger-



Reduced facsimile of the letter-heads of an institution known variously as the "American Hospital" and the "German Hospital." The change in name from "American" to "German" seems to have taken place early in 1915—when things German were more popular and profitable than they are today!

man Hospital." The "Surgeon-in-Charge" of the "German Hospital" is Emory Lanphear, M.D., C.M., Ph.D., LL.D. When running under the name of the "American Hospital," Lanphear solicited operative work on a "division of fees" basis, which, the general practitioner was told, meant that "you are to have 40 per cent. of all fees received from your patients sent to our staff for operation or treatment."

With the change in name from "American Hospital," to "German Hospital," Lanphear appealed for a "portion of your operative work on a basis of pure reciprocity." This "pure reciprocity" seems to have been a still more liberal distribution of the patient's money, for from a 40 per cent. basis it was raised to an even fifty-fifty. Said Lanphear, in a letter sent out a few months ago:

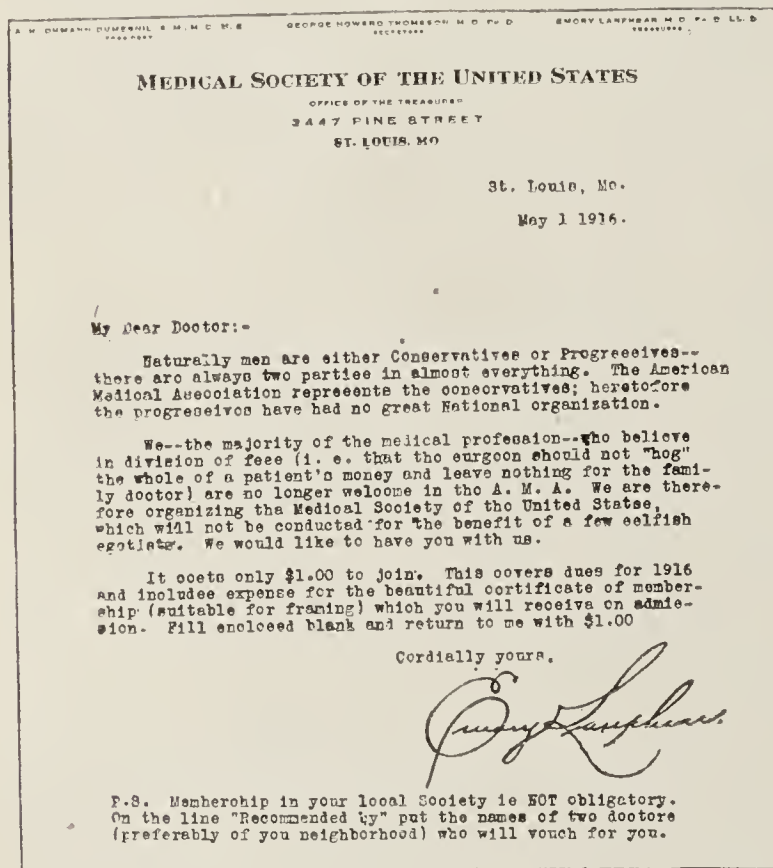
"I wish also to inform you in spite of the despicable opposition of the hypocritical gang in charge of the A. M. A., and the no less contemptible action of the St. Louis Medical Society, I am going to remain in St. Louis and continue to do surgical work upon a 'division of fee' basis. To be more explicit, if you bring me a case for operation I shall allow you one half of the fee for your time, trouble, responsibility and help in the management of the case."

Before leaving the interesting professional personality of Lanphear, and carefully avoiding any details of a personal nature, we may remind our readers that as long ago as 1908 Lanphear was the "Dean" of the "Hippocratean College of Medicine," with A. H. Ohmann-Dumesnil, A.M., M.D., M.E., Sc.D., "Vice-Dean." At that time Lanphear sent out letters to physicians proposing the organization of a "Post Graduate Faculty" on the following basis:

"Those who hold full professorships shall purchase stock in the corporation to the amount of \$1,000.00; those who become lecturers or instructors shall pay in the sum of \$500.00; those who are to be merely clinical assistants will buy ten shares of stock, \$100.00."

The "Hippocratean College" was a "sundown" affair; it never graduated a student, and expired in 1910.

But to come back to the "Society of Medical Democracy": the "Medical Society of the United States" seems to have been born in 1916. Its parents, so far as is apparent, seem to have been Lanphear and Ohmann-Dumesnil. The latter, it may be remembered, used to be the editor and proprietor of the *St. Louis Medical and Surgical Journal*, a publication so obviously venal, that its value to the nostrum makers, whose interests it espoused, must have been small. Advertising pages, "original articles" and "editorials"—all were used to puff nostrums of the crudest type. It was Ohmann-



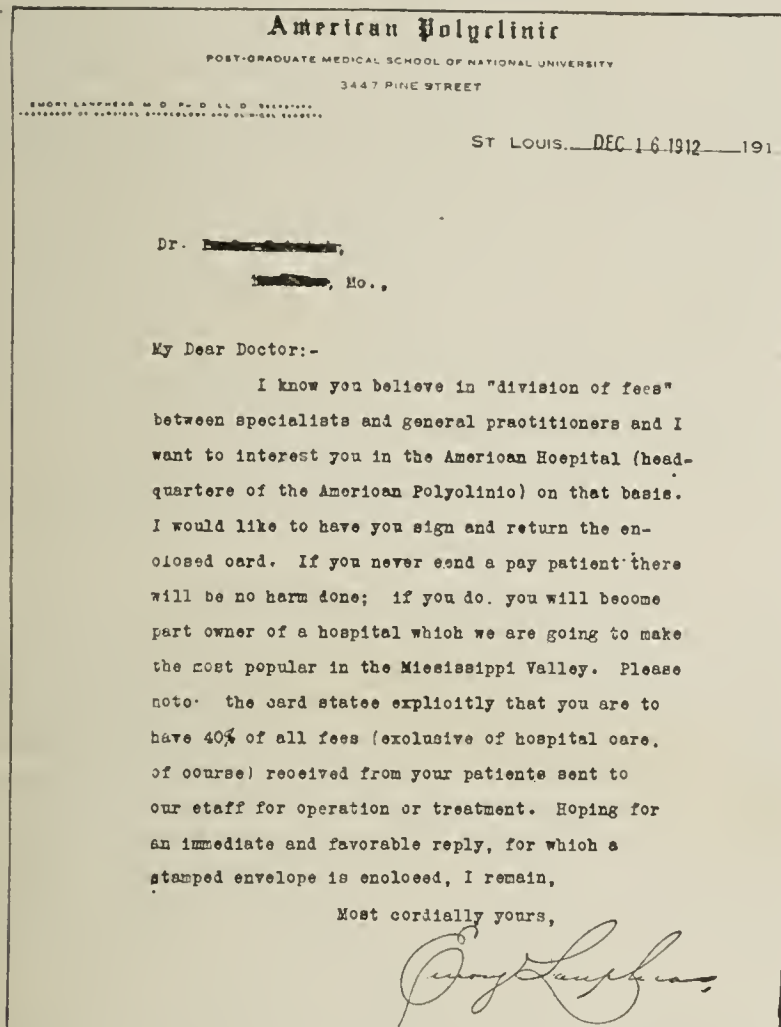
The "Medical Society of the United States," was originally organized on a basis of "fee-splitting," as is shown by the reduced facsimile of a letter sent broadcast in 1916, announcing the birth of the new "society." Apparently, "fee-splitting" as a rallying point did not bring in the desired returns, so today the "Medical Society of the United States" is alleged to be a "Society of Protest Against the Autocracy of the A. M. A."

ical Society of the United States" will make the medical world free for democracy; it is, we are assured, a "Society of Protest Against the Autocracy of the A. M. A.," and a "Society of Medical Democracy."

Dumesnil and his journal that came to the defense of the "patent medicine" interests when they were so hard hit by Mr. Adams's "Great American Fraud" series. In commenting on this phase of "patent medicine" activities, *Collier's*, in January, 1907, said:

"Headache powders came in for a considerable share of attention in the patent medicine articles. There was much talk of libels among the headache powder makers, but they decided upon the safer methods of hiring a meretricious medical publication, the *St. Louis Medical and Surgical Journal*, to print an article in which the *Collier's* statements were branded as lies, and the *Collier's* editors and writers as liars and libelers. This article the Proprietary Association of America circulated in pamphlet form. The journal which printed it died a natural death a few weeks later. Its editor, one O. H. Ohmann-Dumesnil, has just appeared in the public prints in an unsavory connection with a corrupt lobbying project in St. Louis."

Some of the nostrums that Ohmann-Dumesnil has recommended are: "Sanmetto," "Gonosan," "Cactina Pillets," "Pepto-Mangan," "Satyria," "Campho-Phenique," "Tongaline," "Germiletum," "Narkogen," "Nosophen," "Mercauro," "Arsenauero," and "Hydrozone." Many of these testimonials were, of course, used by the manufacturers in their advertising "literature."



Reduced facsimile of a letter sent out in 1912, soliciting the purchasing of stock in the "American Hospital" on a division of fee basis—forty-sixty!

At the time that the Medical Society of the United States was being organized—in 1916—there was published what purported to be a preliminary program of its first meeting. The meeting was held in St. Louis, and the program, while containing the names of men with special fads or interests to exploit, also contained the names of some men of standing. It appeared, however, on investigation, that at least some of the latter had but a hazy conception of the use to which their names were being put, and protested vigorously on learning the facts, repudiating the organization.

Now, in 1918, another drive is on for membership; letters signed "Emory Lanphear" are being sent to various selected groups of physicians. For example, the Eclectics are being coaxed by a letter which commences:

"We want every reputable Eclectic practitioner in this country to join our society of protest against the iniquities of the A. M. A."

An identical letter has been addressed to Homeopaths, the words "Homeopathic practitioner" being substituted for "Eclectic practitioners." In all of the letters the "beautiful

certificate of membership" is emphasized, and the trivial cost—"only \$1.00 a year"—is referred to, while the plea: "surely you are willing to help to that amount to 'down' the 'gang' in charge of the A. M. A.," is featured. Another group of letters has gone out to the graduates of the Barnes Medical College. This commences:

"Most graduates of 'Old Barnes' have joined our society of protest against the iniquities of the A. M. A. Why should you also not come in? It costs only \$1.00 to become a member, including the cost of a beautiful certificate of membership."

Still another group appeal is based on sex; thus Lanphear:

"We want every reputable 'lady physician' in this country to join our society of protest against the iniquities of the A. M. A."

And yet another:

"You formerly belonged to the Tri-State Medical Society, of which I was Treasurer for 20 years. It is now dead. I wish you would join our new society which has superseded Tri-State in this territory."

With these various letters is enclosed a "preliminary program" of the 1918 meeting which is to be held October 8 and 9 in Chicago. As might be expected, many of the names on the program are characteristic of the organization and an interesting "story" might be made from the material in THE JOURNAL's files on the individuals. Such names are of men, who, professionally speaking, range from faddists, who ride grotesque and bizarre medical hobbies, to those who with special interests to exploit and unable to use reputable medical organizations for that purpose, take refuge in such hybrid conglomerations as the Medical Society of the United States. Not that the program contains the names of crude quacks, or obvious medical swindlers. It is representative, rather, of that twilight zone of professionalism, the penumbra, in whose uncertain light it is difficult to distinguish between the unbalanced visionary, with a fad, and the more sinister near-quack, with a "scheme."

Correspondence

"REPORT OF A CASE OF PRIMARY TUBERCULOSIS OF FAUCIAL TONSILS"

To the Editor:—In THE JOURNAL, Sept. 21, 1918, p. 968, there appears a "Report of a Case of Primary Tuberculosis of the Faucial Tonsils" by Major Oertel and Captain Griot. Without going into the subject of primary tuberculosis of the faucial tonsils, I should like to call attention to the fact that the report is far from convincing. As a matter of fact, it is rather self-contradictory. From the physical examination it would appear that the patient in question was suffering from advanced tuberculosis of the larynx and pulmonary tuberculosis. The laryngeal condition would indicate disease of rather long standing. The lung signs, although limited, do not preclude the possibility of more extensive disease of long duration. The laboratory report by no means clinches the diagnosis and describes nothing characteristic. That the mucus recovered from the larynx showed the presence of tubercle bacilli would further indicate very conclusively the presence of advanced pulmonary and laryngeal tuberculosis. Then why a case of primary tuberculosis of the faucial tonsils? Perhaps the authors have some more conclusive evidence for their remarkable statement.

HERMAN SCHWATT, M.D., New York.

To the Editor:—In THE JOURNAL, September 21, there appeared a "Report of a Case of Primary Tuberculosis of the Faucial Tonsils" by Major T. E. Oertel and Capt. George A. Griot of Camp Logan, Texas. I am sure that on further study of this case the authors would not report it as one of primary tuberculosis of the faucial tonsils. That it was one of tuberculosis could not be questioned; but the history of the case, as given, would certainly lead us to class it as one of secondary tuberculosis following an infection in the lungs. The fact that the larynx and trachea showed such marked tuberculous changes would certainly preclude the possibility

of knowing which was the first to be affected. My observations do not lead me to believe in even primary tuberculosis of the larynx, and I am sure it would be difficult to find a case of primary tuberculosis of the tonsil. These remarks are in no wise a criticism but merely a plea for more accurate deductions.

DUNBAR ROY, M.D., Atlanta, Ga.

THE MEDICAL SECTION OF THE ADVISORY COMMISSION STILL BROADENING ITS FUNCTIONS

To the Editor:—According to the lay press, the chairman of the Medical Section of the Advisory Commission of the Council of National Defense has rushed in with the members of his Volunteer Medical Service Corps to take a hand in, if not to take charge of, the outbreak of influenza in the country. In Illinois, and I suppose in other states, he telegraphs his state chairman to appoint a committee to attend to the situation, and forthwith a committee for that purpose springs into existence.

What does this action mean? There are only two obvious answers. Either the usual constituted authorities for taking care of epidemics have failed, or the chairman of the Medical Section of the Advisory Commission is a sort of medical "all highest" in the United States, who is superior to all regular agencies and may step in when he sees fit.

We have for some time been accustomed to Colonel Martin's acting as though the Surgeon-Generals had to have some one to take over a considerable part of their functions in medical military affairs. But this excursion into administering the public health of the nation indicates a broadening of his self-appointed functions. Why this further assumption of authority? Have the usual federal, state and municipal authorities proved unequal to their duties? It is their specific function to take care of such situations. They are paid for it, and they have men especially trained for it. Has there been a breakdown in these agencies? Has Surgeon-General Blue gone in panic to Colonel Martin and appealed to him to help him out of a situation that the Public Health Service of the United States cannot handle for the country at large? Have the state boards of health and the municipal boards of health come crying to him for help or proved futile, that these new bodies should suddenly step in to assume their task, or show them how to do it, or without invitation to offer to help them do it?

There is no such crisis in the administration of our public health affairs. Even if there were such a crisis, is there any reason to believe that Colonel Martin is especially qualified to take care of the situation? He is not noted as a sanitarian, and the committees he appoints—if the Illinois committee is a sample—are not superior as sanitarians to our present regular officers. On his Illinois committee he interlards between busy practitioners the regular officers who ordinarily have charge of such work.

And one wonders how these officers feel about it. How do the Army and Navy and Public Health Service officers, the municipal and state health officers feel about sitting on these new committees suddenly formed to take over work that is usually up to them to do? I do not know how much open resentment there may be, but I think it would be hard to find a better illustration of mischievous meddling with other men's duties than this, or of actions tending more to confusion in the administration of public affairs and more to the lowering of the spirit of public officials.

If the newspaper publicity given to this action of Colonel Martin's—and the publicity was as great as usual and probably just as expensive—carries any implication to the public mind, it is that the usual authorities for looking after epidemics are unequal to their duty of taking care of this epidemic, and we must have a "god from the machine" come in to do it for them. This act, in fact, like Colonel Martin's attempt to force on the profession his Volunteer Medical Service Corps, is the act of one who apparently feels that he

is a sort of national medical Pooh-Bah. The Medical Departments of the Army and Navy, the Office of the Provost Marshal-General, the Public Health Service, the offices of administration of state and local public health affairs—apparently all of these came within the scope of his functions—at least until the Provost Marshal-General announced last week that "membership in Volunteer Medical Service Corps is not service in the military establishment and does not therefore affect in any way the status of registrants before the Selective Service Boards."

It is a mischievous situation that Colonel Martin is forcing on us. The profession is confused by his actions. He has, I should estimate, sent probably a million letters to the profession under government frank about matters more or less connected with the war. Physicians do not know how authoritative these communications are. He has a way of writing—as he did in the case of his Volunteer Medical Service Corps, telling men to sign—as if he were clothed with federal authority to command, when, as a matter of fact, he is exploiting his own desires and plans; and physicians often do not know how much his communications represent federal authority and how much his own personal activities and views.

I am sure I sense the attitude of the profession when I say that its members are zealous in the highest degree to do all they can now for the public good, to know the wishes of the government in order to try to comply with them; that they accept instantly and without reservation—accept as orders—the communications of the Surgeon-Generals and the Provost Marshal-General. But—speaking now only for the profession of Chicago which I believe I know—a great many of them would prefer to get their orders and their instructions from the Surgeon-Generals of the Army, Navy, the U. S. Public Health Service and the Provost Marshal-General, who surely are competent to issue them.

WILLIAM ALLEN PUSEY, M.D.,
President of the Chicago Medical Society.

AN AUTHOR PROTESTS

To the Editor:—May I not thank you for the complimentary review of my book "Diet and Health with Key to the Calories" and at the same time take issue with your reviewer on the following points? He says: "By its title it assumes to be a parody on the guide of a well known religiomedical cult. This, however, appears only slightly in the text in the form of a few of the side headings." I fear he has missed the point that I have used their terminology throughout and my chapter of testimonies is a model of their literature. Furthermore, the reviewer says that the humor is a little forced. Again I differ with him. It is a great deal more than a little forced. It is very much forced, in fact almost forcibly forced. It has been killed, assassinated, annihilated, and dragged in most any place and any time. I did it purposely. Who reads an ordinary book on dietetics? Even a doctor will read mine!

LULU HUNT PETERS, Los Angeles.

Notification of Ophthalmia Neonatorum.—According to the *Medical Officer*, the local government board for Scotland has issued regulations under the public health act of 1897 for the compulsory notification of ophthalmia neonatorum in Scotland, dating from Nov. 1, 1918. Although no direct arrangement is made by the local government board for treating and following up these cases, it is pointed out that this follow-up work might properly come under the duties assigned to health visitors under the regulations relating to maternity service and child welfare, and that the child welfare grant is available for this purpose. It is therefore hoped by the board that the local authorities will avail themselves of this resource and see that all notified cases of ophthalmia neonatorum receive immediate treatment. The Royal Commission on Venereal Diseases reported that probably 25 per cent. of all cases of blindness are due to ophthalmia neonatorum, and that probably 50 per cent. of all blindness is due to the venereal diseases, syphilis being a prolific cause.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

PRINTING OF HARRISON NARCOTIC REGISTRY NUMBER ON PRESCRIPTION BLANKS

To the Editor:—Some time ago I went to the expense of having 5,000 prescription blanks printed and bound containing my name and address, also my registration number under the Harrison Narcotic Law. My druggist informs me that when writing a narcotic prescription it is necessary for me to append under my signature my registry number, address and date, and that having the number and address printed on them will not comply with the law. Please let me know if he is correct.

Z. S. H., Kentucky.

ANSWER.—In the Harrison Narcotic Law and regulations issued by the Treasury Department as Internal Revenue Regulations No. 35, Section 2 B. it is stated that "such prescription shall be dated as of the date on which signed and shall be signed by the physician, dentist or veterinary surgeon who shall have issued the same." Article 11 of the regulations states that "drugs dispensed or distributed under and in pursuance of a written prescription issued by a physician, dentist, or veterinary surgeon duly registered under the act must show the name and address of the patient, the date, the name and address of the physician, and his registry number. . . . All prescriptions must be dated and signed on the date when issued." It is, therefore, necessary for the physician to write only the date and signature. The name, address and registry number may be printed on the prescription blank.

CALCIUM CHLORID ANTIFREEZE MIXTURE

To the Editor:—In Queries and Minor Notes (THE JOURNAL, Aug. 31, 1918, p. 768), in discussing the use of calcium chlorid solutions to prevent freezing in automobile radiators, you stated incidentally that such solutions have a harmful effect on the radiator, especially on seams and joints. The following amplification of the statement may be of interest to your readers:

At the temperatures in question, calcium chlorid solutions have a decidedly harmful effect on the radiator, not only on the seams and joints, but also on the whole metal surface. The effect is, of course, usually more apparent at the seams and joints. No one who has not studied this effect perhaps realizes the extent of the pitting and corrosion produced. The effect is, of course, produced through the appreciable hydrolysis of the salt in question at the boiling temperature.

Commercial antifreeze mixtures generally contain chiefly or wholly calcium chlorid or some substance as harmful in its effect. The only safe method is to employ an alcohol-water mixture, which is perfectly harmless. The extra trouble involved, through continual evaporation or expense difference, is more than compensated by the saving in possible radiator repairs.

STANLEY L. CHISHOLM, Washington, D. C.
Sergeant, First Class, Chemical Warfare Service, U. S. Army.

WAR BILLS OF PHYSICIANS

The following is a copy of a card sent to his patients by an Indiana physician about to go into military service:

"LIBERTY STATEMENT"

M.....

I am sending you this statement because I am expecting to leave soon and must ask that you call at once and settle your account. It is absolutely necessary that I collect all my outstanding accounts in order that I may meet my own financial obligations and make arrangements for my family during my absence in the Army.

I prefer to settle all accounts personally rather than leave them in the hands of an Agent or Attorney. I will expect to hear from you at an early date.

Respectfully,

.....

SUGAR TREATMENT OF TUBERCULOSIS

To the Editor:—Please give me some information concerning a tuberculosis cure called "Lo Monaco," which is being recommended here by the official Public Health Service. The substance comes in tablets to be dissolved, boiled and injected intramuscularly. I have been unable to get any information about the true nature of this remedy, and do not remember having read anything about it in THE JOURNAL.

M. P. COLMENARES, M.D., Orizaba, Vera Cruz, Mexico.

ANSWER.—A discussion of this subject appears in Queries and Minor Notes, THE JOURNAL, Sept. 28, 1918, p. 1083.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Little Rock, Nov. 12-13. Sec., Regular Bd., Dr. T. J. Stout, Brinkley, Ark.; Sec., Eclectic Bd., Dr. C. E. Laws, 803½ Garrison Ave., Ft. Smith.

CALIFORNIA: Sacramento, Oct. 21-24. Sec., Dr. C. B. Pinkham, Butler Bldg., San Francisco.

CONNECTICUT: New Haven, Nov. 12-13. Sec., Regular Bd., Dr. C. A. Tuttle, 196 York St., New Haven; Sec., Eclectic Bd., Dr. James L. Hair, 730 State St., Bridgeport; Sec., Homeopathic Bd., Dr. E. C. M. Hall, 82 Grand Ave., New Haven.

DISTRICT OF COLUMBIA: Washington, Oct. 8. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

GEORGIA: Atlanta, Oct. 8-9. Sec., Dr. C. T. Nolan, Marietta.

KANSAS: Topeka, Oct. 8-9. Sec., Dr. H. A. Dykes, Lebanon.

MAINE: Portland, Nov. 12-13. Sec., Dr. Frank W. Scarle, 776 Congress St., Portland, Me.

MASSACHUSETTS: Boston, Nov. 12-14. Sec., Dr. Walter P. Bowers, No. 1 Beacon St., Boston, Mass.

MICHIGAN: Lansing, Oct. 8-10. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

NEVADA: Carson City, Nov. 4. Sec., Dr. S. L. Lee, Carson City.

NEW JERSEY: Trenton, Oct. 15. Sec., Dr. Alex. MacAlester, 438 E. State St., Trenton.

NEW MEXICO: Sante Fe, Oct. 14. Sec., W. E. Kaser, East Las Vegas.

OKLAHOMA: Oklahoma City, Oct. 8-9. Sec., Dr. J. J. Williams, Weatherford.

TEXAS: Dallas, Nov. 19-21. Sec., Dr. M. F. Beltencourt, Mart.

UTAH: Salt Lake City, Oct. 7-8. Sec., Dr. G. F. Harding, 405 Templeton Bldg., Salt Lake City.

WEST VIRGINIA: Charleston, Nov. 19-21. Sec., Dr. S. L. Jepson, Masonic Bldg., Charleston.

Utah April Examination

Dr. G. F. Harding, corresponding secretary of the Utah State Board of Medical Examiners, reports the written examination held at Salt Lake City, April 2-3, 1918. The examination covered 19 subjects and included 100 questions. An average of 75 per cent. was required to pass. Four candidates were examined, all of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	No. Licensed
Chicago College of Medicine and Surgery	(1917)	1
Western Reserve University	(1917)	1
Jefferson Medical College	(1917)	1
University of Pennsylvania	(1917)	1

Dr. Harding also reports that 2 candidates were licensed through reciprocity at the meeting held, April 5, 1918. The following colleges were represented:

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
University of Louisville	(1916)	Kentucky
Vanderbilt University	(1913)	New York

Maryland June Examination

Dr. J. McP. Scott, secretary of the Board of Medical Examiners of Maryland, reports the written examination held at Baltimore, June 18-22, 1918. The examination covered 9 subjects and included 90 questions. An average of 75 per cent. was required to pass. Of 56 candidates examined, 51 passed and 5 failed. Eighteen candidates were licensed through reciprocity and one was granted a reregistration license. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Howard University	(1917) 80; (1918) 76, 91, 92.		
Indiana University	.....	(1917)	84
Johns Hopkins University	(1914) 87; (1915) 90; (1917) 80, 82, 83, 84, 85, 86, 91; (1918) 80, 83, 84, 84, 85, 86, 87, 87, 88, 88, 88, 89, 89, 90, 91, 92, 92, 94.		
Maryland Medical College	.....	(1904) 84; (1912)	83
University of Maryland	(1916) 76, 82; (1917) 79; (1918) 75, 77, 78, 85, 85, 86, 87, 88, 91.		
New York Homeo. Med. College and Flower Hospital	(1918)		80
Hahnemann Med. College of Philadelphia	.....	(1918)	85
Meharry Medical College	.....	(1918)	92

College	FAILED	Year Grad.	Per Cent.
Howard University	(1918)	74
Johns Hopkins University	(1918)	71
Maryland Medical College	(1913)	*
Meharry Medical College	(1916)	65, *

*No grade given.

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Columbian University	(1904)	Louisiana
Georgetown University	(1895)	W. Virginia

Atlanta Medical College	(1914)	Virginia
Bennett College of Eclectic Medicine and Surgery...	(1886)	Illinois
Chicago College of Medicine and Surgery.....	(1914)	Missouri
Baltimore Medical College	(1908) (1913)	W. Virginia
College of Physicians and Surgeons, Baltimore.....	(1885)	Colorado
Johns Hopkins University	(1914)	Virginia
Maryland Medical College.....	(1912)	Penna.
University of Maryland	(1915)	Virginia
Marion-Sims College of Medicine.....	(1897)	N. Carolina
Medical College of Virginia.....	(1900) (1910)	Missouri
.....	(1911)	Virginia
University of Munich	(1900)	S. Carolina
		Dist. Colum.

Michigan June Examination

Dr. B. D. Harison, secretary of the Michigan State Board of Registration in Medicine, reports the written examination held at Ann Arbor, June 11-13, 1918. The examination covered 14 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of 76 candidates examined, 75 passed and 1 failed. Twenty-nine candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Johns Hopkins University	(1918)		85.8
Detroit College of Medicine and Surgery (1918)	79.9, 80.9, 81.2, 84.1, 84.6, 85.6, 86.9, 87.5, 89.1, 89.2, 89.3, 89.3.		
University of Michigan Homeo. Med. Sch. (1918)	82.2, 82.7, 83.1, 83.2, 84.1, 84.6, 85.6, 86.9, 87.5, 89.1, 89.2, 89.3, 89.3.		
University of Michigan Medical School (1918)	78.8, 80.7, 81.2, 81.3, 81.4, 81.7, 81.9, 81.9, 82, 82.1, 82.2, 83.1, 83.1, 83.2, 83.3, 83.8, 83.9, 84.1, 84.1, 84.1, 84.4, 84.6, 84.8, 84.9, 85, 85, 85.1, 85.1, 85.2, 85.2, 85.3, 85.4, 85.4, 85.5, 85.5, 85.5, 85.7, 86, 86.2, 86.3, 86.4, 86.5, 86.6, 86.8, 86.8, 86.9, 87.2, 87.4, 87.8, 87.9, 88, 88, 88.3, 88.4, 88.8, 89, 89.4.		
Columbia University	(1918)		86.1
	FAILED		
University of Michigan Medical School	(1918)		*

College	LICENSED THROUGH RECIPROCITY FROM JAN. 31 TO AUG. 22, 1918	Year Grad.	Reciprocity with
University of Colorado	(1913)		Colorado
George Washington University	(1907)		Dist. Colum.
Bennett Coll. of Ecl. Med. and Surg. (1886)	Texas; (1894)		Illinois
Coll. of Phys. and Surgs., Chicago (1906)	Indiana; (1909)		Illinois
Northwestern University	(1908)		Nebraska
Rush Medical College	(1915) (1917)		Illinois
University of Illinois	(1906) (1912) (1916)		Illinois
Indiana University	(1917)		Indiana
Kentucky School of Medicine.....	(1905)		Kentucky
Kentucky University	(1900)		Kentucky
Louisville and Hospital Medical College	(1908)		W. Virginia
Louisville Medical College.....	(1905)		Kentucky
University of Louisville	(1908) (1916)		Indiana
Johns Hopkins University	(1899) Illinois; (1917)		Kentucky
University of Michigan Medical School.....	(1897) (1900)		Maryland
Medical College of Ohio	(1895)		Ohio
University of Pennsylvania	(1913)		Penna.
Woman's Medical College of Pennsylvania	(1895)		Dist. Colum.
Vanderbilt University	(1901)		Penna.
University of St. Joseph, Beirut, Syria.....	(1903)		Tennessee

Wisconsin June Examination

Dr. J. M. Dodd, secretary of the Wisconsin State Board of Medical Examiners, reports the oral, practical and written examination held at Milwaukee, June 25-27, 1918. The examination covered 12 subjects and included 105 questions. An average of 75 per cent. was required to pass. Of the 25 candidates examined, 24, including 2 osteopaths, passed and 1 failed. Four candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
George Washington University	(1916)		88.7
Chicago College of Med. and Surg. ..	(1915) 75, 77.6; (1916)		77.4
Northwestern University	(1918)		81.4
Rush Medical College (1916)	93.5; (1918)* 87, 89.5, 92.		
University of Illinois	(1917)		90.3
Baltimore University	(1903)		75.5
University of Michigan Medical School	(1898)		86.2
Washington University	(1918)		87.5
Jefferson Medical College	(1918)		82.4
Marquette University (1918)	79.6, 82.2, 82.5, 84, 84.1, 85.7, 90.5.		
National University, Athens	(1912)		75.8
	FAILED		
Meharry Medical College	(1917)		66.4
College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
American Medical Missionary College.....	(1901)		Illinois
Chicago Physiomedical Institute	(1887)		Illinois
Rush Medical College	(1897)		Minnesota
Tufts College Medical School	(1904)		Michigan

*Degrees for these three candidates withheld pending completion of hospital internship.

Book Notices

BIOCHEMICAL CATALYSTS IN LIFE AND INDUSTRY. Proteolytic Enzymes. By Jean Effront, Professor in the New University and Director of the Institute of Fermentations of Brussels. Translated by Samuel C. Prescott, Professor of Industrial Microbiology, Massachusetts Institute of Technology, assisted by Charles S. Venable. Cloth. Price, \$5. Pp. 752. New York: John Wiley & Sons, 1917.

This is a discussion of biochemical catalysts or enzymes for nitrogenous substances only. Though the greater part of the text deals with the enzymes for protein substances as found in the digestive secretions of the animal body, the proteases of animal and plant tissues and bacteria are likewise considered. A sixth of the book deals with the coagulating enzymes (thrombin, myosinase and rennet). The greater part discusses pepsin, the various trypsin and erepsins, and the amidases. One hundred and seventy-five pages are devoted to the use of the various enzymes in bread making, brewing, distilling, the manufacture of cheese, tanning, and in agriculture. The distribution, methods of preparation and mode of action of the various enzymes under different experimental conditions are fully and accurately considered. The excellence of the book on that score can hardly be questioned. It is gratifying, furthermore, to have at hand a ready reference book of small size in which the practical usefulness of the nitrogenous enzymes to industry is adequately considered. The parts of the book dealing with the mechanism of secretion of gastric and pancreatic juice are disappointing. Following Pawlow and his pupils, the author takes the view that the fasting stomach contains "very little juice normally." As a result of this erroneous conception, the importance of psychic or appetitic (nervous) juice is greatly overestimated. Gastric secretin or gastrin receives no mention. The physician will certainly find the parts of the book dealing with mechanical physiology quite fragmentary. It is to be regretted that the author did not incorporate the results of American research on sundry questions relating to the activity of the digestive glands. Although the study of the coagulation of the blood has been made the subject of a particularly important chapter "benefiting from recent acquisitions," not a single reference is made to the careful and interesting work of the American physiologist, Howell. The preliminary work of Howell's pupil, Rettger, is mentioned, but his publication is cited in the bibliography with a German title, although it is published in English. The important work of Howell himself (and his pupils) contained in ten or twelve original papers is not even alluded to.

CHEMISTRY OF FOOD AND NUTRITION. By Henry C. Sherman, Ph.D., Professor in Columbia University. Second edition. Cloth. Price, \$2. Pp. 454, with 16 illustrations. New York: The Macmillan Company, 1918.

In the presentation of his theme the author discusses first the chemical nature and the nutritive functions of the substances that serve as sources of energy in nutrition; then the nutritive requirements in terms of energy; protein; the more prominent inorganic elements and the vitamins, and finally the bearing of the various factors of food value on the problems connected with the economic use of food. Such is the scope of a work that has deservedly reached a second edition and will in the years to come reach many more because of its logical and simple style, its accuracy, and its delightful presentation. Every physician who wishes to inform himself in a general way of the present status of our knowledge of the nutrition of man will find the book a short but invaluable and reliable text giving all essential facts. The excellent bibliography makes it readily possible to obtain information in greater detail on any desired topic. Whereas, most of the facts concerning the nutritional importance of proteins, carbohydrates and fats are found in other texts, the latter are woefully deficient in a discussion of the inorganic foodstuffs and in mineral metabolism (chlorin, sulphur, phosphorus, sodium, potassium, calcium, magnesium and iron). We know of no other book of moderate size that deals so thoroughly with these essentials to nutrition. Approximately 176 pages are devoted to the inorganic foodstuffs, and justly so; for, as the author reminds us ten of the fifteen elements,

or seven of the twelve that are essential in amounts sufficiently large to be measurable by present methods, must be furnished by some ingredients of the intake other than the simple proteins, carbohydrates and fats. In this discussion the element iodine is undeservedly slighted. The American physician will note with pride that the significant advances in metabolism and nutrition during the last decade or more have for the most part been made by American investigators. The book embodies the important results in this field of Lusk, Atwater, F. G. Benedict, Osborne, Mendel, Van Slyke, Folin, Hart, McCollum, Chittenden, Du Bois, Forbes and Sherman himself. There is no excuse for any physician to remain unfamiliar with the important and interesting work of these men, when their work is presented comprehensively and yet most interestingly in a volume of moderate size and small cost.

THE HODGEN WIRE CRADLE EXTENSION SUSPENSION SPLINT. The Exemplification of This Splint with Other Helpful Appliances in the Treatment of Fractures and Wounds of the Extremities and Its Application in Both Civil and War Practice. By Frank G. Nifong, M.D., F.A.C.S. With an introduction by Harvey G. Mudd, M.D., F.A.C.S. Cloth. Price, \$3. Pp. 162, with 124 illustrations. St. Louis: C. V. Mosby Company, 1918.

This book describes the methods of application and uses of the Hodgen extension and suspension splint. This splint, it is pointed out in the historical introduction, was described by Professor Hodge at the time of the Civil War as a modification of the Nathan R. Smith anterior splint for fractures of the thigh. The author discusses the general mechanism of fractures of the femur, splints for immobility and extension, splints for immobility and suspension, splints for immobility, extension and suspension, and the Hodgen extension suspension splint. The final chapter is devoted to the use of accessory appliances. It is a practical little book.

A TEXT-BOOK OF ELEMENTARY MILITARY HYGIENE AND SANITATION. By Frank R. Keefer, A.M., M.D., Colonel, Medical Corps, United States Army. Second edition. Cloth. Price, \$1.75 net. Pp. 340, with illustrations. Philadelphia: W. B. Saunders Company, 1918.

Colonel Keefer's textbook was prepared primarily for the instruction of cadets at the United States Military Academy at West Point, and is adapted chiefly for the uses of the officer of the line rather than for the medical officer. Since the first edition was issued in 1914, the new type of warfare has necessitated considerable changes in this book, particularly the problems of trench sanitation. These problems are considered in a special chapter. The book is brief yet complete, and written in plain language so as to be readily understood by any man qualified to hold the rank of officer in our army.

MILITARY SURGERY OF THE ZONE OF THE ADVANCE. By George de Tarnowsky, M.D., F.A.C.S., Major, M. C., U. S. R. Leather. Price, \$1.50. Pp. 330, with illustrations. Medical War Manual No. 7. Philadelphia: Lea & Febiger, 1918.

The author's foreword modestly states that this is not a textbook on military surgery, but a vade mecum on the treatment of war wounds. But the difference between this and a textbook is that theories and nonessentials are here omitted, and that essentials are concisely presented. It is a practical, complete handbook for the Army surgeon on the transportation and management of the wounded and the methods of treatment that have been tried out and found satisfactory in the Allied armies during the four years of the war. It is based on personal observation by the author on the French, British and Italian fronts; hence it is up to date and represents the methods and procedures of today.

The first six chapters are devoted to a general description of the terrain of the French and British zone of advance, including description of first-aid station, transportation equipment, regimental-aid station, field hospital, etc. In separate chapters are described the bacteriology of war wounds, traumatic shock, tetanus, gas bacillus gangrene, spinal injuries, burns, gas poisoning, the Carrel-Dakin technic; wounds of the face and neck, of the thorax, of the abdomen, of the bladder and external genitalia, of peripheral nerves, of soft tissues. In fact, the whole field of surgery, so far as it might be met in war work, is covered. While condensation and

conciseness in statements evidently have governed the author, at the same time, this has not hindered the giving of the necessary details for a clear understanding of the subject discussed. The purpose has been to have a large amount of material in a small space; hence the page is full—there is no padding, no waste margin at the top, bottom or sides, and no leading. The book is printed on thin paper, and while it contains 330 pages it can easily be carried in the pocket.

Medicolegal

Husband Liable for Medical Services Only Not Shown Bound by Payment

(*Vaughan v. Mansfield (Mass.)*, 118 N. E. R. 652)

The Supreme Judicial Court of Massachusetts, in sustaining exceptions to a verdict for the plaintiff, says that it was not in dispute that the medical services for which the plaintiff sought compensation were required by, and were rendered to, the wife and minor child of the defendant as claimed. The evidence warranted a finding that the defendant had seen the plaintiff at the defendant's house and that he knew the visits there were made by the plaintiff, as a physician, in response to calls from the wife of the defendant. There was also evidence that the plaintiff had sent bills from time to time to the defendant's residence, through the mail. There was no evidence that the defendant ever had forbidden the plaintiff to render, or the wife or child in the presence of the plaintiff to receive, the services of the plaintiff, on his account. It followed that a charge in this regard to the jury was sufficiently favorable to the defendant, which was that "a husband is required to furnish the necessities to his wife and minor child, and he is liable for the necessities furnished to his wife and child when they live with him, and if the plaintiff's services were necessary to the defendant's wife and minor child, the defendant would be liable for their reasonable cost." And this disposed of the exception of the defendant to a refusal to rule that "the defendant was not liable to the plaintiff for this bill, even if it was for necessities furnished to his wife and minor child, unless the defendant refused or failed or neglected to furnish them himself."

Under these circumstances the presumption of the agency of the wife, which is inferred from her relation to her husband as manager of the household, to pledge her husband's credit for medical services that are reasonably necessary for her or the family, was not rebutted by proof that the defendant privately had instructed his wife never to run any bills, and had given her money from time to time to pay all expenses when she told him she needed it.

But, in answer to the defense that the action was barred by the statute of limitations, the plaintiff merely testified that "he had received a payment of five dollars" on account in July, 1908. He offered no evidence to prove that the payment was made by the defendant, by the wife of the defendant, or by any one who had authority to act for the defendant. The court is of the opinion that this testimony went no farther than proof of payment by a stranger, and was insufficient as evidence for a jury to find an acknowledgement on the part of the defendant of a subsisting liability; and the court thinks that the jury should have been so instructed.

What Is an "Accident" or "Accidental"

(*Lickleider v. Iowa State Traveling Men's Association (Ia.)*, 166 N. W. R. 363)

The Supreme Court of Iowa says that one thing at least is well settled: The words "accident" and "accidental" have never acquired any technical meaning in law, and when used in an insurance contract they are to be construed and considered according to the common speech and common usage of people generally. Hundreds of attempts have been made by the courts to define these words in other terms, and while some of them may be regarded helpful so far as they adhere to popular usage, others have served only to confuse the situation, if not in fact grossly to mislead. Certain it is

that no attempt in this direction is in any respect an improvement on the definition found in our standard lexicons. It is an event from an unknown cause or an unexpected event from a known cause; a thing done or disaster caused without design or intention; an unusual and unexpected result attending the performance of a usual or necessary act.

There is, however, another alleged definition which has had a degree of judicial sanction which ought not to be passed without notice. According to this definition, an injury happening to an insured person through his own voluntary act is not an accident, nor is his hurt to be attributed to accidental means—a proposition that is wholly at variance with every statement of the true rule. It may be, and it is true, that if the insured does a voluntary act, the natural, usual and to be expected result of which is to bring injury on himself, then a death so occurring is not an accident in any sense of the word, legal or colloquial, and it is only when thus limited that the rule so stated has any proper application. It makes no difference whether the injured man or some other person voluntarily sets in motion the first of a series of events which in connected line of causation results in his injury or death. If the resulting injury and violence to him "unexpectedly took place," or was "an unexpected result from a known cause," or was produced "without design or intention," or was "an unusual and unexpected result attending the performance of a usual or necessary act," or was an "event happening without the concurrence of the will of the person by whose agency it was caused," or if it was "caused or produced without design," it falls directly within the letter and spirit of the definition that has been placed on the words by the most competent lexicographers as well as by our most eminent jurists who have given the matter attention.

In this case a holder of a policy or certificate of accident insurance issued by the defendant, in attempting to remove an automobile tire which for some reason resisted his efforts, knelt on one knee, took hold of the casing with both hands, pulling and jerking at it for some time, when it came off with a snap and such suddenness as to cause him to slip or stagger back with the tire in his hands. He immediately turned pale, complained of being very ill, put his hand to his head, and lay down on the ground. Help was called, but he died about an hour later. A postmortem examination was made of the body by three physicians, who found that the immediate cause of death was a blood clot in the right coronary artery near the heart. Two of the physicians attributed the death to arteriosclerosis, while the third found no more arteriosclerosis than is usual with a man of such size and age. The court holds that a case was made on which the plaintiff was entitled to go to the jury, and that it was error to direct a verdict for the defendant. If the arteries of the insured were sclerotic, but the sclerosis was only such as is the natural or usual accompaniment of increasing years, the fact, if it was a fact, that a bodily injury sustained by him would more likely be fatal than would be the case if such condition did not exist would not prevent a recovery on the policy should it otherwise appear that the injury was of the nature or kind described in the contract.

Liability for Malpractice in Performing an Illegal Operation (*Lembo v. Donnell (Maine), 103 Atl. R. 11*)

The Supreme Judicial Court of Maine, in overruling exceptions to a ruling that overruled a general demurrer filed by the defendant, says that this was what is termed an action on the case brought to recover damages against the defendant, a physician, for malpractice while performing an operation to procure an abortion on the plaintiff, and for unskilled treatment subsequent to the operation. The basis of the defendant's exceptions lay in his position that as the plaintiff consented to the operation she could not recover damages because the operation was an illegal one. In a similar case, *Miller v. Bayer*, 94 Wis. 123, 68 N. W. 869, the court said:

It is further contended that plaintiff cannot recover, because she submitted to the operation performed on her. Such is not the law. Consent by one person to allow another to perform an unlawful act on such person does not constitute a defense to an action to recover the actual damages which such person thereby received.

This court agrees that this statement of the law is correct.

Society Proceedings

COMING MEETINGS

American Association of Railway Surgeons, Chicago, Oct. 16-18.
American Public Health Association, Chicago, Oct. 14-17.
Assn. for S. & P. of Inf. Mort., Asheville, N. C., Nov. 11-14, 1918.
Delaware State Medical Society, Wilmington, Oct. 8.
Southern Medical Association, Asheville, N. C., Nov. 11-14, 1918.
Vermont State Medical Society, Burlington, Oct. 10-11.
Virginia State Medical Society, Richmond, Oct. 22-25.

KENTUCKY STATE MEDICAL ASSOCIATION

Sixty-Eighth Annual Meeting, held at Louisville, Sept. 4-6, 1918

The President, DR. J. S. LOCK, Maysville, in the Chair

Diagnosis of Gastric and Duodenal Ulcer

DR. J. A. SWEENEY, Louisville: Other and older methods must not be discarded for the roentgen ray although it is of great value in demonstrating the size, location, and character of the ulcerations.

The operator with the greatest experience in stomach surgery and surgical pathology, is more likely to interpret correctly that which he encounters in the gastric area, than one who has had less experience, which, no doubt, accounts for the very large number of ulcers diagnosed by some surgeons, as compared to others, and the varying statistics as to the frequency of the ulcer.

DISCUSSION

DR. C. W. DOWDEN, Louisville: There is only one method by which gastric and duodenal ulcer can be diagnosed positively, and that is roentgenography. There are absolutely no symptoms that might be referred to a gastric or duodenal ulcer that cannot come from disease of the pancreas, the gallbladder, or even the appendix. While I may diagnose pyloric obstruction, I always reserve the right to say that the trouble may be due to an ulcer, to disease of the gallbladder or appendix. In a number of instances pyloric obstruction may be present with little defect of the pylorus or duodenum, and at operation no ulcer is found; but there is a diseased gallbladder with or without stones, or possibly dense adhesions which disturb the normal contour of the duodenum, and which present difficulties in diagnosis.

SYMPOSIUM ON CHRONIC INTERSTITIAL NEPHRITIS

Etiology

DR. F. H. CLARKE, Lexington: I believe clinicians agree with Rosenstein that in the great majority of cases of primary chronic interstitial nephritis, the genuine contracted kidney, the cause is unknown. Heredity and age doubtless play a prominent part. There is considerable evidence of an hereditary tendency or susceptibility to kidney disease. I have noticed this in my own experience. It is generally conceded that the active cause or causes of chronic nephritis are in the blood; that the blood contains the toxic material which may produce the morbid changes in the kidneys. Probably the same toxic agents, when present in the blood in large quantities, may produce a rapid and severe toxemia which terminates in an acute inflammation. When present in less quantity and acting slowly these toxins may bring about a chronic nephritis without the acute stage. Aside from its hereditary influence, syphilis does not often have an active part in causing contracted kidney directly. Its influence in causing arteriosclerosis makes it prominent in the related type of nephritis, but the other forms are rarely directly produced by it. Gout is said to be a common cause of chronic nephritis, and English physicians put special stress on it as a cause of chronic interstitial nephritis.

Cardiovascular Changes

DR. B. C. FRAZIER, Louisville: Often cardiovascular changes are not observed for a long time after the onset

of persistent albuminuria. It is of special importance in cases of chronic or even acute albuminuria to look for vascular changes, especially in the middle-aged and elderly, and noting the blood pressure. From a diagnostic point, cardiovascular changes in nephritis are of as much importance as the study of the urine. It is very difficult, especially in the late stages of chronic interstitial nephritis, to decide whether it is primarily a heart or a kidney case. Increase of heart size varies. At first there may be only enlargement of the left ventricle mainly with apex displacement downward and to the left. Later, there is often enlargement of the right ventricle, with the apex impulse diffused and heaving. In more advanced cases, a presystolic murmur is often present. The peripheral vessels are hard and tortuous. A tortuous and plainly visible temporal artery is good evidence of underlying renal disease.

Many of the phenomena of chronic interstitial nephritis are explained by uremia. These toxic symptoms may be mild and of long standing, or they may be of sudden onset, the severe headache and convulsion coming without warning, frequently followed by fatal coma, an acute uremia. Inspection is frequently all that is needed to make one suspect malignancy or a chronic and rapidly developing nephritis with vascular changes.

Symptom Complex

DR. R. HAYES DAVIS, Louisville: In the early part of the disease the only changes noted are an increase in blood pressure and hypertrophy of the heart, involving only the left ventricle at first. The extent of these changes is variable. The blood pressure may be nearly normal or only slightly elevated or it may be quite high, and the heart shows hypertrophy varying from only a slight enlargement with an increase of the first sound and a slight accentuation of the aortic sound to an actual ox-heart. As the disease advances these changes gradually become more marked, and if the patient is destined to progress along the cardiac route, he will sooner or later develop the symptoms of dilatation which occur as a result of an overworked heart muscle degenerated on account of coronary sclerosis and fatigued from its efforts to force the blood through inelastic arteries against a high blood pressure, or handicapped by diseased valves. The symptoms of dilatation progress from slight irregularities, and dyspnea on exertion with dizziness and digestive disturbances, etc., to the extreme forms of cardiac failure with marked dyspnea, weak heart, edema, and all the other distressing symptoms. Uremia may manifest itself as a chronic form of intoxication or as an acute overwhelming toxemia. The so-called chronic forms of uremia are most common. Perhaps, the most frequent symptom is headache. This may be slight or very intense, in some cases resembling migraine. Chronic headaches beginning in individuals past middle life, or migraine attacks that grow worse instead of better, should be looked on with suspicion. Digestive disturbances are frequent. Vomiting may be typically centric in origin and may resemble the vomiting of brain tumor. Various forms of transient paralyses often occur, involving the face, the tongue or one or more extremities. They are usually of very short duration.

Laboratory Findings and Their Value

DR. C. W. DOWDEN, Louisville: Fluid retention (persistent), with nocturia and fixation of specific gravity offers the simplest and most trustworthy evidence of potential nephritis and its correction will prevent actual disease. Nephritis is manifested further by (a) an increase in the constant Ambard or the index of McLean; (b) retention of nitrogenous products in the blood, first of uric acid, second of urea, and third of creatinin, as the process progresses; (c) a low excretion of phenolsulphonephthalein, generally, or excretion above 80 per cent. with other evidences; (d) hypertension, in the interstitial type particularly until the myocardium fails. Diagnosis is possible in 100 per cent. of cases if all these methods are employed. Prognosis of death in two months is possible in 100 per cent. of cases with creatinin retention of 5 mg. or more per hundred c.c. of blood.

Cardiovascular Changes; Medical Management

DR. J. A. FLEXNER, Louisville: The origin of the vascular, cardiac and renal changes which mark the earliest stages of this condition lies in some infectious process, either acute or chronic. The kidneys are the great excretory organs for the chemico-toxic products which result from the bacterial destruction of tissues as the result of infectious processes; there is scarcely an infection of any severity which does not have an albuminuria and other evidences of destructive processes in the kidney accompanying it. These toxic substances are carried to these organs by the blood stream, hence we can understand the damage done to the vessels, and especially the renal vessels by reason of the concentration of the poisons in the kidney. In the management of these cases elimination of infectious processes is the first step in treatment. Conserve the reserves of function left in these organs, so that no organ will be overstrained or given a load to carry for which it has been rendered unfit. By living well within their physiologic resources many of these patients may have long and useful lives.

DISCUSSION ON SYMPOSIUM ON NEPHRITIS

DR. FRANK W. FLEISCHAKER, Louisville: Physicians speak of chronic parenchymatous nephritis and chronic interstitial nephritis, but the pathologist says we are dealing with a large, white kidney, or a secondarily contracted kidney, or with a gouty kidney or an arteriosclerotic kidney, or a senile kidney. But that makes little difference if we know what we mean by chronic interstitial nephritis in contradistinction to chronic parenchymatous nephritis. That is all that is necessary. We understand the production of it. When we think of chronic interstitial nephritis we at the same time think of cardiac changes. It is not of much moment whether the pathology of the heart or the pathology of the kidney is primary. They seem to go hand in hand and physicians speak of these cases as cardiorenal.

As to the prognosis and treatment, it does not make much difference whether one or the other originated first; we take the symptoms as they come for the treatment.

DR. C. I. SHERMAN, Millwood: Suppose the specific gravity of a certain urine is 1.010; we examine the urine again and find it still 1.010, and so on for a number of times. Then, suppose we increase the proteids and decrease the liquids but the specific gravity still remains 1.010. That kidney may be able to excrete a certain amount of urine if you take away the liquids and increase the solids. I think that is what the essayist means by a fixed specific gravity. That is one of the early symptoms. We all ought to employ the phenolsulphonephthalein test.

DR. JOHN R. MORRISON, Louisville: We know that infectious diseases are often the foundation for nephritis. We should also consider focal infection that comes from the teeth, the tonsils, the sinuses and the prostate. The prostate is often overlooked. It may be the source of infection and the cause of back pressure on the kidneys. In such cases, when the back pressure on the kidneys has been relieved, the symptoms of chronic interstitial nephritis often clear up.

DR. C. W. DOWDEN: Dr. Sherman misunderstood me in regard to the question of fluid retention being one of the early signs of nephritis. As a matter of fact, in interstitial nephritis or compensated nephritis, the output of fluid is in excess of the intake because, owing to lack of concentrative power, nature calls on the kidney for a greater output to make up the deficiency. In the later stages of interstitial nephritis and nephritis, when the burden of the kidney is transferred to the heart and myocardium, parenchymatous nephritis and retention of all nitrogenous products appear. This means myocardial failure. Low specific gravity means that the kidney is doing its work all right in interstitial nephritis, but fixation of a high specific gravity means a congested kidney, or in the later stages when the myocardium fails it is of doubtful significance.

Focal Infection from a Dental Standpoint

DR. RAYMOND GRANT, Louisville: I cannot condemn too emphatically the practice of physicians who advise patients

to have all their teeth removed, simply because it is recognized that some of them may have to be sacrificed. Where there is a focus of infection in any of the anterior teeth, it is possible to effect a cure in a great majority of instances either by the therapeutic action of drugs or by surgical procedures.

Hyperthyroidism: A Clinical Study

DR. W. F. BOGGESE, Louisville: Close watching and careful analysis of a large number of persistent tachycardias, without any perceptible increase in the size of the thyroid gland, but with persistent disturbances of metabolism, loss of strength, increased nervousness, will unearth a large number of unsuspected atypical hyperthyroidisms with the cardiovascular symptoms remaining in the ascendency. The treatment of the thyrotoxicosis is not the treatment of the heart or any one distressing symptom, but the treatment of the condition in its entirety. Find the focal infection, if it exists, and remove it.

After thorough study and diagnosis of these atypical cases, the results of medical treatment are very favorable. From 70 to 90 per cent. of the patients can be relieved and cured. I do not desire to minimize in the slightest, the wonderful results of surgery, and the necessity of surgery in many cases of exophthalmic goiter, but I do want to emphasize the fact that these cases should be recognized early, and that proper treatment should be instituted early, and the patients prevented from coming to the surgical stage. Do not postpone surgical intervention until the general musculature, as well as the cardiac muscle, has been degenerated to such a point that even surgery fails.

Uterine Prolapse with Cystocele

DR. JOHN R. WATHEN, Louisville: The Watkins operation of interposition of the bladder, consists of placing the bladder so that it rests on the posterior surface of the uterus, and the uterus is fixed to the anterior vaginal wall, acting as a buffer against any descent of the bladder. The uterus is fixed in a position from which it can never retrovert or markedly descend or prolapse; for retroversion is the first step in the development of a marked ptosis or prolapse of the uterus. The best results from this operation are obtained in cases where there is a firm uterus of average size. The brilliant results obtained from this operation cause me to feel that the general practitioners and the surgeon should have a better appreciation of its possibilities and merits.

DISCUSSION

DR. W. BARROW, Lexington: I have had experience with this operation in over forty cases, twenty-three of which were my own, and of that twenty-three there was a cure effected in twenty-one. In one of the cases I operated a second time and found tuberculous peritonitis. I suppose that is the reason why the uterus did not hold. There are two or three things about the operation that are important. First, complete separation of the bladder. If you separate the bladder incompletely you will have little pockets that are adherent to the uterus when you attempt to operate through the abdomen, and these will cause a marked cystitis which it is difficult to cure. It is necessary to curet the uterus. These uteri are usually large and subinvolved, practically always retroverted, and curettement stimulates the return of the uterus to the natural size. I think it is also necessary to amputate the cervix even though it is short.

Hemorrhage in the Common Nose and Throat Operations

DR. S. G. DABNEY, Louisville: The fear of hemorrhage need very rarely deter us from operating about the nose and throat. In plethoric adults, especially those of short neck and heavy build, it is well to give the chlorid or lactate of calcium a few days before operating. If this is not practicable, a half grain of emetin given hypodermically or pituitary extract may be administered just before the operation. In all cases it is wise to see that the patient is free from any recent acute inflammation, is in good condition and that the bowels are open. To obtain the full effect of epinephrin and cocain in the nose, a pledget of cotton soaked in these solu-

tions should be left in situ for from half an hour to an hour. Nasal plugging is undesirable, and except for temporary purposes while operating under general anesthesia, it is not often necessary. When plugging is done, the packs, and especially the posterior ones, should never be left in place more than twenty-four hours. Of the internal measures to control nose and throat hemorrhage, morphin and atropin are among the most valuable drugs. If a spurting vessel is seen after a tonsil operation, it should be caught in the artery forceps, and, if necessary, torsion practiced. Ligation is rarely called for. If the hemorrhage comes from persistent oozing, as observed after retracting the anterior pillar and carefully examining the fossa, pressure either with the gauze on the forefinger or by means of a sponge, will usually arrest it. A hot sponge may be more valuable and especially one dipped in a hot solution of calcium chlorid or a 5 per cent. solution of gelatin in normal saline. If the hemorrhage is severe, sewing the anterior and posterior pillars together, possibly with a little piece of gauze between them, may be called for. Postoperative hemorrhage is often manifested by the vomiting of blood. When the blood appears fresh and red it would indicate that the bleeding is still going on, but it is well to remember that vomited blood seems far more than it is and the pallor and exhaustion may be due to nausea. In rare instances, it may be necessary to return the patient to the operating room and under general anesthesia search for the bleeding spot and use some of the surgical procedures mentioned, giving at the same time, if very urgent, a subcutaneous injection of epinephrin in normal saline and remembering that cases are reported where ligation of the carotid has been called for.

DISCUSSION

DR. W. B. McCLURE, Lexington: No operation should be done on the throat following an acute inflammation of this region. The only fatality I have any knowledge of followed a tonsillectomy in which there was an acute inflammation of the tonsils. These hemorrhages are frequently due to the fact that in the operation we wound the pillars and thus produced a bleeding surface. In my own experience in tonsillar work I have never yet had to return a patient to the operating room for a second anesthesia, and I have rarely met with cases in which the bleeding was not controlled by pressure.

DR. J. G. CARPENTER, Stanford: These hemorrhages generally occur in the hyperplastic tonsil, unless the patient is a bleeder. By compression with forceps and a little torsion or ligation you can control the hemorrhage. In addition to tannic acid and gallic acid, you will find antipyrin, 15 grains to the ounce, a wonderful local hemostatic in tonsillar, throat and nasal surgery.

DR. M. F. COOMBS, Louisville: No menstruating woman should be operated on; we should wait until the period is over, at least ten days, before operating. A most excellent hemostatic is hot alum water.

DR. COWLEY, Berea: Local anesthesia for tonsil work has taken away almost all the terrors of hemorrhage for me. I have not had a case of hemorrhage since I have used local anesthesia, and I have done two operations on children 7 years of age under local anesthesia. A local anesthetic gives one a chance to see what he is doing.

Traumatic Injuries of the Chest

DR. W. L. GAMBILL, Jenkins: The treatment is expectant unless infection, hemorrhage or respiratory embarrassment threaten life. The patient should be placed in a position of greatest comfort and ease of respiration. Shock should be treated by heat, stimulants, pituitary extract, epinephrin and, if severe, by intravenous salines or hypodermoclysis. In case of injury to the pleura or lung, adhesive plaster strapping affords marked relief. Aspiration may be necessary in pneumothorax or hemothorax if respiration is seriously embarrassed. Should empyema develop, thoracotomy and drainage must be instituted.

Aside from contusions, wounds of the chest may be of all types, and are inflicted by blunt objects, machinery accidents,

explosions, knives, bullets, glass, spikes, nails, swordlike pieces of timber in saw mill accidents, and the bits of mine machines. Nonpenetrating wounds are not particularly grave. Hemorrhage is generally slight unless an intercostal, the internal mammary or a branch from the axilla is severed. Of course, they, as other wounds of the body, are subject to the dangers of infection. Muscles may be severed and nerves, especially the anterior and posterior thoracic, causing a paralysis of serratus and pectoral muscles. These should be sutured immediately.

The treatment is the same as in wounds of other parts of the body, control of hemorrhage, disinfection by iodine, removal of foreign bodies, sutures, if necessary, and drainage. Penetrating wounds of the chest may be of the most varying character, from the slightest perforation to the most severe lacerations by machinery. Their gravity depends on, first, the amount of hemorrhage, and, second, on the amount of air and especially of any foreign or septic material introduced. Penetrating injury of the heart demanding surgical treatment is most often the result of stab wounds.

Drainage in Surgery of the Chest

DR. GEORGE A. HENDON, Louisville: The means adopted for the accomplishment of drainage in a general way are careful hemostasis, accurate approximation and perfect asepsis. When these three objects are arranged the necessity for drainage no longer exists. They may be accomplished, first, by careful ligation of blood vessels; second, obliteration of dead spaces with the use of buried sutures and surgical cleanliness in the superlative degree. The first of these requirements is the easiest, the third is possible if contamination has not preceded the surgeon. The second (the obliteration of dead space) is the only one of the three which seems at the present time to be beyond the range of surgical possibility and occupies the most important consideration in chest surgery. To avoid the necessity of using a foreign body for the drainage of a space that cannot be obliterated the following measures may be adopted: Occupying the space by a medium in which micro-organisms will not grow, therefore eliminating the necessity of drainage.

Wounds and Injuries of the Rectum and Anorectal Region

DR. BERNARD ASMAN, Louisville: The clinical manifestations induced by anorectal wounds and injuries vary according to the instrument which inflicted the trauma, the extent of the damage to the tissues, the anatomic situation involved, the time which has elapsed between infliction of the injury and observation of the patient, and also the nature of the wound, i. e., whether contused, lacerated or perforating in character. The higher lesions are the most serious because of the likelihood of pelvic and abdominal complication. Contusions and lacerations are attended by less clinical danger than perforating and punctured wounds; the former are more likely to be superficial than the latter and adequate drainage can be more readily secured. The most dangerous type of injury is rectal or colonic rupture which permits the escape of blood, gas feces and pathogenic micro-organisms into the pelvic or abdominal cavity, the most logical result being the supervention of infection with the production of peritonitis, abscess, or fecal fistula. Even superficial wounds may result disastrously provided drainage is inadequate and infection with tissue sloughing ensues. However, if surgical treatment be instituted promptly and rigid asepsis maintained infection of clean wounds should not occur.

Where the surgeon has reason for believing the injury extends to the upper rectal segment, the sigmoid or colon, immediate celiotomy is indicated as a diagnostic measure, and at the same time to permit the necessary reparative procedures. The extent of the damage inflicted on the lower rectal segment and the anal canal may be easily determined by ocular inspection.

The treatment of anorectal wounds and injuries is primarily and essentially surgical, and the technic of reparative measures must be modified to meet the indications in each individual instance. The operative steps necessary will depend on the location, nature and extent of the damage inflicted.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Orthopedic Surgery, Boston

August, 1918, 16, No. 8

- 1 *System of Orthopedic Instruction. R. W. Lovett, Boston.—p. 483.
- 2 School of Clinical Military Orthopedic Surgery, Camp Greenleaf, Fort Oglethorpe, Ga. E. S. Geist, Fort Oglethorpe, Ga.—p. 488.
- 3 Treatment of Fracture of Neck of Femur. F. H. Albee, New York.—p. 493.
- 4 *Pathology of Peripheral Nerves in Gunshot Wounds. S. M. Cone.—p. 509.
- 5 *Primary and Delayed Primary Suture in Treatment of War Fractures. W. S. Baer.—p. 513.
- 6 Foot Problems and Treatment with Unseasoned Troops. C. B. Francisco.—p. 520.
- 7 Case of Congenital Anterior Subluxation of Tibia. L. Mayer, New York.—p. 521.
- 8 *Foot Prophylaxis in Soldier. J. T. Rugh.—p. 529.

1. **System of Orthopedic Instruction.**—The scheme Lovett presents can best be summarized by a concrete instance. The deformities of rickets can be taught in one of two ways: one is to describe knock-knee, its cause, mechanical production and treatment, and then do the same for bow legs and coxa vara, which is a good way and the usual one. The other way is to teach about bone, its growth and ossification, to tell of bone disturbances, the most frequent of which is a certain disturbance of ossification called rickets; that this process causes softening, and that bending thus occurs according to the mechanical influences in the case, perhaps in one direction, perhaps in another; that there may be an inward, outward or forward deformity of the leg; that ossification must be brought to normal by diet and hygiene; do not operate until this has happened. Meanwhile, treat by braces or manipulation. Thus one links up rickets with other disturbances of ossification, achondroplasia and the like. In the latter method Lovett believes that the man will have received more education than in the former.

4. **Pathology of Peripheral Nerves in Gunshot Wounds.**—Cone examined specimens from about 200 cases of war injuries of peripheral nerves. The patients were soldiers who, having had serious wounds by shell or bullet, in which soft parts and bone, as well as nerves, were torn or cut, came for repair of the nerves months after the original injury. The original wound had generally healed, yet it was considered advisable to wait until the lapse of six months after the injury before operating on the nerve; a few of the patients were brought to the operating table earlier, but many were not operated on for a year or more after injury. Many of the old healed sinuses suffer serious infection if operated on before the lapse of six months. In a few cases examination of material from the depths of the old wound shows masses of small round cells with few bacteria; some grow staphylococci on culture; others are negative. Many of the nerve trunks examined present masses of small round cells among the fibers; a few contain polymorphonuclear leukocytes. The vascularity is invariably greatly increased, new capillary vessels and full grown arteries and veins being found in all cases throughout the specimens. The fibrous scar between the nerve ends contains young nerves in 90 per cent. of cases. The increase of connective tissue is seen along the fibers some distance from the point of severance. Mixed with it is a proliferation of young nerves intertwining with capillary vessels among the old nerve fibers. This neuritis Weir Mitchell and Tinel say is often due to hemorrhage into the nerve.

Cone has never failed to find nerves in painful scars. The peripheral portion of a severed nerve contains axis cylinders in 86 per cent. of observations. The new connective tissue within, between and around injured nerves is most commonly wavy and vascular, often cellular, seldom dense. Nerve tendrils grow about foreign bodies such as khaki, hair and sutures. They grow well in granulation tissue. Fat is a better medium for nerve growth than is muscle. Nerves grow into fascia lata when used as a covering. Cargile membrane is impervious to nerve growth. A stretched nerve shows

active growth of young tendrils. Circular constricting scars are particularly damaging. Young nerves grow wildly, most prolifically, and are hard to keep from growing. Pain may be caused by this great proliferation.

5. Primary Suture in Treatment of War Fractures.—Baer says that the primary suture is the method of selection in the treatment of these cases when this can be done. Experience has shown that primary suture may be performed successfully in 80 to 90 per cent. of the cases. In certain cases primary suture cannot be done, owing to the inability to make a closure due to the destruction of large amounts of tissue, including skin. But even here the primary suture at times may be accomplished by the aid of a skin flap. Technic of primary suture: Disinfection of skin with iodine, soap, water and a scrubbing, or other methods. Removal of skin edge, together with the tract made by the projectile. Removal of all projectiles and of all devitalized tissue. The securing of complete hemostasis. The accurate approximation of skin edge without tension. The time limit for primary suture is generally regarded as being within the first twelve hours, but in face cases the time limit for successful primary suture is slightly increased.

Ten per cent. of battle casualties, even when they have arrived at the hospital within the first twelve hours, cannot be closed primarily, and mainly for the following reasons: Cases in which the shock is so great that the patients cannot stand the operation within the first twelve hours; deep wounds, where the complete excision of all devitalized tissue is uncertain or impossible; wounds wherein no roentgenogram being present, the projectile cannot be extracted; wounds where the loss of substance is so great that complete closure is impossible, etc. Of the primary sutures, 5 to 10 per cent. are not successful, and this is due mainly to streptococcus.

In an evacuation hospital, all wounds which are received within the proper time after injury, and which are applicable to primary suture, are closed by this method. At the same time, cultures of the wounds are taken. The wounds that must be opened immediately on the bacteriologic report are those primarily infected with the virulent types of streptococci. A bacteriologic report of other organisms does not in the main disturb the surgeon. Mechanical sterilization by the operative procedure of primary suture, together with the action of the human tissue, takes care of all other organisms, particularly when in pure culture. The virulent streptococci, generally by themselves, and always when associated with other organisms, such as streptococcus, enterococcus, the gas gangrene group, etc., demand immediate opening of the primary suture. The delayed primary suture is the method of wound closure which has been adopted in all those cases in which primary suture would have been done except for circumstances, generally of military character, which made it inadvisable.

The technic of delayed primary suture is exactly that of primary suture, except that the skin is not closed, and a dry, sterile dressing is placed over the wound. The skin edge is brought together from three to eleven days later.

All primary sutures should be kept at the place of operation for at least ten days, so that the wound may be watched and not subjected to the traumatism in transportation. Therefore, where patients must be removed immediately, within six or seven hours after operation, delayed primary suture takes the place of primary suture. This method of procedure has been found eminently successful. The delayed primary sutures are sent to the rear within six or seven hours after the initial operation, and are closed preferably on the second, third or fourth day. The percentage of cures in delayed primary sutures is between 80 and 87 per cent. This method allows the beds at the front to be continuously utilized, and adds to the rapidity of recovery over the former methods. Baer urges the necessity for the early treatment of bone injuries, by primary or delayed primary suture, as this is the keynote to the successful handling of war fractures.

8. Foot Prophylaxis in Soldier.—Rugh states that if a careful foot examination were made by a competent orthopedic surgeon, when the soldier is first inducted into service and

proper remedial measures outlined and instituted for such conditions, fully 90 per cent. of the foot inefficients could be eliminated. This plan, however, has not been feasible thus far. Four factors stand out in the solution of the problem of foot prophylaxis, each of them capable of thwarting all efforts and of preventing success. These four factors, in order of their importance are: (a) the feet, (b) the shoes, (c) the officers, and (d) the soldiers—though experience shows that they are of almost equal significance. (a) The feet present all types and conditions. (b) The shoe question has been solved by Colonel Munson, as 98 per cent. of the men's feet can be satisfactorily fitted with this shoe. (c) The officers in charge of the men are held responsible for the proper fitting of the shoes, instruction of the men in care of the feet, etc. (d) The man is the fourth factor in foot prophylaxis. His pride in his foot dress not infrequently makes him unwilling to wear the regulation shoe, and especially when a sufficiently large shoe is fitted to him. Again, whether he is an enlisted or drafted man influences very much his feeling toward possible foot disability. The one serves voluntarily in most cases, and the other involuntarily, and there very readily develops in the latter a mental state which exaggerates a slight ache or pain into an absolutely disabling condition.

From the orthopedic standpoint, the prophylactic measures that have proved most potent in foot prophylaxis are four: 1. The detection of the potentially weak cases. 2. One of the most important measures is the restoration of the balance to the foot by proper alteration of the shoe. 3. After training follows in the problem of reclamation, and the first essential is that of proper walking and standing. 4. Exercises for the restoration of muscle power are the follow-up for protection and corrective work in foot cases. Other prophylactic methods are to be used as they may be indicated and whenever opportunity offers, but after shoes have been properly fitted and altered, the above are probably the most important ones to use. First problem: Inspection of the feet of the new recruit should be accomplished in the casual detachment or the depot brigade, where he is first quartered on entering service. Second problem: When the recruit is transferred to a National Guard or Regular Army camp, he may be sent directly to his organization or to quarantine barracks. If to the latter, the feet should be inspected and proper remedial correction made before he reaches his final station, and proper entry of this correction should be made on his records, so that future change in shoes may also receive the same attention. Third problem: Intensive inspections, if done in a regiment, are always arranged for through the regimental surgeon, and through him with the regimental commander. There is practically no trouble in obtaining this if its purpose is explained to the colonel and major. Great care should also be used to interfere as little as possible with the ordinary work of the organization, and a regular schedule for the inspection should be made out and followed closely. After a little practice one can inspect from 150 to 175 men in an hour. Fourth problem: The installation of cobbling and alteration outfits. Fifth problem: The securing of cobblers for work in the camp repair shop. The most satisfactory results obtain from asking assignment of several men (preferably cobblers or shoemakers) from an organization for temporary duty in the camp shoe repair shop, and then to arrange for their instruction in shoe repair and alteration work. After six to eight weeks of work, they should be returned to their organization and several sent from other units to take their place for similar instruction. During this time these men have been working efficiently in the shop, have learned the trade for practical purposes, and are still a part of their original organization, and are available for cobbling work in overseas service. Commanders will allow temporary assignment but not transfer, and when the economic phase is placed before the commanding general or chief of staff, they readily cooperate. Sixth problem: The care of cases of foot disability should rest with the regimental surgeon. Seventh problem: Experience in camp work quickly shows the orthopedic surgeon that he must work out his own problems and allow others to do the same.

Boston Medical and Surgical Journal

Sept. 5, 1918, 179, No. 10

- 9 *Diagnosis of Fracture of Hip. G. W. Gay, Boston.—p. 315.
- 10 Obstruction of Small Intestine. J. T. Bottomley, Boston.—p. 316.
- 11 Is It Worth While for Man of Fifty to Get Into Physical Condition? J. M. Taylor, Philadelphia.—p. 324.
- 12 The Prostatic—How Shall He Be Managed? F. B. Sweet, Springfield.—p. 332.
- 13 Radical Cure of Hernia under Local Anesthesia; Combined with Scopolamin and Morphin. J. H. Cunningham, Jr., Boston.—p. 336.

9. **Diagnosis of Fracture of Hip.**—Given these three symptoms—disability, eversion of foot and pain on manipulation—Gay says, that the diagnosis is reasonably certain in all injuries to the hip. The older the victims, the more reliance can be placed on them. Shortening of the injured limb is almost always present, but it is less readily determined than are the above mentioned cardinal symptoms. Slight shortening, that is, not exceeding half an inch, is not always detected, especially in stout persons. In some cases only an expert can detect any difference in the length of the limbs. While unmistakable shortening is a valuable symptom of fracture of the hip, yet it is not as readily detected as are other conditions. Crepitus is usually absent in impacted fractures, depending of course, on the degree of impaction. This symptom is not to be sought too curiously. The manipulations should be gentle and intelligent. The diagnosis can be made satisfactorily without this symptom. Other comparative symptoms of hip fractures are Nélaton's and Bryant's lines, designed to show the relative elevations of the top of the great trochanters on the two sides. The comparative tension of the fascia lata above the trochanters is also a sign of some significance. The only dislocation of the hip that presents the same, or a similar clinical picture as a fracture, is the displacement forward. This dislocation is so extremely uncommon that most physicians have never seen a case. The most common errors in diagnosis in hip injuries are in calling them sprains and contusions.

California State Journal of Medicine, San Francisco

September, 1918, 16, No. 9

- 14 Children's Year—Opportunity in Preventive Medicine. A. Brown, San Francisco.—p. 414.
- 15 Plastic Surgery of Nose and Ears. G. Selfridge, San Francisco.—p. 416.
- 16 Social Problems of War. H. G. Irvine and W. M. Dickie, San Francisco.—p. 423.
- 17 Analysis of First Two Hundred Cases Studied at San Diego Diagnostic Group Clinic. B. J. O'Neill and R. Pollock, San Diego.—p. 428.
- 18 Intestinal Obstruction. H. Shoemaker, Los Angeles.—p. 430.
- 19 Clinical Aspects of Fasting Treatment of Diabetes. A. H. Rowe, Oakland.—p. 433.

Canadian Medical Association Journal, Toronto

September, 1918, 8, No. 9

- 20 Combined Inquiry into Presence of Diphtheria and Diphtheroid Bacilli in Open Wounds. J. G. Adami, and others.—p. 769.
- 21 *Cancer Problem. C. H. Mayo, Rochester, Minn.—p. 786.
- 22 Sociologic and Economic Aspects of Tuberculosis. J. S. Wright, Edmonton, Alberta.—p. 791.
- 23 Returned Soldier. W. T. Connell, Kingston.—p. 797.
- 24 Treatment of Infected Wounds with Dichloramin-T with Special Reference to Its Advantages over Carrel-Dakin Method. H. W. Baker, Toronto.—p. 805.
- 25 Cerebrospinal Syphilis. G. S. Mundie and R. J. Erickson, Montreal.—p. 824.

Journal of Parasitology, Urbana, Ill.

June, 1918, 4, No. 4

- 26 Experiments on Extrusion of Polar Filaments of Cnidosporidian Spores. R. Kudo, New York.—p. 141.
- 27 Two New Cystocercous Cercariae from North America. E. C. Faust, Urbana.—p. 148.
- 28 Tick as Possible Agent in Collocation of Eggs of Dermatobia Hominis. L. H. Dunn, Ancon, C. Z.—p. 154.
- 29 New Gregarines from Coleoptera. M. W. Kamm, Urbana.—p. 159.
- 30 Centrorhynchus Pinguis N. Sp. from China. H. J. Van Cleave.—p. 164.
- 31 Cultivation of Trichomonas Intestinalis. M. F. Boyd, Galveston, Texas.—p. 168.
- 32 Adaptability of Schistosoma Larvae to New Hosts. W. W. Cort, San Francisco.—p. 171.
- 33 Parasitism of Carboniferous Crinoids. R. L. Moodie, Chicago.—p. 174.

Medical Record, New York

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- 34 Superior Longitudinal Sinus in Infants; Its Value in Transfusion and for Rapid Medication. L. Fischer, New York.—p. 399.
- 35 Patent Foramen Ovale and Its Relation to Certain Cardiac Murmurs. W. F. R. Phillips, Charleston, S. C.—p. 402.
- 36 Significance of Early Lesions. J. L. Heffron, Syracuse.—p. 404.
- 37 *Fifty Cases of Tuberculosis, Mainly Osseous and Glandular, Treated with Tuberculin, Contrasted with Fifty Cases Treated without Tuberculin. R. C. Newton, and S. A. Twinch, Newark, N. J.—p. 407.
- 38 Drug Treatment of Nervous Exhaustion. B. Robinson, New York.—p. 410.
- 39 Relating to Factors That May Cause Rheumatic Conditions. J. M. W. Kitchen, East Orange, N. J.—p. 411.
- 40 Apothecin and Epinephrin Anesthesia in Removal of Tonsils. J. Coleman, New York.—p. 413.

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- 41 Blood Cholesterol. A. J. P. Pacini, New York.—p. 441.
- 42 Neurons; Their Relation to Therapeutics, Medical and Mechanical. D. Graham, Boston.—p. 447.
- 43 Value of Wassermann Reaction. R. A. Lambert, M. P. Olmstead and H. C. Stuart, New York.—p. 452.
- 44 Gastro-Intestinal Headaches. J. R. Verbrycke, Jr., Washington, D. C.—p. 454.
- 45 Retropharyngeal Abscess in Infants. A. N. Schiller, New York.—p. 457.

37. **Tuberculosis, Osseous and Glandular, Treated with Tuberculin, Contrasted with Cases Treated Without Tuberculin.**—With a few exceptions these patients were children, inmates of a home for crippled children and patients in a hospital clinic. Without tuberculin 16 recovered, or 32 per cent.; 25 died, or 50 per cent.; 9 are still wearing braces and under treatment, or 18 per cent. With tuberculin 33 recovered, or 66 per cent.; 5 much improved, or 10 per cent.; 6 died, or 12 per cent.; 5 still under treatment, or 10 per cent.; 1 discontinued treatment, or 2 per cent. Of the 16 cured without tuberculin the average period treatment for each case was five and a fourth years. Of the 33 cures with tuberculin the average period of treatment for each case was eleven and a half months. Of the 25 deaths without tuberculin the whole period of treatment was seventy-two years, eleven months, nine days, or three years, fourteen days for each patient. Of the 6 deaths of those treated with tuberculin the total period of treatment was four years, nine months, and twenty-nine days, or an average of nine months, thirteen days for each patient. Of those treated without tuberculin, 9 are still under treatment. Of those treated with tuberculin 5 are still under treatment.

Mental Hygiene, Concord, N. H.

July, 1918, 2, No. 3

- 46 *Care and Disposition of Military Insane. P. Bailey.—p. 345.
- 47 Survey of War Neuropsychiatry. C. S. Read.—p. 359.
- 48 Mental Hygiene and Social Work; Course in Social Psychiatry for Social Workers. E. E. Southard, Boston.—p. 388.
- 49 *Mental Disease in Field. M. A. Harrington.—p. 407.
- 50 Community Responsibilities in Treatment of Mental Disorders. W. L. Russell, White Plains, N. Y.—p. 416.
- 51 Organization of State Hospital for Mental Disease. H. D. Singer.—p. 426.
- 52 *Supervision of Feeble-minded in Community. J. Taft, New York.—p. 434.
- 53 Next Step in Treatment of Girl and Women Offenders. J. D. Hodder, Framingham, Mass.—p. 443.
- 54 Character as Integral Mentality Function. G. G. Fernald.—p. 448.

46. **Care of Military Insane.**—Does Army life make men insane? The question is especially important in a warfare which involves the whole nation as bearing on the economic value of psychiatric examinations. Bailey says that so far as epilepsy and mental deficiency are concerned, the present statistics do not throw much light. While camp conditions might easily, and as a matter of fact often do, give rise to nervous episodes in the mentally deficient, they have nothing to do with the underlying cause. The same may be said of epilepsy. The frequency of attacks in epileptics may be increased after entering the Army, but figures so far obtained do not justify the assumption that a potential epileptic under peace conditions is converted into an actual one by Army life. But the matter is quite different with the psychoneuroses, constitutional psychopathic states and dementia praecox. It seems that even in the training camps any of these conditions may become active and conspicuous through the requirements of military service when they had not manifested themselves

to a degree to be incapacitating in civil life. It is not believed that this conversion of a potential psychosis into an actual one in the camps is a result of hardship or physical causes. It is believed rather to be a psychologic result from disharmony with new and rigid conditions which the neurotic, who is so intensely individualistic, finds it impossible to adapt himself to and so breaks down. This explanation holds true for those who have volunteered quite as much as for those who have been drafted.

So far as the expeditionary forces are concerned, the time has not yet come to explain the method of production of psychoses. Most of the wounded so far returned had departed for France before the neuropsychiatric examinations had been established. Among them there is a percentage of nervous and mental disease of twenty-five, a percentage that seems destined to decrease as the figures more and more concern the examined Army. Experience indicates that a pronounced psychopathic constitution and military service are antagonistic. It is believed, on the other hand, that psychoneurotics who might render excellent service in their civil capacity, become incapacitated by the change in their habits of living however patriotically they may have sought it. It is also believed that the Army fares better without them.

49. Mental Disease in the Field.—Harrington was regimental officer with the British Expeditionary Force in France for a year, he had an opportunity to see a fairly large number of mental and nervous cases; and although, unlike physicians serving in base hospitals, he had no opportunity to make a careful study of his cases, he had a better opportunity to observe the conditions under which they developed and the practical problems which they presented to the military organization. Harrington is convinced that in the cases resulting from war strain there is little if anything that is really new. Emotional shock, fatigue, etc., the various etiologic factors which give rise to war psychoses, are all found operating in civil life; and as for the psychoses themselves, there is probably nothing in their symptomatology that cannot be duplicated in the ordinary psychiatric clinic of any large city. The difference between peace conditions and war conditions and the mental disturbances resulting from each, is not a qualitative difference, but a quantitative one. Under peace conditions, for example, men are subjected to emotional shocks in no way essentially different from those produced by shell fire. But under peace conditions these shocks are of rather rare occurrence, and as a rule so mild as to affect only those who are mentally unstable. Under war conditions, however, they are of constant occurrence, and frequently so severe as to affect the strongest and best balanced of men. Thus etiologic factors and types of mental disorder to which formerly little attention was given have, with the altered conditions produced by the war suddenly forced attention; and as a result there has been a tendency to treat of them as if they were something altogether new.

Michigan State Medical Society Journal, Grand Rapids

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- 55 Acute Abdomen. F. G. Connell, Oshkosh, Wis.—p. 349.
- 56 Group Medicine—Development of Private Pay Clinic. A. W. Blain, Detroit.—p. 354.
- 57 Case of Lipodystrophia Progressiva. B. N. Epler, Kalamazoo.—p. 356.
- 58 Report of Case of Situs Inversus. W. O. Upson, Battle Creek.—p. 362.
- 59 Cardiac Conditions That Do Not Disqualify for Army Service. C. H. Johnston, Grand Rapids.—p. 363.
- 60 Dental Anomalies. C. J. Lyons, Ann Arbor.—p. 370.
- 61 Lymphatic Disease in Children. H. deB. Barss, Ann Arbor.—p. 374.

Missouri State Medical Association Journal, St. Louis

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- 62 *Can We Disregard Calendar in Setting the Date for Labor? F. T. Van Eman, Kansas City.—p. 315.
- 63 Prevention of Deformities in Time of Peace and War. B. Belove, Kansas City.—p. 317.
- 64 Treatment of Vulvovaginitis in Children. E. C. Sage, St. Louis.—p. 319.
- 65 Chronic Progressive Chorea in Negro; Report of Case. F. M. Barnes, Jr., and E. Hein, St. Louis.—p. 324.

62. Abstracted in THE JOURNAL, June 15, 1918, p. 1889.

New York Medical Journal

Sept. 7, 1918, **108**, No. 10

- 66 Ovary: Corpus Luteum. O. T. Osborne, New Haven, Conn.—p. 401. To be continued.
- 67 Modern Treatment of Syphilis. P. Goldfader, New York.—p. 405.
- 68 Viscerptosis; Its Diagnostic Importance. I. R. Kuhn, Fallsburgh, and J. Glass, New York.—p. 409.
- 69 *New Dressing for Wounds. A. Kahn, New York.—p. 411.
- 70 Retropharyngeal Abscess; Report of Three Cases. J. J. Levbarg, New York.—p. 417.
- 71 Nasopharyngeal Polypi. A. E. Pohly, New York.—p. 418.
- 72 Mobilizing the Spas and Health Resorts of the Nation. N. P. Norman, Fort Leavenworth, Kan.—p. 419. To be continued.

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- 73 Relative Value of Pasteurized and Certified Milk. S. S. Cohen, Philadelphia.—p. 445.
- 74 Ovary: Corpus Luteum. O. T. Osborne, New Haven, Conn.—p. 447.
- 75 Toxic Nonexophthalmic Goiter. E. H. Reede, Washington, D. C.—p. 452.
- 76 Papillary Cystadenoma of Ovary. J. Corcia, New York.—p. 457.
- 77 *Food Value of Candy. J. E. Leikauf, New York.—p. 458.
- 78 Painless Meatotomy. L. L. Michel, New York.—p. 461.
- 79 Two New French Methods for Staining Blood Films and Blood Parasites. L. Tribondeau, Corfu, France.—p. 461.
- 80 Mobilizing Spas and Health Resorts of the Nation. N. P. Norman, Fort Leavenworth, Kan.—p. 463. To be concluded.

69. New Dressing for Wounds.—The material used by Kahn for an internal dressing or drain and for an external absorptive dressing, either wet or dry, is blotting paper prepared in a variety of ways; and as an external binder to take the place of the cloth roll or bandage, punctured paper adhesive on one side for binding it over the dressing or wound. This adhesive roll last mentioned can be variously medicated and used over surfaces much as ordinary adhesive plaster or mustard plaster. The wound is prepared for dressing much as any wound is prepared, the difference being that instead of using gauze and cotton as a drain, Kahn uses blotting paper, corrugated, thin, and in strips, as a drain; and blotting paper crumpled up in the hand as an external dressing. The blotting paper may be reinforced with a little gauze, or with a cloth roll bandage over the blotting paper, or a binder of the corrugated, punctured, adhesive paper may be used. The paper dressing makes a light, airy and inexpensive dressing, it is easily removed, and is more readily destroyed than a cloth dressing.

77. Food Value of Candy.—Candy being composed principally of sugar, chocolate and nuts, is very high in food value, and the different kinds vary in the proportion of carbohydrates, fat and protein they contain. Sugar is highly concentrated food. Sugar is easily digested. On account of the rapidity with which it is assimilated, sugar quickly relieves fatigue. Six ounces of sugar are equal in food to 1 quart of milk, or 1¼ pounds of lean beef. It has a fuel value of 1,810 calories. Nuts are very high in food value, those used principally in manufacturing confectionery being almonds, filberts, pecans, peanuts and walnuts, averaging approximately 1,500 calories per pound. Corn syrup, erroneously called glucose, used largely in manufacturing gum drops, hard candies and taffies, is a pure wholesome transparent heavy syrup, manufactured from corn. The food value as expressed in scientific terms is 1,559 calories per pound.

Candy is composed of various raw materials of high food value; it is, therefore, apparent that candy being composed of combinations of two or more of these raw materials is exceptionally high in food value. With but three exceptions, the different kinds of candies are very much higher in fuel value than whole milk having a fuel value of only 315 calories per pound, cream 881 calories, whole eggs 695 calories, beefsteak 1,090 calories, corn 1,685 calories, rice 1,620 calories, white bread 1,180 calories, and corn bread 1,175 calories. The high nutritive value of chocolate candy is recognized by the leading military authorities of the world, and the "boys at the front" are satisfying their craving for "something sweet" with chocolate cakes and tablets and candies of various kinds. Scientists have demonstrated by careful experiments that during violent exercise or exhausting labor, the sugar in the blood is very heavily drawn on to supply the body with the necessary fuel, hence the longing for "something sweet"

which can be readily assimilated, and which is most easily and conveniently supplied in some form of candy. The Swiss guides for mountain climbers consider lump sugar and sweet chocolate an indispensable part of their outfit. Children should have candy frequently. It is better to give them candy frequently than to give only occasionally, when the craving for it creates an almost irresistible temptation to overeat. It is especially desirable that candy should be served for dessert. A moderate amount frequently is better than an occasional overindulgence.

Northwest Medicine, Seattle

August, 1918, 17, No. 8

- 81 Naval Attitude Toward Venereal Disease Problem. C. F. Ely, Bremerton.—p. 225.
- 82 Relation of Military to Venereal Problems. I. L. McGlasson, Camp Lewis.—p. 229.
- 83 Control of Venereal Diseases in Army. A. H. Peacock, Camp Lewis.—p. 233.
- 84 Seattle's Experience with Quarantine and Treatment of Venereal Disease. J. S. McBride, Seattle.—p. 236.
- 85 Prostitution in Seattle. W. R. Jones, Seattle.—p. 239.

Ohio State Medical Journal, Columbus

September, 1918, 14, No. 9

- 86 Cancer of Breast. J. H. Jacobson, Toledo.—p. 524.
- 87 Some Things Learned in Cataract Work. A. J. Timberman, Columbus.—p. 528.
- 88 Some Uses and Abuses of Pituitary Extract in Obstetrics. J. L. Rubis, Cleveland.—p. 532.
- 89 Dentist's Responsibility in Preventive Medicine. H. C. Brown, Columbus.—p. 533.

Rhode Island Medical Journal, Providence

September, 1918, 2, No. 9

- 90 Nodular Syphilis. C. A. Simpson, Newport.—p. 131.
- 91 Recent Progress in Study of Certain Infections. A. M. Burgess, Providence.—p. 133.
- 92 State Hospital for Mental Diseases—Lantern Slides. A. H. Harrington, Howard.—p. 137.
- 93 Report of Meeting of State Secretaries in Chicago Regarding Medical Reserve Corps. J. W. Leech, Providence.—p. 139.
- 94 Case of Pott's Paraplegia Relieved by Spinal Bone Graft. R. Hammond, Providence.—p. 141.
- 95 Seminal Vesiculitis. H. Terry.—p. 143.

Social Hygiene, Baltimore

July, 1918, 4, No. 3

- 96 Expression vs. Suppression. N. D. Baker, Washington, D. C.—p. 309.
- 97 Venereal Diseases in Army, Navy and Community. W. Lawrence.—p. 317.
- 98 War and Venereal Diseases Among Negroes. A. B. Spingarn.—p. 333.
- 99 Story of Committee of Fourteen of New York. J. P. Peters, New York.—p. 347.
- 100 Summary of New Public Health Measures for Combating Venereal Disease. G. Seymour.—p. 389.

United States Naval Medical Bulletin, Washington, D. C.

Supplement Published for Hospital Corps of Navy

July, 1918, No. 6

- 101 Training of Pharmacist's Mates at Hampton Roads, Va. W. H. Halsey.—p. 7.
- 102 Hospital Corps Training School at San Francisco. P. F. Dickens.—p. 11.
- 103 Hospital Corps Training School, Newport, R. I. H. L. Ryan.—p. 16.
- 104 Training Hospital Corpsmen in Navy. J. B. Kauffman.—p. 19.
- 105 Hospital Corps Training School, Great Lakes, Ill. G. L. Crain.—p. 22.
- 106 Training Hospital Corpsmen at Civil Hospitals in New York. R. Martin.—p. 25.
- 107 Field Work with Eighth Regiment of Marines. G. A. Gray.—p. 28.
- 108 Training at Quantico and Guantanamo. B. E. Kirwan.—p. 29.
- 109 Oral Hygiene. H. J. Leonard.—p. 32.

West Virginia Medical Journal, Huntington

September, 1918, 13, No. 3

- 110 Pathology, Symptoms and Diagnosis of Brain Abscess of Otitic Origin. H. R. Johnson, Fairmont.—p. 81.
- 111 Maternal Impressions. R. L. Brown, Parkersburg.—p. 86.
- 112 Co-Operation of General Practitioners, Sanitarium, and Patient in Fight Against Tuberculosis. S. A. Slater, Oil City, Pa.—p. 91.
- 113 Physician's Duty to His Community. H. B. Wood.—p. 97.
- 114 Pyelitis. H. G. Camper, Welch.—p. 101.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Surgery, Bristol

July, 1918, 6, No. 21

- 1 Case of Contusion of Axillary Artery. J. F. Dobson and W. R. Higgins.—p. 15.
- 2 Bone Growth and Bone Repair: Review. A. Keith.—p. 19.
- 3 *Bladder Injury in Warfare: Study of Fifty-Three Cases. A. Fullerton.—p. 24.
- 4 Ununited Fractures of Mandible; Incidence, Causation and Treatment. P. P. Cole.—p. 57.
- 5 Treatment of Gunshot Wounds of Face Accompanied by Extensive Destruction of Lower Lip and Mandible. V. H. Kazanjian and H. Burrows.—p. 74.
- 6 Results of Treatment in Two Hundred Cases of Injuries to Face and Jaws. W. M. Munby, A. A. Forty and A. D. Shefford.—p. 86.
- 7 *Primary and Delayed Suture of Gunshot Wounds. F. Fraser and others.—p. 92.
- 8 Acute Dilatation of Stomach. W. Doolin.—p. 125.
- 9 Case of Intestinal Obstruction; with Comments on Bursts of Intestine. R. Morison.—p. 135.
- 10 Rupture of Small Intestine into Mesentery, Result of Indirect Violence of Missile. H. Drummond.—p. 140.
- 11 Case of Subastragaloid Dislocation Reduced by Operation After Seven Weeks. S. A. Smith.—p. 144.
- 12 Case of Congenital Elevation of Scapula (Sprengel's Shoulder). R. M. de Mowbray.—p. 146.
- 13 Congenital Abnormality of Carpus. A. W. Connelly and H. A'Court.—p. 148.

3. **Bladder Injury in Warfare.**—Fullerton says that injuries of the bladder form a very small proportion of the total wounds reaching the base hospitals, one in 3,000 or 4,000. Their importance from the point of view of prognosis and treatment depends to a large extent on associated injuries. In the present series 35, or nearly 70 per cent., were complicated by injury to intestine or bone, or both. In 26 cases there was a wound of some part of the lower intestinal tract, and 13 of these were also complicated by osseous fracture. There were 19 cases of damage to the rectum. In 6 cases the small intestine was wounded. In 22 cases there was damage to the bones of the pelvic girdle. The pubic bone was fractured in 12 cases, once in association with the sacrum, once with the great trochanter, and once with the head of the femur, involving the hip joint. The sacrum was fractured in 5 cases; once in association with the pubic bone. The iliac bone was fractured in 2 cases; once in association with the ischium. The ischium alone was fractured in one case. In 2 cases the coccyx was fractured. Damage to the prostate was present in 7 cases. The anterior crural nerve was injured in 1 case, the sciatic nerve in 2 cases, the femoral vein in 1 case, and the spine (concussion) in 1 case; involvement of the spermatic cord, necessitating orchidectomy, was present in 2 cases. According to Fullerton, the importance of the perivesical connective tissue cannot be overestimated. This forms a potential, continuous space extending from the cavum Retzii in front, round the sides of the bladder and rectum, to the posterior part of the latter behind. Pelvic cellulitis is a frequent complication.

The mortality of bladder injuries is very high, 13 deaths (over 24 per cent. in this series). In cases reaching the base it may be estimated at 30 per cent. The chief causes of death have been pelvic cellulitis, peritonitis, and sepsis. The chief sequelae are necrosis of bone, persistence of cystitis, calculus, and stricture at the neck of the bladder.

Fullerton points out that the treatment should be conducted on common sense lines. Accumulations of infected fluid, blood clot, and fecal material in the pelvic connective tissue must if possible be prevented by attention to the original wounds. If this is unsuccessful, suitably planned incisions should be made. The fact that urine flows over the surface of a wound is not necessarily in itself an indication for suprapubic cystostomy. If the bladder can be kept clean by irrigation, aseptic urine from the kidney does not appear to have a deleterious effect on the wound. Suprapubic cystostomy will drain an infected bladder, but will not prevent pelvic cellulitis and sepsis from occurring in the perivesical connective tissue and parietes, respectively. The after-treatment of the bladder by

frequent irrigation is necessary to get rid of cystitis and prevent calculus formation.

7. Suture of Gunshot Wounds.—Of the 303 cases entered on the research list, primary or subsequent suture of the wounds was actually carried out in 285. Three patients died, a mortality of about 1 per cent. Comparison of results of the use of antiseptics showed that among 41 cases of primary suture, primary union (complete or partial) occurred in 37 with failures in 4 cases. With a few exceptions, only the slighter wounds have been treated without antiseptics, and this may account for the results without antiseptics being the best (90 per cent. of successes). As regards immediate suture, flavine and ether come next (86 and 84 per cent. of successes), then soap and bismuth iodoform petrolatum paste (about 76 per cent.).

Regarding delayed suture, the figures, so far as they go, show a decided superiority over the results given by immediate suture. Of 224 wounds sutured primarily, cultures were made in 215. Of the latter, 21 were negative; all these healed completely by first intention. The remaining 194 were infected with anaerobes, streptococci, or other organisms mentioned in the bacteriologists' report. In the 194 infected wounds treated by immediate suture, anaerobes occurred in 119, nonhemolytic streptococci in 62, hemolytic streptococci in 20 and other organisms in 95.

The general conclusion drawn from these figures by the committee is that wounds infected by the hemolytic streptococcus nearly always become septic, while a large proportion of wounds infected in other ways healed by first intention. Failure took place in only one case of primary suture which was infected by anaerobes alone; in this case a muscle flap used for filling a bone cavity sloughed and a gaseous abscess developed in the wound. Only one case infected by hemolytic streptococci (a small wound penetrating the knee joint without damage to bone) healed by first intention; all the rest suppurated, many of them violently and with severe constitutional disturbance. Infections by nonhemolytic streptococci as a general rule appear to be less virulent. When failure occurs, the suppuration is usually milder than that characteristic of the hemolytic streptococcus. Sometimes, however, the nonhemolytic streptococcus, in association with other organisms, appears to set up sepsis of a very severe type.

The advantage which delayed suture offers as compared with immediate suture depends on the knowledge of virulent infection gained during the interval while the wound is open. Even if a bacteriologic examination has not been made, the appearance of a virulently infected wound when first dressed, forty-eight or seventy-two hours after operation, is usually distinctive, and it is not sutured. In this way the proportion of failures after delayed suture should be reduced to a very small percentage. While no antiseptic tried by the committee either in open or closed wounds, appears to have any appreciable effect on the growth of the hemolytic streptococcus, the results of the use of flavine point to the probability that chemical antiseptics, when applied to the surface of open wounds infected with bacteria of less virulence, may fulfil a useful function.

It was found advisable to discontinue the use of flavine solution after four or five days, as wounds treated continuously with this substance for longer periods tend to become covered with a layer of coagulated lymph or necrosed tissue in which bacterial growth appears to flourish. Used in the early stages for a limited time, flavine gives satisfactory results.

The committee found that the narrow track of a bullet which has passed into or through a limb, without producing an explosive effect by spinning or striking a bone, is usually sterile, and that operation on wounds of this type is unnecessary. Further, they found that where the entry wound and part of the track are clean and narrow, while the exit is lacerated, only the exit wound is likely to be infected. In such a case operation should be limited to a careful cleansing of the exit wound, damaged tissue being removed only till the orifice of the narrow track is exposed. A culture taken

by introducing a swab into the latter will probably be negative, and this part of the wound need not be interfered with.

British Medical Journal, London

Aug. 17, 1918, 2, No. 3007

- 14 *Ischemic Myositis. J. P. Stewart.—p. 151.
- 15 *Cases of Subacute Bacterial Endocarditis. H. J. Starling.—p. 154.
- 16 Attempt to Breed Tubercle Immune Cattle. L. J. Picton.—p. 157.
- 17 *Modification of Stokes-Gritti Amputation. W. A. Chapple.—p. 158.
- 18 *An Acid-Fast Bacillus Obtained from Pustular Eruption. L. Cobbett.—p. 158.

14. Ischemic Myositis.—Stewart advises treating this class of case by means of a careful and systematic stretching of the shortened tissues as recommended by Sir Robert Jones.

15. Subacute Bacterial Endocarditis.—Starling reports five cases. Particular attention is directed to certain symptoms. 1. Ephemeral spots of painful nodular erythema which were noted in two cases and had recurred for some months (at least six months in one case) before admission to the hospital. The patients paid less attention to the spots than to the fact that their finger-tips were on occasions tender when handling anything. Two patients stated that some days after all the tenderness and swelling had disappeared they were able to pick the so-called scab off the fingers. In one case a node appeared on the pinna of the left ear. 2. Petechiae were seen in all the cases in varying degrees and at different times. In two cases they occurred in showers, being scattered freely over the chest, abdomen and thighs. 3. Splenic enlargement was present in all the patients on or soon after admission to this hospital. The degree of enlargement varied with and in each case. 4. In no case was the pyrexia severe. 5. In four cases was demonstrated the occurrence of arterial embolism in a degree which is most unusual and worthy of record: (1) at the bifurcation of the left brachial artery; (2) at a branch of one of the left retinal arteries; (3) (a) in the right radial artery at the wrist; (b) in the left popliteal artery in the bend of the knee joint; (c) in a branch of the left supra-scapular artery; (4) (a) in the left femoral artery; (b) in the left posterior tibial artery, in both instances before admission to this hospital; (c) at the junction of the right axillary and brachial arteries. 6. Hematuria was not marked in any of these cases.

17. Modification of Stokes-Gritti Amputation.—Chapple cuts the quadriceps attachment to the upper edge of the patella completely across, and then stitches the margins of the patella with catgut to the edge of the periosteum round the end of the femur. One or two additional deep catgut sutures will usually be sufficient, and a firm button suture through the skin flaps will make assurance doubly sure.

18. Acid-Fast Bacillus Obtained from Pustular Eruption.—The bacillus was cultivated by Cobbett from chronic intracutaneous pustules covering the back, buttocks, and thigh of a soldier returned from France. No micro-organisms were seen in the pus, and none could, at first, be cultivated from it. But subsequently there was grown, on more than one occasion, an acid-fast bacillus which is the subject of this note.

Journal of Laryngology, Rhinology and Otology, London

August, 1918, 33, No. 8

- 19 Two Years Intubation Followed by Tracheal Fistula. E. Mayer.—p. 225.
- 20 Report for Years 1916-1917 from Ear and Throat Department, Royal Infirmary, Edinburgh. T. Ewing.—p. 227.
- 21 Intrinsic Cancer of Larynx and Operation of Laryngofissure. I. Moore.—p. 234. To be continued.
- 22 An Apparent Cure of Endothelioma or Sarcoma of Trachea with Radium Emanations. B. S. Jones.—p. 242.

Journal of State Medicine, London

August, 1918, 26, No. 8

- 23 Effects of War as Shown in Vital Statistics. B. Mallet.—p. 225.
- 24 Constructive Suggestions in Regard to Proposed Ministry of Health. E. W. Hope.—p. 248.

Journal of Tropical Medicine and Hygiene, London

Aug. 15, 1918, 21, No. 16

- 25 *Treatment of Malignant Malaria in East Africa. M. Roche.—p. 165.

25. **Treatment of Malaria in East Africa.**—African malignant malaria has been completely eradicated quickly and easily by means of intramuscular injections of quinin spread over a month. Sixty grains of quinin bihydrochlorid were given by eight injections, each of $7\frac{1}{2}$ grains. Roche says that about 80 per cent. of cases of cerebral malaria can be cured by quinin if it is energetically injected into the muscles and the rectum. The remaining cases are usually both unconscious on admission and of fatal termination.

Lancet, London

Aug. 17, 1918, 2, No. 4955

26 Celiac Disease. G. F. Still.—p. 193.

27 *Treatment of Cases of Shell Shock in Advanced Neurologic Center. W. Brown.—p. 197.

28 Differential Diagnosis of Dysenteries. J. G. Willmore and C. H. Shearman.—p. 200.

29 Recent Epidemic of Smallpox in Field. G. H. Mead.—p. 206.

27. **Treatment of Shell Shock.**—In two series of 1,000 cases each Brown treated 173 in the first, and 132 in the second by means of hypnosis. In these two series there were altogether 121 cases of loss of speech, or hysterical mutism. He succeeded in curing every single one of these cases. Many of the patients were deaf as well as dumb. These were given a paper of instructions to read, in which they were told to lie down, close their eyes, and give themselves up to sleep. When such a patient showed by the calm look on his face that he had reached a quiet frame of mind, Brown would suddenly and unexpectedly bang two books together near him, and have the pleasure of seeing his eyes flicker, and then find that he could hear. Brown could then continue the treatment by word of mouth in the ordinary way.

Brown is convinced that the essential therapeutic agent in the case of hysteria caused by shell shock is "abreaction," or the working off of the repressed emotion caused by the shock. Mental analysis is a means to this end, and light hypnosis, applied under proper safeguards, is the quickest and most effective method of effecting this analysis, in cases in which amnesia is present and the patient is seen early. For cases of neurasthenia, which are the more numerous and involve emotional preoccupation often dating back many years, mental analysis and reeducation, without hypnosis in any form, are the needful agents, although the abreaction of the original emotional disturbance or disturbances is again essential. In both classes of cases the arousing of sthenic emotion in the patient's mind is an important adjunct in the cure, both in the form of enthusiastic confidence in his physician and expectation of a complete recovery, and also in the form of vivid interest in some form of occupation in the stage of convalescence, during which the mind becomes more unified and consolidated.

Rest, is, of course, also fundamental. But no complete rest is possible while the mind is obsessed with bottled-up emotion. This emotion must be completely worked off, and then true rest will come. The preoccupations of the neurasthenic also must first be dealt with if any form of rest cure is to produce good results. After three and a half years of work with nerve patients in military hospitals in Egypt, England and France, during which over 4,000 cases have passed through his hands, Brown feels no hesitation in saying that mental analysis is the ideal method of treatment, provided that it is carried far enough to produce true abreaction of emotional states.

Medical Journal of Australia, Sydney

July 30, 1918, 2, No. 3

30 Surgical Importance of Interseapular Gland. H. C. R. Darling.—p. 45.

31 Treatment of War Wounds of Knee Joint at Base in France. W. G. D. Upjohn.—p. 50. To be continued.

Aug. 3, 1918, 2, No. 5

32 *Early Recognition of Feeble-mindedness and Other Forms of Social Inefficiency. R. J. A. Berry and S. D. Porteus.—p. 87.

33 Treatment of Bone and Joint Wounds. L. G. Teece.—p. 91.

32. **Early Recognition of Feeble-mindedness.**—As the result of a prolonged research, Berry and Porteus publish what they believe is a practical method for the early recognition of feeble-mindedness and other forms of social inefficiency:

(1) The person's brain capacity is first ascertained, and is compared with the percentile brain capacity of the population. This examination is supplemented by physical and psychophysical tests proved to have diagnostic significance. (2) A psychologic examination is then carried out as thoroughly as possible. The authors do not depend on the application of any single set of intelligence tests, but on a combination of methods. (3) Finally, the whole examination is correlated with the clinical, personal, family and educational history of the person, and the results interpreted in the light of the person's social environment.

The hypothesis on which the authors base their work is, that, as mental development is conditioned by brain capacity, striking deviation from the normal in brain size will tend to be associated with mental abnormality. In order to determine the cubic capacity of brain of a normal living boy or girl, at different ages of their educational career, the authors examined some 10,000 children and university students, with control cases drawn from known abnormal sources. Next the range of variation from the mean was determined and how far, if at all, extremes in this range were to be regarded as abnormal. For the former Berry and Porteus have employed the standard deviation and other well known statistical methods of mathematical science. For the latter they made use of Sir Francis Galton's method of percentiles, and the standard deviation as a unit of possible abnormality.

A table of percentiles was constructed from the results of these findings. Certain facts of importance in the early recognition of feeble-mindedness and other forms of social inefficiency are clearly revealed. These are: (1) That head measurement alone is, and must always be, an uncertain guide as a measure of intellect or its lack. (2) That, as mental development is entirely dependent on brain matter, striking deviation from the normal in brain size tends to be associated with mental abnormality. (3) That when this deviation attains a certain sufficiently high degree, it must be revealed by head measurement and the calculation therefrom of brain size. (4) That such cases of striking deviation are due, in many instances, to developmental failure of the outer, supragranular, or "intellectual" layer of the cerebral cortex, and as this necessarily means a greatly diminished number of myelinated neurones, there will be a smaller sized brain, which head measurement, even in its present imperfect stage, is capable of detecting. Hence, small headedness will be of more diagnostic significance than large headedness. (5) That the authors' percentile tables of brain capacity are distinct aids to the diagnosis of mental inefficiency, and afford a more certain basis for the psychologist to work on than has hitherto been the case, because they afford some clue to the relative development of the supragranular (educational) and infragranular (instinctive) layers of the cortex cerebri of the person.

Archives des Maladies du Cœur, etc., Paris

August, 1918, 11, No. 8

34 *Clinical Forms of Malignant Endocarditis. H. Vaquez.—p. 337.

35 Heart Block with Transient Changes in the Ventricle Beat. P. D. White (Boston).—p. 352.

36 Heart Disease and Fitness for Service. J. Heitz.—p. 355.

34. **Malignant Endocarditis.**—Vaquez discusses the acute, subacute and protracted forms of vegetative endocarditis, saying that only the acute form is primary; the others are generally grafted on some old valvular lesion. The name *Streptococcus viridans* applied to the microbe of the protracted type is not a good one, as the green tint that surrounds the cultures is not a constant phenomenon, and there seems to be no reason for thus distinguishing the streptococcus of malignant endocarditis. In seven of his nine personal cases he found the streptococcus in the blood, but in the two others only the pneumococcus was found.

Archives Médicales Belges, Paris

June, 1918, 71, No. 6

37 *Kinetic Plastics and Prostheses. M. Stassen.—p. 657; Theory. J. Vanghetti.—p. 663; Technic. Pellegrini.—p. 675.

38 *Kinetic Amputation. S. Pieri.—p. 688.

39 *Meningeal Reactions of Syphilis. B. Dujardin.—p. 706.

40 *War Neuropsychiatry. H. Hoven.—p. 721.

37. **Kinetic Plastics.**—The principle of adapting the stump after amputations to utilize all the muscular force left in the various muscles and tendons has been repeatedly described in these columns. A series of articles here describe the principle and technic for the plastic operations and likewise for the amputations, with examples of the various types and the results realized in motor functioning. Pellegrini lines the tunnel through the muscle by rolling into a tube a horizontal transverse strip of skin left attached at both ends. The tube thus formed is the bar over which the tendons or muscles are sutured to form a loop. The skin around is then sutured to cover the whole except at the attached ends of the skin tube. A steel hook coated with celluloid is run through the skin tube, and thus the motor force in the tendon or muscle loop can be imparted directly to the steel hook and from this to the prosthesis. A man amputated in the forearm is shown holding a pail, a valise, a carafe, and writing with the artificial hand, all under motor control. The whole kinetic operation can be done at one sitting.

38. **Amputations for Kinetic Prostheses.**—Pieri emphasizes the necessity for bearing the later kinetic plastics in mind when amputating. The best motor functioning is realized with the free loop; for the forearm, a double loop, one for extension and one for flexion. An ample supply of sound skin is of the greatest importance not only to line the tunnels but also to cover the outside of the loop, the portion most exposed to trauma. His illustrations show the technic for the various amputations to fulfil these conditions. The *Archives* thus brings the whole subject of kinetic plastics down to date, with twenty-five illustrations.

39. **Meningeal Reactions in Syphilis.**—Dujardin has had occasion to do lumbar puncture on a large number of syphilitics before, during and after treatment. For about two weeks after the syphilitic chancre no appreciable reaction in the cerebrospinal fluid is apparent. Then as the spirochetes enter the blood, the sensitive meninges respond to the irritation with slight lymphocytosis while the skin shows as yet no sign of irritation. As the septicemia progresses, the spirochetes proliferate in the skin foci. Not until several weeks later do they proliferate in the meninges; by this time the organism has become relatively immunized against the spirochete, and this explains the comparative mildness of the meningeal and nervous phenomena. The ephemeral character and the fluctuations in this immunization explain the play of subsequent recurrences. For instance, arsenical treatment destroying the more accessible skin foci, puts an end to the vaccination, and if the arsenical treatment is stopped too soon, the result may be renewed proliferation of the spirochetes in the meningeal foci. An inadequate course of arsenical treatment may thus entail a violent meningeal reaction. On the other hand, nothing is more encouraging than to watch the effect on the meningeal reactions of a properly conducted course of arsenical treatment.

40. **Shell Concussion.**—Hoven says in the conclusion of his review of the present status of war neuropsychiatry, that the prognosis of organic nervous disturbances from shell concussion is grave; their evolution is always long. But all the other disturbances rapidly subside.

Archives de Médecine des Enfants, Paris

August, 1918, 21, No. 8

41 *Desquamating Erythrodermia in Infants. J. Comby.—p. 393.

42 *General Paralysis from Inherited Syphilis. J. S. de Sousa.—p. 425.

43 Chloroana. J. Comby.—p. 427.

41. **Desquamating Erythrodermia in Infants.**—Comby has encountered generalized exfoliating dermatitis in thirty newborn infants in the last few years. They were usually well developed and no defects in hygiene could be incriminated in the majority. It develops early, never later than two months, but it has certain analogies with the eczema rubrum of older children. The epidermis drops off in large flakes as with scarlet fever or burns of the second degree. There are no grave general symptoms, no blistering or suppuration unless ill advised medication induces irritation. Seborrhea of the

scalp generally accompanies it and persists after it. Under dry powdering the dermatitis soon subsides.

42. **General Paresis with Inherited Syphilis.**—Sousa's patient is a boy of 7 who was apparently healthy till the age of 5.

Bulletin de l'Académie de Médecine, Paris

July 30, 1918, 80, No. 30

44 *Emotion and Commotion. Dupré and Logre.—p. 124.

45 *Automatic Regulator for Carrel Treatment. Daure.—p. 134.

46 Three-Day Fever on Hospital Ship. P. Joly and Baril.—p. 138.

47 *Serum Treatment of Epizootic Lymphangitis. P. Latour.—p. 141.

44. **Shell Concussion.**—Dupré concludes his study of the *syndrome commotionnel* by emphasizing the analogy between its symptoms, from the initial unconsciousness to the tardy changes in character and in the capacity for resistance and effort, and the symptoms to which we are accustomed with an apoplectic stroke. The latter may be regarded as a *syndrome commotionnel* of internal origin, while the shell shock is the result of similar sudden disturbance in the circulation of external origin. The physical commotion induces apoplectic coma, while an emotional shock sets in play the defensive motor reactions of the instinct of self preservation, but repeated emotional shocks may lead to nervous exhaustion by a kind of emotive anaphylaxis. A violent shell concussion as well as an intense emotional stress may lead to a grave psychopathic condition of delirious nature, chronic and tending to dementia. In several instances he has witnessed a catatonic or hebephrenic psychosis, characteristic and incurable, develop at once after a shell concussion or after intense emotional stress.

45. **Automatic Regulator for Irrigation.**—Daure interposes in the supply tube a reservoir which automatically tips up when a certain amount of fluid has dripped into it. When the reservoir contains the desired amount (gaged with precision) it tips over and pours the fluid into the tube below. The contrivance was devised for Carrel treatment, which is now being applied to mastoid cases, but it may prove useful also in other fields.

47. **Epizootic Lymphangitis.**—Latour relates that great ravages are being caused among the army horses by contagious lymphangitis imported by the African contingents. No treatment proved effectual until the serum from convalescent horses was administered by subcutaneous injection. The results were excellent, he says, in the twenty-eight horses given this treatment. Some of the horses were given daily injections of 10 or 20 c.c. but the best results were obtained with massive doses, 100 c.c., at four or five day intervals. The second injection was followed by marked improvement and the cure was complete as a rule after the fourth or fifth. Twenty-four of the twenty-eight horses resumed their service in from three to six weeks, while with all other treatment the disease dragged along for three or four months.

Bulletins de la Société Médicale des Hôpitaux, Paris

May 17, 1918, 42, No. 17

48 *Lethargic Encephalitis. Alfred-Khoury.—p. 455.

49 *Primary Poliomesocephalitis with Narcolepsy. De Saint-Martin and J. Lhermitte.—p. 457.

50 Febrile Nervous Form of Epidemic Influenza. A. Chauffard.—p. 462.

51 *Orchi-Epididymitis. G. Faroy.—p. 465.

52 Oculomotor Reflex with Orbital Tumor. Rouquier.—p. 467.

48. **Lethargic Encephalitis.**—Khouri reports a case in a man of 55, distinguished by attacks of jacksonian epilepsy. The somnolency was the only symptom for a week, then came fever, bilateral ptosis, strabismus, retention of urine, and convulsions on one side. The urine and spinal fluid seemed approximately normal till death the twenty-third day. In the discussion that followed, four similar cases were mentioned, all of recent date, the fever not appearing for a week or ten days.

49. **Primary Poliomesocephalitis with Narcolepsy.**—De Saint-Martin and Lhermitte report two cases in which headache and invincible somnolence for a few days were followed by diplopia and ptosis. The bilateral paralysis of the third pair was complete, involving not only the external ocular muscles

but the musculature of the iris, with paralysis of accommodation and the light reflex, but no signs of involvement of other nerves or the cerebellum. They define the cases as primary superior policephalitis, and regard them as the same disease which Chauffard and others have been reporting and calling lethargic encephalitis. They think this name should be reserved for sleeping sickness. In the district in central France where they encountered the two cases reported, an epizootic is prevailing among poultry almost in endemic form.

51. Orchi-Epididymitis.—In one of the two cases described the orchi-epididymitis developed during convalescence from mild colon bacillus sepsis and in the other during convalescence from typhoid. It proved transient in the first case, but has persisted in the other during the nine years to date.

Journal de Chirurgie, Paris

June, 1918, **14**, No. 5

53 *War Wounds of Vessels. J. Okinczyc.—p. 441.

54 *Appendicostomy in Treatment of Acute Dysentery. G. Cotte.—p. 463.

53. War Wounds of Blood Vessels.—Okinczyc discusses the immediate hemorrhages and diffuse hematomas, the secondary hemorrhages and the tardy disturbances in the form of aneurysms. Among 220 wounded, 24.7 per cent. had one or more large blood vessels injured. When they do not bleed at once, the injury is liable to be overlooked, and he emphasizes the importance of seeking involvement of the vessels in war wounds as a routine practice. The trajet of the projectile, roentgenoscopy revealing a projectile near a vessel, and spontaneous or induced pain in the course of a vessel are all instructive. This pain localized in the wounded vessel, sometimes extending to the whole limb, is the more remarkable, he says, because war wounds, aside from fractures, are generally only slightly painful at first. One man, for instance, had eight or ten wounds on the legs, buttocks and lumbar region. The left thigh seemed to have escaped as there was no trace of a projectile having entered. But the man complained of pain in this thigh alone, pointing to a spot over the femoral artery. On the basis of this pain, Okinczyc cut down to the artery and found that it had been grazed by a projectile on its way downward, and there was thrombosis for 2 cm. The discouraging frequency of gangrene after ligatures has compelled him to look about for other procedures.

54. Appendicostomy in Dysentery.—Cotte has applied this method of treatment in five grave cases of acute dysentery, and the results were so fine that he thinks it deserves wide adoption. He cut off the appendix, leaving only enough of a stump to hold the catheter. The cecum was fastened with four silk stitches to the parietal peritoneum. The latter was sutured except for the catheter. General anesthesia is necessary; in the one case done under local anesthesia, the cecum and colon had slipped entirely out of sight and could not be found without manipulations which the debilitated patient would have been unable to stand. Cotte used always a 1 per thousand solution of silver nitrate, repeating the lavage every day or second day until the stools were formed.

Lyon Chirurgica

March-April, 1918, **15**, No. 2

55 *Experimental Study of Healing of Nerves. J. Nageotte.—p. 245.

56 The Circulatory Disturbances in Shock. H. Delaunay.—p. 293.

57 *Lumbar Puncture in War Surgery. F. Albert.—p. 328.

55. The Healing of a Severed Nerve.—Nageotte's account of his extensive experimental research is profusely illustrated. Among the conclusions is the statement that the interposition of a nerve graft—in dogs—aids in the regeneration so that healing may proceed perfectly, with complete restoration of function. The nerve graft was kept in alcohol (50 degrees). The young nerve fibers are attracted into narrow interstices, and this stereotropism is favored by providing the regenerating nerve with a graft of easily permeable tissue, with longitudinal interstices. A graft from a rabbit nerve is best adapted for the purpose, but as this is so small, he preferred a nerve graft from a calf fetus. This dead heteroplastic nerve graft gave perfect results in some of the dogs. He thinks that these findings might apply to human beings, but

the graft would have to be made early. In old wounds, changes in the stumps of the nerves would render any intervention futile.

57. Lumbar Puncture with Skull Wounds.—Albert expatiates on the advantages of lumbar puncture in surgery of the skull. It differentiates simple meningeal irritation from local compression of the cortex, and simple hernia of the brain from hernia caused by an inflammatory process below. With the latter, the hernia does not collapse even after repeated lumbar puncture. The latter is indicated in treatment of concussion of the brain, fracture of the base of the skull, and for all cases of irritation of the cortex with increased secretion. He reiterates that when the condition is not improved by lumbar puncture, some serious injury may be assumed, calling for craniectomy. Among the fifteen cases described to illustrate the benefit in these various conditions, are four of post-traumatic meningitis.

Paris Médical

July 6, 1918, **8**, No. 27

58 *Headache after Shell Concussion. A. Mairet and H. Piéron.—p. 1.

59 Persisting Functional Disability. Laignel-Lavastine.—p. 7.

60 Lead Meningitis. P. Lereboullet and J. Mouzon.—p. 12.

61 Goose Flesh Reactions to War Wounds. Andre-Thomas.—p. 16.

62 Traumatic Cerebral Hemorrhage. Chavigny.—p. 28.

63 Discharge for Insanity in Soldiers. R. Benon.—p. 29.

58. Headache After Shell Concussion.—Mairet and Piéron call attention to symptoms indicating irritation of the trigeminal nerve after a shell concussion. There probably are minute suffusions of blood responsible for the irritation. The latter induces headache and tenderness along the nerve, and this sign of trigemino-occipital irritation is objective testimony to the concussion. Pressure on the emerging point of the nerve, especially above the orbit, causes pain which spreads to the back of the head, along the course of the great occipital nerve.

Presse Médicale, Paris

Aug. 1, 1918, **26**, No. 43

64 *War Wounds with Streptococci. Plisson, L. Ramond and J. Pernet.—p. 393.

65 Primary Reunion of War Wounds. Ehrenpreis.—p. 395.

Aug. 5, 1918, **26**, No. 44

66 *Serotherapy and the Myth of Anaphylaxis. Jousset.—p. 401.

67 *Tardy Effects of Concussion. A. Léri.—p. 403.

68 *Mixed Anesthesia. J. Pellot.—p. 405.

69 *Resection of Hip Joint. P. Chutro.—p. 406.

70 *Action of Epinephrin on Gastro-Intestinal Tract. L. Binet.—p. 407.

71 Local Anesthesia for the Eye and Orbit. Duverger.—p. 408.

64. The Streptococcus in War Wounds.—Plisson, Ramond and Pernet remark that streptococcus war wounds constitute at present an entirely new morbid entity, as they are set apart from all other war wounds, primary suture being forbidden them. The course of sixty-seven war wounds containing streptococci is reviewed here. They all are in chains and take the Gram, but otherwise they differ so widely that it is always a question as to the unity or plurality of streptococci, but all forms seem to be equally dangerous in war wounds. They induce an infection like an actual erysipelas of the walls of the wound, against which the organism vaccinates itself only slowly and tardily. It takes weeks for a streptococcus wound to heal up, but a fatal termination is exceptional. After the danger of gas gangrene is past, the prognosis is not grave for the man himself, but it is grave for the state, as he is kept suppurating for months, and the army thus loses his services. No method of disinfection to date has proved effectual against the streptococcus, but the progress of the wound can be hastened by secondary operative measures, Thiersch flaps or exsection, as for a tumor, of a wall of tissue, including the whole of the wound and 2 or 3 mm. beyond its edges and its bottom, which one avoids touching during the operation; strict hemostasis; primary suture with filiform drainage at each end. These secondary operations were never done before the third week, by which time the organism had evidently acquired a certain amount of immunity in respect to the streptococcus. No antisera or colloidal metals, etc., ever displayed any efficacy; the reliance must be

on the organism itself to accomplish its own vaccination. Prophylaxis is the main thing. Segregation of all the streptococcus cases is important, but the best guarantee against streptococcus infection is the early and minute *épluchage* of the wounds.

66. **Serotherapy and the Myth of Anaphylaxis from It.**—Summarized, August 17, p. 605, when published elsewhere.

67. **Tardy Effects of Concussion.**—Léri refers to cases in which the focal lesions in the nerve centers from the concussion from a shell explosion did not develop until several days or weeks afterward. By that time the connection with the shell concussion is apt to be overlooked or unrecognized, and the nervous disturbance, paralysis, hemiplegia, etc., are liable to be mistaken for hysterotraumatism, etc. Among the various types of these *commotions retardées* are the forms with generalized muscular atrophy, aphasia, hemiplegia or amyotrophic paralysis of the quadriplegic type. The prognosis of these tardy manifestations seems to be far more favorable than for those that develop at once. Nearly all the men whose stories are related had recovered more or less completely in the course of a few months to a year. The fact that these organic lesions in the spinal cord or brain may not reveal themselves for several days or weeks or months is important from the medicomilitary standpoint. The acquired fragility of the vessels in the brain and spinal cord of men who have suffered a concussion of this kind should be borne in mind in the estimation of focal lesions which develop later. Léri adds that the question of *amyotrophies post-commotionnelles* has not been brought up before. The very slow and progressive development of the muscular atrophy has prevented its real cause from being discovered.

68. **Mixed Anesthesia.**—Pellet has devised an apparatus with which 15 parts ethyl chlorid are given with 3 parts of ether and 2 parts of chloroform; 20 c.c. of the mixture insures complete anesthesia for twenty minutes. He claims for it all the advantages of pure ethyl chlorid with none of its disadvantages.

69. **Resection of Hip Joint.**—Chutro describes with illustrations a method of operating in case of grave infection of a war wound of the hip. The oblique osteotomy of the neck of the femur permits good drainage while retaining the upper surface of the neck its entire length; and retaining the capsular muff intact. The wound is drained with six or eight Carrel tubes. In his nine cases the whole intervention took only ten minutes, and the hip joint was left functionally capable with an average shortening of only 3 cm.

70. **Action of Epinephrin on Digestive Tract.**—Binet's review of the literature demonstrates that epinephrin has an undoubted modifying action on the vascularization, secretion and motor functioning of the digestive tract. Introduced directly into the stomach, epinephrin does not seem to display any toxic action. But introduced into the rectum, it proves very toxic in doses similar to those that are lethal for the animals when injected subcutaneously. He ascribes this to the close anastomoses between the hemorrhoidal veins and the portal vein, the liver being apparently the barrier which arrests the epinephrin ingested. Neither pepsin nor trypsin nor passage through intestinal capillaries seems to alter the epinephrin ingested. On the other hand, digestive disturbances from suprarenal insufficiency are known. These and other data learned from experimental research are useful, he says, to guide the physician. They are instructively supplemented by Grasset's case in which 35 gm. of 1 per thousand solution of epinephrin was swallowed with suicidal intent, without appreciable results.

Correspondenz-Blatt für Schweizer Aerzte, Basel

Aug. 10, 1918, 48, No. 32

72 *The Influenza Epidemic. R. Staehelin.—p. 1057.

73 Present Status of Tuberculosis. O. Amrein.—p. 1060.

74 Cancer Statistics. Labhardt.—p. 1066; J. Aebly.—p. 1069.

75 *The Osmotic Pressure in the Serum in Typhoid. A. E. Alder.—p. 1072.

72. **The Influenza Epidemic.**—Staehelin writes from Basel that the prevailing epidemic resembles in every respect the pandemic of influenza in 1889 only that it is apparently more

malignant. The influenza bacilli have been cultivated from blood and sputum in different localities, and pneumonia seems to be a frequent manifestation; forty-six of the 309 cases in his service in about six weeks terminated fatally. Leukopeny seems to be constant in the more serious cases, and an eruption resembling that of scarlet fever is common. He isolates the sick as for diphtheria, and there has been no ward contagion but two of the attending physicians, seven nurses and four attendants in contact with the sick have had the disease. The salicylates reduced the temperature temporarily and camphor proved useful in pneumonia, especially with venesection when the latter was indicated.

75. **Freezing Point of Blood Serum in Diagnosis of Typhoid.**—Alder investigated the osmotic pressure in the blood serum of twelve typhoid patients and tabulates these and the metabolic findings, as also in four other patients whose disease proved not to be typhoid. In 75 per cent. of the typhoid cases the osmotic pressure in the serum was found decidedly reduced at the very beginning and through the height of the disease. In the others it fluctuated. He suggests that this early reduction in the osmotic pressure as shown by the freezing point may prove useful in the very early differential diagnosis of typhoid.

Annali di Ostetricia e Ginecologia, Milan

February, 1917, 19, No. 2, Pub'd, August

76 *Obstetric Ureter-Bladder-Vaginal Fistulas. A. Bertino.—p. 41.

77 *Pregnancy Chorea. S. Flamma.—p. 69.

76. **Obstetric Lacerations.**—Bertino reports a case in which there was both a vesicovaginal fistula and a fistula between ureter and vagina. The latter was not discovered until the persisting drizzling of urine after the first fistula had been corrected led to its discovery. Both fistulas were evidently the result of simultaneous injury during delivery at term with a moderately contracted pelvis, probably when the fetal head was being rotated. A functional cure was realized by implanting the ureter in the bladder wall by an extraperitoneal technic.

77. **Pregnancy Chorea.**—Flamma's patient was a woman of 21 and the chorea developed at the third month of her first pregnancy. The chorea growing worse was accepted as an indication to arrest the pregnancy, after which it gradually subsided. Becoming pregnant a year later the choreic movements recurred, commencing in the second month. The woman and her husband begged to have abortion done as the choreic movements were incessant and severe. Convinced that the trouble was principally of nervous origin, a sham obstetric intervention under chloroform anesthesia convinced the couple that the abortion had been done, and the chorea rapidly and completely disappeared. As the pregnancy approached term and the couple realized that their wishes for a child were to be gratified without the woman's suffering from the chorea, they were very much pleased. Flamma reviews the literature on chorea gravidarum. Chorea in childhood, hysteria, a fright or an inherited neurotic taint are frequently mentioned in the antecedents, but in some cases no factor could be incriminated except the pregnancy. He remarks that pregnancy chorea and chorea in the pregnant are not necessarily the same thing. The mortality of pregnancy chorea is given as 8.3 per cent. in one of the latest compilations. Sham interruption of the pregnancy proved effectual also in another case in the clinic in which the psychogenous manifestations took the form of incoercible vomiting. These twin cases with the same origin but different manifestations, cured by the same measure, confirm the conception of a psychogenous origin. Before inducing actual abortion in dubious cases of the kind, a sham intervention may answer the purpose.

Pediatria, Naples

August, 1918, 26, No. 8

78 *Tuberculin Test in Measles. O. Cozzolino.—p. 449.

79 *Partial Wet Nursing. A. Borrino.—p. 457.

80 Torpor of Blood-Producing Organs. G. Milio.—p. 467.

78. **The Tuberculin Reactions in Measles.**—The veering from positive to negative in the response to the tuberculin

test during measles is ascribed by Cozzolino to the changes in the skin induced by the eruption.

79. Supplementary Wet Nursing.—Borrino refers to cases in which the mother's milk is absolutely inadequate or the breast is deformed, or the mother is severely ill. Under these conditions, instead of resorting to artificial feeding, she advocates securing the services of a woman living at home and nursing her own child, who will give the breast to the infant a few times during the day. Four typical cases are described in which very sick infants were thus tided along in good condition until the mother could nurse them adequately herself.

Gazzetta degli Ospedali e delle Cliniche, Milan

June 27, 1918, **39**, No. 51

81 Relations between Functional Derangement in Internal Organs and the Suprenals and Other Endocrine Glands. C. Amistani.—p. 505.

82 *Iodoform Treatment of Tuberculous Pleurisy and Peritonitis. M. Maurizi.—p. 507.

July 4, 1918, **39**, No. 53

83 Sulphur Ointments. L. Sabbatani.—p. 514.

July 7, 1918, **39**, No. 54

84 Reflex Nervous Disturbances. E. Greggio.—p. 521.

85 Bacteriology of the Blood with Threc-Day Fever. I. Salvioi and M. Savini.—p. 524.

86 *Early Operations for War Wounds. G. Pisano.—p. 525.

82. Iodoform Treatment of Tuberculous Pleuritis and Peritonitis.—Maurizi reports excellent results from injection of a suspension of 2 or 4 gm. of iodoform in 10 or 20 gm. liquid petrolatum in treatment of tuberculous pleuritis. The iodine released slowly from the suspension kills the tubercle bacilli, and this in turn generates what amounts to an autotuberculin, while the absorption of the effusion is a kind of autoserotherapy. He begins with an exploratory puncture but does not remove the effusion unless it is in excessive amounts. There may be a febrile reaction which reaches its height next day and lasts from five to seven days. Generally one injection answers the purpose. He keeps the patient on milk exclusively as long as the reaction is apparent. Surgical treatment is necessary with staphylococcus or streptococcus empyema, but it is contraindicated for the tuberculous. It does not cure the primary process while it is liable to set up associated infection and entail an incurable fistula. Caparoni uses glycerin instead of liquid petrolatum, but Maurizi found the glycerin too irritating.

86. Operating in Advanced Stations.—Pisano recommends a small portable barrack with equipment for surgical work, which can be packed complete in two trucks and set up close to the front wherever needed. He has long been advocating operations close to the firing line to spare the wounded the strain of transportation.

Policlinico, Rome

Aug. 4, 1918, **25**, No. 31

87 *Fracture of Neck of Femur. C. Ghillini.—p. 725.

88 Salivary Concretions. P. Amorosi.—p. 729.

August, 1918, **25**, Medical Section No. 8

89 *Osteoporosis after War Wounds. C. Guarini.—p. 225.

90 Appendicitis and Life Insurance. I. Romanelli.—p. 245.

91 Xylol in Treatment of Tuberculosis. G. Volpino, Colombino and Fornaroli.—p. 253.

87. Fracture of Neck of Femur.—Ghillini calls attention to the fact that as the patient with fractured femur reclines, the weight of the shaft drags down the distal stump of the neck so that it lies below the plane of the proximal stump. This of course prevents exact coaptation of the stump ends. It can be avoided, he says, by bracing the pelvis against some support, and then having the limb straightened by traction on the foot and leg. Measure the distance on the sound side from the anterior superior iliac spine to the greater trochanter, and the distance between these points on the side of the fracture. An assistant then, with one hand under the buttocks on the side of the fracture, raises the greater trochanter until the distance between it and the iliac spine measures the same as on the sound side. A strip of plaster is then applied passing from one side to the other of the thigh and leg, and made to adhere to the limb with strips of gauze. Then a

cement and plaster cast is applied, enclosing the pelvis and reaching from the umbilicus to the knee. The assistant holds the limb in inward rotation while the plaster is hardening, which brings the fragments together. In his first case he worked under roentgen control, but found this superfluous, as the measurements alone answered every purpose. He applies extension by Volkmann's method, with a 5 or 10 kg. weight, keeping the stirrup fastened to the foot in inward rotation. The limb is thus immobilized for about fifty days. The fracture by this means heals in the correct anatomic relations. The only drawbacks with the method he found to be that others accused him of faking the roentgenograms of his cases, as no one would believe that such complete restoration of a fractured femur was possible. He reproduces four of them.

89. Osteoporosis After War Wounds.—Guarini relates how the roentgen rays showing osteoporosis after industrial accidents and war wounds have freed many persons from the stigma of simulation, as they revealed trophic changes in the bone responsible for the patient's complaints. The trouble may commence in from four weeks to four months after the injury. Osteoporosis is especially frequent after war wounds, and the early detection of the tendency is important from several standpoints. He suggests that the demineralization should be combated by dietetic measures, first making sure of normal conditions in the digestive tract. In some cases, organotherapy might also be considered. Electrotherapy and physical measures may improve the circulation in the limb and promote the nourishment of the periosteum and joint cartilage. Nineteen cases are described in detail, with illustrations. In one woman the lumbar spine was the seat of constant pains and tenderness, first explained by the osteoporosis revealed by the roentgen rays. Trophoneurotic influences after a war wound were evidently responsible in some cases. Guarini found a tendency to osteoporosis in from 25 to 50 per cent. of 3,500 roentgen examinations of the wounded. It was frequent in the small bones of the hand or foot after war wounds not far above, and in the elbow. Inflammation is evidently a factor, but long immobilization of the limb certainly cooperates.

Rivista di Clinica Pediatrica, Florence

August, 1918, **16**, No. 8

92 *Convulsions in Infants. C. Francioni.—p. 393.

92. Convulsions in Infants.—Francioni found that some of the infants under 3 months old who had convulsions developed afterward normally, some traumatic or circulatory disturbance from the birth process evidently having been responsible for the convulsions. In others, symptoms of spasmophilia became manifest later, or of inherited syphilis or of tuberculosis. Whatever the etiology, the convulsions were alike in all. It is manifest further that digestive disturbances may aid in bringing on convulsions with an inherited taint or from other cause, but the stage of the development of the nervous system evidently cooperates, before the third month and after the eighth month being the periods of greatest frequency of convulsions.

Gaceta Medica de Caracas, Venezuela

June 30, 1918, **25**, No. 12

93 Classification of a Distoma. J. M. R. Sierra.—p. 124.

94 *Chaulmoogra Oil in Treatment of Tuberculosis. J. G. Hernandez.—p. 127.

95 Pyrexias at Caracas. F. A. Risquez.—p. 128.

94. Chaulmoogra Oil in Tuberculosis.—Hernandez found that addition of 2 per cent. chaulmoogra oil to the culture medium always prevented development of tubercle bacilli. His experiments with it in guinea-pigs also seemed to confirm its destructive action on these bacilli. He gave small injections of the oil to six tuberculous patients. The best results were obtained with injection of not more than 1 or 2 c.c. at twenty or thirty days' interval. Under this all the symptoms subsided in some of the cases. In the discussion that followed, Rincones suggested that possibly this oil might render the waxy shell of the bacillus less resistant, so that then it might yield to serotherapy.

Revista de la Asociacion Medica Argentina, Buenos AiresMay, 1918, **28**, No. 162

- 96 Intestinal Lesions from Acquired Syphilis. Udaondo.—p. 375.
 97 *Resection of Auriculotemporal Nerve in Treatment of Parotid Fistulas. A. Ceballos and A. G. Bacigalupo.—p. 395.
 98 *History of Hygiene in Argentina. E. R. Coni.—p. 401. Cont'n.
 99 *Antagonistic Action of Organ Extracts. B. A. Houssay.—p. 433.
 100 Pancreatic Cysts. J. M. Jorge, Jr.—p. 440.
 101 Gonococcus Peritonitis. R. A. Rivarola.—p. 478.
 102 Polycystic Disease of Mammary Gland. N. Tagliavacche.—p. 484.

97. **Resection of Auriculotemporal Nerve in Treatment of Parotid Fistulas.**—The man of 36 was cured completely of a rebellious fistula into the parotid gland by resection of the auriculotemporal nerve to reduce the secretion of saliva. Similarly favorable results were obtained with this intervention also in two cases of cancer of the tongue and one of cancer of the esophagus. In the latter case the resection was bilateral. In all the cases there was immediate reduction in the flow of saliva but no other effects were apparent.

98. **History of Public Hygiene in Argentina.**—This is the fifteenth chapter of Coni's memoirs.

99. **Antagonistic Action of Pituitary and Suprarenal Extracts.**—Houssay presents charts and describes experiences which confirm that while pituitary extract usually reinforces and prolongs the action of epinephrin, on the bronchi, bowels and pupil it exerts an antagonistic action.

Revista de la Universidad de Buenos AiresJune-July, 1918, **38** and **39**, No. 136

- 103 *Ruptures of the Uterus. J. B. Gonzalez.—p. 161. Cont'n.
 104 *Phlegmons of Broad Ligament. C. A. Castaño.—p. 219. Cont'n.

103. **Ruptures of the Uterus.**—The fifty-six pages of this instalment of Gonzalez' extensive thesis review the history and the literature on rupture of the uterus, and his own clinical experiences. Among 3,125 parturients in his service, rupture occurred in 1.91 per thousand of 1,562 Argentine women; in 2.83 per thousand among 707 women of Spanish race, and in 36.96 per thousand among 514 Italians, and yet contracted pelvis was relatively rare among the Italian women. Shoulder presentation was evidently a factor in the rupture in six of the Italian women.

104. **Pelvic Infections.**—Castaño gives here the minute details of his experimental work and research on the origin of and findings with phlegmon of the broad ligament, with thirty-three pages of bibliography, twenty-four fine photomicrographs and twenty-six handsome colored plates, besides other illustrations and thirty case histories, and the general conclusions as to the pathogenesis and pathologic anatomy of phlegmons of the broad ligament. A shorter communication by him on this subject was reviewed in these columns, July 13, 1918, p. 157, and his conclusions were there summarized.

Gann, TokyoJuly, 1918, **12**, No. 2

- 105 *Induced Cancroid in the Mouse. H. Tsutsui.—p. 17.
 106 *Transplantation of Fowl Tumors. K. Yamamoto.—p. 22.
 107 Tubal Embryoma. S. Ohno and H. Takaoka.—p. 24.

105. **Artificially Induced Tumors in Mice.**—Tsutsui applied to 259 mice Yamagiwa's method of inducing malignant proliferation of tissues by repeatedly painting them with coal tar. Only sixty-seven of the mice survived to the hundredth day, the others succumbing probably to intoxication from the tar as they licked the spot. A tumor developed in thirty-five of the sixty-seven surviving, that is, in 52 per cent. The microscope showed on continued application of the tar, carcinoma in sixteen and sarcoma in one of the animals, an average of 23.8 per cent. of the animals that lived more than 100 days. There is some chemical substance in the tar, he thinks, which must be incriminated in the development of the carcinomas, but mechanical injury must not be left out of account, as the spot of the application is often bitten by the animal, and there is further repeated irritation as the scar is lifted up for renewed painting with the tar.

106. **Transplantation of Fowl Tumors.**—Among the points brought out by Yamamoto's experiments with fifty-eight strains of fowl tumors and one of dog and of guinea-pig

tumors, is that the arrest in the growth of a tumor and the resorption of an already completely developed tumor, and the failures in transplantation, must stand in some intimate connection with the sexual function of the animal in question.

Nederlandsch Tijdschrift voor Geneeskunde, AmsterdamJune 29, 1918, **1**, No. 26

- 108 *Puerperal Sepsis. A. A. H. Van den Bergh.—p. 1774.
 109 Wind Shelter Tent for Sun Baths. C. M. Mol.—p. 1783.
 110 Organization of Specialists. A. C. Van Bruggen.—p. 1784.

108. **Sulphemoglobinemia.**—Van den Bergh over ten years ago called attention to the presence of sulphemoglobin in the red corpuscles in certain cases. In a case recently encountered, the sulphemoglobinemia followed puerperal fever after a criminal abortion. The symptoms corresponded to those accompanying sepsis from anaerobic microbes. The skin turned a yellow or coppery color, while the nose, the fingers and toes and the mucosa looked blue. The scanty urine contained hemoglobin. Some of the women have recovered, but as a rule they die in a few days. The organs are found brownish, but the most striking finding is the apparent integrity of the sexual organs and peritoneum. In the case reported, the spectroscope showed lines typical for sulphemoglobin. It is possible that this has been mistaken for methemoglobin in some of the cases on record labeled methemoglobinemia. Methemoglobin is an ordinary derivative of hemoglobin, but sulphemoglobin is formed exclusively under the action of sulphuretted hydrogen. The discovery of sulphemoglobin in the blood will turn the scale in favor of sepsis rather than an intoxication. No one has succeeded in cultivating microbes from the blood in these cases. In the present case they had probably entered by way of the internal genitals but had not caused any local lesions. Proliferating in the blood, they attacked the hemoglobin.

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- 111 *Exophthalmic Goiter in Children. H. C. Gram.—p. 913.
 112 *Micro-Tests for Iron. M. Claudius.—p. 930.
 113 Present Status of Pyelography. F. Rydgaard.—p. 937. Cont'n.

111. **Exophthalmic Goiter in Children.**—Gram cites the literature on this subject, and especially in reference to the unusual growth in height in children with exophthalmic goiter. This disease is rare in children. Sattler could find records of only 184 children under 15 in 3,477 cases of exophthalmic goiter on record. At the same time it is not infrequent to encounter in girls approaching puberty some slight enlargement of the thyroid with mild nervous manifestations and tendency to tachycardia—evidently a pathologic exaggeration of the physiologic hyperthyroidism at this time. Holmgren in 1906 called attention to the excessive growth which occurs in these conditions. The growth seems to be whipped up, and the bones settle prematurely into a condition which normally would occur only four or five years later. The epiphyses become consolidated, so that growth has to cease after this spurt, the children not being exceptionally tall when they reach their majority. Gram here reports in detail three typical cases. The girls were harmoniously developed, with menstruation at 12. At 13, they were 13.5 and 10 cm. taller than the average for their age. There were no signs of acromegaly, unless this extra growth may be regarded as a lengthwise acromegaly.

112. **Micro-Tests for Iron.**—Claudius gives the details of a colorimetric and a titration micromethod for determination of iron in the blood or other fluid. The first is based on the transformation of the iron into soluble Berlin blue; the other on the combination of an iron oxid with soluble Berlin blue to form insoluble Berlin blue. An aqueous solution of Berlin blue is used for the color standard. The tint is proportional to the iron content; probably because the stain is a colloidal solution. Other colorimetric technics in vogue are unreliable as the stain becomes dissociated more and more into its colorless elements. This does not occur with a stain in colloidal solution. He comments on the importance of an exact micromethod for iron not only for chemistry in general but for clinical medicine. Only 0.10 c.c. of blood is required for either technic.

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THE LYMPHATICS OF THE DENTAL REGION *

FREDERICK B. NOYES, B.A., D.D.S.

AND

KAETHE W. DEWEY, M.D.

CHICAGO

In place of the usual review of the progress of dental science and art, in the year past, which is given in a chairman's address, your chairman has decided to present a report of the work done in the Histological Laboratory of the College of Dentistry of the University of Illinois in the last three years. Two years ago, at the Detroit session, the first of this work was reported to this section.

First, I want to say that the technical work has been done by Dr. Dewey, in my laboratory, and she has prepared the review of the literature.

THE LYMPHATIC SYSTEM

Schweitzer¹ deserves the credit of first demonstrating, by injection, the presence of lymphatic vessels in the dental pulp and peridental membrane. Our work has corroborated his results, and filled out some of the gaps in his findings, especially in showing through its entire extent the drainage from the dental pulp, and the course of the vessels in the infra-orbital and inferior dental canals.

To those who are not familiar with this field of work, it may be well to say a word in regard to the character of the lymphatic system. All the cells of the body are bathed in fluid with which, through metabolism, they are in vital reaction. This fluid passes out through the walls of the blood capillaries into intercellular or interfibrous spaces, from which it is collected into minute canals, or spaces, lined by endothelial cells. These are known as the lymph capillaries. From these the fluid passes into larger channels with delicate endothelial walls, and finally into large lymphatic trunks, some of which have walls similar to the veins. The fluid is finally returned to the blood circulation through a valve-guarded opening into the subclavian vein. Along the course of these channels are interposed many lymphatic glands or lymph nodes.

As a general statement, lymphatic vessels are present wherever connective tissue is found. As long ago

as 1891, Foster² said, "Of all the varied functions of connective tissue perhaps the most important is this relation to the lymphatic system; in nearly every part of the body connective tissue serves as the bed or origin of lymphatic vessels." Failure to inject them cannot be taken as proof that lymphatic vessels do not exist in a given location. Because of their inaccessibility and the structural peculiarities of the tissues, the dental system has long resisted all attempts to demonstrate the presence of lymphatic vessels.

The difficulty of injecting lymph vessels, as compared with blood vessels, can be readily appreciated. In some places large lymph vessels can be found, and because of the rich, plexus-like anastomosis of the small channels, they can be injected backward. In the dental region, however, this is quite impossible because of their minute size and the delicacy of the walls.

In the dental region, the method employed consists in slowly and gently carrying the fluid into intercellular and interfibrous spaces and by careful massage, forcing it through the interlacing, plexiform channels. In this way the injecting fluid is made to follow the natural course of drainage of the area, and to a limited extent can be forced backward into the other lymph capillaries. If this is kept in mind, it will be easier to interpret the illustrations.

LYMPHATIC VESSELS OF DENTAL SYSTEM

I will now describe briefly the arrangement of the lymphatic vessels of the dental system as made out by previous workers and as shown in our work.

Sappey³ describes and beautifully illustrates the lymphatic vessels of the mucous membrane of the mouth, cheeks and lips. He shows a very rich plexus of lymph capillaries in every connective tissue papilla of the mucosa. These are drained into a rich delicate network in the submucosa, passing downward over the buccal and lingual surfaces of the alveolar process, and at the reflection from the bone to the cheek, or the bone to the tongue, forming a wreathlike network. In the lower jaw, this wreathlike network is drained by a few efferent trunks: on the outside, passing from the median portion to a submental lymph node and from the lateral portion to the submaxillary and superficial cervical nodes; on the lingual side, near the median line a few efferent trunks pierce the floor of the mouth and pass to the submental node. At the posterior portion they anastomose with the vessels from the sides of the tongue and the pharynx and pass chiefly to the median nodes of the upper group of deep cervical nodes.

In the upper jaw the wreath lying between the maxilla and the reflection of the cheek is drained by a

* Chairman's address, read before the Section on Stomatology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints. A copy of the latter will be sent by the author on receipt of a stamped addressed envelop.

1. Schweitzer: Ueber die Lymphgefäße des Zahnfleisches und der Zähne beim Menschen und bei Säugetieren, Arch. f. mikr. Anat., 1907, 69, 807; 1909, 74, 927.

2. Foster, Sir Michael: A Text-Book of Physiology.

3. Sappey: Anatomie, physiologie, pathologie des vaisseaux lymphatiques considérés chez l'homme et les vertébrés, Paris, 1874.

few efferent vessels, most of which follow the facial vessels and reach the larger submaxillary nodes. On the lingual they run across the hard and soft palate and to the upper nodes of the deep cervical group, usually of the same side but anastomosing and often crossing to those of the opposite side.

Sappey's description is confined, as far as the peridental membrane is concerned, to vessels lying to the occlusal of the ligamentum circulare.

I want now to emphasize the difference in the course of the lymphatic vessels from the papillae of the buccal and lingual slopes of the gingivae, as compared with the course of those from the long, slender papillae of the subgingival space (the side next to the tooth). As Sappey describes, the former do not penetrate the ligamentum circulare but pass down along the periosteum and to the wreathlike network at the reflection of the lip and cheek. The

latter penetrate the ligamentum circulare and extend toward the apex of the root in the peridental membrane. Figure 1 shows the lymphatic capillaries of the papillae of the subgingival space, passing among the fibers of the peridental membrane close to the cementum, penetrating the ligamentum circulare and into the larger vessels coursing toward the apex of the root in the peridental membrane.

Figure 1 was drawn with the camera lucida from an unstained section. The results of this injection, as shown by this and other sections and as made out from careful dissection, may be described as follows: The needle was inserted under the periosteum well down on the side of the alveolar process, and the fluid slowly injected, with careful massage during and after injection. It will be seen that a lake was formed on the outside of the process from which the lymphatic vessels have carried the fluid through the spaces of the bone into the vessels of the peridental membrane. These have been filled in both directions, the fluid passing in them, occlusally and toward the apex. Occlusally it has passed through the minute vessels even into the ends of the papillae of the subgingival space. Passing apically, comparatively large vessels can be seen, as well as many small ones. Figures 2 and 3 were drawn from transverse sections of similar injections.

The connective tissue accompanying the blood vessels and nerves is seen to contain many injected lym-

phatic vessels. These continually anastomose with vessels in the spaces of the bone. At the apex of the root the vessels anastomose with lymphatic vessels which accompany the blood vessels through the foramina in the cementum into the dental pulp. Figure 4, which is cut transversely just at the apex of the root, shows one vessel passing from the pulp to the peridental membrane, and several cut transversely in other foramina. On reaching the pulp chamber, the lymphatic vessels are either perivascular or independent. The material seems to show that most of the larger blood vessels in the central portion of the pulp have perivascular lymph sheaths; but there are also good sized lymphatic vessels lined by endothelial cells independent of blood vessels. The latter seem to be chiefly toward the periphery of the pulp.

Figure 5 was drawn from a thick, unstained section. The injecting fluid has been forced out through lymph vessels into intercellular spaces in the pulp, and seems to be surrounding the odontoblasts. The coloring matter has even been dissolved into the dentinal tubules in some places. From this area small vessels may be seen uniting into a larger vessel. Several of these sections seem to indicate that the intercellular lymph spaces communicate with the dentinal tubules, and in this the experimental evidence corresponds with the clinical experience of discoloration of the dentin by the solution of blood pigments being carried into the dentinal tubules in infarction of the dental pulp.

The lymph vessels from the dental pulp pass through the apical space into the spaces of the bone, anastomosing with the rich lymphatic network in this tissue. The vessels pass to the periosteum, but drain to the inferior dental canal in the lower jaw and the infra-orbital canal in the upper jaw. Here they form a rich plexus around the blood vessels and in the sheaths of



Fig. 1.—Unstained section, showing lymph capillaries of the tooth side of the gingivae and their drainage through the ligamentum circulare to the peridental membrane.



Fig. 3.—Transverse section of the peridental membrane, showing injected lymphatic vessels (oc., 3; obj., 16 mm.; reduced about one tenth).

the nerve trunks. Figures 6 and 7 are photomicrographs of these areas and show these vessels well injected.

The vessels pass out of the mental and infra-orbital foramina, pass in a superficial course, and fol-

low the facial artery and vein passing to the large submaxillary lymph nodes. Figures 8 and 9 are drawings of a head in which the vessels could be followed all the way from these foramina to the glands. In this head the only injections were into the pulps of the canines and first molars. Microscopic sections of the

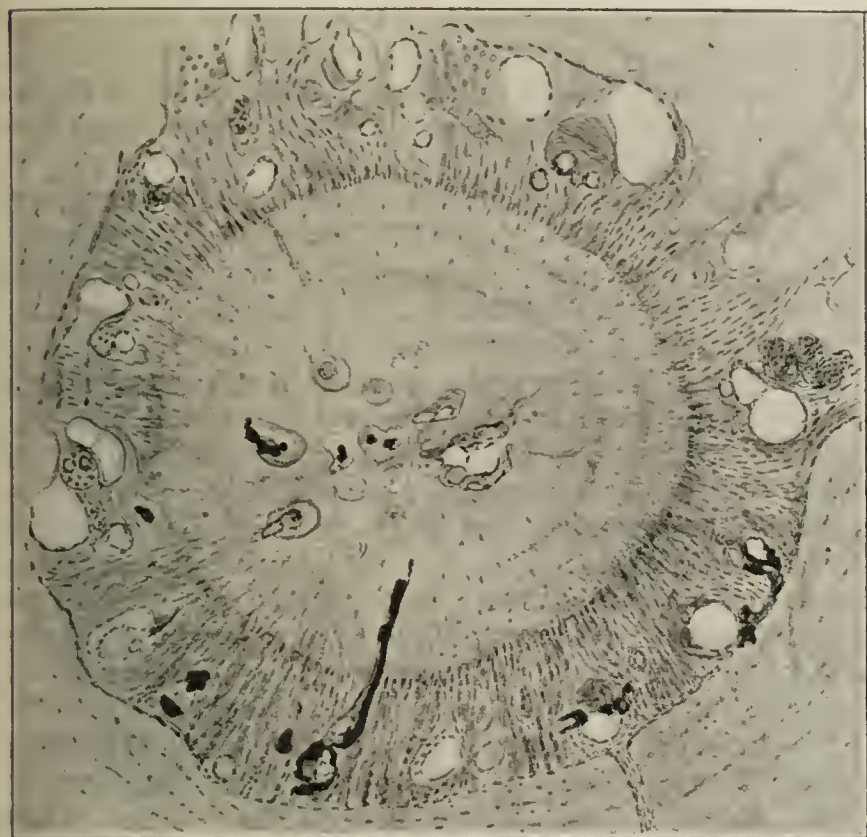


Fig. 4.—Transverse section just at the apex of the root, showing injected lymphatic vessels in the peridental membrane and in the canals passing to the pulp (oc., 2; obj., 16 mm.; reduced about one third).

glands from similar specimens showed the injecting material to be in the lymph spaces of the glands.

Our work supplements that of Schweitzer in two important ways: first, in showing the injection of the lymphatic vessels in the inferior dental and infra-orbital canals, and so showing the complete course of drainage to the submaxillary nodes; and second, in showing the same course by injections only into the pulps of the teeth.

Subperiosteal injection of the lymphatics is especially interesting in reference to infiltration anesthesia, and the course of lymphatic drainage from the papillae of the subgingival spaces is especially important with reference to the progress of destructive inflammation of the peridental membrane.

REVIEW OF LITERATURE AND TECHNIC

The only report in literature of successful injection of the lymphatic vessels of the peridental membrane is one by Schweitzer,¹ who was also the first to demonstrate the presence of lymph vessels in the dental pulp. Other references about lymph vessels in the peridental membrane are limited to mere suggestions and the assumption that they may exist. Ebner⁴ describes as structures belonging to the lymph system reticular meshes filled with lymphoid cells, which may be found embedded within the dense fibrous tissue about the teeth. Black⁵ referred to nests of nucleated cells in the peridental membrane near the cementum as "lymphatic" glands. In later publications he modified this view to the effect that these cell collections may be

glandular structures. Dorendorf,⁶ who made a study of the lymphatic circulation of the lip with reference to the spread of carcinoma, extended his experiments to injections of the lymph vessels of the gingiva and the periosteum, but only brief protocols of the results of the injections are given, because, as he states himself, complete specimens could not be obtained.

The lymphatics of the gingiva are better known. Sappey⁷ gives a clear picture of the arrangement of the lymph system in the gingiva and the palate, but fails to refer to any lymph vessels in the peridental membrane, while he mentions unsuccessful attempts to demonstrate lymph vessels in the dental pulp and does not hesitate, in spite of failures, to express his belief that they may exist.

The older method of injecting lymph vessels with mercury which has yielded excellent results in such skilful hands as Sappey's, has been largely superseded by methods employing less heavy injection masses, and it is most likely due to the greater power of penetration of the more fluid masses that lymph vessels could be demonstrated which failed by mercury injection methods. The mass in most common use now is the so-called Gerota mass, Prussian blue or Berlin blue in the oil color, dissolved in turpentine oil and sulphuric ether. With this mass and a method known as the Gerota method, Schweitzer was able to inject successfully the lymph system of the peridental membrane and to a less complete degree lymph vessels of the dental pulp. The general picture of the lymphatic arrangement in the peridental membrane, as Schweitzer expresses it, is that of a funnel extending from the deepest layers of the gingiva down into the alveolus. The walls of this funnel lying in the peridental membrane consist of a dense network of lymph capillaries in several layers, anastomosing with one another. The main trunks, which arise from this network and which are larger than the blood vessels, run in

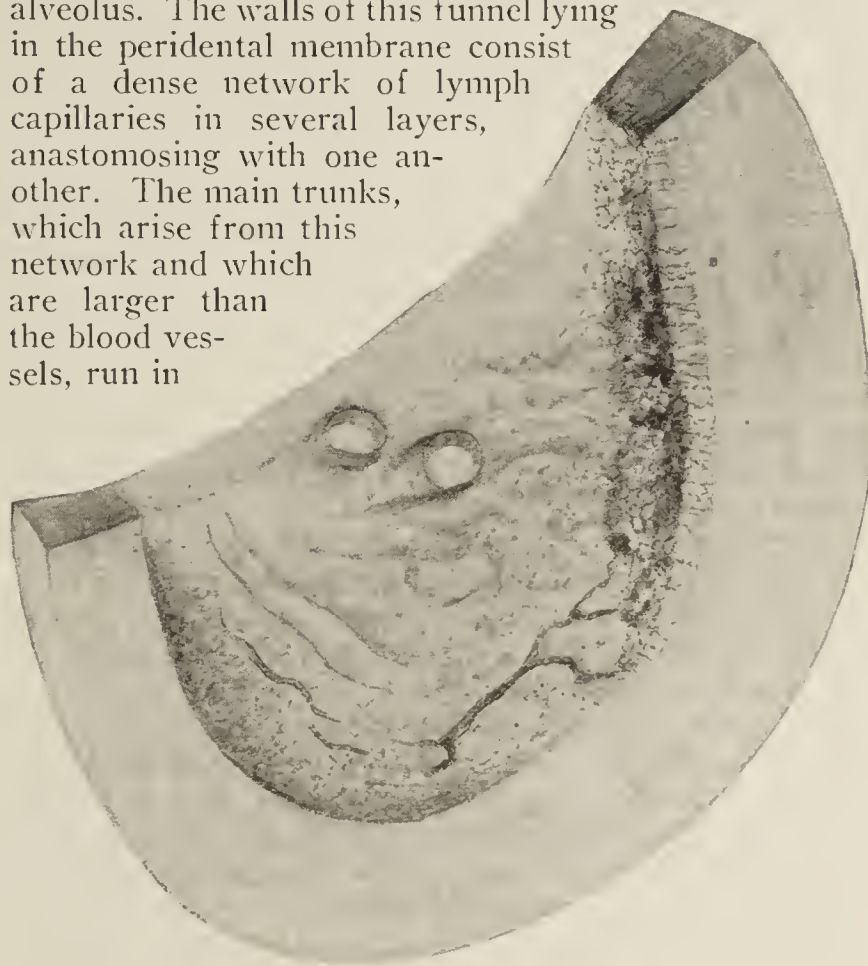


Fig. 5.—Diagrammatic drawing of a section of a tooth, showing injected lymphatic vessels in the pulp.

a direction longitudinal to the axis of the tooth. They communicate with one another by numerous anastomoses. At the level of the ligamentum circulare,

4. Ebner: Weichgebilde der Zähne, Scheff's Handbuch der Zahnheilkunde, Vienna and Leipzig, 1909, 1, 269.

5. Black: A Study of the Histological Character of the Periosteum and Peridental Membrane, 1887.

6. Dorendorf: Ueber die Lymphgefäße und Lymphdrüsen der Lippe mit Beziehung auf die Verbreitung des Unterlippencarcinoms, Internat. Monatschr. f. Anat. u. Phys., 1900, 17, 201.

7. Sappey (Footnote 3), p. 69.

lymph vessels are present in several rows which surround the tooth like a wreath. The vessels ascending from this assume the form of lacunae and round masses, which in sections have the appearance of bunches of grapes. Numerous anastomoses connect the lymph vessels of the peridental membrane, first,



Fig. 6.—Photomicrograph, showing injection of perivascular and perineural lymph spaces in the vessels of the inferior dental canal.

with the neighboring larger lymph vessels passing through the bone; secondly, at the inlet of the alveolus with the deep lymphatic network of the gingival submucosa, and thirdly, at the apex of the root with the lymph vessels accompanying the larger blood vessels entering and leaving the dental pulp and therefore also with the lymph paths of this organ. In the lower jaw they communicate also with the lymph vessels which follow the blood vessels and nerves within the mandibular canal.

The lymph vessels of the gingiva have been successfully injected by several investigators. Sappey was the first to demonstrate them, and the accuracy of his statements has been, in the main, verified by the results of later workers. After having described the lymphatic apparatus of the gingiva, he expresses the view that one should expect the dental bulbs, which are actually nothing else than papillae of the mucous membrane, to be provided with lymph vessels like all other papillae of the integuments. In fact, in spite of his failures to inject them, in the adult, the child and the fetus, he is still inclined to believe in their existence. According to Sappey, the vessels of the gingiva passing between the teeth unite into one vessel on either side on each jaw, and in the region of the last molar pass down into the deeper tissue. Most⁸ admits the efferent vessels apparently are relatively scanty in number, but he believes that they are more numerous than Sappey claims; their demonstration by injections is difficult because the lymph capillaries in this region are extremely delicate, conforming to Teichmann's law that (so-called) lymph capillaries decrease in size and width the more delicate the mucosa is and the more the latter adheres to the subjacent tissue. Most was generally able to inject one, two and three trunks.

An interesting exception to another general principle laid down by Teichmann, known as Teichmann's rule, has been observed by Schweitzer to occur exclusively

in the gingiva. According to this rule, the last terminals of the lymphatic apparatus always lie deeper, that is, more centrally than the blood capillary network. In the gingivae we find the reversed condition. Schweitzer admits that he is unable to explain the purpose of this exceptional arrangement. This investigator has made the most extensive practical study of the lymph system of the tissues about the dental apparatus. By using several coloring masses for injecting the different portions, he attempted to ascertain the regional drainage of the lymph from the gingiva and the teeth.

The following is a summary which Bartels⁹ has given of the results obtained by Schweitzer: The gingiva contains an extremely delicate, fine meshed network from which lymph vessels arise, which partly pass outward, and partly continue their course inward. The outer drainage paths collect in plexuses which surround the two halves of the jaw like a wreath along the upper and lower fold of the mucous membrane of the cheek, and form median anastomoses. From the plexuses numerous twigs pass from all parts of the alveolar processes along the vicinity of the anterior fascial vein to all submaxillary glands. In rare cases also the submental glands have been injected from the region of the four lower incisors (one case each of Schweitzer, Dorendorf and Polya and Navratil¹⁰). The inner drainage pathways originate as the outer ones. Those of the upper jaw differ in their course from those of the lower jaw. The former pass through the mucosa of the hard palate and from the lateral end of the alveolar processes over the soft palate and the pharyngeal wall downward and enter directly into the deep cervical glands. Generally they empty into the glands of the same side, but not rarely they cross and pass into the corresponding glands of



Fig. 7.—Photomicrograph, showing injected perineural lymphatics in the infra-orbital canal.

the opposite side. The inner drainage pathways of the mandibular gingiva pass from the region of the incisors along the lingual surface of the jaw through

9. Bartels: Bardeleben's Handbuch der Anatomie des Menschen, 1909, 3, Part 4, Das Lymphgefäßsystem.

10. Polya and Navratil: Untersuchungen über die Lymphbahnen der Wangenschleimhaut, Ztschr. f. Chir., 1903, 66, 122.

8. Most: Die Topographie des Lymphgefäßapparates des Kopfes und des Halses, in ihrer Bedeutung für die Chirurgie, Berlin, 1906, p. 98.

the mylohyoid muscle to the anterior submaxillary gland, and from all regions along the transitional fold to the deep cervical glands.

As to the pathways draining the teeth, Schweitzer admits that he has not reached complete and final issues; some conclusions are still represented as "probabilities." He says:

As lymph paths from the teeth of the upper jaw, at least for part of them, we may consider as very probable, lymph vessels which emerge from the infra-orbital foramen or smaller secondary openings to the outer surface of the maxilla and pass to the submaxillary glands (media and posterior). In the lower jaw the lymph flows through rami dentales into lymph paths which course within the mandibular canal. Although it has hitherto not been possible to follow the latter vessels to their terminal passage into a lymph gland, we may assume, from analogy of the inner drainage of the gingiva, that they empty into the deep cervical glands or in part to the submaxillary glands.

As we shall show later, we can verify the correctness of this supposition; we have succeeded in injecting these lymph vessels in their entire passage from their exit at the infra-orbital and the mental foramen to their entrance into the submaxillary glands (Fig. 8).

The accompanying table is one set up by Schweitzer, which shows the drainage of the different regions of the gingiva, demonstrated chiefly by the results of injections with differently colored injection masses. Although he warns that separation of the glands according to regional sources be made only with some caution, because of the possibilities of the anastomoses, he assures that clinical experience is entirely in accord with his experimental evidences. Of particular interest are the extensive statistical observations of Partsch¹¹ and Ollendorf¹² about the swelling of lymph glands in morbid conditions.

This picture of the lymph system of the gingiva, the peridental membrane and the dental pulp will be more complete if it is seen in its relation to the blood supply. Wedl¹³ was the first to demonstrate and accurately describe the location, general arrangement and course of the blood vessels in this region. Schweitzer has added some interesting features, especially about the vessels of the dental pulp. At the apex, between the dense fibers, we find a loose connective tissue which surrounds the larger vessels and nerves. Such loose interstitial connective tissue also fills the spaces between the bundles of fibers of the peridental membrane, in which course the numerous blood vessels which ascend from the depth of the alveoli toward the gingiva. These vessels communicate with the vessels of the pulp, with those of the medullary spaces of the alveolar wall and with the vessels of the gingiva. Near the surface of the tooth there are long capillary loops; these become narrower toward the apex of the tooth and the neck of the tooth. The arrangement of the capillaries in the peridental membrane is quite

unique. Both Wedl and Schweitzer describe peculiar round tufts of loops which Wedl was the first to compare with the glomeruli of the kidney, a resemblance which Schweitzer emphasizes in his illustrations, in

REGIONAL DRAINAGE OF LYMPH VESSELS (OUTER LYMPH PATHS)						
From the Region of:	Upper Jaw into Submaxillary Lymph Glands			Lower Jaw into Submaxillary Glands		
	Anterior	Median	Posterior	Anterior	Median	Posterior
Inisors and canines	Only exceptionally one vessel	About 5%	Almost 1/6	About 1/3	About 1/3	Occasionally
Premolars	0	About 2/3	About 1/3	Rarely one vessel	Almost all	0
Molars	0	Almost 1/2	A little more than 1/2	Occasionally one vessel	Almost all	Occasionally one vessel

which an actual connective tissue capsule around these tufts can be distinctly seen. Besides these singular formations there are capillary loops "en palissade." The peculiarity of this vascular arrangement



Fig. 9.—Drawing of dog's head showing injected lymph vessels from the infra-orbital and mental foramina to the submaxillary lymph nodes.

is explained as a conformation due to unusual functional demands on a tissue of such structural and physiologic significance as is the case of the peridental membrane.

As to the dental pulp, Schweitzer insists that the number of vessels is greater than is usually given. The arteries entering the pulp divide into several parallel branches, which run toward the coronal extremity, giving off lateral branches mostly at right angles. These minute twigs form a precapillary network from which a very fine capillary network arises, located at the surface of the pulp between the odontoblasts. There are analogous venous networks; the veins leaving the pulp chamber are larger in number than the arteries. Being compressed at the apical foramen, the vessels in passing out spread out in rays, or fan-like. Even when still within the pulp cavity at the foramen where there is only cementum, divisions of the pulp vessels may branch off at obtuse or right angles, and pass through the cementum to gain the peridental membrane. De Saran¹⁴ asserts that he has seen this very frequently.

11. Partsch: Erkrankungen der Zähne und Lymphdrüsen, Odontologische Blätter, 1899; Ein Beitrag zur Klinik der Zahnkrankheiten, Oesterr. Ztschr. f. Stomat., 1903. Die Zähne als Eingangspforte der Tuberculose, Deutsch. med. Wchnschr., 1904, 30, 1428.

12. Ollendorf: Ueber den Zusammenhang der Schwellungen der regionalen Lymphdrüsen zu den Erkrankungen der Zähne, Ztschr. f. Zahnheilkunde, 1898.

13. Wedl: Pathologie der Zähne, 1870, p. 37. (The later record by Metnitz and Wunschheim, Leipzig, 1901, 1, is not accessible.)

14. De Saran: Vaisseaux sanguins des racines dentaires, Gaz. méd. de Paris, 1880, No. 48, p. 736.

In previously published work¹⁵ we reported that we have indisputably demonstrated that the lymph vessels of the dental pulp can be injected, not only in a retrograde direction by way of the gingiva, as Schweitzer did, but also by forcing the injection mass through the tooth directly into the exposed pulp tissue. The first investigation was limited to a study of the lymph supply of the pulp. The purpose of the present work was to follow the course of the outflowing vessels, to examine the extent of their communications with neighboring tissues, and to study their course in the mandibular and infra-orbital canals: in short, to fill out some gaps left in Schweitzer's results.

ABSTRACT OF DISCUSSION

DR. EUGENE S. TALBOT, Chicago: Twelve years ago Dr. Latham and I did some work on dental pulp, but not in relation to the lymph channels. We were astonished at that time because of the large number of abscesses that form in the dental pulp. It is almost impossible to believe that abscesses form in the dental pulp without causing any pain, and later heal up, which naturally would show that there must be lymphatics connected with the dental pulp. It was not until Dr. Rosenow showed how the streptococcus travels through the blood stream into different parts of the body that it was fully explained how these germs pass through the ends of the roots into the dental pulp and form abscesses. We have on record one case, which was a wonderful illustration of the abscess theory. This pulp shows an abscess forming, another one healing and one practically ripe with the pus inside of it, showing the different changes that had taken place from the time of infection to the healing of the abscess in the dental pulp. If one makes a study of the dental pulp with a view to looking into this abscess formation, he will find a great many scars in the dental pulp where abscesses have formed and healed.

DR. EDWARD H. HATTON, Chicago: These pathologic changes which are found about the gingivae and in the regions adjacent to these pus pockets can be explained in no other way than by the presence of lymphatics in the peridental membrane leading down along the teeth and into the pulp cavity.

DR. HERBERT A. POTTS, Chicago: Aside from the histologic and anatomic interest of these studies, the demonstration explains many of our brilliant successes and many of our failures in the induction of local anesthesia. Two years ago Dr. Noyes told us the difficulty by which these injections were attended. I am sure that most of my success is due to the technic of the injection itself. Only by slow, steady injection do you obtain results.

DR. FREDERICK B. NOYES, Chicago: I think you will find that this work has a bearing not only on local anesthesia but on the whole realm of dental pathology, especially the destructive inflammations which have their origin in the gingival spaces.

15. Noyes, F. B., and Dewey, K. W.: A Study of the Lymphatic Vessels of the Dental pulp, *Dental Cosmos*, 1917, **59**, 436.

Reeducation of French War Cripples.—It was recently estimated that France had 300,000 disabled soldiers, with a monthly increase of between 6,000 and 7,000. They are cared for in national centers of physiotherapy, of which there is one for each of France's twenty military regions. To these centers are attached schools or workshops which the cripples may attend for purposes of reeducation. Independent of the centers, there are also civil schools for vocational reeducation, supported by both public and private funds; and finally there is the National Institute near Paris under the joint direction of the Ministries of War and of the Interior, with a well equipped military hospital, together with workshops and dormitories. Almost universally the "boarding-in" system prevails, that is, the soldier lives at the school and is under its direct discipline during his period of training.

FURTHER EXPERIMENTAL STUDY OF SURGICAL SHOCK*

F. C. MANN, M.D.

ROCHESTER, MINN.

A review of the results obtained in the extensive amount of work that has been done on the problem of shock, both experimentally and clinically, makes the point I have repeatedly emphasized particularly clear, namely, that the condition the surgeon calls shock may be due to a variety of causes.¹ The variation in the primary etiologic factor in a condition in which identical clinical symptoms occur is probably the cause of the more or less contradictory conclusions arrived at by investigators, both experimentally and clinically.

The value of experimental work on surgical shock is certainly decreased by the fact that it is impossible to reproduce the experimental environment, and the condition itself, in a manner identical to its clinical manifestation. From the results of a large series of experiments I am forced to conclude that the experimental investigator approaches, in only a few specific types, the condition that the surgeon studies clinically.

The future work on the subject termed shock will, in all probability, not concern itself with the condition as an entity, but with the different possible etiologic factors that could produce the clinical picture the surgeon has in mind. Two excellent examples of this form of research on the problem have recently been presented. They are the relation of fat emboli to conditions diagnosed as surgical shock, as shown by Bissell² and by Porter,³ and wound shock of Cannon⁴ and his coworkers. While in neither case have all the factors involved been explained, the positive fact that cases which the surgeon diagnoses as shock may be classified is of the greatest importance.

There is, I believe, one general statement that can be made to include all cases clinically diagnosed as shock, namely, that the fundamental cause of death in each instance is a failure of physiologic compensation. From the therapeutic standpoint one of the most important problems to solve in connection with shock is to determine why some persons fail to compensate for the various procedures to which they are submitted.

I have discussed in a previous paper⁵ the effect of the anesthetic in relation to shock, but the anesthetic is of so much importance, both in experimental and in postoperative shock, that its effect should be emphasized. Recently, while performing some experiments, I found that a low blood pressure was produced invariably within an hour or two after the beginning of anesthesia, regardless of the experimental procedures employed. These results were proved to be due to impure ether. Careful experiments in anesthetic control should always be performed before it is con-

* From the Mayo Clinic.

* Read before the Section on Pathology and Physiology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Mann, F. C.: The Peripheral Origin of Surgical Shock, *Bull. Johns Hopkins Hosp.*, 1914, **25**, 205-212.

2. Bissell, W. W.: Pulmonary Fat Embolism—A Frequent Cause of Postoperative Surgical Shock, *Surg., Gynec. and Obst.*, 1917, **25**, 8-22.

3. Porter, W. T.: Shock at the Front, *Boston Med. and Surg. Jour.*, 1916, **175**, 854-858.

4. Cannon, W. B.: A Consideration of the Nature of Wound Shock, *THE JOURNAL A. M. A.*, March 2, 1918, pp. 611-617.

5. Mann, F. C.: Shock During General Anesthesia, *THE JOURNAL A. M. A.*, Aug. 4, 1917, pp. 371-374.

cluded that an experimental procedure produces the symptoms of shock.

THE RELATION OF THE NERVOUS SYSTEM, TO SHOCK

The relation of the nervous system, as a primary agent, to the condition which the surgeon diagnoses as shock is not clear. It is quite probable that the nervous system is a primary etiologic factor in some cases, particularly in those in which an anesthetic has not been employed. There are no experimental data extant in which such a relationship has been proved beyond a doubt. The results of numerous experiments that I have performed under light ether anesthesia have been, with the few exceptions previously recorded, uniformly negative. It certainly is possible to stimulate, either electrically or mechanically, one or all of the major nerves going to the limbs, for example, the sciatic and brachial plexus of a dog under constant surgical ether anesthesia, for as long as four hours, without producing the condition of shock. It should be emphasized that the marked fluctuation in respiration and blood pressure that occurs following such stimulation is not shock, and shock can be said

to have occurred only when the cardinal signs of the condition are present at the end of the period of stimulation. In my experiments this has not occurred, but both respiration and blood pressure have quickly returned to approximately the normal condition. The same phenomenon follows section of the major nerves. Whether or not much reaction follows such a procedure depends mainly on the depth of the anesthesia. Under light anesthesia, sec-

tion of the sciatic nerves and the brachial plexus produces marked changes in respiration and blood pressure; when deep anesthesia is employed, section of these nerves may produce only the slightest response in respiration or blood pressure. In either case shock does not follow section of the nerves. We have observed animals which, under light anesthesia, have had a normal blood pressure eight hours after section of the major nerves to each limb (Fig. 1). I am inclined to believe that, in most instances in which the primary factor is the nervous system, the cause will be found to be of the nature of inhibition, as held by Meltzer.⁶

Under only two conditions have I been able to produce death by nerve stimulation. One condition was produced by stimulating the nerve fibers that inhibited respiration when the animal was under deep anesthesia. Ether anesthesia seems to depress, and, when the tension is great enough, abolishes all respiratory reflexes

except one before respiration ceases. The reflex that it does not abolish before the respiratory center fails is the one that inhibits respiration. Instead of ether depressing this reflex, it is quite common for its action to be increased. Under deep etherization it is possible, in many instances, actually to kill the animal by prolonged stimulation of nerve fibers that inhibit respiration. The stimulation of some nerves, as the central end of the vagus and the superior laryngeal, usually inhibits respiration for a short period. As the stimulation is continued, however, respiratory movements soon return, owing either to a decrease in the reflex or, what is more probable, to an increase in the chemical stimulation of the nerve center. It is rarely possible, under light surgical anesthesia, to inhibit respiration by the stimulation of these nerves for a long enough period to jeopardize the life of an animal. As the ether tension is increased, the length of time the respiratory movements are inhibited is prolonged. Finally, in a large number of cases, under deep etherization, respiration fails to return, and blood pressure quickly falls, death ensuing. In other cases, while respiration is always inhibited for a time, recovery occurs. In the earlier experiments the blood pressure

was usually decreased, as much as one-half the normal pressure, before respiration could be inhibited long enough to produce death. However, it was found that by cautiously increasing the ether tension, many animals could be killed while the blood pressure was practically normal. The method of administering the anesthetic does not seem to be a factor in producing death. In most of our experiments the Connell⁷ apparatus was used, in some in-

stances a modification of McGrath's⁸ method, while in still others only the cone method was used. While it is possible that death in these cases may be due to factors other than the inhibition of respiration and asphyxia, there is no evidence to show it. I have never been able to obtain this result by stimulating nerves that did not inhibit respiration. Death will not occur while insufflation or artificial respiration is maintained, if the ether tension is not above that compatible with life. Death under deep etherization has not been produced except in connection with inhibition of respiration. The process producing death in such experiments seems to be as follows:

For some unknown reason, ether does not abolish reflexes that inhibit respiration as long as the respiratory center responds. Under deep etherization the threshold of the cells of the respiratory center is

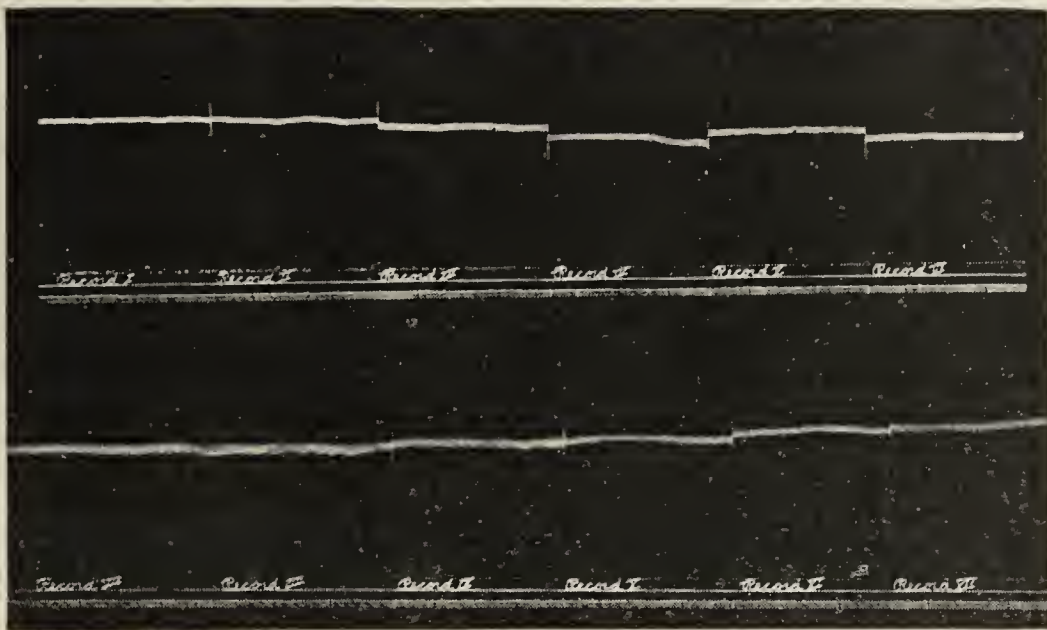


Fig. 1.—Kymograph record illustrating (1) an anesthetic control experiment and (2) the effect of section of the major nerves to each limb; Record I, normal blood pressure (140); Record II, immediately after exposing the sciatics and brachial plexuses; Record III, immediately after section of both sciatics and brachial plexuses. Each succeeding record was taken at intervals of an hour; thus, Record XII was taken nine hours after section of the nerves, and the blood pressure was 145.

7. Connell, K.: An Apparatus—Anaesthetometer—for Measuring and Mixing Anesthetic and Other Vapors and Gases, *Surg., Gynec. and Obst.*, 1913, **16**, 245-255.

8. McGrath, B. F.: Anesthesia in Surgical Research, *Surg., Gynec. and Obst.*, 1914, **18**, 376-377.

6. Meltzer, S. J.: The Nature of Shock, *Arch. Int. Med.*, July, 1908, pp. 571-588.

greatly increased to the chemical stimuli. A point is thus reached at which the center will respond to the inhibitory reflex, and not to the increased carbon dioxide in the blood. At this time the stimulation of inhibitory fibers will produce death, and, owing to the deep etherization, quite quickly in many instances. Attempts have been made to produce the same result by both methods of stimulating the nerves other than by electricity or deep etherization. To date, however, all attempts have failed (Fig. 2).

It has been thought for a long time that inhibition of the heart, due to stimulation of the vagus, might produce death in mammals, and it has also been suggested that a reflex producing inhibition of the heart might also end fatally. In a few instances in this series of experiments such a result seems to have been produced. However, to the present time, death, owing to apparent reflex inhibition of the heart, has not been produced by stimulation of any nerve except the superior laryngeal, although it would seem that the central end of one vagus with the other intact would be effective. As this reflex disappears under deep etherization, it appears that death could occur only by reflex inhibition of the heart under light anesthesia. Such was the case in these experiments (Fig. 3).

What practical bearing such experiments have on the shock problem cannot at present be stated. Death is produced so suddenly and so strikingly under these conditions that it seems highly probable the same thing has occurred in man. It is quite possible that deep etherization and inhibition of respiration during the time in which operations are being performed in the region of the neck, axilla and diaphragm (regions in which traumatic procedures are prone to produce stoppage of respiration) are responsible for some of the sudden deaths on the operating table that the surgeon has diagnosed as due to shock.

THE RELATION OF FLUID VOLUME TO SHOCK

The conception that in most of the cases which the surgeon diagnoses as shock the patients are in a pathologicophysiological state, in which the cause of the symptoms is a loss of circulatory fluid, has been adversely criticized, because of the clinical distinction that is made between hemorrhage and shock. This has been due, I believe, to a failure to consider the fundamental likenesses and differences between the two conditions.⁹ The symptoms of this form of shock and of hemorrhage are, in the main, due to the loss of circulatory fluid. In general, after hemorrhage, the vascular system is capable of functioning, and the mechanism controlling fluid volume is able to at least partially compensate for the loss. In the condition of shock, however, not only is there a loss of circulatory fluid, but the mechanism which controls fluid volume is also, and possibly primarily, greatly impaired. That

is the reason why, in the former condition, intravenous injection of salt solution is of distinct value, while even the so-called colloidal solutions do not remain long in the circulation in the latter condition.

Janeway and Jackson¹⁰ have shown that a circulatory failure, which presents the typical signs of shock, may be produced in dogs by a partial occlusion of the inferior vena cava at its point of entrance into the thorax. This has been corroborated by other investigators.¹¹ It seems that, for the most part, the result is due to the effect of the occlusion on the portal circulation and the liver, because it is well known that ligation of the inferior cava at a point just below the entrance of the hepatic veins is a perfectly safe surgical procedure in most dogs. The collateral venous return is such that a ligature thus applied does not produce any of the symptoms of shock. The ligation of the portal vein will always cause death in a few hours. Even partial occlusion of this vein, as sometimes occurs in a badly made Eck fistula, will produce death in a couple of days.

In a recent series of experiments, I have attempted to determine the relation of the volume of capillary and venous beds to the signs of shock. Only a brief preliminary report can be made of these experiments.

The method consisted in including in a strong ligature all the structures to each limb except the major artery. In this manner the major artery was allowed to pump blood into the limb, from which all venous and lymph return was obstructed. The results of a sufficiently large series of experiments are in general agreement. The first effect of such a procedure is a slight and ordinarily transient rise in blood

pressure. The blood pressure, as a rule, soon decreases and at the end of two hours it has only about half its initial value. At this time the animal generally exhibits the signs of shock. If the ligatures are then removed, recovery usually takes place. When the ligatures are left on for a long period of time, there may be an initial rise in pressure following their removal, but it subsequently decreases. When the ligatures have been applied for a very long period, the removal produces a further drop in blood pressure, and eventually, death. To a lesser degree these results may be obtained when only three limbs are used. From the results of such experiments it would seem that a condition producing stasis in a large capillary field would produce the signs of shock. It should be emphasized that simple vasomotor dilatation will not cause this condition. Section of the nerve supply to all the limbs does not produce the signs of shock (Fig. 1).

THE TREATMENT OF SHOCK

The treatment of shock may be divided into: (1) general measures, (2) the use of drugs, (3) attempts

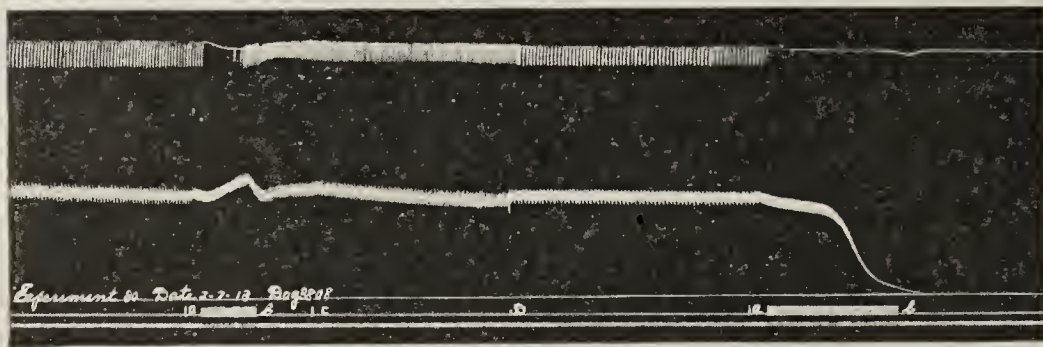


Fig. 2.—Kymograph record showing the effect of stimulating the central end of the vagus under light and deep anesthesia. Normal blood pressure was 115. At signal *a*, ether was disconnected and the control end of the left vagus was stimulated at *b* until respiratory movements returned. During the interval *D* (sixteen minutes) ether tension was increased. At *a* the ether was discontinued, and at *b* the vagus was again stimulated, and death occurred.

9. Mann, F. C.: Shock and Hemorrhage: An Experimental Study, Surg., Gynec. and Obst., 1915, 21, 430-441.

10. Janeway, H. H., and Jackson, H. C.: The Distribution of Blood in Shock, Proc. Soc. Exper. Biol. and Med., 1914-1915, 12, 193-197.

11. Erlanger, Joseph; Gessell, Robert, and Gasser, H. S.: An Experimental Study of Surgical Shock, THE JOURNAL A. M. A., Dec. 22, 1917, pp. 2089-2092.

to restore the fluid volume, and (4) special measures. In studying any form of treatment of shock experimentally, it is necessary carefully to standardize the experimental procedures. In this series of investigations the routine method of experimentation was as follows:

The animal (dog) was etherized in a closed cabinet, intubated, and a constant surgical anesthesia maintained by means of the Connell apparatus. The carotid blood pressure was recorded with a mercury manometer. Marked changes in the temperature were prevented by the judicious use of an electric pad. After a normal record had been obtained, the abdominal viscera were exposed and gently sponged, about every fifteen minutes, with dry gauze. When the blood pressure had decreased and remained rather stationary at the desired point, which occurred usually from about one to two hours after exposure of the viscera, the viscera were returned to the abdominal cavity and the wound was repaired. After waiting a sufficient length of time to determine definitely that the blood pressure did not increase, the procedure designated to improve the condition of the animal was instituted. The blood pressure was taken as a criterion of the condition of the animal because it is the easiest indication to record and compare. It should be emphasized that the anesthetic was constant throughout the experiment.

This removes the possibility of the ether producing an error in either the interpretation of the blood pressure record or the general condition of the animal. Careful anesthetic control experiments were performed, the etherization being maintained at the same tension and for a length of time equal to the shock experiment. It should be noted that

practical conclusions can be drawn only from the results obtained as applying to a condition in which the signs of shock were produced by exposure of the abdominal viscera. If the blood pressure is allowed to decrease until it is much less than half the normal pressure, it is rarely possible to restore it by any known method. This is an important point to consider in placing a value on any method of treatment.

The general measures employed consisted of placing the animal in the head-down position, and the application of heat, etc. A slight amount of benefit has been obtained by such methods in experimental shock. In fact, it was found to be of distinct value to keep a heating pad under the animal throughout the experiment, care being taken to apply only a moderate amount of heat.

Drugs are employed for one or two purposes, either as a stimulant to the circulatory system, as strychnin and camphorated oil, or to produce vasomotor constriction, as epinephrin or pituitary extract. The results of the experiments corroborate our previous investigation on the use of stimulants in experimental shock. In none of the experiments was any benefit derived.

The value of the use of vasoconstrictors in the treatment of shock is still an open question. In the first place, although the decrease in blood pressure is of great importance in shock, it is not known whether or not its increase by means of vasomotor constriction is in itself of much permanent benefit to the organism. In the second place, none of the vasomotor constrictor drugs produce a very prolonged effect. In experimental shock it is not possible to maintain blood pressure for a very long period of time near to the normal value by the use of the vasoconstrictor drugs. In our experience pituitary extract produced a more prolonged action, and seemed to be of somewhat greater benefit than epinephrin.

A large number of artificial fluids have been devised with which to attempt to restore the volume of fluid in shock. Our series does not yet include experiments from which positive conclusions may be drawn in regard to all of these. However, they have furnished enough data to justify some tentative conclusions in regard to their use in experimental shock.

1. Physiologic sodium chlorid solution is the least valuable of all the artificial fluids, although hypertonic sodium chlorid solutions are of value.

2. The making of the artificial fluid alkaline definitely enhances its value.

3. The use of glucose in the injected solution is also of definite value.

4. None of the saline solutions alone will maintain blood pressure for more than a very short period of time, even when it has been lowered to but a slight degree by exposure of the abdominal viscera.

5. The employment of the so-called colloidal solutions, such as those containing acacia or gelatin, is of

distinct value. The intravenous injection of these fluids will often restore and maintain the blood pressure for several hours after it has been decreased to at least one-half its normal value by the exposure of the abdominal viscera.

6. From these results it would seem that the ideal artificial fluid should contain (a) some substance to increase its colloidal properties, (b) an alkaline salt, and (c) glucose.

7. It should be noted that none of the artificial fluids will give as good results as whole blood or blood serum.

The value of transfusion in the treatment of shock is well known. In this series of experiments, citrated blood produced very good results. In order, however, approximately to restore blood pressure and maintain it, the amount transfused must be comparatively large. About 30 c.c. per kilogram produced the best experimental results. Such an injection will restore and maintain blood pressure under the experimental conditions outlined herein.

Blood serum seems never to have been used in the treatment of shock. In our experiments the intravenous injection of homologous serum has produced as good results, and, in most experiments, better



Fig. 3.—Kymograph record showing the effect of stimulating the superior laryngeal nerves under light anesthesia. At *a* ether was disconnected and signal *b* marks the period of stimulation of the superior laryngeal nerve, death occurring. This record is difficult to interpret, but it would appear that inhibition of the heart was the major factor producing death.

results, than any of the methods employed in the treatment of experimental shock. In none of the experiments in which the blood pressure had not decreased below one half of its original volume did the injection of serum fail to restore and maintain it for several hours. The best results were obtained by relatively large doses, 20 c.c. per kilogram. The serum was prepared by bleeding healthy dogs into sterile bottles which were placed on ice until it was desired to use the serum. From 35 to 40 per cent. of serum can be obtained in the dog in this manner from whole blood.

When blood serum, 20 c.c. per kilogram, is injected into the animal in which blood pressure has been decreased one-half, as the result of exposure of the abdominal viscera; it produces the usual rise in blood pressure and an increase in the amplitude of the heart, which occurs whenever an intravenous injection is made. However, the increase in blood pressure is usually greater, although it may take place more slowly, than when any of the other injection fluids are used, with the exception of whole blood when used in amounts equal to the amount of blood from which the serum was obtained. The blood pressure seldom decreases subsequently, or only to a slight extent, and usually, with the passage of hours, it increases until it may be greater than at the beginning of the experiment. I have not been able to obtain equally good results by any other method, except by the use of large amounts of whole blood.

Whether or not the use of serum will ever prove of any practical value, I do not know. The employment of large amounts of serum other than homologous serum would probably be very dangerous. It is possible that the latter serum might be of value under conditions in which the serum could be kept and whole blood could not be obtained.

The special measures employed in shock, such as rebreathing, have never been shown to be of much value under experimental conditions.

SUMMARY

The term "shock" is used by the surgeon in describing a definite clinical condition; it is probably due to a number of causes. In general, however, all cases may be included in two groups. One group contains the cases in which the clinical manifestation follows some time after the occurrence of the conditions incident to the shock. The other group includes the cases in which a severe or fatal condition supervenes immediately on receipt of the active agent. Experimentally, either condition can be produced by few of the methods which may be compared to their clinical manifestations. Chief of the methods by means of which a condition simulating the cases included in the first group can be produced experimentally is exposure of the abdominal viscera. The symptoms thus produced are due to a loss of circulatory fluid, probably due to, or associated with, a failure of the mechanism to control fluid volume. The signs of shock may be produced by the loss of an amount of circulating fluid that can be sequestered into capillary beds of venous trunks of the four limbs. The part the nervous system plays in the cause of shock is undetermined. It cannot be proved beyond doubt, experimentally, that shock is an etiologic factor, although clinically it seems to be definitely established that it is responsible for death in some cases, and in such cases it will probably be found to be of the nature of inhibition. This group might include a

large number of the cases contained in the second group. Experimentally, sudden death has been found to occur under deep etherization following stimulation of the nerves that inhibit respiration. It has also been produced under light etherization by the stimulation of nerves that produced an associated reflex inhibition of the heart. Either of these results may also occur clinically and the cause of death be described by the surgeon as shock. In the treatment of shock, experiments have not shown that the employment of drugs, either as stimulants or as vasoconstrictors, possesses very much value. The logical procedure, at least from the experimental standpoint, in the cases included in Group 1, would seem to be to attempt to replace the lost fluid. The best means of doing this is by the intravenous injection of large amounts of whole blood or blood serum. Some of the artificial solutions give good results. The ideal artificial fluid should contain, (a) some substance to increase colloidal properties, (b) alkaline salt, and (c) glucose.

RECONSTRUCTION OF THE COMMON BILE DUCT*

J. SHELTON HORSLEY, M.D.

RICHMOND, VA.

Defects in the common bile duct may result from errors in operative technic, from strictures following ulceration or trauma, or from neoplasms. Since excision of the gallbladder has become a frequent practice, possibilities for injuring the common bile duct, particularly in inexperienced hands, have multiplied.

In an effort to devise some method that would be satisfactory in reconstructing the common duct, various procedures have been devised. Sullivan¹ described an operation in which a rubber tube is sutured into the stump of the hepatic or the remaining upper end of the common duct, carried into the duodenum, and surrounded with neighboring tissue and omentum. Molineus, according to Walton, has suggested the use of the appendix for reconstruction of the common duct. However, it is often difficult to secure a satisfactory appendix, the nutrition of the transplanted appendix would be very problematic, and it would carry bacteria it normally contains, which may cause cholangitis. It is for the last mentioned reason that it has been found unwise to connect the gallbladder with the colon instead of with the duodenum.

Lewis and Davis² have used experimentally transplanted fascia from the abdominal wall to repair defects in the common bile duct of dogs. Stropeni and Giacinto³ reported experiments in which a portion of a vein was used to fill a defect in the common duct.

Walton⁴ reviewed bile duct surgery and described an operation in which he uses a duodenal flap. Eliot⁵ has given the recent literature on repair of the bile

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* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints. A copy of the latter will be sent by the author on receipt of a stamped addressed envelop.

1. Sullivan, A. G.: Reconstruction of the Bile Ducts, THE JOURNAL A. M. A., Sept. 4, 1900, p. 774.

2. Lewis, Dean, and Davis, C. B.: Tr. Western Surg. Assn., St. Louis, December, 1913.

3. Stropeni and Giacinto: Zentralbl. f. Chir., 1914, 41, 190; abstr., Gior. d. r. Accad. di med. di Torino, 1914, 77, 21.

4. Walton: Surg., Gynec. and Obst., 1915, 21, 269.

5. Eliot, Ellsworth: Surg., Gynec. and Obst., 1918, 26, 81.

ducts, laying particular stress on the work of European authorities.

Moynihan⁶ suggests the use of the jejunum in the same manner as the Y gastro-enterostomy of Roux. The upper part of the jejunum is cut across and the proximal (oral) end sutured end-to-side about 12 inches below the distal end. The distal end is then sutured to the gallbladder (Fig. 2). Clinically, if the gallbladder was normal, a cholecyst-enterostomy could be done, so the practical application of such an operation would be only where the end of the bowel must be attached to a small contracted gallbladder, or possibly to the stump of the hepatic duct. I have done six experiments after this method of Moynihan (Fig. 3). In all of them the dogs died.



Fig. 3.—Type of operation in six experiments done according to method of Moynihan.

The thin gallbladder when sutured to the thick intestine of a dog readily tears, and the powerful peristalsis pulls loose the sutures. In man, of course, the same anatomic conditions do not exist; but with such fatal results experimentally I would be unwilling to try this operation clinically, even with more favorable tissue.

It occurred to me that probably the transplantation of an everted vein might be successful. Theoretically, the advantages are that the vein, when turned inside out, would have the endothelial coat outside, and this would become adherent to the endothelium of the peritoneum and the surrounding raw surface and the nutrition of the vein be thereby readily established. The vein offers a thin, well organized tube which

should require a minimum amount of nutrition as compared with a thick tube of fascia, and if the epithelium from the duct and the duodenum would grow in from the ends of the transplanted vein, we might find a permanent tube of definitely organized tissue that would be satisfactory. These theoretical premises were not borne out by experimental work, as will be explained later.

TECHNIC

Sixteen experiments were done on dogs in which the following technic was developed:

The vein used is from the external jugular, which seems to serve best for this purpose in a dog and is very large. A ligature is placed at the lower portion of the external jugular, and after the vein has been dissected clean of fat another ligature is placed at the upper end. The length of the segment removed should be at least double the length of the duct to be reconstructed, as the vein contracts greatly. After removal a mosquito hemostat is inserted in the segment of vein at one end, and grasps a bite at the other end; then by pulling on the forceps the vein is turned inside out. The vein should be kept moist with salt solution, in order that it may be handled more satisfactorily. A suture of small tanned catgut is inserted at one end after the manner of a purse-string suture. It is tied so as not to constrict the caliber of the vein. This suture acts as a collar. Opposite the knot in the catgut a silk ligature is placed and left untied (Fig. 4). The vein is now ready for transplanting.

The common bile duct is dissected free, and a serrefine whose spring has been weakened as for blood vessel work is

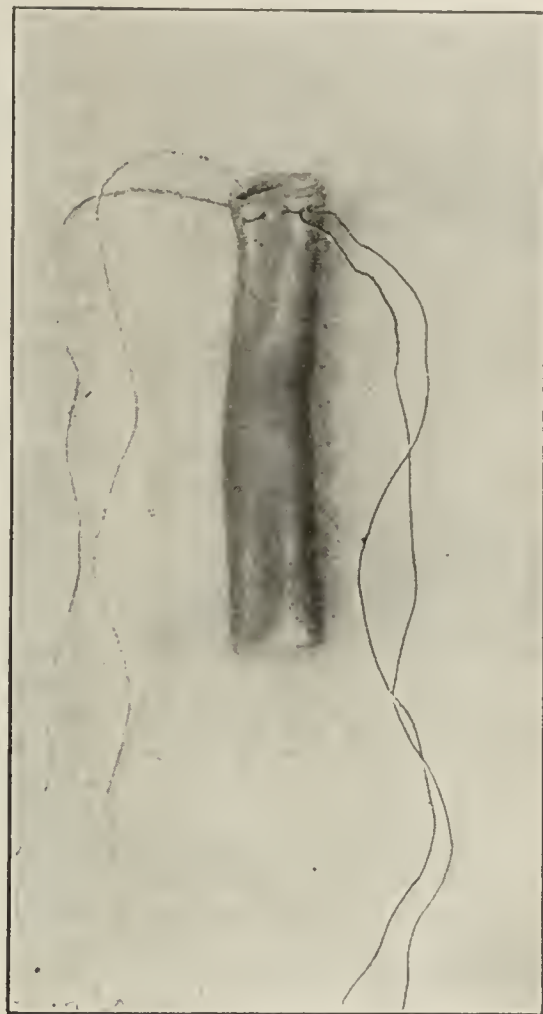


Fig. 4.—Segment of external jugular vein, which has been removed and turned inside out, with catgut and silk sutures placed in position.

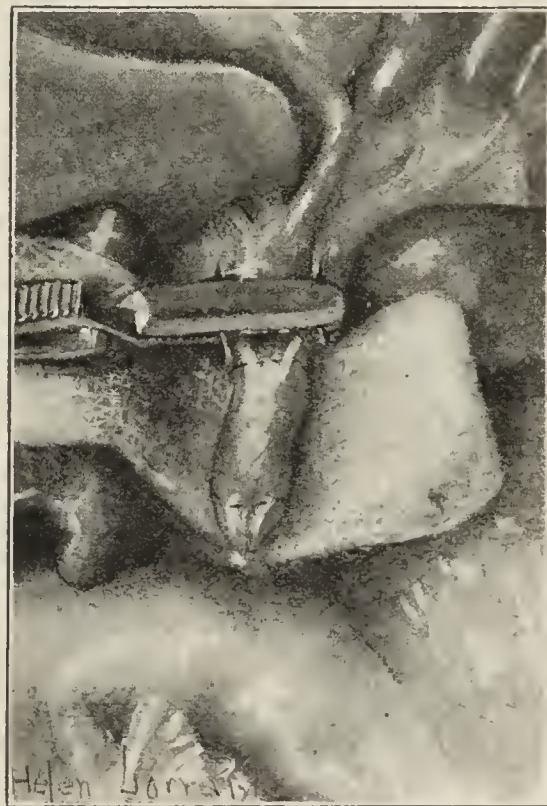


Fig. 5.—Common duct has been dissected free and serrefine placed on upper extremity. Dotted lines indicate point at which it is to be resected.

6. Moynihan, B. G. A.: *Abdominal Operations*, 2, 3d edition, 334.

placed on the upper part of the duct (Fig. 5). It is important to preserve the peritoneal covering of the duct as much as possible, for this facilitates the healing of the transplanted vein to the stump of the common duct. A ligature is placed

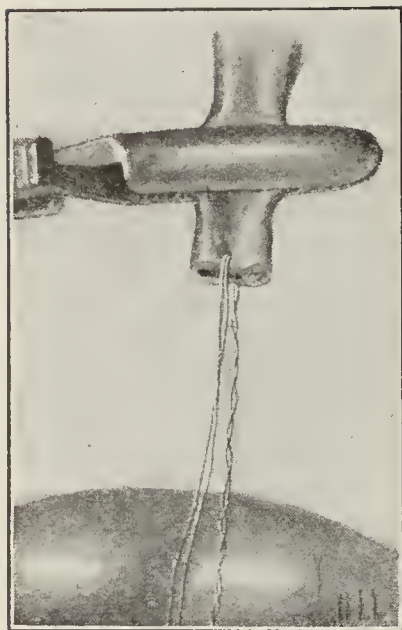


Fig. 6.—Duct has been resected and upper stump transfixed with double silk used for a tractor suture.

on the duct close to the duodenum, and the portion between the ligature and the serrefine is excised. A needle threaded with rather stout silk doubled transfixes the stump of the common duct (Fig. 6). This is a tractor suture and is made long enough for the four strands to traverse the segment of vein, take a small tube, as shown in Figure 11 *a*, and then dangle free in the bowel.

This tractor suture is not tied on the common duct for fear of occluding it, but is merely inserted. The object of this suture is twofold: First, it will afford immediate drainage for the bile along the suture, and, second, the thread with its attached rubber tube in the intestine will tug at the end of the duct

and prevent its retraction from the vein. If the suture is anointed with petrolatum it is more easily handled.

Mosquito forceps are introduced through the segment of vein and catch the four strands of the tractor suture, drawing them through. Then two of the strands are threaded in a

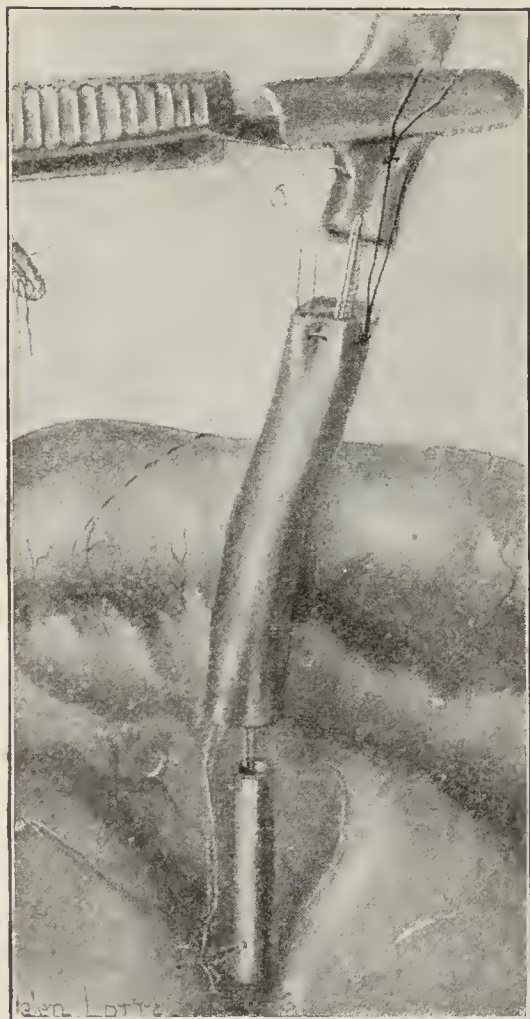


Fig. 7.—Tractor suture has been caught by mosquito forceps which were introduced through segment of vein, pulled through vein, carried through small rubber tube, and tied. Catgut and silk sutures have been carried through stump of common duct and are about to be tied.

large needle, passed through a short piece of small rubber tube, and tied firmly to the other two strands (Fig. 7). One end of the catgut of the purse-string suture on the vein is now threaded in a small curved needle and catches a small bite in the duct about one-third inch from its end. It is tied snugly while pulling up the vein and pulling down the tractor suture so that the stump of the duct is invaginated into the vein. The ends of the catgut are cut short. Then the end of the silk ligature that was previously inserted into the vein is threaded into a needle, catches a bite of the duct, and is tied at a point about opposite the place where the catgut suture was tied.

The silk is left long in order to bring the omentum up later

on. In this manner the vein is fixed to the stump of the common duct which has been invaginated into the vein.

A transverse or oblique incision is now made on the duodenum, going down to the mucous membrane but not through it. At the point of incision farthest from the common duct, the mucous membrane is punctured (Fig. 8). A

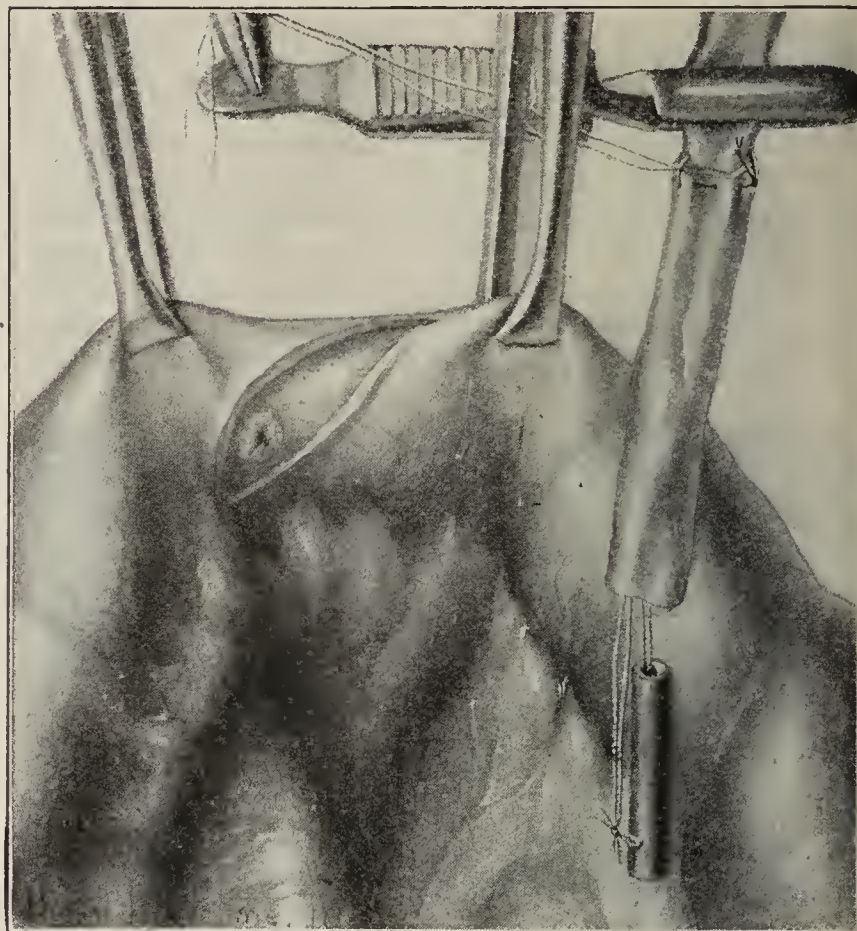


Fig. 8.—Incision is made in duodenum down to mucosa. Mucosa punctured at end of incision farthest from duct, utilizing the principle of Coffey.

silk or linen suture is passed through the edge of this puncture and catches the vein in at least two places. This suture

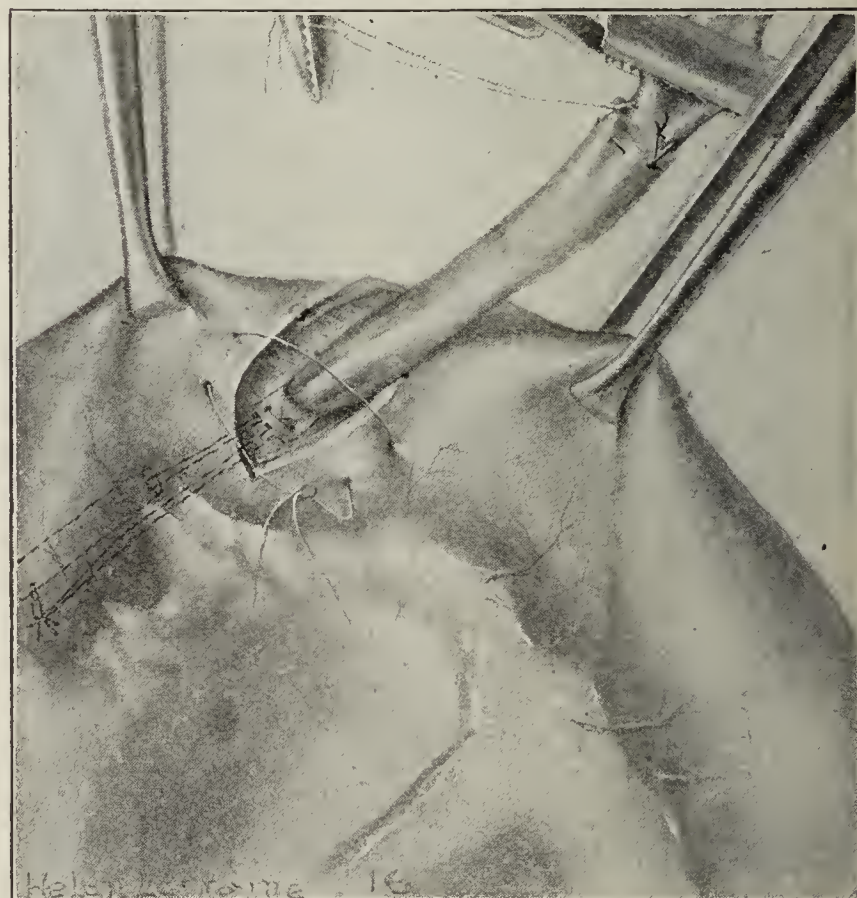


Fig. 9.—The tractor suture with rubber tube has been placed within the bowel. The vein has been fastened by a mattress suture through mucosa, and the wound in the duodenum is being closed.

is inserted from without in and returns from within out, so making a mattress stitch. It is tied, and the tractor suture on the common duct, together with the piece of rubber tube, is pushed through the hole in the mucous membrane (Fig. 9). A few interrupted mattress sutures bury the transplanted

vein, making its insertion oblique and using the mucous membrane as a valve as recommended by Coffey. The end of the silk suture that holds the vein in position at the upper stump of the common duct is now threaded on a needle, and a piece of omentum is brought up and held around the transplanted vein by means of this suture (Fig. 10).

RESULTS OF EXPERIMENTS

Of the sixteen experiments, in the first and the third dog there was no provision made for drainage of bile through the transplanted vein. Both died with leakage at the junction of the duct and the vein, the vein having become a solid cord. Six other dogs either died or were apparently about to die when killed within from seven to forty days after operation. In each instance there was occlusion of the transplanted vein.

In those that died soon

dogs were in fairly good condition when killed from nineteen to forty-five days after operation. In

one (Dog 7) the transplanted vein was distinctly patent thirty-six days after operation, and in another (Dog 13) nineteen days. In the other four the vein seemed to be well nourished, though it was occluded at the distal end. One dog (Dog 16) was killed under an anesthetic three and one-half months after operation. It had been well up to three weeks before being killed. It then began to look bad and became emaciated and jaundiced. Postmortem showed the reconstructed duct occluded and much shortened, and the common and hepatic ducts enormously dilated.

Dilatation of the common and hepatic ducts occurred in all cases, even when the reconstructed duct was still patent. This

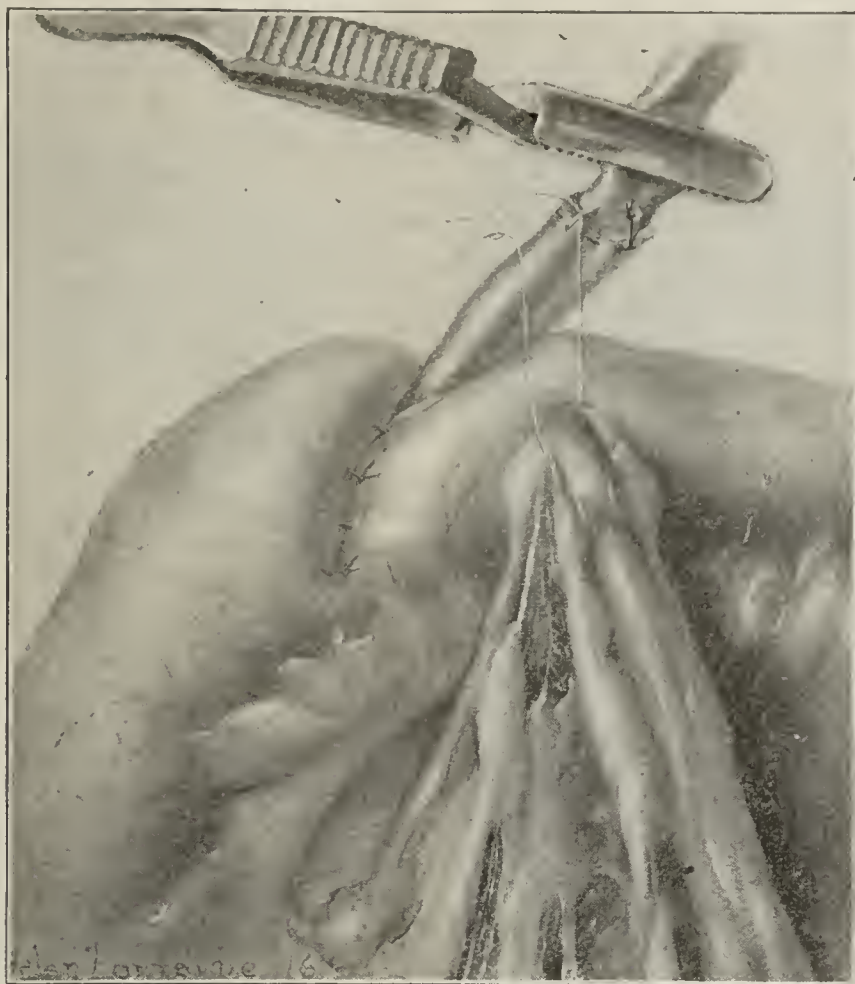


Fig. 10.—The long end of the silk suture in the upper part of the vein catches the omentum and holds it around the reconstructed duct.

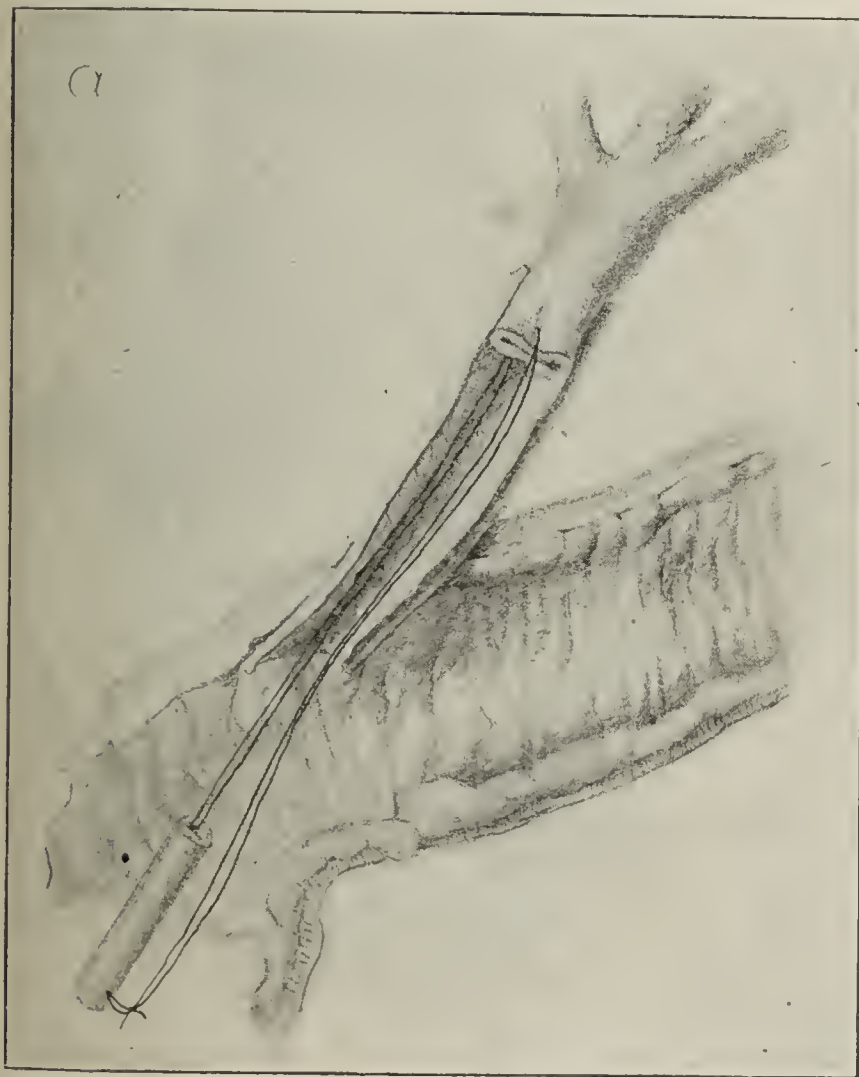


Fig. 11 A

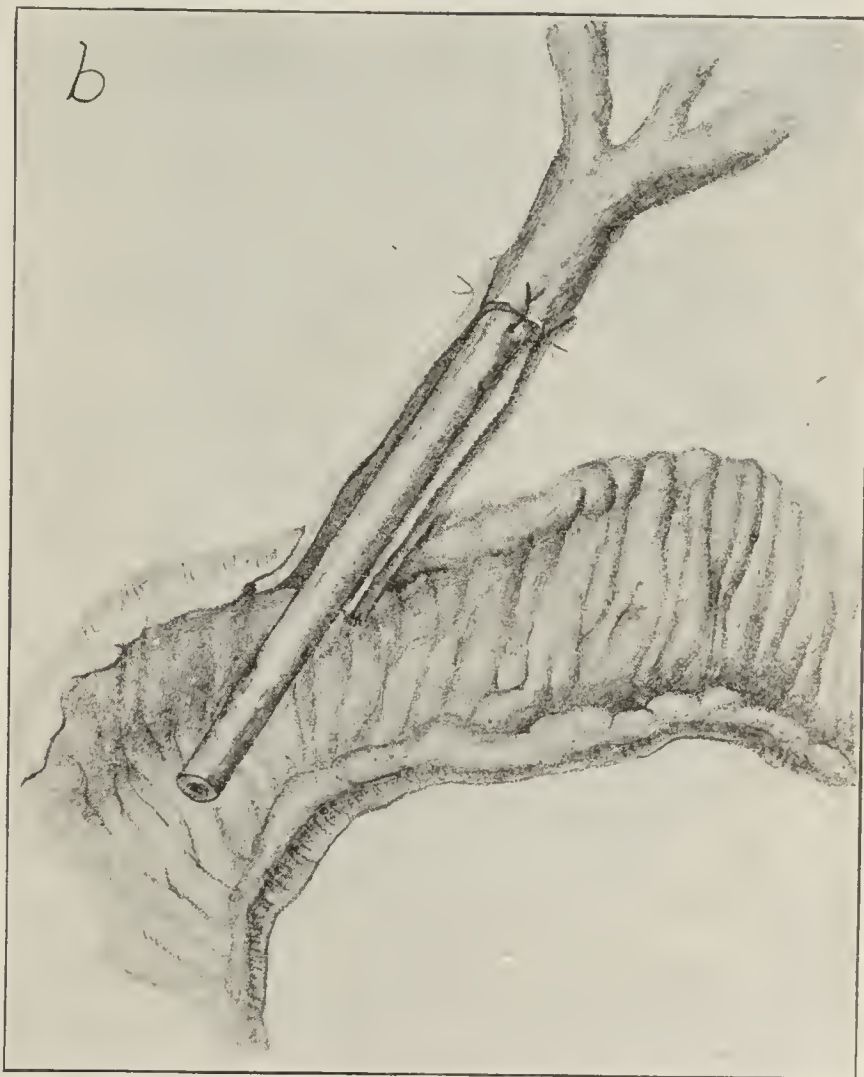


Fig. 11 B

Fig. 11.—Sections showing: *a*, relation of the tractor suture in the reconstructed duct; *b*, modification in which small rubber tube was used instead of tractor suture. It did not have any material advantage.

there was usually leakage at the junction of the vein and the duct. One dog (Dog 14) died two days after operation, the abdominal wound having opened. Six

was probably due partly to interference with peristalsis and partly to pressure within the duct as well as to beginning obstruction.

The practical conclusion from these experiments seems to be that while it is possible to reconstruct the common bile duct with an everted segment of vein, the final result is unsatisfactory. In man the immediate danger from the operation, leakage at the point

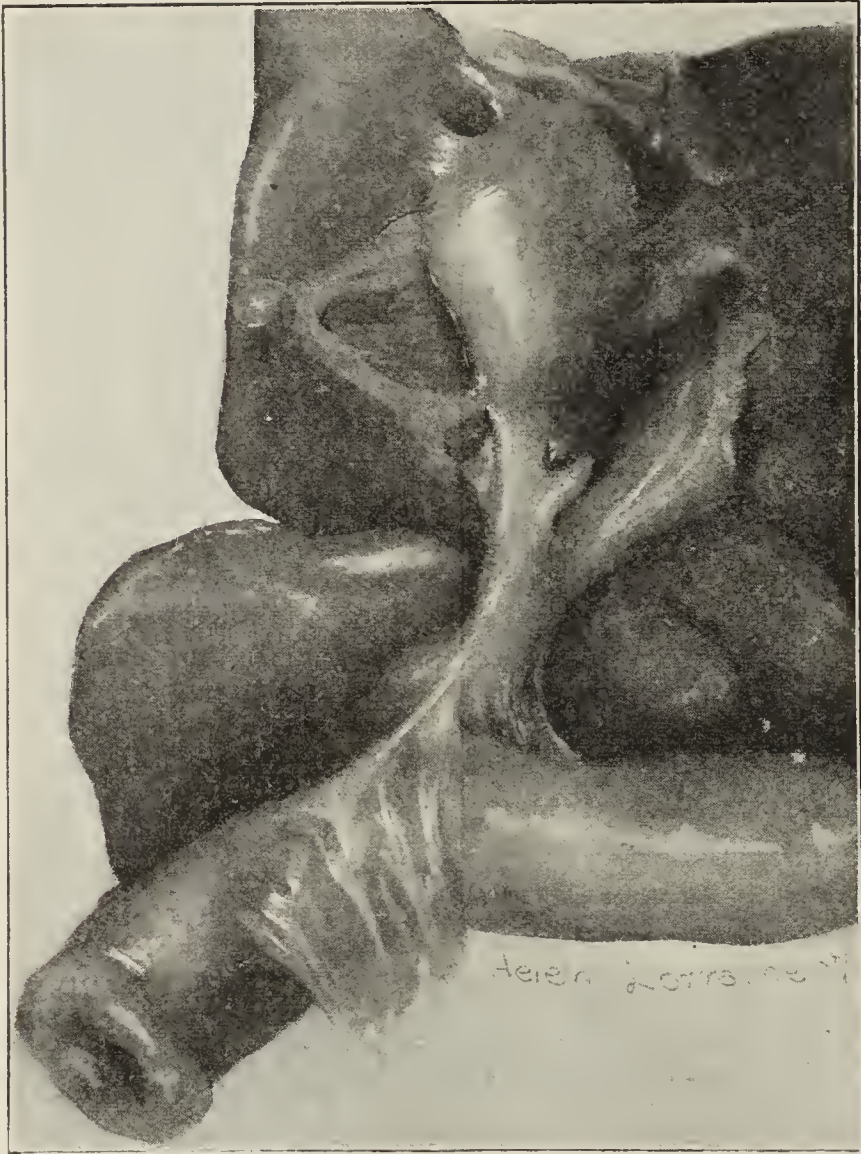


Fig. 15 (Dog 16).—Specimen removed 109 days after operation. The transplanted duct is greatly shortened, completely occluded and buried in a mass of adhesions. It shows as a short cord connecting the dilated ducts to the duodenum. The dog was in good condition until about two weeks before death.

of junction, could be largely avoided by drainage, which is impracticable in a dog. When a dog recovered from the immediate effect of the operation, it did well for several weeks; but if the animal was permitted to live long enough, it became ill from one to three months after the operation.

The explanation of this failure is that it is due to contraction of the reconstructed duct, and analysis of the postmortem examinations and the microscopic findings throws some light on its cause. Though the everted jugular vein made a tube several times the caliber of the normal bile duct, contraction invariably took place. In some instances contraction was more rapid than in others, but it always occurred and, if the dogs were permitted to live, eventually there was occlusion.

Microscopic sections of the transplanted vein show a marked inflammatory round cell infiltration of the adventitia, the internal layer of the everted vein, whereas the outer layer, or the intima, with its adjacent coat, had very little infiltration (Figs. 17, 18, 19 and 20). This testifies to the irritating effect of bile on that layer of transplanted tissue with which it came in contact. Such continued irritation, resulting in prolonged infiltration with inflammatory products and small round cells, causes contraction.

COMMENT

There seems to be what might be called a biologic law of the immunity of tissue near an irritating discharge to the effects of that discharge. This immunity may be relative or absolute, but it appears to exist to some extent in the tissue immediately around the lining of the bile tracts, the bowel and the urinary apparatus. Operations, for instance, around the anus and in the perineum where contamination with fecal discharge cannot be entirely avoided are not often infected. In perineal prostatectomy, in which the wound is in close proximity to the anus, there is rarely infection, which is more common after the suprapubic operation, when only urine and no fecal matter come in contact with the wound.

The immunity of neighboring tissue to local irritating discharges is well illustrated by the healing of intestinal wounds. In a sutured intestine the peritoneal surface first unites, and soon after this the epithelium grows over the internal surface of the wound. Later, the submucosa and the muscular coats are repaired. The intestine finally straightens out, as shown by the early studies of Halsted and Mall, and repair eventually becomes practically perfect. Healing goes on with the fecal current flowing over the wound. But if a cut were made through the corium and all the layers of the skin of the arm, for instance, and the wound kept constantly bathed in fecal matter, as an intestinal wound is, repair, if it ever occurred, would be slow and with a large scar.



Fig. 17.—Section from transplanted vein in Dog 12. $\times 30$. Note the internal surface of the transplanted vein (A) which consists of adventitia and shows marked infiltration of small round cells, while the external surface (B) is well preserved and is comparatively little infiltrated.

The Sullivan operation, in which a rubber tube is sutured into the stump of the common or hepatic duct, carried into the duodenum, and surrounded by the neighboring tissue and the omentum, is as much a

transplantation of tissue as when fascia or venous segments are transplanted. In one instance tissues in the neighborhood are made to form a channel around the rubber tube, and in the other there is a free transplantation. The Sullivan operation results in a biliary



Fig. 20 (Dog 7).—Transverse section of transplanted vein, thirty-six days after operation. Note contraction, folding in, and round cell infiltration around lumen; $\times 30$.

fistulous tract, probably similar in general construction to an external biliary fistula that follows removal of a drainage tube after an operation that opens the bile tract. It is well known that the irritating effects of the bile and the resulting scar tissue tend to produce contraction and occlusion of such a biliary fistula to the skin. It has been asserted that in an operation of the type of the Sullivan operation, the epithelium from the stump of the duct would grow over the tract made by the tube and so prevent contraction. A similar hope was entertained by me in my early experiments, that the well organized and well nourished walls of a thin vein would form a satisfactory foundation for the epithelium to grow on. However, we found that unless the tissue has some immunity to the effects of an irritating discharge with which it is constantly bathed for a long time, inflammatory infiltration and contraction take place. In this respect the Sullivan operation, which utilizes the neighboring tissues, may be less liable to be followed by contraction than when tissue is transplanted from a distance, though the immunity of tissue outside the duct itself, even in close proximity to the duct, would probably not be very great.

An interesting fact emphasized by these experiments is that constriction and occlusion of the duct do not result from contraction of the epithelial tissue but of the connective tissue. This is universally true. The striking deformities that are seen in the face after a burn are, as a rule, healed over with epithelium; but the contraction is due to the scar tissue under the epithelium which replaced the corium. So in stricture of the urethra, the surface is rarely raw, but is usually covered with epithelium, the stricture occurring from contraction of the connective tissue which has replaced

the submucosa. It is, then, contraction in tissue that corresponds to the corium in skin or the submucosa of mucous membrane that is responsible for such deformities or for stricture, even though the surface is completely covered with epithelium. That epithelium does grow over at least a portion of the reconstructed duct is shown by one of the accompanying photomicrographs (Fig. 21); but this in no way prevents ultimate contraction of the tissue that replaces the submucosa. I call attention to this fact because in a number of instances in the literature, the assumption seems to be that if the reconstructed duct is lined with epithelium, no contraction will occur.

If epithelium is removed from the skin or mucous membrane, and if the defect is not too large and the corium or submucosa has not been materially injured by trauma or infection, repair will be perfect; but if the corium or submucosa has sustained any but the slightest injury, a permanent scar will result. Scars resulting from mechanical trauma, such as a cut with a knife, are notoriously less extensive than those that result from burns, infection or chemical injury. After mechanical trauma when there is no infection, the damaged tissue is destroyed or removed and the adjoining cells are not affected. But in an injury from a burn or from a chemical irritant, which for this purpose includes infection and irritating discharges, besides those cells that are entirely destroyed many adjacent ones are affected though they may not be killed outright. Later, they atrophy and are replaced by scar tissue. This necessitates repair not only of the tissue that is killed outright, but of the cells whose vitality has been impaired in a zone outside of

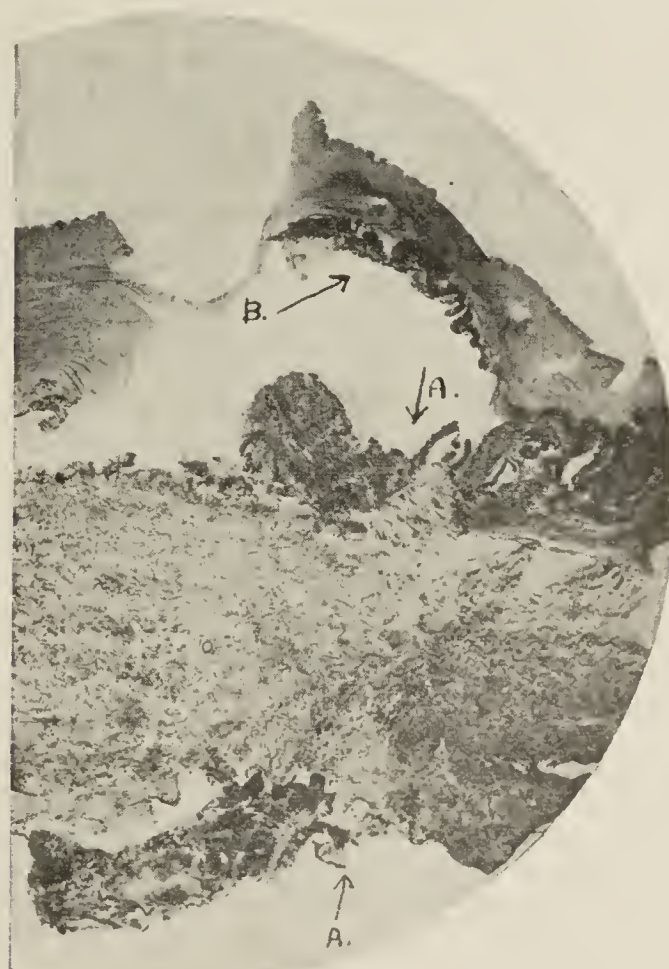


Fig. 21 (Dog 12).—Section of junction of transplanted vein with stump of common duct (A, A) twenty-three days after operation, $\times 30$. Note that the columnar epithelium has grown a considerable distance over on the transplanted vein; but its attachment was slight and was partly broken loose during section (B).

that in which complete death of cells occurred, and calls for a high degree of hyperemia and extensive connective tissue formation, which means a prominent scar and marked contraction. In a reconstructed bile

duct where a vein or other tissue that has no natural immunity against the chemical irritation of bile is used, we have the very conditions that produce a large amount of scar tissue, so subsequent contraction inevitably ensues.

The conclusion may be stated that repair of any structure over which irritating discharges flow should be made by tissues that are either wholly or partly immune to these discharges. Repair of defects of the common duct, then, should be done with a view to the avoidance of subsequent contraction which will surely occur, whether epithelium lines the newly constructed tube or not, if nonimmune tissues foreign to this region are used. It seems that the most satisfactory reconstruction occurs when the stump of the common or hepatic duct is sutured to the mobilized mucosa and submucosa of the duodenum. In this way epithelial and subepithelial layers of tissue that are accustomed to the biliary discharges are employed; and if an accurate approximation is made, the submucosa of the duodenum unites with the corresponding tissue of the stump of the duct, and no more contraction should occur than would take place after suturing a wound in the intestine. Dr. William J. Mayo has employed such a technic in his clinic for a number of years, and similar work has recently been reported by Dr. Le Grand Guerry.

RECONSTRUCTION OF THE CHOLEDOCHUS

LE GRAND GUERRY, M.D.
COLUMBIA, S. C.

Surgeons are occasionally forced to the necessity of reconstructing the common duct. Surgical literature is full of case reports, and many methods have been advocated by equally as many writers, involving the transplanting of fascia, the transplanting of blood vessels, the transplanting of the peritoneal layer of the duodenum, and so on to the end of the chapter. Some of the operations are good and others are distinctly bad.

Experimentally many plans have been tried on dogs with varying degrees of success. Unfortunately, what will work in the dog laboratory will not always work in the human abdomen, and the simple method I present, although done independently under the force of circumstances seven years ago at our hospital, is not an original plan, for in reviewing the literature I find case reports of almost the identical procedure. I do not wish the foregoing statement to be construed as a criticism of the invaluable experimental work carried on by Crile, Cushing, Horsley and many others, for we owe a large part of our progress in surgery to such work. I feel, however, that when due allowance has been made, there is a tendency among some to test the final value of a given method in the experimental laboratory rather than under actual conditions in the human body.

In January, 1916, Mayo¹ published a splendid article on "Restoration of the Bile Passages," which every one interested in this subject should read. The method described in this article is almost identical in principle with the one under discussion. It appears to me that in our effort to find something new under the sun we have focused our thought too much on the experi-

mental laboratory and have overlooked the most natural way of overcoming these defects in the bile passages.

REASONS FOR RECONSTRUCTION

Some of the reasons why it is necessary to reconstruct the common duct are as follows:

1. In case of permanent obstruction at the head of the pancreas, if the gallbladder is intact, we shall have plain sailing. Cholecystoduodenostomy is, however, a short-circuiting operation rather than a reconstructing of the bile passages. If the gallbladder has been removed, there will be another story to tell.

2. It may be necessary to restore the bile passages on account of inflammatory stricture of the common duct. If the stricture of the common duct extends above the junction of the cystic and hepatic ducts, it may be necessary to excise the strictures and then, if possible, apply the method to be described, or the stricture may be divulsed.

3. The common duct may be divided in the operation of cholecystectomy. As a matter of fact, injuries to the choledochus are usually the result of operative measures. If the accident is discovered immediately, repair is much easier than if a secondary operation is necessary to correct the injury. It is vitally necessary to remember here that the junction of the hepatic and cystic ducts which form the common duct is not always at a fixed point.

Whenever we attempt the operation of cholecystectomy, the point just mentioned must be constantly borne in mind. The usual position at which the cystic duct enters the hepatic duct is about three quarters of an inch below that portion of the hepatic duct which lies within the liver itself. However, the junction of these two ducts which form the common duct may occur as high up as the fissure of the liver, or they may run parallel with each other and unite almost at the entrance into the duodenum. According to Gray's Anatomy, they may remain independent throughout their course, or the junction may occur at any point between the fissure of the liver and the duodenum.

Not only, then, do we have the junction of the hepatic duct and the cystic duct at a point whose location varies, but the two ducts running a parallel course and in intimate association one with the other and at times overlapping each other. When this unusual anatomic situation occurs, unless the two ducts are isolated and identified before the gallbladder is removed, accidental injury to the hepatic or common duct can and often does occur.

A case within the last few months beautifully illustrates this point. A male patient, aged almost 60, had a large stone in the ampulla of Vater, producing obstruction of the common duct. The hepatic and cystic ducts were both distended to the size of one's index finger and could be clearly traced almost to the duodenum before the junction was effected.

RESULTS OF OPERATION

The three essential things to be accomplished by the operation are as follows:

1. In certain of the cases in which the duodenum is closely bound down by adhesions, its mobilization is most important, as we are thereby enabled to effect the anastomosis with greater accuracy.

2. This step I believe to be fundamentally necessary. The essential thing, as the illustration will show,

1. Mayo, W. J.: Surg. Gynec. and Obst., 1916, 22, 1-6.

is so to mobilize the mucosa of the duodenum that when the suture line is completed, the mucosa and the submucosa of the duodenum will be directly united to the light structures of the hepatic duct. If this is done, we shall have a continuous epithelial lined passage, and contraction in all probability will not occur. This point illustrates the inherent weakness in many of the so-called autoplasmic reconstructions of the bile passages. Some of the methods break down just here, in that they fail to provide a continuous mucus lined passage for the bile.

3. The third objective to be attained is the one so clearly set forth by Dr. Horsley in the preceding paper. His experimental work shows clearly that contraction may occur in an epithelial lined sinus: "Construction is due to contraction of underlying fibrous or connective tissue and not to contraction of the epithelium itself" (Horsley).

The absence of a proper submucosa as a covering for the line of union may bear the same relation to the contraction of the anastomosis as the corium does to a burn of the skin. We do not have contraction in a superficial burn of the skin, because the corium, which consists of connective tissue, that is, elastic fibers, contributes elasticity to the skin. This portion, also the seat of the sensitive layer, is not destroyed. On the other hand, however, contraction always occurs when the corium is destroyed. The point is that the corium bears the same relation to contraction following a burn of the skin as the submucosa bears to contraction following anastomosis between the common duct and the duodenum.

CONCLUSION

I wish to make this point perfectly clear. I am not setting up the claim that this is the only way of remedying these defects in the bile passages. We may be quite sure that in many instances this method will not be suitable. What I do contend, however, is that the plan has a sound surgical and physiologic basis.

As the illustrations will show, the method provides a continuous mucus-lined passage and a submucosa from a location and under conditions as normal as we may hope to obtain. It appears to me, then, that in the group of cases suitable for this method of relief, the bile passages may be restored as nearly as possible to a normal condition.

Briefly then, my experience with reconstruction of the bile passages is confined to seven cases. One particularly interesting point about the third case was that the stump of the hepatic duct was so short that, try as I might, it was quite impossible to suture the duodenum to the hepatic duct. Consequently the gap between the two, which was about one-half inch in length, was bridged by a small rubber tube about the size of a No. 9 catheter. To my intense delight, the tube was passed about the fourteenth day, and, after a slight external drain of bile which lasted for about one month, this patient has remained well ever since.

There were two deaths in the seven cases. One death in a woman aged 70 was due to surgical shock and followed the operation within three or four hours. The second fatal case was due to postoperative pneumonia. One patient, who survived the operation and was alive four years afterward, had a small external biliary fistula that drained bile intermittently. Her health, however, was much improved, and since then she has passed from under my observation. The

remaining four patients have remained well ever since the operation, and may fairly be regarded as complete symptomatic cures.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRs. HORSLEY AND GUERRY

DR. ARTHUR G. SULLIVAN, Madison, Wis.: I wonder if you fully grasp the significance of Dr. Horsley's statements as regards the influence of a lining epithelium on duct contracture? The question is constantly raised as to whether the epithelium actually grows and eventually unites in the new-formed canal made by my method. A sinus lined by epithelium is by no means insured against contraction. The old belief that epithelium itself would prevent contracture is not correct. Epithelium itself does not necessarily have any influence as regards keeping a duct patent, nor does its absence interfere with the discharge from a persistent biliary fistula. Do you ever worry that a persistent biliary fistula will close? Your chief worry is that it will not close. As long as there is obstruction so that the course of least resistance is for the bile to come outside, the bile will come outside, epithelium or no epithelium. You all have had experience with fecal and urinary fistulas and have worried considerably for fear they would stay open, although you knew full well that they were not lined by epithelium. As Dr. Horsley indicates, the character of the wall itself holds the secret as to whether a new-formed sinus will eventually contract, granting, of course, that there is a constant and regular discharge of bile through the sinus. The epithelium fully lined the new-formed ducts in my experimental work.

The various methods which have been proposed for bile duct repair have looked very well in the illustrations, but many of them cannot be utilized at all in the average case which requires duct reconstruction. The method portrayed by Dr. Guerry looks good, and it evidently has been successful; but to be candid, I can scarcely see that the end result of Dr. Guerry's operation, as indicated by his illustration, is at all different from Dr. W. J. Mayo's, in which he mobilizes the duodenum and sutures to it the divided hepaticus. I do not want you to get the wrong impression of my faith in the rubber-tube method. If you are faced with a predicament in which there is no gallbladder and no opportunity to unite the hepatic duct directly to the duodenum, put in a rubber tube and cover it with the tissues near at hand. As Dr. Coffey has stated, those tissues probably lend themselves better to the rather irritating effect of the bile than do those of a transplant. If you will do this, your efforts may be successful.

DR. C. N. DAVIS, Chicago: Dr. Horsley made mention of some experiments done by me some three years ago. We worked with fifty dogs and transplanted fascial flaps in an effort to repair the common duct. Our results were good and bad. In confirmation of what Dr. Sullivan has said, we found that the ducts made by fascial flaps were lined by epithelium. The great majority of our animals were lost because of stricture, not through the fascial tissue, but at a point where the duct had been cut across. We tried to obviate this stricture by cutting the duct in an oblique manner. But this seemed to have no effect whatever. A few of the animals survived, but the great majority died because of the constriction where the duct was cut. Two or three years ago a Chicago surgeon resected the common duct in doing a gallbladder operation. A drainage tube was put in and the patient allowed to drain. Some three or four months after that we put a tube in and reconstructed the common duct over a T-tube. The bile discharged through the long end of the T-tube and discharged normally into the intestinal tract. The tube was left in place for six months and the patient gained weight. Everything went lovely. A few months later the tube was removed, and in a short time the patient's condition was as bad as before the operation. She was operated on again, and later the tube was taken out, with a like bad result. She was operated on a fourth time. A T-tube was put in, and the patient says it will be removed only from her dead body.

DR. L. L. McARTHUR, Chicago: I had not the advantage of the recent experimental research work on bile tract restoration

when I met with my first case in 1907. Dr. Sullivan's article had not then been published, so I improvised a means of reconstructing a common duct which had been injured in the preceding operation. The patient, who suffered two or three years with icterus whenever his *stula* closed, but was relieved when it was open, desired something to be done. It was possible to find a dilated proximal common duct. The gallbladder had been removed at a former operation. Into this dilated common duct it was possible to introduce a rubber tube. There was no possibility in the cicatricial tissue which surrounded this field (he had had three previous operations) of finding the distal portion of it. So a pursestring suture was made in the duodenum at the point most closely lying to the proximal end of the common duct, and a tube introduced through an incision in the center of this area after a pursestring suture had been made in the common duct proximal end and a tube inserted. Reasoning that it was essential that that tube should come away not at once, but after some time, I did this: I turned back a cuff on the rubber tube about one-quarter of an inch, then turned that back again so that I had a round knob on the end of the tube about twice the size of the tube, narrowing its lumen, but permitting the bile to flow. With the proximal end in the common duct, it was easy to constrict the common duct, leaving its mucosa attached so that it brought it close to the duodenum. I wanted the tube to come away, but not too soon. I made it 8 inches long and let the 8 inches go down the duodenum, so that the constant peristaltic pulling for five or six weeks all that time gave a chance for epithelium to develop. That scheme works. I have done it now for the fourth time, and one of my associates, calling me to assist him in a difficult icteric case, repeated it successfully for the fifth time. The practical hint is, to follow the suggestion of Willy Meyer, bring the duodenum as close as possible to the stump of the proximal end of the common duct and keep it patulous until the mucosa can grow to mucosa. While the experience of any of us will not be great in numbers, so simple a resource as that described can be found in any operating room.

DR. I. J. STRAUSS, Chicago: In 1912, when I reconstructed ureters from the fascia lata, I got a patent ureter. Epithelium will grow on any medium. You cannot prevent epithelium from growing over a hollow viscus. As to end results, experimentally from the bile duct work, success is due entirely to technical skill. If you take a fascial transplant uppermost, then the hydrostatic bile will distend the tube. Dr. Davis is correct. When I did ureteral work I did bile operations and put a stone into the duct. Then the hydrostatic action caused stricture, and you take out the stone and you have no stricture whatever. This shows that the bile within the common duct is under a very low pressure, and consequently there is always a constriction. If we have high hydrostatic action, we would have no pressure, and these cases of reconstruction of the bile duct would be a success.

DR. J. SHELTON HORSLEY, Richmond, Va.: The pathology of a biliary fistulous tract is intimately connected with such reconstructive work. Of course, the fistulas that do not close impress us. What is the proportion of external biliary fistulas that do not close to those that do? Exceedingly small. If they do not close we know the reason; usually some obstruction to the bile lower down. The Sullivan operation is as much a transplantation as when a vein or fascia is used and has the advantage of a pedicle for blood supply. Sullivan's procedure has the additional advantage, too, of using tissue in the neighborhood, which has some immunity to the irritating effects of the biliary discharges; but a free transplant is not so well nourished, has no immunity to the irritating discharges, and will eventually contract. The ideal method is to unite the stump of the duct to the submucosa of the duodenum. Dr. Sullivan has authorized me to say that he is in no way responsible for the T-tube. In pulling it out it causes too much damage.

Teach Health to the Children.—Since 90 per cent. of our American children leave school at or before the eighth grade, public health must be taught in the grades if the majority of the population is to be reached.—*Minnesota Public Health Association Journal*.

HEMOPHILIA

EXPERIMENTAL DATA BEARING ON THE EFFECT OF
GLYCERINIZED EXTRACTS OF VISCERAL HEMO-
PHILIC TISSUE ON THE COAGULATION
TIME OF BLOOD *

HARRY LOWENBURG, A.M., M.D.

AND

A. I. RUBENSTONE, M.D.

PHILADELPHIA

Inasmuch as the active etiology of hemophilia remains one of the unsolved mysteries of medicine, and inasmuch as medical science affords us no remedial agent which will permanently eradicate the disease, the investigations to be recorded were undertaken with the hope that some new information with reference to the cause of the remarkably slow coagulative property of the blood in hemophilia might be provided. The opportunity to conduct these investigations came to us by reason of the death of a 6 year old lad, who presented the classical family history of this disheartening affection. He had been admitted to the pediatric service of the Mount Sinai Hospital of Philadelphia on several occasions. Each time profuse hemorrhage had followed the slightest trauma to skin or mucosa. Usually he bled from the tongue, mouth or lips—the result of teeth bites from falls. The slightest pressure would produce extensive subcutaneous ecchymoses. At no time would the bleeding cease spontaneously or by the use of ordinary measures. Horse serum or the direct injection subcutaneously of freshly drawn human blood was always necessary to control the bleeding. The anemia following one of these attacks was always profound, and frequently he would become highly toxic following an injection, presenting hyperpyrexia, delirium, urticaria and other evidences of the intracirculatory destruction of foreign protein. Once the bleeding ceased, however, his color and animation would return with amazing rapidity. His father did not bleed, nor did his mother, nor his sister, but his brother, who even now is a patient under the care of one of us (Lowenburg) at the Mount Sinai Hospital, just recovering from a severe hemorrhage following a slight trauma on the forehead, and which required intravenous transfusion to control it, frequently has attacks of bleeding. There is no history of consanguinity. His maternal uncle is a bleeder, having required intravenous transfusion to control what appeared to be spontaneous hematuria. This occurred on two occasions and almost cost the patient his life. Another maternal uncle bled to death. Thus it is seen that we are dealing with a typically classical case of hemophilia. Our patient died at the Mount Sinai Hospital following uncontrollable intestinal hemorrhage of unknown origin.

Assuming that the blood of hemophiliacs does not come in contact with extravascular tissues (skin, muscle, fascia, etc.), that the coagulation time under such circumstances is unduly prolonged beyond normal is not the subject of professional controversy. Howell's experiment, wherein he showed that hemophilic blood drawn directly into a test tube sometimes consumes five hours in clotting, may be readily verified by repetition. Normal blood is coagulated within from thirty

* Read before the Section on Diseases of Children at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

to forty minutes. Hemophilic blood presents no striking abnormal variations in the white and the red cell count and the blood plaques. Various authorities have, however, proposed divergent hypotheses as to the elemental causal factor, some ascribing it to an overabundance of anticoagulative substances and others to a deficiency of procoagulative agents.

Thus Morawitz, as well as Lossen,¹ attributed the defect to a lack of thrombokinase; Weil² attributed it to an excess of antithrombin; Wright, to calcium deficiency, while Addis³ and Howell⁴ showed experimentally that there was a lack of prothrombin. Howell, as well as Nolf,⁵ found no calcium deficiency, and indeed Lossen proved that adding calcium to hemophilic blood causes no decrease in coagulation time. Howell, furthermore, demonstrated no deviation from a normal fibrinogen content and that the blood of a hemophilic, when brought in contact with the tissues of the same person, is coagulated rapidly. For example, if during venipuncture of a hemophiliac, the technic is faulty, and some blood traverses the subcutaneous tissues before it is drawn into a test tube, the blood will clot in little longer time than normal.

Since all workers are practically agreed that extracts of the external tissues exert a marked influence in diminishing the coagulation time of hemophilic blood, it occurred to us to investigate the effects of extracts or emulsions of the various internal tissues, both from our dead hemophilic patient, as well as from those of an apparently healthy, normal boy who died by accident, and to ascertain the effect of these, if any, on the coagulation time of blood.

Our work consisted in preserving samples of the following tissues: brain, thyroid, heart, liver, kidney, suprarenal, pancreas, spleen, muscle and bone marrow.

PREPARATION OF TISSUES

The tissues were cut into very small pieces, and washed in running water for about three hours to rid them of as much blood as possible. They were then ground in a mortar with three times their volume of physiologic sodium chlorid solution and a little glycerin was then added.

To test the effect of these tissue extracts on coagulation of blood, advantage was taken of the method outlined by Howell, consisting of first, oxalating blood plasma and then reactivating coagulation in such plasma by the addition of a suitable amount of calcium chlorid. In this way normal blood plasma clots uniformly in from eight to twelve minutes. The effect of the addition of the various tissue extracts to such preparations of plasma was easily ascertained by gently tilting the test tubes and observing closely how long it took the plasma to form a firm coagulum.

Blood from a normal person was drawn by venipuncture into a Luer syringe and at once run into a test tube containing a solution of sodium oxalate in physiologic sodium chlorid solution, so that the oxalate was present in about 0.12 per cent. of the entire volume. The oxalated blood was then centrifuged and the supernatant yellowish green plasma pipetted off. The clotting of the plasma was reactivated by adding

calcium chlorid as follows: 0.5 c.c. of oxalated plasma was placed in each of five test tubes, and to these were added in series of 0.1, 0.2, 0.3, 0.4, 0.5 c.c. of 0.5 per cent. solution of calcium chlorid, and the coagulation time observed in each test tube to ascertain which amount of calcium chlorid caused the quickest and most uniform coagulum. After several repetitions of this test 0.35 c.c. were found to be most efficient, and with this amount the plasma clotted in eight minutes and forty seconds. Any amount less or more than 0.35 c.c. caused slow, uneven, or no coagulation at all.

Into each of three test tubes were placed 0.5 c.c. of oxalated plasma, one drop of the tissue emulsion and 0.35 c.c. of the calcium chlorid solution. The tubes were closely observed and frequently gently tilted to determine the coagulation time. This procedure was carried out with every type of tissue studied, both hemophilic and normal, together with controls of calcium and plasma alone, glycerin alone, and with thromboplastin-Squibb and that prepared in our own laboratory. These reactions were repeated several times and corresponded with the result shown in the accompanying table.

COAGULATION TIME OF PLASMA AND CALCIUM AFTER ADDITION OF TISSUE

Extracts	Hemophilic		Normal	
	Min.	Sec.	Min.	Sec.
Brain	4		3	
Thyroid	10	30	4	
Heart	4	15	4	30
Liver	9	45	5	
Kidney	4	20	3	40
Suprarenal	4	30	3	10
Pancreas	6	30	4	
Spleen	6		5	
Muscle	5		3	15
Bone marrow	6		4	25
Controls				
Oxalated plasma.....	No coagulation			
Plasma and calcium			8	40
Glycerin			8	30
Thromboplastin			2	(Squibb)
			2	20(Our's)

RESULTS

It will be noted that the normal tissue extracts uniformly accelerate the coagulation time of the calcium plasma, and that most of the hemophilic tissues with the exception of thyroid and liver seem to exert almost the same influence on coagulation. Thyroid gland and liver not only caused a prolonged coagulation time, amounting to two and one-half times the corresponding normal tissues, but actually inhibited the action of the calcium added to the plasma, so that the coagulation of the calcium plasma was prolonged almost two minutes.

These observations were repeated with uniform results, and though admittedly limited to the tissues of one hemophiliac, yet they are strikingly significant, in that there is a possibility that the thyroid and even the liver may secrete an antithrombic substance or enzyme which may be in part, if not principally, the cause of the deranged coagulative mechanism of hemophilic blood. These observations are recorded with the purpose of stimulating further investigation along similar lines, hoping to localize the offending principle causing this now so-called idiopathic disease.

CONCLUSIONS

1. Not only the external tissues, but also the various other tissues of the normal body accelerate blood coagulation.
2. Hemophilic tissues, excepting thyroid and liver, have the same general effect on coagulation as normal tissues exert.

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3. Extracts of the thyroid and of the liver of hemophiliacs markedly prolong coagulation of blood.

262 South Seventeenth Street—1703 East Moyamensing Avenue.

ABSTRACT OF DISCUSSION

DR. WILLIAM WESTON, Columbia, S. C.: In the treatment of these purpuric conditions, it may be well to keep in mind the marked effect that fresh fruit juices have on the coagulation of the blood. For instance, we know that in scorbutus fruit juices assist markedly in the coagulation of the blood.

RECENT STUDIES IN THE ANATOMY AND PHYSIOLOGY OF TENDONS

THEIR APPLICATION TO THE TECHNIC OF TENDON OPERATIONS *

LEO MAYER, M.D.

NEW YORK

My interest in tendons was first awakened in the year 1912, when, while I was acting as volunteer in the clinic of Professor Lange, the problem of preventing postoperative adhesions was assigned as an experimental study to Dr. Henze of New Haven and to me.

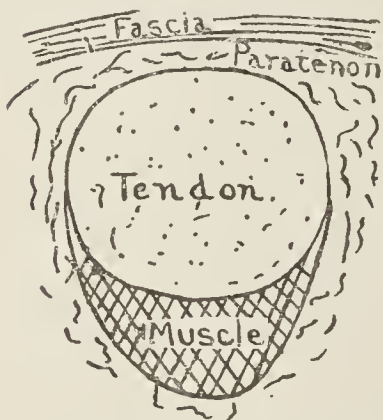


Fig. 1. — Cross-section (diagrammatic) through the tibialis anticus tendon 1 inch above the upper pole of the sheath.

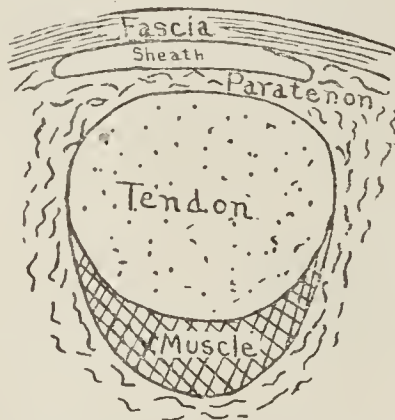


Fig. 2. — Cross-section (diagrammatic) through the tibialis anticus tendon at the level of the upper pole of the sheath.

The problem was one of great importance in Lange's eyes, since, despite his experience in 2,000 operations, the results were frequently impaired by adhesions developing subsequent to the transplantation.

It is, of course, self-evident that the function of the tendon as a means of transmitting the contraction of the muscle to the skeleton is completely inhibited by a single strong adhesion in the same way as the rope of the derrick cannot glide if clamped at a single point. In the course of our experimental investigations, which were conducted chiefly on rabbits, we utilized all manner of membrane, thin tubes of rolled silver, petrolatum, bismuth paste, fascia, peritoneum and a vein as a means of ensheathing the tendon. None of these substances, however, prevented the development of adhesions; in fact, with the exception of the Cargyle membrane, more adhesions were present after their introduction than in control experiments in which nothing was used. Finally we followed the suggestion of Biesalski and utilized the sheath of the paralyzed tendon as a physiologic pathway for the transplanted tendon; that is, one tendon was withdrawn from its sheath, cut away from the paralyzed

muscle, and the substituting tendon drawn downward by means of a guide suture so as to occupy exactly the position of the original tendon. In all of the cases observed there was complete absence of adhesions, even when the limb was immobilized for thirty days subsequent to the operation.

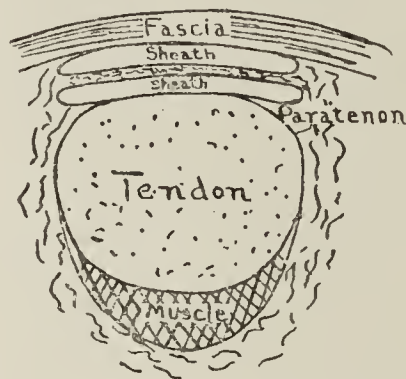


Fig. 3. — Cross-section (diagrammatic) through the tibialis anticus tendon one-half inch distal to the section shown in Figure 2.

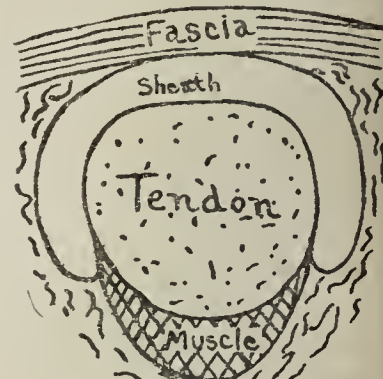


Fig. 4. — Cross-section 1 1/2 inches distal to the section shown in Figure 3.

This clear cut evidence in favor of Biesalski's method indicated to me the importance of coordinating the operative technic with the physiology of the structures involved. Just exactly as the normal relationship between tendon and sheath should be maintained, so, too, the normal fascia relationship, the normal tension and the normal fixation of the transplanted tendon should be made as nearly like the normal as possible. When, however, I tried to follow out this line of thought, I found that our knowledge of the physiology and anatomy of tendons was entirely inadequate for the purpose. No one had as yet considered the nature of the gliding mechanism of tendons. In no book, physiologic or surgical, had the subject of tendon tension ever been brought up for discussion. Despite the thousands of tendon operations, some of the simplest facts relative to their anatomy had never been investigated. It was necessary, therefore, before any comprehensive operative technic could be formulated, that these fundamental questions be investigated. The work was conducted by research on the cadaver, animal experimentation and observations on human beings.

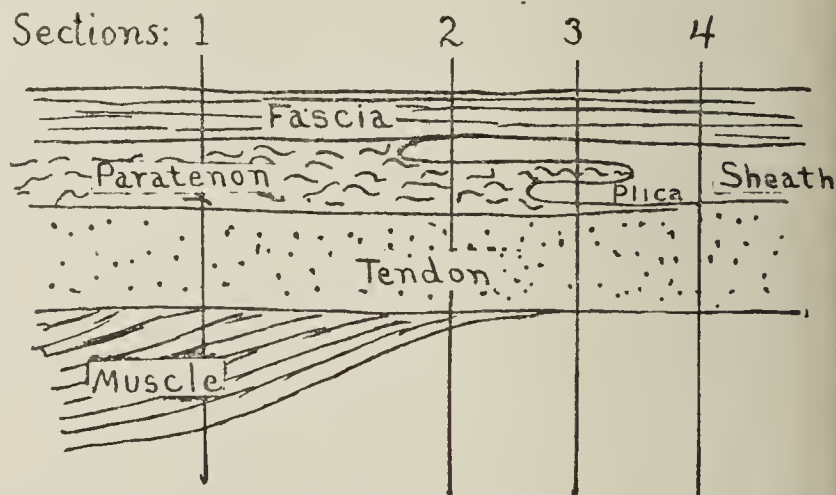


Fig. 5. — Longitudinal section (diagrammatic) of the tibialis anticus tendon, to correlate the preceding cross-sections. Note that the paratenon is prolonged downward into the sheath as a loose fold—the plica.

I can best introduce the subject of the anatomy of tendons by a series of cross-sections showing a tendon at various levels above and within its sheath. The first (Fig. 1) shows the tendon about 1 inch above the upper pole of the sheath; note that between the fascia and the tendon is a distinct gap not described

* Read before the Section on Orthopedic Surgery at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

in the textbooks. This space is filled with a peculiarly elastic tissue, consisting essentially of fat cells and elastic fibers. This tissue completely surrounds the tendon and the lowermost muscle fibers, and by means of its elasticity allows the tendon to glide freely to and fro beneath the rigid fascia. How great this

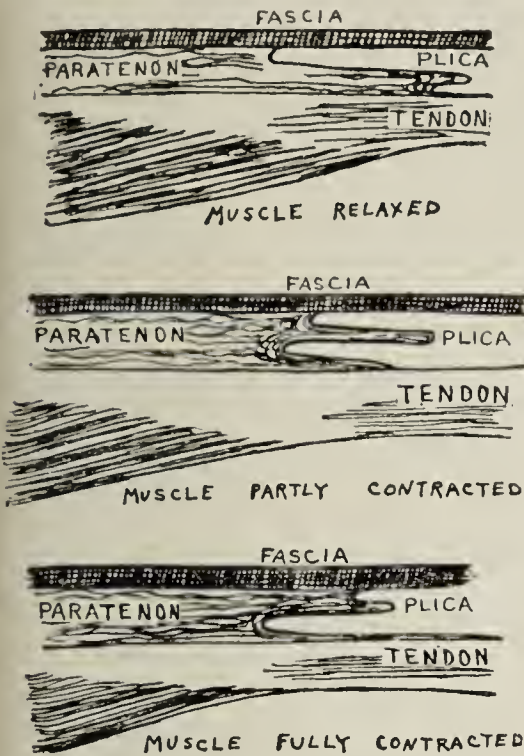


Fig. 6.—Diagrams representing the changes occurring in the form of the sheath during the contraction of the muscle and the consequent gliding of the tendon. Note that the deep pocket of the sheath between plica and tendon increases markedly in length, allowing the tendon to move upward without rupture of the sheath wall.

elasticity is can be seen by incising the fascia and lifting the tendon out of its bed. It will then be seen to stretch from 5 to 7 cm. without rupture of its fibers. It is the important tissue in the gliding mechanism of the tendon; and in every operation on the tendons its presence must be recognized and due emphasis laid on conserving its function.

The next section (Fig. 2) is taken through the upper pole of the sheath. The significant fact is that the gap representing the tendon sheath does not develop between the fascia and the tendon, but between the fascia and this gliding tissue, which I shall henceforth term the "paratenon."

In the next section (Fig. 3), which lies about half an inch distal to the preceding, the sheath is seen to be divided into two portions by a transverse band, the tissue of which is microscopically identical with the paratenon.

In the fourth cross-section (Fig. 4), about 1½ inches distal to the preceding, the tendon sheath is interposed between fascia and tendon and is seen almost to surround the latter. A longitudinal section (Fig. 5) enables us to correlate these four cross-sections. It is evident that the paratenon is prolonged downward into the sheath as a tongue-like structure. The significance of this is appreciated only when the muscle contracts and the tendon moves upward; then it is seen that a kind of invagination occurs (Fig. 6). The deep pocket of the sheath becomes much elongated, thus allowing the tendon to glide, without destroying the continuity of the sheath wall. The essential, of course, is the elasticity of the paratenon which allows this degree of stretching.

By means of simple experiments on dogs the normal tension of tendons was accurately determined. The method consisted in the division of the tendon shortly above its insertion. The tendon ends separated for a distance of from 1 to 2 cm. because of the tension to which they were subjected by the muscular pull; by means of a recording instrument, the proximal tendon stump was pulled downward until brought into apposition with the distal. The degree of force represented the tension to which the tendon was subjected. The figures varied markedly, according to

the varying conditions of the experiment, but one fact remained constant, irrespective of the size of the animal or the strength of the muscle: when under anesthesia, the limb was held in such a position that the origin of the muscle and its point of insertion were brought as near together as possible, then the tendon tension equaled 0; in other words, with the tibialis anticus divided and the foot held in the position of calcaneovarus, then under anesthesia the two tendon ends came into exact approximation without the use of any force whatever. This simple physiologic fact is readily applicable to tendon transplantation. The normal tension is restored by holding the limb in such a position as to approximate the origin of the muscle and the new site of tendon implantation.

I can best illustrate the application of the physiologic principle by outlining a typical tendon transplantation; for instance, the transfer of the extensor proprius hallucis for the paralyzed tibialis anticus. The first incision exposes the insertion of the paralyzed tendon. The tendon itself is slit longitudinally and the subjacent bone is traumatized. Against this traumatized surface the transplanted tendon is to be brought since the resulting osteogenic activity of the periosteal cells anchors the transferred tendon firmly in place.

The second incision runs along the extensor proprius hallucis. Not the entire tendon but only the upper

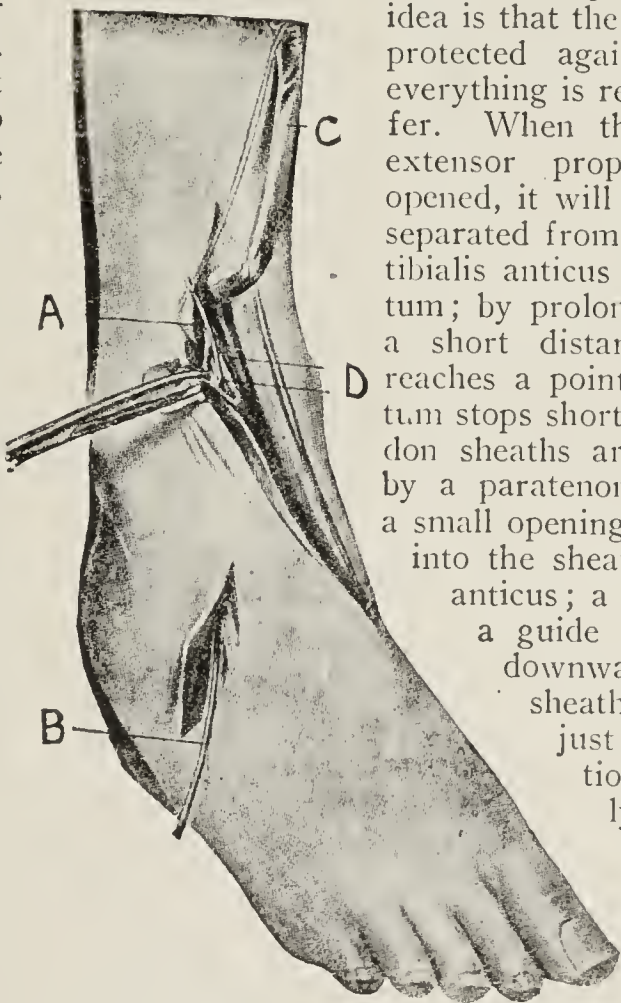


Fig. 7.—Typical physiologic tendon transplantation—transfer of the tibialis anticus for paralytic clubfoot. The probe passing through the sheath of the extensor longus digitorum emerges at the insertion of the peroneus tertius and serves to draw the tibialis tendon downward through the sheath of the paralyzed evertors. A, retracted fascia; B to D, probe passing through sheath of extensor longus digitorum; C, tibialis anticus.

portion is exposed at first. The idea is that the tendon should be protected against drying until everything is ready for its transfer. When the sheath of the extensor proprius hallucis is opened, it will be seen that it is separated from the sheath of the tibialis anticus by a fascial septum; by prolonging the incision a short distance upward one reaches a point where this septum stops short and the two tendon sheaths are separated only by a paratenon. At this point a small opening is made directly into the sheath of the tibialis anticus; a probe containing a guide suture is passed downward through the sheath and emerges just over the insertion of the paralyzed tendon. By means of this guide suture, the extensor proprius hallucis tendon, which is rapidly freed, is drawn downward through the sheath of the tibialis anticus and anchored firmly in the bed already prepared for it. In fastening it, the foot is held in the position of calcaneovarus and the tendon is pulled on with just enough force to render its course a straight one. Immobilization should not be continued more than three weeks

because by that time firm union has occurred. The patient is then allowed to exercise the transplanted tendon, and three weeks later to walk with the transplanted tendon protected from undue tension by an appropriate splint.

The therapeutic results achieved by this method, in the 250 cases in which the operation has been performed in the last three and one half years, have been unusually gratifying.

This brief summary of the principles underlying the physiologic method indicates only in a rough way its application to the treatment of poliomyelitis and paralysis due to gunshot injuries. For further details the reader is referred to my book¹ and to a series of articles published in *Surgery, Gynecology and Obstetrics*.² Experience since that time, although it has altered some details, has confirmed me in the view that this method of tendon transplantation offers a valuable means of helping our patients.

149 West Seventy-Ninth Street.

ABSTRACT OF DISCUSSION

DR. ARTHUR STEINDLER, Iowa City, Iowa: I wish to emphasize the importance of the physiologic method of tendon transplantation. Dr. Mayer said something about the clinical results. I can corroborate his statements by my own results, although they were not obtained entirely by his method. I made use of the principles mentioned in a series of about forty cases. The conclusion I can draw is that if the physiologic conditions are observed carefully, if the tendon sheath is either left unharmed, as he does, or reconstructed, as I am doing, according to an earlier suggestion of his, for which I am glad to give him credit; and, furthermore, if the vitality of the tendons is not endangered, and that is the only point, there is no failure of the tendon to work. I mean that it will act from a biologic point of view. I made a survey of my cases and found that it acted in almost every case, barring some cases of infection. With regard to the functional value, it acted functionally satisfactorily in 80 per cent., which is absolutely the converse of what I had found before using this method. One thing which makes me a little doubtful is the question of the dissociation of function. I saw a case in which a tendon transplantation had been performed several years previously and, I believe, successfully, because the tendon acted. After seven years it was, however, impossible for the patient to dissociate function between the two peronei tendons.

DR. ETHAN H. SMITH, San Francisco: I should like to emphasize one point, and that is the outcome of tendon transplantation when there is infection. Its importance is well known to the orthopedist, but for the benefit of the general surgeon who is going to do tendon work as the result of military requirements, this point should receive particular attention. Infection is not always absent when a wound is apparently healed; we should be very certain that there is no latent infection before attempting any work on the tendons, because there is nothing that makes so complete a wreck as an infected tendon.

DR. CHARLES M. JACOBS, Chicago: In tendon transplantation two important points must be considered: first, the technic, and second, the selection of muscles. In his demonstration Dr. Mayer used the extensor hallucis pollicis to take the place of the tibialis anticus. Notwithstanding the correct technic, the result would prove a failure, because a weak muscle cannot take the place of a strong one. In my opinion, many failures of tendon transplantation are due to the fact that we do not sufficiently consider this fact.

DR. M. A. BERNSTEIN, Chicago: I have carried on experiments for one year on tendon transplantation, following the

technic of Dr. Mayer as closely as possible. My findings were as follows: In transplanting tendons into the sheath of other tendons there followed a traumatic inflammatory reaction, manifesting itself in infiltrative and proliferative change in the endothelial lining of the sheath. This inflammatory reaction depended on the amount of trauma of the tendon and the amount of adhesion, varying with the duration of immobilization of the limb. The microscopic findings are as follows: A proliferation of cells and an exudation of blood into the sheath, with fixation to the tendon to the peritendineum externum. I believed that adhesions, if permitted to organize, would produce ultimate fixation of the tendon. So we carried on experiments along different lines, transplanting the tendon with the sheath and the surrounding fascia, and made examinations varying from eight to twenty-one days after operation. We found, in the cases in which we transplanted the tendon with the sheath and surrounding tissue, that the proliferative change was not so extensive as in the other experiments. Even if there occurred a slight infection of the limb, the infiltrative change took place in the surrounding tissue, but did not extend down to the sheath. The question, therefore, comes up whether the sheath is essential in the transferring of tendons, and whether, if the tendon is transplanted without the sheath, through the sheath of another tendon, if the trauma brought about by rubbing the tendon over the wall of the sheath does not set up a traumatic inflammatory reaction with subsequent adhesions.

DR. LEO MAYER, New York: Dr. Steindler and I disagree on only one point. He believes that the tissue which connects the tendon with the bone within the sheath, and through which the blood vessels run to the tendon (the mesotendon), should be kept intact in order to maintain the life of the tendon. Of course, it is a good thing to do this; but it is not absolutely necessary, because I have had a chance to observe that the tendon retains its vitality even when these blood vessels are divided. Of course, absolute adherence to physiologic principles in the other steps of the operation is required in order to secure success. The tendon must not be allowed to dry, and the time of exposure must not be more than half a minute. If everything is ready beforehand for the transfer of the tendon it is possible to accomplish this. The tendon gets enough blood vessels through the lower fibers of the muscles to keep it alive, since there is abundant anastomosis within the tendon.

Regarding the transplantation of the peroneus longus, I think that that is the best operation for paralytic valgus, since it converts a strong everter into an inverter of the foot. The trauma is more than offset by the function we secure.

Regarding infection, I endorse what Dr. Smith said. Never operate when there is infection. In the case of gunshot wounds, one should wait at least four months after the injury before operating.

In regard to the selection of the tendon, the point of Dr. Jacobs is well taken. Be very careful to select the right tendon. Do not send a boy to do a man's work. The extensor proprius hallucis should be transplanted for the tibialis anticus only when a strong tibialis posticus is present.

Dr. Bernstein's reports are exceedingly interesting, and I am glad that experimental work is being done to find out further details concerning the physiologic method. There is a certain amount of inflammatory reaction subsequent to the operation. If you draw a tendon down through the sheath of another tendon, there is bound to be some rubbing; but if you are careful it is not excessive. If you fix the tendon effectively you can begin active motion of the muscle three weeks after the operation and easily tear any adhesions that are forming. This occurred in one of my patients.

In operations at the knee there is no opportunity to use the sheath method. There are no tendon sheaths at the knee joint, but we can utilize physiologic principles. In the first place, we can maintain the normal tension of the tendon. The technic of doing this is simplified by inserting a few sutures in the quadriceps tendon which pull the patella upward. In the second place, you can render the course of the tendon as nearly normal as possible by not interfering with the paratenon, which surrounds the tendon. In these two respects the operation differs from that previously performed.

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THE BACTERIOLOGY OF MEASLES *

LUDVIG HEKTOEN, M.D.

CHICAGO

Many attempts have been made to find the cause of measles and to study the bacteria that produce its complications. It may be of interest to review this work now, and for the sake of clearness of presentation the chief results may be discussed briefly under the headings of protozoa, miscellaneous, bacilli and cocci.

PROTOZOA

Bodies having some resemblance in form to protozoa have been observed in measles. Behla¹ believed that he could see such bodies in the blood; Doehle² described peculiar bodies in the leukocytes; and in blister-fluid Rosenberger³ discovered minute refractile bodies with a rapid darting motion. Little if any significance can be assigned to the observations by Behla and Rosenberger, because they have not been confirmed and extended. Doehle's bodies do not appear to be at all peculiar to measles, being present in a wide variety of conditions (Glomset⁴ and others).

MISCELLANEOUS

Under the head of miscellaneous come observations so fragmentary and inconclusive or made with such comparatively crude methods that the results now seem to have little or no value. Keating⁵ states that Formad and he saw many micrococci in the blood in malignant cases of measles, during life as well as after death, the cocci being free and also within leukocytes. I place here the micrococcus which Manfredi⁶ obtained from measles pneumonia and which caused "progressive lymphomas" in animals; and also the bacillus which Canon and Pielicke⁷ in 1892 found in stained preparations of the blood, sputum, and the nasal and conjunctival secretions of fourteen measles patients. They regarded this bacillus as the cause of measles. It was an unevenly staining bacillus, gram-negative, variable in size, and though often present in large numbers, it was not obtained in pure culture. At about the same time Czai-kowski⁸ found in measles blood a similar bacillus, which he was able to cultivate, however, the colonies being like dewdrops and coalescing; but his work has not been confirmed. Combas and Giarrè⁹ were unable to detect any microbes in measles blood with the methods used by Canon and Pielicke; Pacchioni¹⁰ also failed; and others soon expressed doubts as to the value of this work.

Ostrovsky¹¹ cultivated an ovoid coccus or short bacillus, gram-negative, from the blood, saliva, eye and nasal mucus in measles.

In the spots in measles and in the nose, and occasionally also elsewhere, Mayer¹² found a small gram-negative bacillus, mostly in pairs, not pathogenic for animals, and forming small fluorescent colonies on agar. Mayer regarded this bacillus as a secondary invader.

In sections of lungs with measles pneumonia, Kuleysha¹³ found a small bacillus, which, when injected into the blood of animals, caused changes in the lungs like those in measles. He believed that this bacillus was the cause of measles, and that pneumonia is a part of the disease, not a secondary complication.

From the blood in one case of measles von Nissen¹⁴ cultivated a gram-positive bacillus which he called *B. roseus* because it formed red colonies.

Cannata¹⁵ is said to have found a number of different kinds of bacteria in bronchopneumonia in measles, *Micrococcus tetragenus* and *Staphylococcus albus* being the most frequent.

Borini¹⁶ cultivated a small, thin, gram-negative bacillus from the blood, bronchial mucus, and the conjunctiva of children at the height of the fever in measles. This bacillus grew best in vacuum cultures, forming punctiform, transparent, grayish white colonies which gradually coalesced; it caused bronchopneumonia and general invasion on tracheal, pleural and peritoneal injection of rabbits. It was pathogenic also for dogs. No further reports about this bacillus have appeared.

Lesage¹⁷ in 1900, described a very small, gram-negative micrococcus, which grew well on bloodless agar, and which he obtained from the nose and throat, less often from the blood, in measles.

Gundobin¹⁸ cultivated a bacillus from the blood in sixty of sixty-four cases of measles and claimed good results from the serum of goats and horses injected with this bacillus. Ivanoff¹⁹ described a short, motile, gram-negative, unevenly staining bacillus in the blood and mucous secretions in measles.

A few years ago Costa²⁰ announced that in eight consecutive cases of measles he found a blastomyces in the blood, but nothing further has been heard of it.

BACILLI

The principal bacilli that have been described in connection with measles may be grouped roughly as diphtheroid and as influenza or influenza-like bacilli.

Diphtheroid Bacilli.—Barbier²¹ found the blood sterile, but in the conjunctival secretion he found a bacillus like the diphtheria bacillus, sometimes alone and sometimes associated with other bacilli. In the mouth and nose he noted mostly streptococci. Here belongs probably also the bacillus with club shaped and irregular

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forms described by Arsamasskoff²² in the blood, the throat, the eye, and in pneumonic foci in measles.

Zlatogoroff²³ made cultures of the blood of twenty-four patients at the height of measles, inoculating from 25 to 150 c.c. of liquid medium with about 1 c.c. of blood, and in the cultures from seventeen there grew a thick gram-positive bacillus with rounded ends and arranged usually in pairs or small groups. Subcultures do not seem to have been successful. In a few instances similar bacilli were seen in stained preparations of the blood. The results of injection of the cultures into animals were not definite. From the conjunctival secretion Zlatogoroff usually obtained what he calls the xerosis bacillus and a similar but smaller gram-positive bacillus.

In the course of a study of the pneumonia of measles, Ciaccio²⁴ found a gram-positive, unevenly staining bacillus in sections of the lymph nodes, the spleen, the lungs and other organs of eight patients. In the lungs were also cocci, notably what he regarded as pneumococci.

Armand-Delille²⁵ reports the recovery of diphtheria bacilli or diphtheroids from the throat in about 42 per cent. of small children with measles. He states that the bacilli were rarely virulent, and that when virulent there was nearly always a membrane present.

Influenza Bacilli.—From about 1899 to about 1907 there appeared several reports which indicate that at least under certain circumstances influenza or influenza-like bacilli frequently occur in measles. In 1899, Paltauf²⁶ demonstrated the presence of influenza bacilli in bronchopneumonic areas in measles, calling attention at the same time to the presence also of cocci (pneumococci and streptococci). Albrecht and Ghon²⁷ noted the same thing a little later, and Giarrè and Picchi,²⁸ Jehle,²⁹ Süsswein,³⁰ Giarrè and Carlini,³¹ Pacchioni and Francioni,³² and Davis³³ followed with more extensive observations. In measles patients, Pacchioni found hemolytic bacilli in the eye, in suppurative arthritis, meningitis and pleuritis, and also in the heart blood after death. Giarrè and Picchi, found a minute gram-negative bacillus, which grew only on blood agar and best on pigeon blood agar, in the bronchial mucus and the conjunctival secretion in measles. Hiarri³⁴ examined the blood in measles with negative results, but in the eye he found an influenza-like bacillus and a diplostreptococcus pathogenic for white mice. He found the influenza-like bacillus also in the bronchial mucus of eight cases.

It may be of interest to note here that before any of these observations had been made, Cornil³⁵ found

a great number of small bacilli as well as cocci in the lungs of an infant that died from bronchopneumonia consecutive to measles and whooping cough. Thaon³⁶ also found bacilli and cocci in pairs and short chains in measles pneumonia, the cells in the alveoli being filled with them; he regarded these organisms as the cause of the bronchopneumonia that was present in every measles patient dying in a certain hospital the air in which he believed was contaminated.

Jehle found the bacillus of influenza in the eye commonly and in the blood after death in fifteen of twenty-three cases of measles, and also but not so commonly in scarlet fever and in varicella. He believed that these diseases in some way favor general infection with the influenza bacillus when it is present on the tonsils or in the bronchial mucus, and that this form of secondary infection may cause a high mortality. Süsswein found the influenza bacillus in the nose of measles patients during life, and after death in the bronchial contents and the pneumonic and pleural exudate; and as influenza infection appeared to him to be a frequent and dangerous complication of measles, he recommended separation of patients with mixed infection from those with pure measles, in order to lessen the number of deaths. Liebscher³⁷ also found influenza bacilli in measles, during life and after death, though not so often as Süsswein; but he notes that the patients that had the bacillus in the nose gave a higher death rate than those that did not have it.

Continuing their work, Giarrè and Picchi found a hemophilic bacillus as the predominating organism in the conjunctival, nasal and bronchial secretions. It was a short, thin, gram-negative bacillus, growing only on agar with pigeon blood. In seventeen instances in which the blood was examined before or after death, this bacillus was found only three times. Later Giarrè and Carlini made a special study of the blood for this bacillus in twenty-four cases of measles, mostly in the eruptive period, and in six children that had had measles; the cultures from the latter were all negative, but in twenty-one of the measles patients the cultures were regarded as successful, although subcultures were obtained only twice. In stained preparations of the centrifugate of the laked blood, they report that they saw the bacilli in practically every instance of measles. In seven instances the bacillus in question, which they regard as the same as that described by Giarrè and Picchi²⁸ in 1900, were grown from the eye in measles and studied in subcultures. They grew the pneumococcus from the blood three times and observed it in stained blood specimens five times.

Pacchioni and Francioni, however, failed to grow hemophilic bacilli from the blood in measles. They examined twenty-five patients, mostly just before the eruption, inoculating blood drawn from the veins on various mediums. A hemophilic bacillus appeared only once, and that was in the case of a patient who later died of bronchopneumonia. In seven instances, cultures developed of a large, gram-negative coccus, shaped like the coffee-bean, and regarded as *M. catarrhalis*. They also failed to find bacilli in centrifugates of laked measles blood, using the same method as Giarrè and Carlini, and they suggest that the latter probably erred in their interpretation. As they found the blood sterile in the early stages of measles,

22. Arsamasskoff: Gazeta Botkina, 1898; Centralbl. f. Bakteriologie, 1899, 25, 831.

23. Zlatogoroff, S. J.: Zur Mikrobiologie der Masern, Centralbl. f. Bakteriologie, I, O., 1904, 37, 249.

24. Ciaccio, Carmelo: Beitrag zur pathologischen Anatomie und zur Mikrobiologie der Masern, Virchows Arch. f. path. Anat. 1910, 100, 378.

25. Armand-Delille, Paul: Examen bactériologique de la gorge au point de vue du bacille diphthérique et pseudodiphthérique dans 75 cas de rougeole chez l'enfant, Arch. de méd. d. enf., 1902, 5, 202.

26. Paltauf, R.: Wien. klin. Wchnschr., 1899, 12, 576.

27. Albrecht and Ghon: Beitrag zur Kenntniss der Morphologie und Pathologie des Influenzabacillus, Ztschr. f. Heilk., 1901, 22, 29.

28. Giarrè and Picchi: Jahrb. f. Kinderh., 1900, 52, 890.

29. Jehle: Ztschr. f. Heilk., 1901, 22, 190.

30. Süsswein, Julius: Die Influenza bei Masern, Wien. klin. Wchnschr., 1901, 14, 1149.

31. Giarrè and Carlini: Ueber die Anwesenheit eines hemophilen Bacillus im Blute Masernkranker, Arch. f. Kinderh., 1907, 46, 262.

32. Pacchioni, D., and Francioni, C.: Bakteriologische Untersuchungen an Masern: Beitrag zur Aetiologie und Pathogenese der Masern, Jahrb. f. Kinderh., 1908, 68, 391.

33. Davis, D. J.: Bacteriology of Whooping Cough, Jour. Infect. Dis., 1906, 3, 1.

34. Hiarri: Ueber die Bakteriologie der Masern, Jahrb. f. Kinderh., 1902, 55, 109.

35. Cornil and Babes: Les bactéries, 1890, 2, 274; Contribution à l'étude des inflammations liées à la présence des microbes, péripleurite contagieuse, pneumonie rubéolique, etc., Arch. de phys., 1883, 15, 227.

36. Thaon: Des broncho-pneumonies de l'enfance et leur microbes, Compt. rend. Soc. de biol., 1885, 37, 617.

37. Liebscher, Karl: Ueber Influenzabacillen—Befunde bei Masern und Scharlacherkrankungen, Prag. med. Wchnschr., 1903.

Pacchioni and Francioni hold that in uncomplicated measles there probably are no bacteria in the blood, and that in the instances in which bacteria actually were cultivated from the blood it concerned secondary infections due to a weakened resistance, hemophilic bacilli seeming to be the most frequent cause of such infection.

Reisz and Gins³⁸ observed influenza bacilli in the blood in a nursling with bronchopneumonia after measles.

In this country, Davis seems to have been practically the only one who has studied the question of the relation of the influenza bacillus to measles. He examined twenty-two uncomplicated cases, making cultures and smears from the sputum, and when sputum was not obtainable, from throat swabs. Only one examination was made in each case, but all the examinations were made during the eruptive stage, cough being present as a rule. Influenza-like bacilli were isolated in pure culture in thirteen of the twenty-two cases; in four such bacilli predominated, but sometimes there were only very few. Streptococci and pneumococci were present on every plate, the latter being the more numerous. Davis found influenza-like bacilli in the throat of only two of twenty normal persons.

It should be noted, however, that Cole's³⁹ mouse inoculations with the sputum of measles bronchopneumonia, the main result of which was the recovery of hemolytic streptococci in sixteen of seventeen cases, in eight of the cases also gave *B. influenzae*. Further, that while the sputum cultures in thirty cases all yielded hemolytic streptococci, in thirteen of the cases the influenza bacillus also was found. This bacillus was present too in the lungs and the heart blood after death in some cases together with streptococci, but these cases did not seem to differ from others in which only streptococci were found.

The comparative frequency of *B. influenzae* is of considerable interest, and it may be well in the further study of the bacteriology of measles not to lose sight of this bacillus.

COCCI

Streptococci.—The pioneer work on the bacteriology of measles was done by Babes⁴⁰ about 1880. In stained preparations of the nasal, conjunctival and bronchial secretions, of the blood of the skin in eruption, Babes found small cocci in pairs and short chains. In one case the blood contained also a short bacillus. In sections of the skin removed during life on the second day of the rash he saw micrococci in the dilated capillaries of the papillae. Agar cultures of the blood from the skin, of lymph nodes, and of inflammatory products of the lungs and pleura, gave streptococci like the streptococci in pus; occasionally the pulmonary and pleural exudate would develop in culture an encapsulated microbe that killed rabbits. In sections of lungs with measles pneumonia, in which Babes described the interstitial lesions recently emphasized again by MacCallum,³⁹ large numbers of cocci were found. Commenting on these observations, Cornil and Babes discuss briefly the question whether pneumonia may be an expression of a generalized measles; they held that of the bacteria in the lesions consecutive

to measles, the streptococcus merited the most attention.

Tobeitz⁴¹ found groups and chains of cocci in and about the bronchi in measles pneumonia.

In sections as well as cultures from bronchopneumonia in measles, Guarnieri⁴² obtained streptococci regarded as identical with *Streptococcus erysipelatis*.

Méry and Boulloche⁴³ found pneumococci in the saliva of 29 per cent. and streptococci in 23 per cent. of young children with measles, these being larger percentages than in the case of well children. They reason that in measles there occurs a specific lesion in the lungs—an enanthem—on the basis of which secondary bronchopneumonia, due to a superficial, descending, respiratory infection, may develop. To guard against this bronchopneumonia, mouth cleanliness is recommended.

After death from measles, Slawyk⁴⁴ found streptococci in the blood in fifteen of sixty-eight cases and only two or three other bacteria scatteringly. The streptococcus cases included nine cases of enteritis, two of bronchopneumonia, two of empyema, etc.

Pospischill's⁴⁵ contention that streptococcus infection in measles and varicella usually is in reality a septic scarlet fever has not received any notice.

In scarlet fever, measles and other acute infectious diseases, Hlava⁴⁶ isolated a streptococcus, which formed a homogeneous capsule when grown on mediums with a high saccharose content, and which he called *Leuconostoc hominis*. Hlava regarded the coccus as different from *Streptococcus pyogenes* and suggested that possibly acute infectious diseases are caused by different forms of this coccus, which he obtained from the throat and nasal secretion of all the eight measles patients he studied and twice from the blood. He found streptococci also in sections of the lungs and of other organs in measles bronchopneumonia.

In forty-five cases of simple angina complicating measles in adults, Simonin⁴⁷ found streptococci as the predominating organism in the throat in twenty-five and staphylococci in sixteen. The pneumococcus was found only rarely.

In otitis after measles, Albesheim⁴⁸ found streptococci and staphylococci in pure culture and also associated with a gram-positive bacillus.

Schottelius⁴⁹ found *Staphylococcus aureus* in the conjunctival secretion of fifty-one cases of eighty examined and also streptococci, but not so often. In the lungs and spleen of children that had died from measles, a streptococcus was found regularly, occasionally associated with other bacteria.

Folger⁵⁰ and Eckert⁵¹ each describe two cases of ful-

41. Tobeitz: Die Morbillen, Arch. f. Kinderh., 1887, 8, 322.

42. Guarnieri, G.: Streptococco nella bronchopulmonite morbillosa, Bull. d. r. Accademia medica di Roma, 1886-1887, 13; Centralbl. f. Bakteriologie, 1888, 3, 205.

43. Méry, H., and Boulloche, P.: Recherches bactériologiques sur la saliva des enfants atteints de rougeole, Rev. mens. d. mal. de l'enf., 1911, 9, 154.

44. Slawyk: Bakteriologische Blutbefunde bei infektiös erkrankten Kindern, Jahrb. f. Kinderh., 1901, 53, 505.

45. Pospischill: Rubeola und Doppelexanthem, Jahrb. f. Kinderheilk., 1904, 59, 723.

46. Hlava: Leuconostoc Hominis in seine Rolle bei den akuten exanthematischen Krankheiten, Centralbl. f. Bakteriologie, I, O., 1902, 32, 263.

47. Simonin: Les angines banales chez les rougeoleux adultes: étude clinique et bactériologique, Bull. et mém. Soc. méd. d. hôp. de Paris, 1903, 3, 20, 83.

48. Albesheim: Beitrag zur Bakteriologie der Masernotitis, Arch. f. Ophth., 1903, 53, 89; Centralbl. f. Bakteriologie, I, Ref., 1903, 32, 247.

49. Schottelius, A.: Bakteriologische Untersuchungen über Masern Konjunktivitis, München. med. Wchnschr., 1904, 51, 378; Centralbl. f. Bakteriologie, I, Ref., 1904, 35, 485.

50. Folger: Sepsis nach Masern, Jahrb. f. Kinderh., 1897, 46, 49.

51. Eckert: Sepsis nach Masern, Charité-Annalen, 1909, 33, 182.

38. Reisz, E., and Gins, H. A.: Influenza-Bakteriemia, Centralbl. f. Bakteriologie, I, Ref., 1912, 53, 135.

39. Cole, Rufus, and MacCallum, W. G.: Pneumonia at a Base Hospital, THE JOURNAL A. M. A., April 20, 1918, p. 1146. Cole, Rufus: Prevention of Pneumonia, ibid., Aug. 24, 1918, p. 635.

40. Babes: Adatok akaugaro és a kangaros tidolob koroktanatioz, Orvosi hetilap, 1881.

minant streptococcus sepsis in measles, such apparently being rare occurrences.

Craig⁵² reports an outbreak of measles in a military camp involving eighty-nine cases, in twelve of which bronchopneumonia developed with ten deaths. In nine of ten fatal cases there were empyema and abscesses of the lungs. In all the fatal cases a rapidly growing streptococcus was cultivated from the lungs and the spleen, accompanied in six instances by the pneumococcus, in three by staphylococci, and in one by *B. proteus*. Craig found severe lesions—hemorrhages, focal necrosis, hyaline degeneration—in all the organs, and emphasizes the virulent nature of the infection.

Menschikoff⁵³ made a systematic bacteriologic study of sputum, nasal mucus, conjunctival secretion and ear discharges and blood in measles. Diplococcal forms predominated in the ear and the eye, and pneumococcus-like bacteria were grown from the blood in nine of sixty-one cases. On hemoglobin-agar plates the sputum gave deep brown colonies of a diplostreptococcus (*Diplostreptococcus brevis*) which he regarded as distinct from the pneumococcus; this being the only bacterium present constantly, he suggested that it may play the same rôle in measles as the streptococcus in scarlet fever. Menschikoff also isolated a gram-negative bacillus which grew only on hemoglobin-agar or blood-agar mediums.

Eyre⁵⁴ studied twenty cases of bronchopneumonia in measles and obtained the pneumococcus in pure culture four times, the streptococcus five times, the pneumococcus mixed six times, and the streptococcus mixed five times, mostly the one with the other but also with the staphylococci, influenza bacilli, etc. The examinations were made usually a few hours after death, but sometimes during life on aspirated material.

Lorey⁵⁵ seems to have been the first to use blood agar in the study of the bacteriology of measles. He examined the throat and made blood cultures in 150 cases; the tonsils gave hemolytic streptococci and in many cases also diphtheria bacilli and pneumococci; the blood in fifteen cases gave cultures of streptococci and in seven others also pneumococci, colon bacilli, paratyphoid bacilli, etc. In the middle ear discharges there were mostly streptococci. Lorey holds that the streptococcus is the most dangerous invader not only in scarlet fever but also in measles, and that probably the variations in the severity of measles epidemics are due to variations in the spread and invasiveness of streptococci, which may be spread by the hands of nurses, by playthings, eating utensils, etc., as well as by droplets. Lorey recommends that in hospitals children with streptococcus infection be isolated.

Recent observations indicate clearly that the hemolytic streptococcus has been the principal cause of the outbreaks of bronchopneumonia following measles in our military camps during the past year (Irons and Marine,⁵⁶ Cole and MacCallum, Levy and Alexander,⁵⁷

Cumming, Spruit and Lynch,⁵⁸ and Dick⁵⁹). Cole reports that hemolytic streptococci were present in cultures of sputum coughed up from the deeper parts of the respiratory tract in the thirty cases of postmeasles bronchopneumonia examined, and mouse inoculations with such sputum from seventeen cases yielded streptococci in sixteen. Blood cultures during life in fifteen cases gave hemolytic streptococci twice. Of the thirty cases, death occurred in fourteen at least, and in all hemolytic streptococci were found in the affected parts of the lungs and in the pleural exudate in practically pure culture; the blood also usually contained hemolytic streptococci. MacCallum found the abdominal organs free from streptococcal invasion, but in the areas of interstitial bronchopneumonic lesions, which were characteristic of streptococcal bronchopneumonia, streptococci were present on the pleural exudate and in the bronchi, and in the purely lobular pneumonic areas they were often present in amazing numbers in the exudate. It appears as if the streptococcus infection in these cases was less violently virulent than in the cases described by Craig in which there were severe lesions—hemorrhages and necrosis—in the abdominal organs. This difference might be explained as the result of a somewhat greater parasitism on part of the strains concerned in the cases studied by Cole and MacCallum.

That nonhemolytic streptococci also may cause complications of a serious nature in measles is indicated in the report by Lathrope⁶⁰ of a series of cases of acute mastoiditis, forty-four of which followed measles (either directly or within a month after dismissal from the hospital), and in which the dominant organism seemed to be of the *S. viridans* type.

How are measles patients infected with hemolytic streptococci? The facts at hand point directly to droplet, contact and dust infection by way of the throat. It appears that hemolytic streptococci may spread easily in military camps and in measles wards when special precautions are not enforced. Irons and Marine found that, during a period of respiratory infections, hemolytic streptococci developed in the throat cultures of about 70 per cent. of healthy soldiers. Levy and Alexander obtained hemolytic streptococci from the throat in 14.8 per cent. of strictly fresh recruits; but in an organization in which most of the men had been in service about six months, the number of streptococcus carriers was no less than about 80 per cent. Of the measles patients admitted to the base hospital of this camp, most of them coming from the organization just mentioned, 77 per cent. were carriers of hemolytic streptococci, and the complications occurred almost exclusively among the streptococcus carriers, bronchopneumonia with empyema due to streptococci being by far the most frequent and the most important. Cumming, Spruit and Lynch report that while 35 per cent. of measles patients had hemolytic streptococci in the throat, this was the case in only 6 per cent. of healthy soldiers. Cole and his associates found that in a measles ward 56.5 per cent. of the patients harbored hemolytic streptococci in the throats as compared with 21.4 per cent. in a ward for patients suspected to be tuberculous. They found the hemolytic

52. Craig, C. F.: The Etiology and the Pathology of Bronchopneumonia Complicating Measles, *THE JOURNAL A. M. A.*, April 15, 1905, p. 1187.

53. Menschikoff, W. K.: Zur Bakteriologie der Masern, *Russk. Vrach.* 1904; *Centralbl. f. Bakteriol.*, I. O., 1906, **37**, 490.

54. Eyre: Bacteriology of Bronchopneumonia, A Statistical Analysis, *Jour. Path. and Bacteriol.*, 1909, **14**, 160.

55. Lorey, A.: Bakteriologische Untersuchungen bei Masern, *Ztschr. f. Hyg. u. Infektionskr.*, 1909, **63**, 135.

56. Irons, E. E., and Marine, David: Streptococcal Infections Following Measles and Other Diseases, *THE JOURNAL A. M. A.*, March 9, 1918, p. 687.

57. Levy, R. L., and Alexander, H. L.: The Predisposition of Streptococcus Carriers to the Complications of Measles: Results of Separation of Carriers from Non-Carriers at a Base Hospital, *THE JOURNAL A. M. A.*, June 15, 1918, p. 1827. Alexander, H. L.: Hemolytic Streptococcus Causing Severe Infections at Camp Zachary Taylor, Ky., *ibid.*, March 16, 1918, p. 775.

58. Cumming, J. G.: Spruit, C. B., and Lynch, Charles: The Pneumonias: Streptococcus and Pneumococcus Groups, *THE JOURNAL A. M. A.*, April 13, 1918, p. 1066.

59. Dick, G. F.: A Bacteriologic Study of the Pneumonia Occurring at Camp Pike, Ark., *THE JOURNAL A. M. A.*, May 25, 1918, p. 1529.

60. Lathrope, G. H.: Acute Mastoiditis as a Complication of Infectious Diseases, *THE JOURNAL A. M. A.*, Aug. 10, 1918, p. 451.

streptococcus in the throat of 11.4 per cent. of the measles patients on admission; after from three to five days in the ward in 38.6 per cent. and after from eight to sixteen days in 56.8 per cent. These valuable observations all point unmistakably to the ease with which the hemolytic streptococcus may pass from carrier to noncarrier and in the measles convalescent set up bronchopneumonia and empyema. In connection with this postmeasles streptococcus infection, it is of interest to recall that Tunncliffe found the phagocytic power of the leukocytes for streptococci reduced in the leukopenic stage of measles, and MacCallum notes that in the lung lesions he studied there was not free phagocytosis of streptococci. We know that in measles the tuberculin and other allergic reactions are enfeebled and even suppressed, and it may be that the frequency of streptococcus infection in this disease depends in some degree on reduction in the powers to react against streptococci.

The Tunncliffe Diplococcus.—Using anaerobic methods, Ruth Tunncliffe⁶¹ recently has cultivated a coccus from the blood during the early stages of measles in forty-two of fifty cases, mostly in children.

It appears that at the height of measles, diverse bacteria may develop in cultures of the blood by special methods. Thus Tunncliffe in her series obtained examples of aerobic and anaerobic diphtheroid bacilli, filamentous organisms, spirilla, pigment and spore-forming bacilli, and staphylococci. Similar organisms occur in the throat, nose and eye.

The coccus in question seems to be most numerous in the blood shortly before the rash comes out and to disappear when the rash fades. Aerobic cultures and anaerobic fluid cultures gave no results, the best results being obtained with semicoagulated horse serum and with whole blood in ascites glucose agar in the form of shake cultures. As a rule growth would appear in from five to fifteen days at 37 C. In subcultures the coccus may grow under aerobic conditions, when it forms small, greenish, as a rule nonhemolytic colonies on blood agar, the growth on glucose agar being moist and more profuse. A small coccus when first isolated, it passes Berkefeld N filters, but in subcultures it becomes somewhat larger. It is gram-positive and occurs as single cocci, especially as round or flattened diplococci, and in short chains. It ferments glucose, saccharose and maltose, but not inulin, salicin or raffinose.

Tunncliffe has isolated this coccus from the throat in measles, also from the nose and eyes, and in a single instance from the ear. Early in the attack, smears from the tonsils and anterior pillars may show large numbers of diplococci, like those in the cultures, the picture being different from that in similar smears from cases of scarlet fever and of rubella. For this purpose the smears may be fixed with heat, stained a few seconds with carbolgentian violet, washed and dried.

Extensive animal experiments with the coccus or its products have not been made, but it kills rabbits without causing any special changes, and caused leukopenia in a monkey. In regard to its immune reactions, Tunncliffe reports a rise in the opsonic index of the blood serum in measles as the symptoms subside, lasting from one to four days, and at this time

the serum also contains complement-fixing bodies in feeble concentration. Tunncliffe and Brown⁶² find that specific agglutinins and opsonins develop in the blood of rabbits injected with the coccus, but agglutinin tests are difficult because the coccus clumps spontaneously, and consequently the opsonin test is the best method yet known to differentiate this coccus from other cocci with similar cultural and morphologic characteristics.

Whatever the relation of this coccus to measles, the results just sketched call for further work along various lines.

SUMMARY

From this review it appears that the chief bacteria to engage the attention in connection with measles at present are: (1) the diplococcus found by Tunncliffe in the blood early in the attack and in the throat and nose; (2) influenza bacilli, and (3) hemolytic streptococci. As opsonins and probably other bodies specific for the Tunncliffe diplococcus come into the blood in the course of the measles attack, this coccus must be of some significance, but the exact significance we have still to learn. While hemolytic streptococci seem to predominate overwhelmingly in the bronchopneumonia and other allied acute processes in measles, influenza bacilli are found so frequently in the throat secretions and in lung lesions that doubt arises as to their harmlessness. Hence the part played by these bacilli in measles should be studied further. As hemolytic streptococci may spread rapidly among measles patients, and largely it would seem by droplet and throat infection, the best way at hand to avoid the most serious complication of measles, namely, streptococcus bronchopneumonia, is early isolation of the patient under conditions that protect against infection from persons, including fellow patients, that may harbor streptococci. Such isolation protects against other infections (pneumococcus, influenza bacillus) also. The possible danger of streptococcus infection by way of food should not be overlooked. Finally, it is evident that the immunology of the streptococci concerned, their unity or plurality, their changes in virulence, and other problems require continued investigation.

62. Tunncliffe, Ruth, and Brown, M. W.: Jour. Infect. Dis., to be published.

61. Tunncliffe, Ruth: Observations on Bacteriology and Immune Reactions of Rubeola and Rubella, Jour. Infect. Dis., 1918, 22, 462; Observations on Throat Smears in Measles, Rubella (German Measles) and Scarlet Fever, THE JOURNAL A. M. A., July 13, 1918, p. 104.

The Health of Women in Munitions Manufacturing.—Women less than 23 years old are better fitted physically for the heavier work of munitions manufacturing than those further along in years, according to the results of an investigation of conditions in English factories made by Major Greenwood of the welfare and health section of the Ministry of Munitions. The investigation related to about 40,000 employees of eighteen representative factories in Great Britain. It was found that the older women, a large proportion of whom were married, were doubly handicapped by their age and their home duties, when they were employed in the heavy factory work, such as the making of projectiles and shells. In the lighter work, however, such as the making of fuses, cartridges and explosive supplies, these handicaps had little adverse effect on the health of the workers. The difficulty seemed to lie not in the general strain of factory life, but in the moderate degree of actual physical labor required, which taxed the health of the older women far more severely than that of the younger. With a view to prevent wastage in labor and to promote greater efficiency, the author suggests a preliminary medical examination for all women munitions laborers, as well as a redistribution of feminine labor between the two types of factories, so that each woman will have a chance to do the kind of work best suited to her strength.

Military Medicine and Surgery

A STUDY OF DIPHTHERIA CARRIERS IN A MILITARY CAMP

FRANK R. KEEFER, M.D. (WASHINGTON, D. C.)
Colonel, M. C., U. S. Army

STANTON A. FRIEDBERG, M.D. (CHICAGO)
Major, M. C., U. S. Army

AND

JOSEPH D. ARONSON, M.D. (PHILADELPHIA)
Captain, M. C., U. S. Army

CAMP DONIPHAN, FORT SILL, OKLA.

Writers on military hygiene have affirmed that diphtheria has never been of serious importance in the Army, for the reason that it is easily controlled. This opinion is not shared by the officers on duty at the Base Hospital, Camp Doniphan, since their experience has demonstrated that, under certain circumstances, an epidemic of the disease is exceedingly difficult to overcome.

During the early months of 1918 the control of diphtheria, with especial reference to the carriers of the disease, was a very serious problem, which for a long time seemed but little influenced by the strenuous efforts of the staff.

As shown in Chart 1, a few cases were constantly present from October, 1917, but it was not until the latter part of January, 1918, that the disease began to show a marked upward tendency. From that time it persisted, despite the most earnest efforts and carefully devised safeguards, for nearly four months.

During the period cited, 461 cases and 686 carriers of diphtheria were observed. In their study, nearly 30,000 cultures were made and examined.

By the greatest of good fortune, the degree of virulence of the responsible organism was slight. Only three deaths occurred, all as the result of myocardial degeneration, and the individuals concerned were already enfeebled as a result of antecedent disease.

The condition, however, was serious militarily, since it compelled the withdrawal, from organizations engaged in intensive training for war, of more than a thousand men. These were separated from their commands for long periods, since the vital question was not how quickly a person might be returned to duty, but how long before it would be safe for his organization to receive him.

The infection was exceedingly tenacious. The means employed for the control of the epidemic, though in many respects more vigorous than those suggested by authorities on the subject, for a long time barely sufficed to maintain an equality between outgoing and incoming cases.

The intramural situation gave most concern. At a time when but few cases were under treatment, it was discovered that more than half of the twenty-six wards contained carriers, among patients and attendants. Though cultures were made of all in such wards, and infected individuals removed, the next search, at an interval of from five to seven days, was sure to reveal at least as many more who harbored the organism.

The epidemic was finally overcome only when available susceptibles had been segregated, or, in the course of military events, had been transferred elsewhere.

STATISTICAL BASIS OF THIS SURVEY

No attempt is made in this paper to discuss the treatment of clinical diphtheria, its complications or results, as that subject has been thoroughly treated by others. We are chiefly interested in the discussion of the diagnosis, treatment, results and control of the carrier condition and the epidemiology of the outbreak in this camp.

The data for this paper were derived from (a) the study of 686 diphtheria carriers and 461 cases of clinical diphtheria; (b) the incidence of *B. diphtheriae* in patients admitted to the head surgery section; (c) the results of operative treatment in 294 diphtheria carriers; and (d) laboratory investigations.

CLASSIFICATION OF CARRIERS

Carriers may be thus classified:

1. Primary carriers: A, transient; B, chronic.
2. Secondary carriers.

A primary carrier is one who has never had clinical diphtheria. In transient carriers the bacilli do not find more than a temporary resting place, the reason being that the nasal passages are normal and the tonsils are quite healthy or have been enucleated. The chronic carrier is one in whom positive cultures are obtained for an indefinite period of time. In some of these individuals the carrier condition is intermittent. Following a series of negative cultures, positive cultures recur at irregular intervals. Reinfection, overgrowth by other bacteria and the fact that the organisms are deep in the crypts and have not manifested themselves on the surface at that examination may be suggested as possible reasons.

The secondary carrier is one who, having recovered from clinical diphtheria, still continues to harbor the germs of the disease.

TABLE 1.—NUMBER OF CULTURES EXAMINED

Year	Month	Positive		Negative	
		No.	Per Cent.	No.	Per Cent.
1917	October.....	10	52.6	9	47.4
	November.....	90	22.9	302	77.1
	December.....	138	7.6	1,684	92.4
1918	January.....	350	9.2	3,462	90.8
	February.....	895	18.9	3,855	81.1
	March.....	1,236	15.3	6,849	84.7
	April.....	1,451	25.1	4,330	74.9
	May.....	456	8.9	4,702	91.1
Total.....		4,626	15.5	25,193	84.5

THE VALUE OF CULTURES

The carrier condition can be determined only by means of cultures. A single negative culture has but little value, as is proved by these figures: Of 294 cases in which tonsillectomy was performed for the relief of the carrier state, cultures taken from the tonsils immediately preceding the operation yielded positive results in 57 per cent. of the cases, and negative results in 43 per cent. Cultures of the tonsils after removal gave positive results in 77.2 per cent of the cases. The fact that negative cultures were obtained in 22.8 per cent. of individuals in whom the carrier condition had been definitely proved emphasizes the necessity for caution in overestimating the value of a single negative culture. In a number of instances a pure culture of *B. diphtheriae* was obtained from tonsils removed from patients who had not been identified as carriers. But these patients had had the disease from four to fourteen weeks previous to admission and had been released on the required number of negative cultures. As is

well known, negative cultures may be obtained at times from cases that run the course of typical clinical diphtheria.

The value of nasal cultures is not fully appreciated. That a nasal culture is of great importance is well illustrated by the case of a carrier who was under observation for a period of four and one-half months. Cultures from the nose were much more consistently positive than those obtained from the throat. Tests made on several occasions showed that the organism present in the nose was distinctly virulent for guinea-pigs.

These figures illustrate the returns that may be expected in all types of nasal and pharyngeal carriers. Of 700 cultures from the nose and throat, positive returns from the nose were obtained in 26 per cent. of the cases, while those from the throat were positive in 31.7 per cent.

SYSTEM EMPLOYED IN MAKING CULTURES

On the appearance of a clinical case of diphtheria or of a carrier, the regimental surgeon was requested to have all contacts appear at the regimental infirmary at an hour most convenient to the company commander, usually at 1 o'clock or immediately before a formation. When a second or a third case appeared in the same company, cultures were taken from all members of the organization in order to ascertain if carriers were present.

The cultures were taken from the nose and throat and planted on Loeffler's medium, one tube being used for both swabs. Tubes were then collected and returned to the laboratory for incubation and examination. Tubes of the medium, together with sterile swabs, were distributed weekly to each regimental infirmary in order that cultures could be promptly taken in all cases of sore throat. The inoculated tubes were then delivered to the laboratory by the ambulances on their regular rounds. After incubation for from eighteen to twenty-four hours, cultures were smeared and stained with Loeffler's methylene blue.

BACTERIOLOGIC DIAGNOSIS

To aid in establishing uniformity in diagnosis, we adopted Wesbrook's classification of *B. diphtheriae*. Those organisms showing the morphology of Wesbrook's Types A, A¹, B, B¹, C and D were considered as being positive. Those that did not show all the characteristics of these types were further incubated for from four to six hours in order to ascertain if they would assume those characteristics.

In the course of this study it was noted that diphtheroids were found more frequently when cultures made from the nose and throat were planted on the

same tube. In all doubtful cases, when no definite decision could be made, cultures of the nose and throat were inoculated on separate tubes. In these cases it was frequently found that the throat cultures were negative while the nasal ones showed the presence of suspicious organisms.

No attempt was made to carry out virulence tests as a routine measure, since the large number of cases made it impracticable. In cases of doubtful morphology, and in those cases running a persistent positive course, virulence tests were carried out. Twelve cultures obtained from the nose, eleven from rib resection wounds, and nine from the throat were tested for virulence. Of this group of thirty-two cases, eleven cultures from the nose, two from the rib resection wounds, and nine from the throat were virulent for guinea-pigs. In order to conserve animals, the method advocated by Zingher and Soletsky¹ was used. The culture was isolated, transferred to tubes of Loeffler's blood serum, and, after from eighteen to twenty-four hours' incubation, the slant was washed off with sterile salt solution until a uniform dense emulsion was obtained. Of this emul-

sion from 0.1 to 0.2 c.c. was injected intracutaneously into a guinea-pig. At the end of from twenty-four to forty-eight hours an area of redness and induration developed at the site of inoculation which, in most instances, went on to necrosis in those animals showing positive reactions.

LOCALIZATION OF ORGANISMS

Every carrier was given a thorough examination in order to localize the affected area. After thorough cleansing of the mucosa, several cultures were

made from the superior and inferior regions of each nostril and from each tonsil.

A positive culture from the throat does not necessarily imply that the carrier condition is located in this region, as the bacilli may be carried from the nose or nasopharynx by the inspired air or by the secretions. On the other hand, the bacilli may be carried from the throat to the nose by the expired air or the act of sneezing, and from the resulting positive nasal culture one might infer that the nasal passages were involved. No faith should be placed in a single negative culture, especially in those who have previously shown a positive culture. Conversely, the finding of a single positive culture is not sufficient evidence to justify the diagnosis of carrier, as this may be the prelude to an attack of clinical diphtheria that has not yet had time to manifest itself.

FOCI OF INFECTION

Tonsils.—The presence of a favorable soil for bacterial growth is a factor that determines the persistence

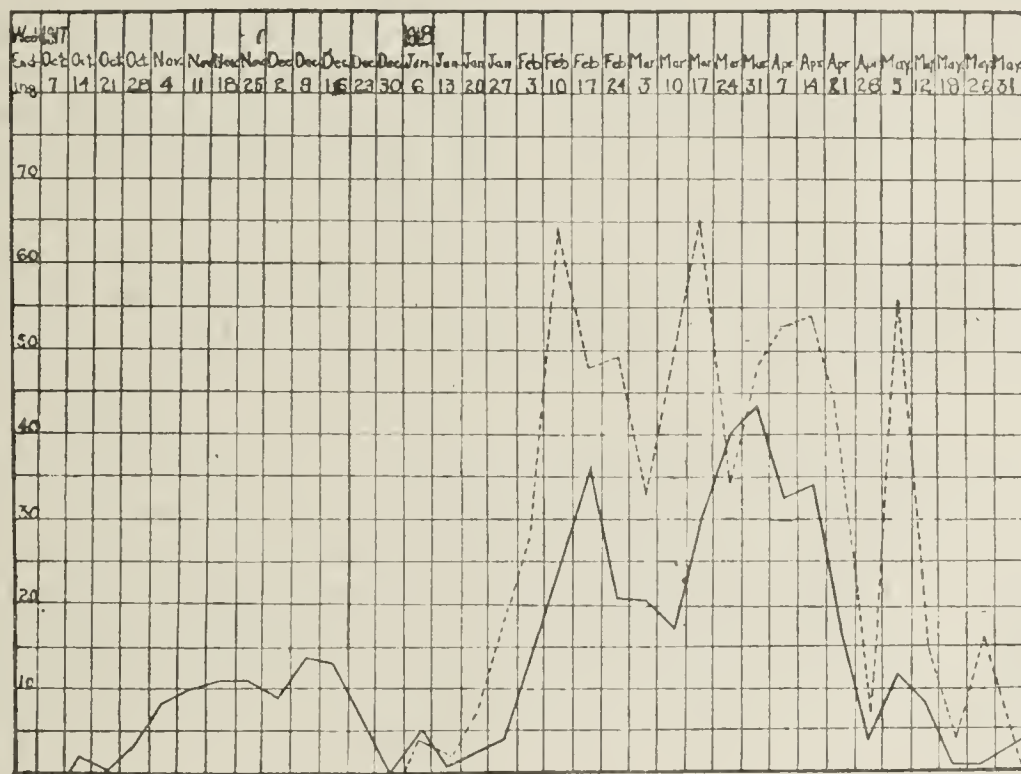


Chart 1.—Weekly occurrence of diphtheria and diphtheria carriers at Camp Doniphan: solid line, cases; broken line, carriers.

1. Zingher and Soletsky: Jour. Infect. Dis., 1915, 17, 456.

of the carrier condition. If necrosis or ulceration of the epithelium covering the tonsils or lining the crypts is present, the bacilli may be found in the tissue beneath the diseased area. The size of the tonsil, per se, is not a factor as a predisposing cause in establishing the carrier condition. The degree to which the tonsil is covered, the extent of surface exposed, lobulation, and the presence of folds or crevices, all have a definite influence on infection of the tonsils by interfering with the evacuation of the crypts. In this study it has been demonstrated repeatedly that acute or chronic pus infections are often associated with diphtheria carrier conditions.

In order to ascertain the points of localization of *B. diphtheriae* in the tissues, cultures were made from the nose and throat immediately preceding tonsillectomy, and planted on separate tubes of Loeffler's medium. The excised tonsils were received in sterile Petri dishes and delivered to the laboratory. After removal of the surface blood and bacteria by means of sterile salt solution, a sterile swab was inserted deeply in the crypts and then inoculated on Loeffler's medium. From the tonsils found to be infected, almost pure cultures of *B. diphtheriae* were obtained in the vast majority of cases. In most instances the organisms displayed the morphology of Types C and D of Westbrook's classification. About ten or twelve showed his Types B and B¹, while in five or six cases Type A was found.

In two cases studied, Lieutenant Thorne, M.C., demonstrated the presence of *B. diphtheriae* in the submucosa of a tonsil from the surface of which a pure culture had been previously obtained, thus confirming the work of others.

Nose.—The next location, in order of importance and frequency, is the nose. Acute or chronic infection of the accessory sinuses, ulceration or erosion of the septum or soft tissues, and the presence of dry secretions and gross abnormalities interfering with ventilation and drainage all furnish favorable conditions for the lodgment of the bacilli. In the chronic accessory sinus affections, especially those associated with marked atrophic changes, the prognosis is almost hopeless. It was impossible to discover any particular location within the nose that favored the growth of the bacteria. Washings from the sinuses invariably proved negative. The idea that the mucous glands were the definite points where the bacilli thrived was not substantiated. Tissues removed from the various regions of the nasal passages were sectioned and stained for the organism with results that were entirely negative. In spite of several failures to demonstrate the presence of the organisms, their general distribution throughout the nasal passages justifies the belief that, sooner or later, they will be found underneath the diseased mucous membrane and possibly in the ethmoid cells.

Nasopharynx.—The nasopharynx ranks third in order of frequency as a lodging place for *B. diphtheriae*.

This may be attributed to the presence of ulcerative or inflammatory processes, infections of the posterior ethmoid and sphenoid sinuses, and the presence of hypertrophied adenoid tissue. The size of the latter is not of etiologic significance, as a relatively small amount may harbor the bacilli as effectively as a large mass. The same difficulty has been met in finding the organism in the adenoid tissue that was encountered in the case of the nose.

Wounds.—Wounds may carry the bacilli for an extended period of time. An epidemic of wound diphtheria occurred in two wards occupied by patients who had rib resections for empyema. In one of these wards the diphtheria bacillus was first demonstrated in the wound of a head carrier; this occurred about the middle of March. Five more cases had developed by the end of the month, and twenty-eight occurred in April and ten in May, making a total of forty-four cases. In thirty-three of these cases, *B. diphtheriae* was found in the wound alone, while in twelve the organism occurred in both wound and throat. In thirteen cases the presence of a pseudomembrane and other characteristics of a diphtheric wound were noted. With few exceptions the organism was recovered from granulation tissue, while cultures taken from the depth of the wound were usually negative.

The virulence of the organism was proved by intracutaneous injections into guinea-pigs. In one of two cases thus studied, redness and induration at the site of inoculation was produced after twenty-four hours, and at the end of seventy-two hours local necrosis was well marked. The second pig died within seventy-two hours after an intracutaneous injection of 0.2 c.c. of an emulsion of the culture. At the postmortem examination typical lesions of diphtheria were found.

In several instances the organism was recovered from the skin which had covered over the opening into the chest.

Ears.—In a few cases the bacilli were found in the discharge from acute and chronic suppurative processes of the middle ear.

NONOPERATIVE TREATMENT OF THE CARRIER CONDITION

For the cure of the carrier condition many medicinal agents have been advised, such as sprays, applications, gargles, douches and inhalations. Other agents, acting in a purely mechanical manner (such as kaolin), have been proposed. At various times antitoxins, diphtheria vaccine, antibacillary serum, toxins of *B. pyocyaneus*, and cultures of various living bacteria have been recommended and reported on favorably. From experience derived previous to and during this epidemic, we feel that the value of any local treatment is particularly liable to be ineffective because of the fact that the bacilli are found in the depth of the crypts and beneath the epithelium and are, therefore, untouched by the remedial agent.

In nasal carriers the cessation of the carrier state takes place on the disappearance of the accompanying pathologic condition; therefore, efforts must be directed toward the improvement of the underlying condition.

In the most persistent carriers, local measures were without avail. Various kinds of solutions for irrigation, silver salts, dichloramin-T, crystal violet, and oily sprays were given a thorough trial. It was not difficult to obtain negative cultures while the treatment was being carried out, but when this treatment was discontinued the cultures were again returned positive, and, unless the patients were kept under careful control, it was quite easy to draw inaccurate conclusions regarding the effect of local measures. The harm, of course, results in the release of carriers who are still a menace to their comrades. It must not be construed from what has been written that the affected regions, especially the nose, should not be kept clean, since this is one of

the prerequisites for the restoration of the normal functions of the diseased area. At the same time the use of strong irrigating solutions should be carefully governed, for, if used in too great strength, the mucous membrane will be injured to a further degree.

When a wound is involved, it should be dressed frequently in order to keep it as clean and dry as possible, and all granulations should be removed.

OPERATIVE TREATMENT OF THE CARRIER CONDITION

Since local applications have proved unreliable in the treatment of the carrier state, it seems to us that operative interference is the only solution of the problem, especially in those cases in which the tonsils can definitely be shown to be the focus of infection. In 77.2 per cent. of carriers, the bacilli were harbored in the tonsils. The majority of the remainder showed the presence of *B. diphtheriae* in the nose.

The tonsils should be removed in every case in which it can be positively demonstrated that they are harboring the organism. The contraindications for tonsillectomy in carriers are those that apply under other circumstances.

The majority of patients with clinical diphtheria remain in the hospital for a period of approximately four weeks before they are returned to their commands. Since, in the average case, the bacilli have disappeared by the end of the third week, this may be taken arbitrarily as the beginning of the carrier stage. Consequently, it is safe to remove the tonsils at this time, provided there are no contraindications.

The reaction in carriers, following operation, does not differ from that found in noncarriers. Occasionally it may be severe enough to arouse suspicion that clinical diphtheria is present. However, unless there has been operative traumatism to the surrounding structures, the limitation of the postoperative exudate to the tonsillar fossae—in contrast to the angry red, edematous throat of diphtheria, in association with the marked prostration—suffices to differentiate the two conditions.

Patients on whom operations were performed had been positive for a period varying from one week to several months. As nearly as could be determined, the proportion of primary to secondary carriers was as 2:1. Of the 294 carriers operated on, 20 per cent. yielded a positive culture from the nose and 57 per cent. from the throat, immediately before operation. Subsequent to operation the following results were obtained:

Ninety-four, or 32 per cent., had no positive returns.

One hundred and thirty-six, or 46.4 per cent., were negative by the end of the first week.

Thirty-eight, or 12.9 per cent., were negative by the end of the second week.

Eleven, or 3.7 per cent., were negative by the end of the third week.

Fourteen, or 4.7 per cent., were negative by the end of from four to eight weeks.

One, or 0.3 per cent., was still positive at the end of four months despite all treatment.

In those cases found to be persistently positive, acute or chronic infections of one or more of the accessory sinuses, septal deformities with erosions, or infected adenoid tissues were present.

The time of clearing, as shown by the 91.3 per cent. who were negative by the end of the second week, corresponds very closely to the time required for healing. As the postoperative exudate disappears and the wound heals and becomes smooth, the lodging places of the bacilli become obliterated. In one carrier with adenoid involvement the bacilli disappeared after the tissue was removed. In the persistent nasal carriers, clearance coincided with improvement in local conditions. On the cessation of the infection in the acute sinus cases, the carrier condition terminated.

In the chronic cases, drainage and constant attention to cleanliness helped, but, only after a considerable time. Patients with atrophic rhinitis presented the greatest difficulty as, even after the most continued and careful treatment, and the return of more than the required number of negatives, there was no assurance that the bacilli had finally disappeared. The advisability of operating on these patients was considered, but the extensive involvement of the nose and accessory sinuses, with the resulting marked disturbances of function and nutrition, all advised against this. In addition, there was no assurance that crusts would not continue to form and thus serve to maintain the original condition. The question naturally arises as to what

should be done with this class of patients. Chronic infection of the accessory sinuses disqualifies for admission into the service. Nevertheless, there are many such cases in the Army at present. It may not be practicable to have the opinion of a specialist on each individual in the service, but, in our opinion, every one connected with a base hospital should have a thorough examination of the nose and throat. Remediable conditions should have early attention. Chronic nasal diseases that offer no hope of early improvement or cure may necessitate discharge from the Army.

The disposition of a chronic nasal carrier with virulent bacilli is a question that will require much consideration. It may be solved partly by employing these patients in diphtheria wards where there are cases of diphtheria in the hospital or camp. What should be done with them at other times is the point to be decided. At present the isolation camp is the only solution. It is impossible to state the length of time during which the carrier condition may persist. To illustrate, one case that occurred in civil practice may be cited. An infant became a carrier at the age of 2 months. The bacilli

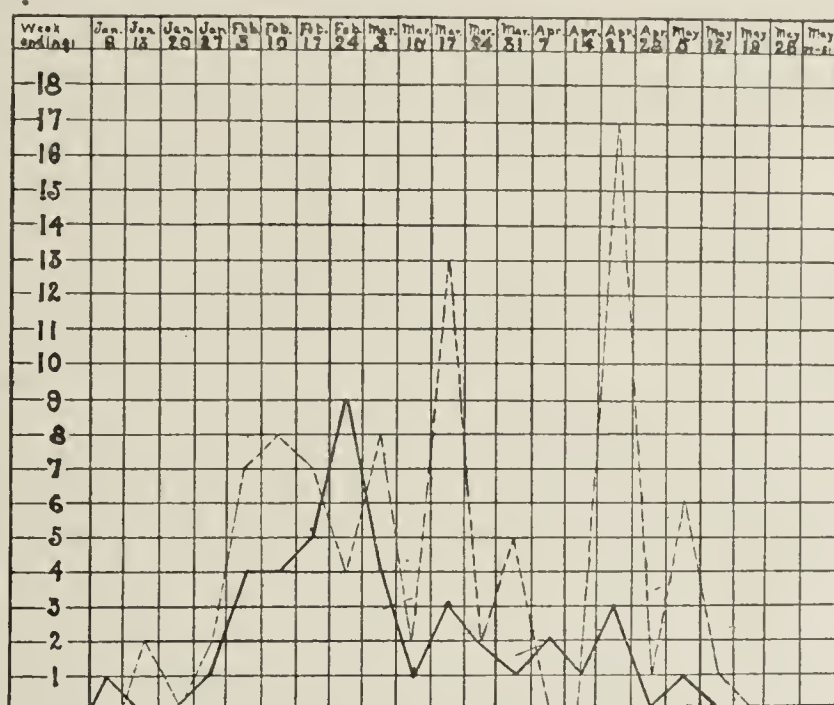


Chart 2.—Occurrence of diphtheria among the base hospital personnel: solid line, cases; broken line, carriers.

continued to be found for 251 days. Virulence tests made shortly before the condition cleared were positive.

CONTRIBUTORY FACTORS IN THE MAINTENANCE AND SPREAD OF THE EPIDEMIC

Measures undertaken for the control of any communicable disease must begin at the source of infection and continue until all danger of infecting others has passed. The following factors may counteract any or all of the defensive measures that have been instituted against an epidemic:

A. Delayed or mistaken diagnosis. This may be seen especially in cases of primary laryngeal diphtheria, which may remain undiagnosed for several days.

B. Ambulatory cases, usually of a mild or nasopharyngeal type. This was illustrated by a case in which a man was admitted to the hospital with the history of an indefinite nasal complaint of nineteen days' duration. A diagnosis of nasal diphtheria was made, which was confirmed by the laboratory. Yet, during the entire period of his illness, the patient had been doing full duty with his regiment.

C. Contiguity. The spread of disease by droplet infection is facilitated by close association in tents, barracks, wards, wash rooms, kitchens and general mess halls.

D. Fomites. Dishes, kitchen utensils, the use of the pipe, drinking cup, canteen, or musical instruments in common, mouth pieces of gas masks, unwashed bed linen, and laundry must all be taken into consideration as distributing agents in an epidemic.

E. Food supply. The milk supply should be investigated, especially when raw milk is being used.

F. Lack of appreciation of the seriousness of the carrier problem on the part of some of the members of the hospital organization, comparatively few of whom have previously had any experience with contagious diseases.

G. Improper methods of taking cultures. Cultures should be taken carefully and not by the "hit or miss" method so often employed. The most reliable results are obtained when cultures are taken from the tonsillar crypts and from the nose. Wound cultures should be made from the granulation tissue before the wound is dressed. Cultures from the nose and throat should be taken immediately before treatment.

H. False conclusions from defective material. Old or contaminated culture mediums may inhibit the growth of the diphtheria bacilli. The use for the Schick test of toxin which has deteriorated in potency may lead to erroneous conclusions as to the presence, in the body fluids, of sufficient antitoxin to protect the individual.

I. Release of patients from quarantine before negative cultures in sufficient number have been obtained, or before the necessary interval of time has elapsed.

J. Disregard of surgical principles in dressing wounds. Particular care should be taken that all gloves and instruments should be thoroughly sterilized for each case.

K. Lack of appreciation of the importance of carrying out quarantine regulations. The fact that the patient is needed by his organization or that there is a shortage of beds in the hospital should not be a sufficient cause for the premature release of a man from quarantine.

L. Undetected carriers. Individuals who have not been found positive by the laboratory, and patients with acute tonsillitis may be discovered to be carriers only when cultures are taken as a routine measure.

The causes for the maintenance or spread of an epidemic of diphtheria may be classified as avoidable and unavoidable. Inexperience, indifference, ignorance and carelessness are factors in the first group. Under unavoidable causes may be included legitimate errors in the diagnosis of atypical cases of diphtheria, clinically mild cases, carriers released after full compliance with the regulations, and, lastly, inadequate laboratory facilities.

CONTROL AND PREVENTION

The methods provided for the control of communicable diseases are so well known that a review would seem unnecessary. When the cases are few, the proposition may be simple; but when there are many to be dealt with and it is essential that company organization and the training of troops shall be maintained, the problem becomes more complex.

A. Centralization of control. For the attainment of efficiency and the accomplishment of results, centralized control is absolutely necessary, as division of responsibility tends toward weakness.

Clinical diphtheria is under the care of the hospital section of medicine. Suspect cases usually appear in the wards pertaining to head surgery. Nose and throat carriers may be found anywhere and are inherited by the latter service. Military or hospital exigencies may require frequent changes in attendants. Patients convalescent from diphtheria must be removed to make room for the acutely ill, and may be transferred to a convalescent camp. Since this may become overcrowded, the patients must in turn be moved to an isolation or quarantine camp. In the meantime, as a result of the conditions cited, cultures may have been overlooked or neglected.

In view of the fact that, in this series of cases, the laboratory passed on all cultures submitted and was therefore cognizant of the status, from a bacteriologic standpoint, of all cases of diphtheria, the following system was adopted for the control of the epidemic: Whenever a new positive culture was found, a record was made of the name, rank, organization, date of primary culture, and whether the patient was a case or carrier. The results of all subsequent cultures were added to this record. After three negative cultures had been obtained at three-day intervals, the chief of service was notified that the patient could be released from quarantine. In cases in which the positive returns persisted for a period of three weeks or longer, the matter was brought to the attention of the chief of the nose and throat service for further investigation.

B. Disposal of patients. Undoubted clinical cases of diphtheria were sent directly to the diphtheria wards by the receiving officer. All patients who were sent to the head surgery section were examined in the outpatient room before being admitted to the wards. Owing to the large number of acute inflammatory throat conditions admitted at this season, it was considered advisable to make cultures of every patient admitted to this service. Suspicious cases were isolated in private rooms. Separate wards were set aside for the reception of carriers. Known carriers from the camp or other wards were received there directly.

On account of the necessity of awaiting the laboratory report on cultures, the disposal of patients presented a problem. To meet this contingency, the following plan was evolved in conference with the commanding officer, the chief of the section of head surgery, and the chief of the laboratory: Five pyramidal tents, each having a capacity of four beds, were erected in the rear of the head surgery wards. All patients admitted to the service other than by transfer from other wards were examined, cultures were taken, and the patients were treated and then sent to the observation tents. On the return of the culture findings, patients with negative cultures were transferred to the clean wards, while those with positive cultures were

sent to the carrier or diphtheria wards, according to the laboratory findings. Since the information furnished from the return of a single negative culture was found to be insufficient, the patients who had been sent to the clean wards were isolated in cubicles and further cultures were taken. If found negative on the second culture, they were allowed the freedom of the wards, but if found positive they were transferred to a carrier ward. All patients presenting symptoms suggestive of clinical diphtheria, even though the cultures were negative, were kept isolated in the observation tents or, if quite ill, in private rooms in wards until a definite diagnosis was made.

From the middle of February to the latter part of May, 680 patients were sent from the receiving office to the head surgery section for all causes. Of this number 127 were found to be either diphtheria carriers or cases: of these, fourteen patients were sent at once to the diphtheria wards; sixty-one patients were sent from the observation tents to the diphtheria wards at a varying number of hours after admission; thirty-two patients were sent to the carrier wards. Twenty patients who were negative on the first culture and who had been isolated in clean wards gave positive returns on the second culture. The extent of the epidemic may be readily appreciated when it is noted that 18.6 per cent. of all cases that passed through the head surgery section were either carriers or cases of diphtheria.

Routine cultures were taken, at five to seven day intervals, of the personnel and patients. The system of cubicle isolation and the establishment of carrier wards was soon extended to the other wards of the hospital.

C. Masks. The protection afforded by masks may be real or imaginary. The simple gauze bandage is the poorest of all, since when worn by patients it may be found in any position between the chin and the forehead. The mouth and nose are rarely covered at the same time. The combined head and face (helmet) mask, if made of a material with a close mesh, is the most efficient and may be worn for some time with comparatively little discomfort. The thick gauze surgical mask which fits the mouth and nose closely is uncomfortable for continuous wear and, owing to the condensation of moisture on it, becomes unsightly. A mask that was found suitable for clinic work and ward visits was made of a copper wire frame covered with several layers of gauze held in place by small strips of adhesive plaster or by basting thread. It was similar in appearance to an anesthetic mask. The frame was bent to fit the nose and mouth closely. Tapes or paper

clips that held a rubber band were attached to the sides of the mask, and by the slipping of these bands over the ears the mask was securely held in place. Its chief advantages consisted in the rapidity with which it could be adjusted or removed, and the absence of the discomfort that is found with all close-fitting masks. Conversation was not interfered with, which was also advantageous when clinical instruction was being given.

Despite regulations regarding the wearing of masks, it is very difficult to obtain complete observance with ambulatory patients and even with attendants. Sharp disciplinary measures are necessary to enforce compliance with the rules.

D. The Schick test. There is very little doubt that the Schick reaction, by determining the susceptibility of individuals to diphtheria, is of great value as an aid in controlling the spread of the disease. Of 1,035 Schick tests performed, eighty-eight (8.5 per cent.) were positive, while 947 (91.5 per cent.) were negative. Of the eighty-eight persons who yielded a positive

reaction, fifteen developed diphtheria, while among those who showed a negative reaction only three contracted the disease. All carriers tested gave a negative Schick.

Faulty results will be obtained if the toxin used is not of the proper potency. This was demonstrated in the case of the three men who developed diphtheria after a negative Schick, for, on further investigation, it was found that this particular lot of toxin had deteriorated.

E. Toxin-antitoxin. That diphtheria antitoxin confers but a transient immunity is well known. This fact is further corroborated by our own observation of a group of men, a number of whom manifested a positive Schick reaction within from three to four weeks after the administration of immunizing doses of antitoxin.

Within the past four months fifty-eight Schick-positive individuals have been injected with three doses of a toxin-antitoxin mixture prepared by the New York Board of Health. As these men have been transferred from this station we have been unable to carry out further tests in order to ascertain whether or not they have developed an active immunity.

We appreciate the fact that the injection of toxin-antitoxin will not give rise to immunity until after three or four months and is, therefore, of but little value in an epidemic. We are aware, moreover, that the administration of immunizing doses of antitoxin to susceptible individuals during the epidemic, though they protect the patients for the time being, may, on the other hand, so sensitize them as to make further

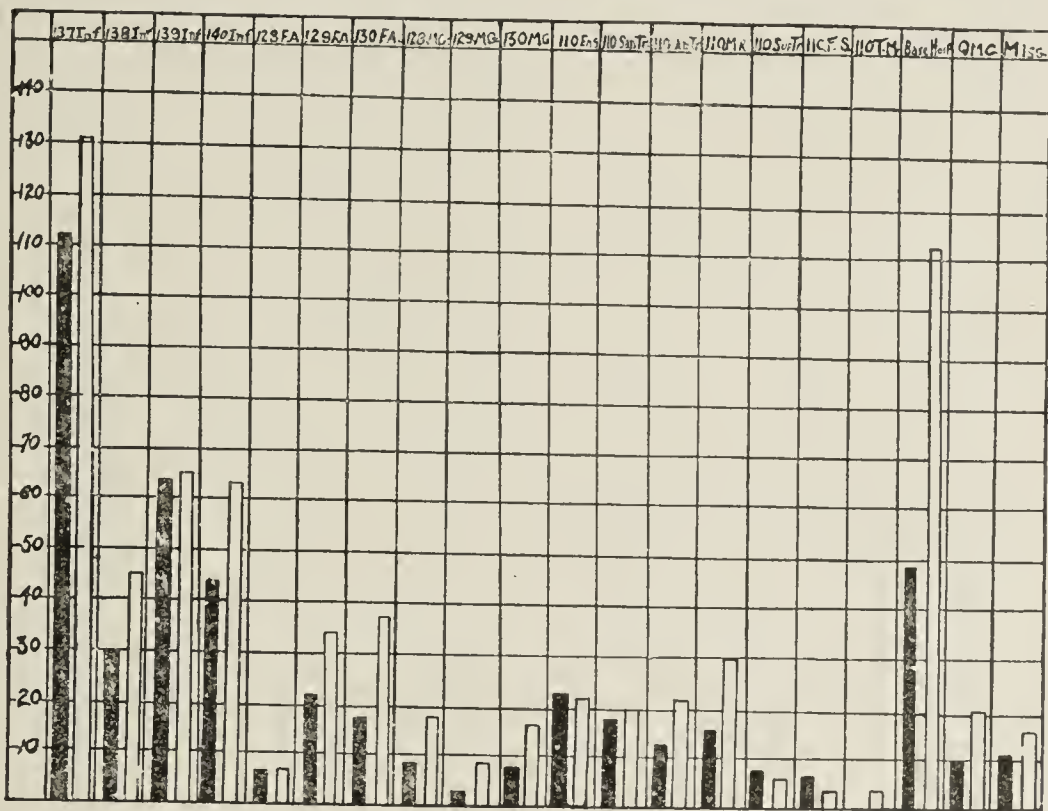


Chart 3.—Incidence by organizations of diphtheria and diphtheria carriers at Camp Doniphan, Oct. 1, 1917-June 1, 1918: solid blocks, cases; outline, carriers.

introduction of serum dangerous, since it may give rise to anaphylactic shock. Nevertheless, these measures are of decided value and should be employed.

F. Hospital rules for the control of the epidemic. To supplement or amplify the rules concerning communicable diseases as prescribed by the Office of the Surgeon-General, the following additional rules were promulgated as occasion demanded

1. Cultures will be taken from the nose and throat of all patients, ward attendants, and detachment personnel other than those employed in the wards, every seven days.

2. The receiving officer or officer of the day will have cultures taken from the nose and throat of all patients admitted to the hospital and will note that fact on the admission slip. If patients are too ill to have cultures taken in the receiving ward, cultures will be promptly taken by the ward officer.

3. It is directed that cultures from new cases entering the hospital be designated by writing across the request blank, "Field case," "For diagnosis," "Carrier" or "Release," as the case may be.

4. Masks will be worn by all members of the staff in all wards and by the patients in the diphtheria and carrier wards. The nose must be kept covered as well as the mouth.

5. Except in emergency, new personnel must show a negative culture and a negative Schick test before assignment to ward duty.

6. Nurses who are infected (patients and carriers) will be isolated in separate wards. Carriers will remain on duty but will be assigned to diphtheria wards only.

7. No contact will be permitted between patients from different wards. To insure this at meal times, all patients will be messed in their wards and no meals will be served in the mess hall.

8. Articles used in serving food (dishes, knives, forks, etc.) will be cleansed in the wards and then sent to the kitchen to be sterilized by boiling.

9. Visiting in carrier wards is forbidden.

10. Symptoms of sore throat in any member of the hospital organization will be immediately reported to the next higher authority. Cultures will be made at once and the individual isolated until the result is known.

11. Patients in clean wards who are found to be positive are to be transferred to carrier wards at once, and cultures are to be made of patients remaining in the clean wards.

12. Cultures of carriers are to be made daily until a negative is secured. Thereafter they are to be made every third day.

13. New patients in clean wards are to be isolated in cubicles and will not be allowed the freedom of the ward or latrine. A culture will be taken on the day of admission and on the following day.

14. Cases and carriers will not be released until notification of release from quarantine is received from the laboratory.

15. Cultures will be taken of patients received in the ward, by transfer from another ward, and these patients will be isolated until the results of the cultures are reported from the laboratory, unless cultures have been taken within three days prior to transfer.

16. All medical officers, nurses and enlisted attendants are to have a Schick test, and when this is found positive, toxin-antitoxin is to be administered for the purpose of immunization.

17. After discharge from the hospital, carriers and patients are to report once a week for culture of nose and throat for such a time as is deemed advisable.

EPIDEMIOLOGIC STUDY OF DIPHTHERIA

Chronologic Occurrence of Diphtheria.—That diphtheria is a disease of winter is well shown in Chart 1, since its incidence is much higher during the coldest months. Unfortunately, no differentiation was made between the cultures obtained from clinical cases and from carriers prior to January, 1918, but after that date all cultures submitted to the laboratory were des-

ignated as from clinical cases or otherwise. Almost perfect parallelism is seen to exist in this chart between the number of carriers and clinical cases. The great increase in the number of carriers over cases for the week ending May 5 was especially notable in the three organizations in which the greatest number of clinical cases for that week developed.

Occurrence of Diphtheria Among Hospital Personnel.—Examination of Chart 2, showing the occurrence of diphtheria and carriers among the hospital personnel, does not reveal the close parallelism that is seen to exist in Chart 1, since the number of carriers greatly exceeds the number of cases, except during the onset of the hospital epidemic, which occurred during the month of February. This is explained by the fact that the hospital attendants who were susceptible to diphtheria contracted the disease during the early part of the epidemic while, later, the constant exposure of those who were immune increased the proportion of carriers. It is of interest to note that a decided increase in the number of cases of diphtheria in the camp is followed, within a few days, by a similar increase in the number of cases among the hospital personnel. This may be noted by contrasting Charts 1 and 2 for the weeks ending February 17 and 24, March 31, and April 7, 14 and 21. This may naturally be attributed to the fact that the members of the base hospital received their infection from the patients admitted from the camp, and, since a period of incubation must elapse from the time of exposure to the time of the manifestation of the disease, the apex of the curve in Chart 2 would necessarily lag behind that of Chart 1.

Another source of infection, aside from the camp cases, was found within the hospital itself. On examination, the fact was revealed that approximately twenty carriers and patients were working in the detachment and hospital messes as cooks or cooks' police. Since the ambulatory patients from all clean wards congregated here for their meals, they were naturally subject to exposure to diphtheria. Corroborative evidence that this was a source of infection was adduced by the fact that the highest incidence of carriers and cases occurred in Hospital Barracks A and B, where most of the kitchen force was quartered.

Occurrence by Organizations.—On examination of Table 2 we find that organizations coming from rural communities have distinctly higher incidences of diphtheria than those coming from the cities. Thus a comparison of the four regiments of infantry, all having approximately the same strength and living under the same conditions, reveals the fact that the 137th and 139th infantries, coming from rural communities, have a higher percentage of cases and carriers than the 138th and 140th, coming from St. Louis and Kansas City, respectively. The same distinct difference may be seen to exist among the regiments of artillery, which were of like strength and lived adjacent to each other under similar conditions.

An apparent discrepancy in this statement may be found in the percentage of carriers and cases occurring among the base hospital personnel, which had a strength of approximately 500. This fact may be attributed, as has been mentioned in the discussion of Charts 1 and 2, to their continual exposure to the disease.

It is of more than passing interest to note that, in the study of empyema made during the past winter, those organizations that exhibited a high morbidity for

empyema showed. in this survey, a high incidence of diphtheria. From these facts one must conclude that, as has already been shown by others, a man from a rural community is not as great an asset to his organization in the early part of his military career as is an urban individual.

CONCLUSIONS

1. A single negative culture is only of relative value, as is shown by the fact that preoperative cultures, taken from tonsils that later proved positive for diphtheria, were negative in 22.8 per cent. of the cases.
2. The importance of nasal cultures is shown by the fact that in routine cultures taken from carriers, 26 per cent. were positive from the nose.
3. Cultures from chronic carriers should be tested for virulence.
4. The carrier state is maintained by some underlying pathologic condition of the affected tissues.
5. In the great majority of cases the carriers harbor the bacilli in the tonsils; a few carry the germs in the nose only; a small group maintains the infection in both nose and tonsils.
6. Conclusions based on the results of local treatment should be founded on careful and prolonged bacteriologic study. Cultures should be taken immediately before treatment, or, if local treatment is being

TABLE 2.—OCCURRENCE OF DIPHTHERIA BY ORGANIZATIONS

Organization	Source	Carriers Per Cent.	Cases Per Cent.
137th Infantry.....	Rural.....	19.1	24.2
138th Infantry.....	Urban.....	6.7	6.6
139th Infantry.....	Rural.....	9.7	13.9
140th Infantry.....	Rural and urban..	9.2	9.3
128th Field Artillery.....	Urban.....	1.3	1.8
129th Field Artillery.....	Rural and urban..	5.1	4.6
130th Field Artillery.....	Rural.....	5.3	3.9
128th Machine Gun Battalion.....	Rural.....	2.7	1.8
129th Machine Gun Battalion.....	Rural.....	1.3	0.4
130th Machine Gun Battalion.....	Rural.....	2.3	1.7
110th Engineers.....	Rural and urban..	3.0	4.9
110th Sanitary Train.....	Rural.....	3.0	3.6
110th Ammunition Train.....	Rural and urban..	3.0	2.8
110th Military Police.....	Rural.....	4.3	3.2
110th Supply Train.....	Urban.....	1.0	1.1
116th Field Signal Battalion.....	Rural.....	0.4	1.3
116th Trench Mortar Battalion.....	Rural.....	0.4	0.0
Base Hospital.....	Rural and urban..	16.7	10.6
Quartermaster.....	Rural and urban..	3.2	2.1
Miscellaneous.....	Rural and urban..	2.3	2.2

administered, this should be suspended for a number of days before cultures are taken. The results of local treatment are problematical, since the organisms are situated deeply in the tissues.

7. In persistent carriers in whom the focus of infection is the tonsil, enucleation offers the only certain procedure for terminating the carrier state.

8. The most persistent nasal carriers are those in whom chronic inflammatory or atrophic processes are found. It is almost impossible, in view of the varying culture returns, to state when the condition has finally cleared.

9. Centralization of authority is necessary for the control of an epidemic of diphtheria and diphtheria carriers in camp. Release of patients from quarantine should be under the supervision of the laboratory.

10. During an epidemic, patients should not be admitted to a clean ward unless they have had at least two successive negative cultures from the nose and throat.

11. Improperly constructed and improperly worn masks give a sense of false security.

12. The hospital personnel should be given a Schick test, and those giving a positive reaction should be immunized with toxin-antitoxin mixture.

13. Toxin for the Schick test should be prepared fresh, and no diluted toxin should be used after twenty-four hours. The undiluted toxin should be kept in the dark and in a refrigerator.

14. Intermittent chronic carriers should be employed as attendants in diphtheria wards or in quarantine camps. They should be separated from the hospital personnel and from their organizations.

15. Diphtheria patients may be discharged from the hospital after they have had at least three negative cultures at three-day intervals. Chronic carriers should not be discharged until cultures taken over a long period of time prove consistently negative.

We take this opportunity of expressing our appreciation for the cooperation accorded us during this study to the following members of the staff of the base hospital: Major A. C. Magruder, Capt. W. B. Post, E. E. Hopkins, A. W. Cox, H. E. Blanchard, R. Appleberry and A. E. Edgerton, Lieut. F. H. Thorne, Miss Marjorie Bates, Miss Dorothy Loomis, and Pvt., First Class, Stephens Moore.

THE PROTECTIVE QUALITIES OF THE GAUZE FACE MASK

EXPERIMENTAL STUDIES

DAVID A. HALLER, M.D. (POCAHONTAS, VA.)

Major, M. R. C., U. S. Army

AND

RAYMOND C. COLWELL

First Lieutenant, S. C., N. A.

CAMP GRANT, ROCKFORD, ILL.

The use of the face mask by surgeons and their assistants to protect clean operative fields which they otherwise would spray with their own mouth organisms at every cough or sneeze is an old and well established procedure. The utilization of the face mask to protect the wearer from droplet infection in the presence of those ill with acute infectious diseases is likewise now a well established custom owing in large part to the careful studies at the Durand Hospital in Chicago. Weaver¹ has shown its efficacy when used in this institution in protecting attendants on infectious disease cases both from contracting these diseases and from becoming carriers of them. Capps² has published statistics tending to confirm the work of Weaver and has proposed a new adaptation for the face mask, the essential idea being to use this mask to protect patients from cross-infection in the ambulances, and in the admission rooms and wards of the hospital. The clinical results of this adaptation of the face mask were described by Capps³ recently.

The work described in this paper was carried out for several reasons. The masks used at this hospital have come from several different sources. Masks found in use in the various wards on the same day showed extreme variation in the number of layers of gauze. Some were made with only three layers, and were obviously too thin. Others were made with eight layers, and these were quite hard to breathe through; also they were very warm and uncomfortable. The gauze of which the masks were made varied in quality,

1. Weaver, G. H.: The Value of the Face Mask and Other Measures, *THE JOURNAL A. M. A.*, Jan. 12, 1918, p. 26.

2. Capps, J. A.: A New Adaptation of the Face Mask in Control of Contagious Diseases, *THE JOURNAL A. M. A.*, March 30, 1918, p. 910.

3. Capps, J. A.: Measures for the Prevention and Control of Respiratory Infections in Military Camps, *THE JOURNAL A. M. A.*, Aug. 10, 1918, p. 448.

some being as fine as twenty-eight strands to the warp and twenty-four to the woof per inch. Other specimens showed twenty strands to the warp and fourteen to the woof per inch. The masks varied in size. Some we believed to be too small. A great difference was noted in the same mask before and after being washed. In addition to this variation in the masks, we judged that there was some difference between the protection afforded the uninfected individual by a mask when placed over the mouth and nose of the one infected and when an identical mask was placed over the mouth and nose of the uninfected, for the reason that in the latter situation the mask is at a greater distance from the source of the organisms, and they are not propelled against the mask with the force that they are when it is directly subjected to currents of air expelled from the mouth carrying numerous droplets of mucus and saliva, each one of which probably carries many organisms.

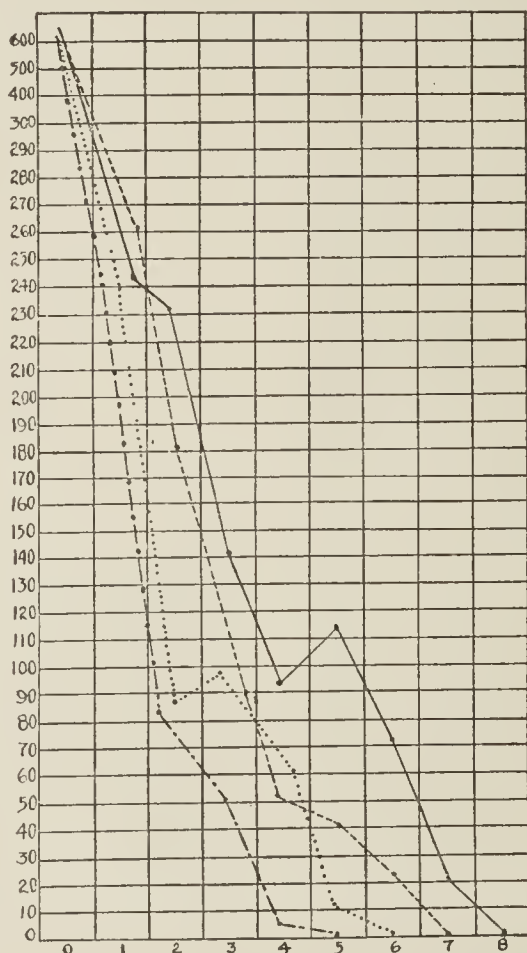
One of us was found to be a badly infected carrier of typical pneumococci (Type IV) which could be distinguished on human blood agar plates from air-borne organisms of the room which were deposited on plates of the same mediums exposed at the same time in the same room. It was determined to have this individual cough directly at a Petri dish containing this medium, first without a mask and later with masks over the face, each succeeding mask being thicker by one layer than the preceding one. Masks tested varied in thickness from one to eight layers. The gauze used was Bauer and Black's or the equivalent of their specimens called, (1) B and B (32 by 26); (2) L and L (28 by 24); (3) Lakeside (24 by 20); (4) Dearborn (20 by 14).

The coughing was kept as nearly constant as possible, both in force and in the number of coughs. It was soon found that the first few coughs were usually rather unproductive and that it was necessary to have the individual cough several minutes before the coughs became roughly equal in productiveness. The Petri dishes were in every case at a distance of from 12 to 14 inches from the face. The gauze was unwashed and was sterilized in the steam autoclave at 15 pounds pressure for thirty-nine minutes and then allowed to dry before being used. A chart of the protocol of an experiment is given herewith. It will be noticed that if one takes the sum of the strands counted in the warp and in the woof in the case of each quality of gauze—B and B, 32 and 26, total 58; L and L, 28 and 24, total 52; Lakeside, 24 and 20, total 44; Dearborn, 20 and 14, total 34—and multiplies in each case by the number of layers of gauze necessary in each case to protect fully the exposed plate, these figures quite closely correspond: $5 \times 58 = 290$; $6 \times 52 = 312$; $7 \times 44 = 308$; $9 \times 34 = 306$.

The total number of colonies coughed through various layers of gauze cannot be compared directly with

the total number of colonies coughed through one of the same series of masks resterilized and used at some other time, for the contamination of the mouth is not at all the same at different times. A complete series of masks must be run through at one sitting. This is done on several different occasions and the results for each mask averaged. The results with two or more patients can be compared only by taking the number of colonies on the respective control plates as a total and expressing all other counts in percentages of this total. The percentages can then be directly compared. The only constant feature in regard to the various masks seems to be the thickness at which absolute protection of the place is reached. This can be tested with very little trouble and without going through the entire series of masks. The conclusion reached is that the amount of gauze placed in superimposed layers necessary to give fully complete protection when the mask is worn over the face of the one infected lies very close to the equivalent of 300 strands of cotton fiber to the square inch.

In several instances the experiment was conducted as described, and in addition after each mask had been worn from five to fifteen minutes another Petri dish was then exposed and coughed at in the same manner. The object was to see whether the filtration was as efficient after the mask had been worn for some time as it was when first put on. The workers were biased in their belief that the mask would not be sufficient, and quite a large number of parallel and control experiments were necessary to remove this bias. It was, however, conclusively shown that no more organisms penetrate the mask after it has been worn for thirty minutes than when it is first applied to the face, provided, of course, all other factors remain constant. The mask if dried and reversed will become not a filter but a disseminator of organisms. Experiments to determine the effect of drying used masks which are then reapplied to the face have been so at variance



Experiment with gauze over face: line of dots and dashes, B and B (32 by 26); dotted line, L and L (28 by 24); broken line, Lakeside (24 by 20); solid line, Dearborn (20 by 14).

with each other as to be quite inconclusive. It is our opinion, however, that this drying process is rendered practically harmless when the mask is reapplied without reversal after the patient has breathed through the mask several times and the expired air has been allowed to moisten it again. It seems that the practice as followed here of marking the face side of the mask by a small strand of black thread is a very good one and should be followed out in all masks.

Our second series of experiments was directed toward a determination of how many superimposed layers of gauze are necessary to protect when applied over the face of the uninfected, rather than over the mouth of the infected. To represent the recipient, a Petri dish was masked and coughed at from a distance of from 12 to 14 inches with no mask over the face of the subject. One feature entirely neglected in this experiment which is present in the actual clinical test

of the mask is the inspiratory suction through the mask. The same series of masks were used although only one quality of gauze was completely worked out. This was the Lakeside (24 by 20). Five layers were necessary to protect the plate completely, which amount represents 220 strands of cotton fiber to the square inch.

A third series of tests were made with duplicate masks; one was placed over the face and one over the exposed plate, each succeeding mask being increased in thickness by one layer of gauze. The series embraces all thicknesses from one to eight. The gauze used for the series was Lakeside (24 by 20). The figures obtained tend to show that cotton fibers in superimposed layers of gauze to the extent of 350 to the square inch equally divided between the infected and uninfected will prevent droplet infection. This result may be interpreted as inconsistent with the figures of the protocol given. This apparent inconsistency is, we believe, quite within the limit of error of the methods used. It can be shown that the mask over the face of the infected is of value in the prevention of the uninfected when used in addition to the mask over the plate which represents the uninfected.

Experiments made with washed gauze demonstrated the following facts: The better qualities of gauze B and B (32 by 26), L and L (28 by 24) and Lakeside (24 by 20) become more efficient through shrinkage of the fiber, and if too thick at the outset become almost unbearable after repeated washing. Here also there is some question whether or not most of the respiratory exchange takes place about the edges of the mask, rather than through it. With the very poor quality of gauze, Dearborn (20 by 14), there is a decided tendency for the gauze to pull apart and leave very large gaps in the individual layers. We are of the opinion that this gauze should never be used for this purpose.

Work with the reknit gauze has demonstrated that it is almost impossible, because of its remarkable stretching, to estimate its efficiency. Even under ordinary conditions it does not remain the same for more than a few minutes at a time. We hesitate to recommend its use, as we have seen a thick mask so stretched out and thinned after an hour's wear that it was quite obviously useless.

A small amount of work was done with Turkish toweling. Preliminary experiments tend to show that one layer of this material makes a highly efficient droplet filter, and it is comfortable to wear. The question of expense, and also the question of the effect of wear on this material, are to be considered.

SUGGESTIONS FOR MASKS

1. It is our belief that gauze of the quality of Lakeside (24 by 20) or L and L (28 by 24) should be used in four layers, B and B (32 by 26) in three layers, provided all persons are masked. In case only the infected are masked, Lakeside (24 by 20) should be seven layers thick, L and L (26 by 24) six layers, and B and B (32 by 26) five layers. If the masks of this thickness are used, the ambulances and receiving offices and particularly the clothing of uninfected patients would probably not become infected.

2. Masks should be 8 inches in length with the edges turned in and stitched. They should be 5 inches in width.

3. Two braids should be used, each 1 yard long and sewed along the upper and lower borders of the mask so as to leave a free end 14 inches long at each side.

4. The masks should be marked on the face side by a black thread tied in the gauze.

THE ARMY SHOE AND MILD FOOT DISABILITIES

J. TORRANCE RUGH, M.D.

Lieutenant-Colonel, M. C., U. S. Army.

PHILADELPHIA

Extensive foot inspections were made of the soldiers who were trained during the latter half of 1917 and early part of 1918. These inspections were first made when the men were inducted into service and while the feet still showed the abnormal conditions that were present in civil life, and again before they were sent overseas. Comparison of the results of the two examinations disclosed that marked changes had occurred, and the experience of civil orthopedic practice is verified by these observations. These changes have been almost uniformly favorable to better function of the feet, and when unfavorable results have occurred, the reason has been readily traced.

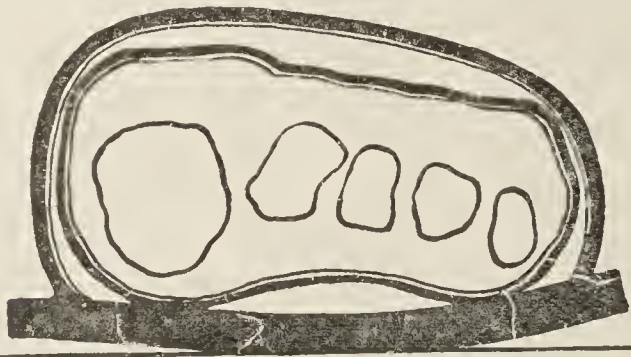
In endeavoring to account for the marked changes observed, there are two factors that stand out as most potent. First is the Army shoe and second is the increased personal care and interest in foot health on the part of the officers and men from the instruction by the orthopedic surgeons.

Extensive observation (covering several hundred thousand cases) shows that 98 per cent. of the recruits can be fitted with the Army shoe. This fact alone is the strongest possible recommendation for its use, but an additional fact still more strongly recommends it. This is the beneficial influence of the shoe on the foot of the wearer. When a shoe is properly fitted at the beginning of service, there should be about two-thirds inch between the end of the longest toe and the end of the shoe. After from four to six months of training there should be at least half an inch. The heel should be held fairly snug in the shoe, the vamp should fit smoothly over the forefoot, and the ball of the foot should rest in its seat near the posterior turn of the sole. In fitting shoes, it must always be remembered that a shoe will enlarge sideways but never lengthwise. Also, that repairing tends to shorten a shoe, and rebuilding actually does shorten it.

Short shoes cause more foot troubles than narrow ones; hence the great need of the two-thirds inch room in the length of the shoe to accommodate the lengthening of the foot in the first four or five months of training. This length and breadth of shoe permits a degree of function hitherto unknown to the foot. There is greater freedom of toe action, which affects both muscles and joints. This is followed directly by lengthening of ligaments, increase in size of muscles and alteration of relations of all the anatomic elements of the foot. These factors contribute directly to an increase in the size of the part. I have repeatedly seen cases in which the original size of the shoe had been strongly objected to as being entirely too large, but after a few months of intensive training and perhaps using extra or thicker socks, the fit was entirely satisfactory by reason of the development of the foot.

With the greater freedom of action in the larger shoe, there occurs absence of pressure on toe-joints, and corns disappear. There is freedom from pressure on nails, and "ingrowing" gradually ceases, especially if a little aid is given by proper cutting and attention. Toes that have been crowded together have sufficient room for normal function, and under the constant muscle pull and better distribution of weight, both of which forces are almost constantly active in the soldier's foot for from twelve to fourteen hours a day, they gradually assume a normal relation. In many instances, a moderate degree of overlapping has gradually lessened to a very nearly normal position. Similar results obtain in various other conditions in which secondary pathologic changes have not produced a degree of permanence that will yield only to surgery. These superficial conditions are always of mechanical origin, and almost universally from improper foot coverings, not from faulty function primarily. When, therefore, these mechanical conditions are remedied or removed, the effects disappear and the part gradually develops into as nearly normal a state as is compatible with existing pathologic changes or conditions.

As the result of greater freedom of action, the intrinsic muscles of the foot, which have long been



Foot resting on the two sides of a concave inner sole, without support to the transverse arch.

inactive and atrophied, gradually resume again their function. This chiefly concerns the maintenance of the transverse and longitudinal arches. With increase in activity, there is also increase in size. The foot develops power and endurance. The fibrous attachments strengthen to meet the greater strain. Circulation improves by reason of the greater functional activity and the lessening of constriction. This promotes nutrition and a beneficial circle is established to replace the former vicious one. Greater elasticity and increased range of motion in the various joints of the foot allow a greater variation in its length from changing function and strain. The tonicity of the large leg muscles also improves and the support essential to weight-bearing and progression is readily developed. This in turn gives a better position to the foot so far as concerns the carrying of the body weight, and the onset of static disability is prevented.

One other very striking result from the wearing of the properly fitted shoe is in troubles with the transverse or metatarsal arch. Foot inspection shows a large number of men with callosities under the metatarsal heads (ball of the foot). This means a loss of the transverse arch, and may be associated with metatarsalgia (Morton's foot) or with painful callous areas or both.

The preservation of the transverse arch depends mostly on the strength of the intrinsic foot muscles and the vicious circle following the wearing of improper shoes is readily succeeded by sagging and

loss of this arch. Furthermore, in the manufacture of a shoe, the inner sole is likely to be concave instead of convex. This is due to the fact that the sole of the last is convex; hence, as the leather is fitted over it, the result is a concave surface inside. The foot then rests on the two sides of this and has no support in the center, as in the accompanying illustration. If now the muscles that furnish support are weak and atrophied, severe use will almost surely result in loss of the foot arch (transverse) before sufficient power can be restored to them.

From the foregoing will be readily seen the great need of proper fitting of the shoes to maintain the best health of the feet. The regulation army shoe has all the essential qualities for foot health and is proving its worth to the soldier. The educational phase of the problem on the soldier is an equally great one, and its influence will persist for a long period after the war ends. The soldier will be a center for education in proper foot wear by reason of his comfort in shoes that are long enough and which conform to the shape of the foot.

FACE MASKS IN INFECTIONS OF THE RESPIRATORY TRACT*

BREWSTER C. DOUST, M.D. (SYRACUSE, N. Y.)
Captain, M. C., U. S. Army

AND

ARTHUR BATES LYON, M.D. (BOSTON)
Lieutenant, M. C., U. S. Army

NEW YORK

The use of face masks by those whose duties necessitate their coming in contact with cases of respiratory infection has now become general. The object of such masks is twofold: first, to protect the wearer against infectious material from the respiratory passages of the patient, and second, to protect the patient from such material as the attendant may himself carry in his mouth and nose. The types of masks worn, however, have been variable, and the efficiency of many of these types as barriers to the transmission of bacteria is certainly open to question. We have therefore undertaken experiments with some of the commoner types of masks in order to prove their efficiency or nonefficiency in preventing the dissemination of infectious material from the mouth during the acts of speaking or coughing.

Our first object was to determine, by means of agar plates exposed at different distances from an observer, how far infectious material might be projected from the mouth during speaking or coughing.

Our second object was to determine to what degree the wearing of a mask modified the projection of such material during the same acts.

METHODS AND TECHNIC

B. prodigiosus was selected as a suitable organism to introduce into the mouth for these experiments, because of its innocuous character, and because its pigment formation makes its recognition easy on agar plates.

For our experiments two small rooms were selected which were used for no other purpose during this time. Each of these rooms contained a metal topped table

*From the Hospital of the Rockefeller Institute for Medical Research.

and a chair. The arrangement of the furniture is shown in Figure 1. When the observer was seated in the chair, the table top was just below his ensiform. Agar plates exposed on the surface of the tables before the beginning of the experiments showed no *B. prodigiosus* present in the circulating air and dust.

EXPERIMENT 1.—To determine the limits of projection of *B. prodigiosus* from the mouth during ordinary speech, loud speech and coughing.—The observer first thoroughly rinsed his mouth and gargled his throat with a suspension of *B. prodigiosus* in 0.85 per cent. sodium chlorid solution, the viability of which was proved by subcultures at suitable intervals. The observer then entered the room and seated himself in the chair, facing down the length of the table. In line with the observer's mouth, agar plates were exposed from 1 to 6 feet distant, except in some of the coughing experiments, when plates were exposed up to a distance of 10 feet.

The observer then proceeded: (1) to talk in an ordinary conversational tone for five minutes; or (2) to talk in a loud tone for five minutes; or (3) to cough as much as possible for five minutes. In one instance ordinary conversational speech was maintained for a period of thirty minutes. At the conclusion of his speaking or coughing, the observer left the room. In order to allow the droplets in the air, if present, to settle on the surface of the plates, the plates remained exposed an additional ten minutes after the period of speaking or coughing. The colonies occurring on the plates were counted and recorded after seventy-two hours' incubation at room temperature.

Agar plates were exposed for one hour in the rooms between different stages of this experiment. By this means we found that an eight hour interval between the periods of talking or coughing was sufficient to insure the absence of *B. prodigiosus* in the circulating air.

The results of the projection of *B. prodigiosus* from the uncovered mouth during ordinary conversational speech, loud speech, and coughing, are shown in Table 1. The experiments were paralleled by two observers working in separate rooms.

TABLE 1.—PROJECTION OF *B. PRODIGIOSUS* FROM THE MOUTH ON AGAR PLATES DURING CONVERSATIONAL SPEECH, LOUD SPEECH, AND COUGHING *

	Distance of Plates from Operator in Feet									
	1	2	3	4	5	6	7	8	9	10
Speaking in ordinary conversational tone for 5 minutes	1	0	0	0	0	0	—	—	—	—
	0	0	0	0	0	0	—	—	—	—
	0	1	0	0	0	0	—	—	—	—
	13	2	0	0	0	0	—	—	—	—
Speaking in ordinary conversational tone for 30 minutes	16	0	0	0	0	0	—	—	—	—
	72	0	0	0	0	0	—	—	—	—
	43	3	2	0	0	0	—	—	—	—
	0	0	0	0	0	0	—	—	—	—
Speaking in loud tone for 5 minutes	115	5	5	1	0	0	—	—	—	—
	317	3.1	245	73	23	4	—	—	—	—
	—	—	—	213	113	84	32	13	17	3
	242	64	13	5	3	1	—	—	—	—
Coughing for 5 minutes	—	—	4	6	3	1	2	0	0	0

* Number of colonies of *B. prodigiosus* on each plate in boldface figures; dash indicates plates not exposed.

SUMMARY OF TABLE 1

1. Ordinary Conversational Speech for Five Minutes.—In three out of four trials, *B. prodigiosus* was recovered in small numbers on plates 1 or 2 feet distant, but no farther.
2. Ordinary Conversational Speech for Thirty Minutes.—One trial. *B. prodigiosus* was recovered only on the 1 foot plate in slightly larger numbers than in any of the preceding experiments.
3. Loud Speech for Five Minutes.—In three out of four trials, *B. prodigiosus* was recovered in moderate numbers on plates from 1 to 4 feet distant.
4. Coughing for Five Minutes.—In all of four trials, *B. prodigiosus* was recovered, usually in large numbers, on plates up to 6 feet distant.

In two trials in which plates were exposed up to 10 feet, *B. prodigiosus* was once recovered up to 7 feet, and once up to 10 feet.

MASKS

For the subsequent experiments, masks were used. The masks employed by us were of uniform construction, but differed in the nature of the material used and in thickness.

Three sorts of material were employed: (1) coarse gauze; (2) medium gauze, and (3) buttercloth (Fig. 2). From each sort masks were made of from two to ten layers in thickness.

Each mask was about 6 by 8 inches, hemmed on the edges, and made with four plaits on each lateral edge. The mask was equipped with tapes on the four corners by which to tie it behind the head (Fig. 3). When extended to the full width by a fanlike extension of the plaits, the mask presented sufficient surface to cover nose and mouth, and to come below the chin (Fig. 4).

EXPERIMENT 2.—To determine the effect of a coarse gauze mask on the projection of *B. prodigiosus* from the mouth

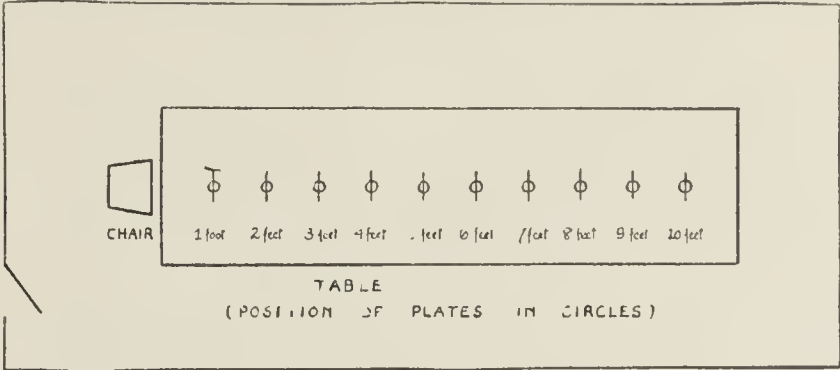


Fig. 1.—Arrangement of furniture and plates for tests.

during ordinary speech, loud speech, and coughing.—The methods and technic of this experiment were the same as in Experiment 1, except that during talking or coughing a coarse gauze mask was worn. Each of the experiments of speaking in an ordinary tone, speaking in a loud tone, and coughing, was done with each mask of from two to ten thicknesses of gauze. The results of these experiments are shown in Table 2.

TABLE 2.—PROJECTION OF *B. PRODIGIOSUS* FROM THE MOUTH WHILE THE FACE IS COVERED WITH A MASK OF COARSE GAUZE

Speaking in Ordinary Conversational Tone for 5 Minutes	Number of Layers of Gauze in Mask	Speaking in Loud Tone for 5 Minutes	Number of Layers of Gauze in Mask	Coughing for 5 Minutes
Distance of Plates from Operator in Feet		Distance of Plates from Operator in Feet		Distance of Plates from Operator in Feet
1 2 3 4 5 6		1 2 3 4 5 6		1 2 3 4 5 6
0 0 0 0 0 0	2	75 1 0 0 0 0	2	703 800 610 397 128 23
0 0 1 0 0 0	3	18 1 0 2 0 0	3	125 84 31 5 4 2
0 0 0 0 0 0	4	22 1 0 0 0 0	4	403 280 126 35 8 3
0 0 2 0 0 0	5	2 0 0 0 0 0	5	140 160 100 42 15 1
0 0 0 0 0 1	6	5 0 0 0 0 0	6	65 20 10 4 0 1
0 0 0 0 0 0	7	3 0 0 0 0 0	7	68 63 15 0 0 0
0 1 0 0 0 0	8	2 0 0 0 0 0	8	8 1 0 0 0 0
0 0 0 0 0 0	9	0 0 0 0 0 0	9	6 4 2 0 0 0
0 0 0 0 0 2	10	0 0 0 0 0 0	10	9 2 0 0 0 0

SUMMARY OF TABLE 2

- Coarse gauze masks worn from two to ten layers thick.
1. Ordinary Conversational Speech for Five Minutes.—One trial with each mask. *B. prodigiosus* was recovered five times, always in small numbers, on plates at variable distances. Three times organisms were found at 2 to 3 feet and twice at 6 feet. The latter possibly represents an error, as even without masks we never recovered organisms at this distance during ordinary

speech. The error, if present, is insignificant, since the remaining data are conclusive.

2. *Loud Speech for Five Minutes.*—With each mask, one trial. *B. prodigiosus* was recovered on plates from 1 to 4 feet distant with every mask up to eight thicknesses—in fairly large numbers with those up to four thicknesses, and in small numbers with those of from five to eight thicknesses.

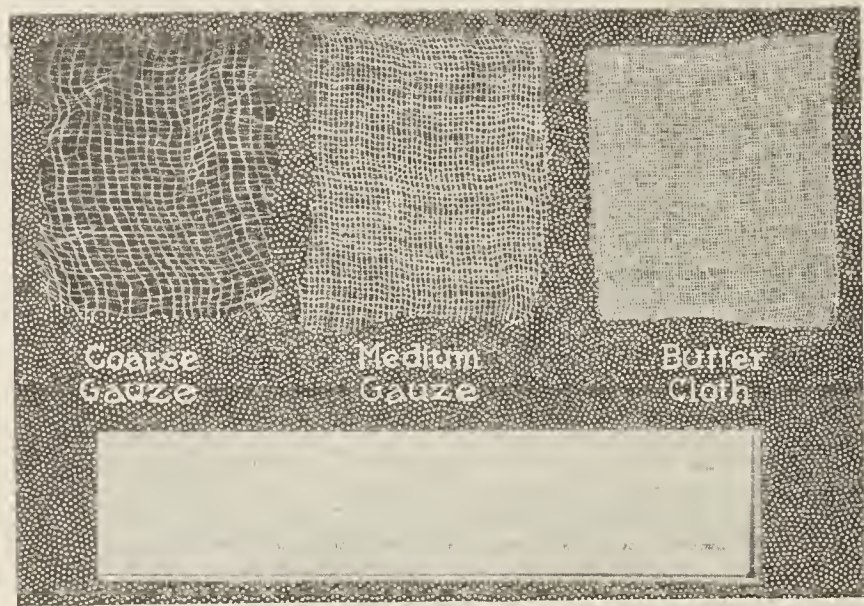


Fig. 2.—Material employed for masks.

3. *Coughing for Five Minutes.*—With each mask, one trial. *B. prodigiosus* was recovered in every instance. It was recovered in large numbers with masks of six thicknesses or less, up to 6 feet. With masks of greater thickness it was recovered in larger or smaller numbers at a distance of 2 or 3 feet.

EXPERIMENT 3.—To determine the effect of a medium gauze mask in the projection of *B. prodigiosus* from the mouth during ordinary speech, loud speech, and coughing.—The methods and technic of this experiment were exactly the same as in the preceding, except that the masks used were of a closer meshed gauze. The experiments of talking in an ordinary tone, talking in a loud tone, and coughing were repeated with each mask of from two to five layers in thickness.

Since the masks of from three to five layers proved to be effective as a barrier to organisms during ordinary speech, this experiment was abandoned with the thicker masks. Only loud talking and coughing were attempted with the masks of from six to ten layers.

The results of this experiment are shown in Table 3.

TABLE 3.—PROJECTION OF *B. PRODIGIOSUS* FROM THE MOUTH WHILE THE FACE IS COVERED WITH A MASK OF MEDIUM GAUZE

Speaking in Ordinary Conversational Tone for 5 Minutes						Number of Layers of Gauze in Mask	Speaking in Loud Tone for 5 Minutes						Number of Layers of Gauze in Mask	Coughing for 5 Minutes					
Distance of Plates from Operator in Feet							Distance of Plates from Operator in Feet							Distance of Plates from Operator in Feet					
1	2	3	4	5	6		1	2	3	4	5	6		1	2	3	4	5	6
5	0	0	0	0	0	2	220	4	0	0	0	0	2	15	6	1	1	1	0
0	0	0	0	0	0	3	1	0	1	0	0	0	3	39	25	12	2	1	0
0	0	0	0	0	0	4	0	0	0	1	0	0	4	45	21	8	1	0	0
0	0	0	0	0	0	5	0	0	0	0	0	0	5	2	1	0	0	0	0
—	—	—	—	—	—	6	1	0	0	0	0	0	6	0	1	0	0	0	0
—	—	—	—	—	—	7	2	0	0	0	0	0	7	8	10	7	9	7	6
—	—	—	—	—	—	8	0	0	0	0	0	0	8	5	0	1	1	1	0
—	—	—	—	—	—	9	0	0	0	0	0	0	9	3	6	1	1	4	1
—	—	—	—	—	—	10	0	0	0	0	0	0	10	1	0	0	1	0	0

SUMMARY OF TABLE 3

Medium gauze masks worn, from two to ten layers thick.

1. *Ordinary Conversational Speech for Five Minutes.*—With each mask of from two to five layers, one trial. *B. prodigiosus* was recovered in small numbers only on the 1 foot plate with two layer mask.

2. *Loud Speech for Five Minutes.*—With each mask of from two to ten layers, one trial. *B. prodigiosus* was recovered in five cases, never beyond 4 feet, usually in small numbers. The 1-foot plate with the two layer mask was heavily seeded.

3. *Coughing for Five Minutes.*—With each mask of from two to ten layers, one trial. In every instance *B. prodigiosus* was recovered in moderate numbers on plates from 2 to 6 feet distant.

EXPERIMENT 4.—To determine the effect of a buttercloth mask on the projection of *B. prodigiosus* from the mouth during ordinary speech, loud speech and coughing.—The methods and technic of this experiment were the same as used in the preceding, but the masks used were made of buttercloth. Ordinary speech, loud speech, and coughing were repeated with each mask of from two to ten layers in thickness. The results of these experiments are shown in Table 4.

TABLE 4.—PROJECTION OF *B. PRODIGIOSUS* FROM THE MOUTH WHILE THE FACE IS COVERED WITH A MASK OF BUTTERCLOTH

Speaking in Ordinary Conversational Tone for 5 Minutes						Number of Layers of Gauze in Mask	Speaking in Loud Tone for 5 Minutes						Number of Layers of Gauze in Mask	Coughing for 5 Minutes					
Distance of Plates from Operator in Feet							Distance of Plates from Operator in Feet							Distance of Plates from Operator in Feet					
1	2	3	4	5	6		1	2	3	4	5	6		1	2	3	4	5	6
0	0	0	0	0	0	2	0	0	0	0	0	0	2	0	2	0	0	0	0
0	0	0	0	0	0	3	0	0	0	0	0	0	3	0	0	0	0	0	0
0	0	0	0	0	0	4	0	0	0	0	0	0	4	0	0	0	0	0	0
0	0	0	0	0	0	5	0	0	0	0	0	0	5	0	0	0	0	0	0
0	0	0	0	0	0	6	0	0	0	0	0	0	6	0	0	0	0	0	0
0	0	0	0	0	0	7	0	0	0	0	0	0	7	0	0	0	0	0	0
0	0	0	0	0	0	8	0	0	0	0	0	0	8	0	0	0	0	0	0
0	0	0	0	0	0	9	0	0	0	0	0	0	9	0	0	0	0	0	0
0	0	0	0	0	0	10	0	0	0	0	0	0	10	0	0	0	0	0	0

SUMMARY OF TABLE 4.

Buttercloth masks worn, from two to ten layers thick.

1. *Ordinary Conversational Speech for Five Minutes.*—With each mask, one trial. *B. prodigiosus* not recovered.

2. *Loud Speech for Five Minutes.*—With each mask, one trial. *B. prodigiosus* not recovered.

3. *Coughing for Five Minutes.*—With each mask, one trial. *B. prodigiosus* recovered at 2 feet with the two layer mask only.

Repetition of the coughing experiments while two or three layer masks, both washed and unwashed, were worn, showed like results.

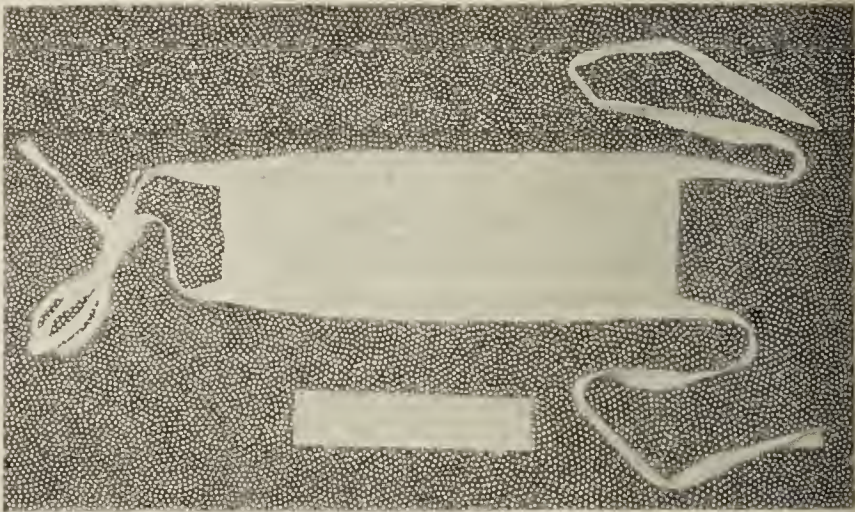


Fig. 3.—Mask, with tapes.

COMMENT

In 1899, Flügge and his followers,¹ working on the problem of tuberculosis infection, first advanced the theory of droplet infection. Briefly speaking, their experiments showed that if an observer retained in his mouth a suspension of *B. prodigiosus*, the organ-

1. Flügge: Ztschr. f. Hyg., 1899, 30, 107. Laschsenko: Ibid., p. 125. Heyman: Ibid., p. 139. Hillyer: Brit. Med. Jour., 1903, 1, 595

ism could be recovered on agar plates a meter distant during the acts of speaking, sneezing or coughing. In general they believed that if a person were coughed at from a distance of less than a meter, he might be infected by means of the projected droplets.

From our own work, however, we judge that the infected zone has a considerably greater radius. Our data indicate that during ordinary or loud speech, droplets are rarely projected more than 4 feet, irrespective of the duration of the experiment. In talking for thirty minutes there was no greater projection of bacteria than in talking for five minutes, though during the longer time there may be a heavier seeding of a plate within the effective range. During coughing, however, the danger zone is immensely widened. We were surprised at the distance we could project the organisms during a hard spell of coughing. At first we exposed plates only to a distance of 6 feet. Subse-



Fig. 4.—The mask as worn.

quently we exposed plates up to a distance of 10 feet, on which we recovered *B. prodigiosus* in sufficient numbers to suggest the possibility of even greater projection. We found that the chances of recovering *B. prodigiosus* from the more distant plates were increased if the observer renewed the organisms in his mouth during the period of coughing. From our work it would seem that the danger zone about a coughing patient has at least a 10-foot radius.

Our work has also convinced us of the futility of masks constructed from the coarser types of gauze, irrespective of thickness. We were constantly able to cough organisms through ten thicknesses of such material. A three layer buttercloth mask, however, appears to be effective in preventing the distribution of organisms from the mouth even during violent coughing. We have repeated experiments with this mask both before and after washing, with uniform results. Such a mask is not only effective, but easy to make and perfectly comfortable to wear.

These masks are also inexpensive. The quoted price per square yard of buttercloth is 14 cents. A square yard makes nine masks, each three layers in thickness. Each mask requires fifty-six inches of tape, costing about 2 cents. The cost per mask therefore is only between 3 and 4 cents, exclusive of labor. A mask may be repeatedly washed and used indefinitely. An indelible mark should be made on one side of the mask, and when the mask is put on, the same side should always be next to the face.

We have been using these masks in the Hospital of the Rockefeller Institute for physicians and nurses, and in some instances for patients; for example, during carriage to and from the roentgen-ray room, or when being moved about the corridors. They have also been used for ambulatory patients with head colds or other mild respiratory infections.

CONCLUSIONS

1. During ordinary or loud speech, infected material from the mouth is rarely projected to a distance of 4 feet, and usually less. A 4-foot danger zone exists about the patient under these conditions.

2. During coughing, infected material from the mouth may be projected at least 10 feet. The danger zone about a coughing patient has, then, a minimum radius of 10 feet.

3. Masks of coarse or medium gauze of from two to ten layers do not prevent the projection of infected material from the mouth during coughing. Such masks are worthless, therefore, in preventing the dissemination of respiratory infections.

4. A three layer buttercloth mask is efficient in preventing the projection of infectious material from the mouth during speaking or coughing. It is a suitable mask, therefore, to be worn in connection with respiratory diseases.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

SOLARGENTUM-SQUIBB.—A compound of silver and gelatin, containing 19 to 23 per cent. of silver in colloidal form.

Actions and Uses.—See Silver Protein Compounds (New and Nonofficial Remedies, 1918, p. 361).

Dosage.—Solargentum-Squibb is used in solutions containing 1 to 25 per cent., or more. It is also used in the form of bougies or suppositories.

Manufactured by E. R. Squibb & Sons, New York. No U. S. patent or trademark.

Solargentum-Squibb is produced by the interaction of silver oxide and gelatin in the presence of an alkali. When combination has occurred, the solution is concentrated *in vacuo* and the product sealed.

Solargentum-Squibb occurs in the form of black, lustrous, odorless, non-hygroscopic scales. It is very soluble in distilled water; insoluble in oils and alcohol.

No precipitate is produced when sodium chloride solution is added to an aqueous solution of solargentum-Squibb. An aqueous solution of solargentum-Squibb does not precipitate albumin; it is decomposed with precipitation by addition of free acids; ferric chloride decolorizes the solution.

To about 1 Gm. of powdered solargentum-Squibb, accurately weighed in a porcelain crucible, add a mixture of 4.5 Gm. of lead oxide and 0.5 Gm. of powdered tartaric acid. Rotate and mix in a crucible. Heat continuously until thoroughly carbonized and then heat in a blast flame until the lead button formed is about half its original size. Allow the crucible to cool, then place it in a beaker and dissolve the lead button containing the silver in dilute nitric acid. Transfer liquid, with washings, into an Erlenmeyer flask and titrate the silver nitrate with tenth-normal potassium sulphocyanate volumetric solution, using ferric ammonium sulphate as an indicator. The silver content corresponds to not less than 19 per cent. and not more than 23 per cent. of metallic silver (each Cc. of tenth-normal potassium sulphocyanate volumetric solution is equivalent to 0.0107 Gm. silver).

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SATURDAY, OCTOBER 12, 1918

QUARANTINE AND ISOLATION IN INFLUENZA

As indications of the attitude of civilian health officials with respect to the value and practicability of quarantine in influenza, it may be noted that the Illinois Department of Health has ordered that the patient must be quarantined until all clinical manifestations of the attack have subsided and the temperature has been normal for three successive days; that in New York City the patient is quarantined and, furthermore, so it is stated, the health department is prepared to compel patients "who may be so situated as to be a menace to the community to go into hospitals." In these and other places, influenza and pneumonia have been made reportable diseases.

The officials of the Navy at first glance seem to be of a different opinion in regard to quarantine in influenza, as indicated by the following extract from Bulletin 37,¹ of the Division of Sanitation of the Bureau of Medicine and Surgery, dated Aug. 9, 1918:

Control in the Navy.—Quarantine and isolation are impracticable on account of the wide distribution of the organism [*B. influenzae*] in healthy persons and the number of unrecognizable cases.

This sounds like a decidedly reactionary statement, but it is possible that it refers to the units in which cases arise, or possibly to persons who have been in especially close contact with those that fall sick, because the remaining sentences of the paragraph read:

Patients, however, should be put to bed at once, and bed isolation, prevention of droplet infection, and prompt disinfection of mess gear, handkerchiefs, etc., practiced as in measles. Where sick bays or wards are not available for isolation, the use of sheet screens between patients is to be recommended.

Whatever the real meaning of the sentence to the effect that quarantine and isolation are impracticable, the danger to life from influenza in this epidemic is so grave that it is imperative to secure for the individual patient the most complete isolation, whether in home or hospital, not only to prevent the spread of infection

from the patient but also to prevent new and secondary infections from reaching the patient. This need to protect the sick is not emphasized in current advice and instructions to the public from the official and other sources. It appears, too, that in many if not most hospitals little or no attention is paid to the danger of cross-infections with virulent bacteria among their influenza patients. So far as we know, the actual situation in influenza seems to be this: THE PRECISE CAUSE OF THE PRIMARY ACUTE RESPIRATORY INFECTION IS NOT KNOWN—IT MAY BE THE INFLUENZA BACILLUS; AS YET DEFINITE PROOF IS WANTING—BUT THE MOMENTOUS PERIL SO FAR IS THE DEVELOPMENT OF PNEUMONIA, AND THIS APPEARS TO BE ASSOCIATED WITH AND IN ALL LIKELIHOOD CAUSED BY DIFFERENT BACTERIA, OF WHICH THE INFLUENZA BACILLUS, HEMOLYTIC STREPTOCOCCI, AND PNEUMOCOCCI ARE THE MOST IMPORTANT. We know that in experiments, streptococci and pneumococci may be raised enormously in virulence by successive animal passage, and there is good reason to believe that the virulence for man is increased by repeated transmission from patient to patient. The influenza bacillus may act in the same way, that is, a particular strain may acquire increasing virulence as it passes from the respiratory tract of patient after patient. It is to guard against dissemination by contact and droplet infection of strains with exalted virulence that individual isolation is demanded. The conditions in the present influenza outbreak are analogous to those in the cantonments with respect to streptococcus bronchopneumonia in measles, and are to be met in the same ways so far as possible. It is realized that at present the situation in many places is such that individual isolation and other measures to prevent cross-infection are out of the question; but the importance of the principle discussed must be recognized so that with time our methods of caring for respiratory infections may become more and more effective.

ADEQUATE SUPPLY OF PHYSICIANS MAKES LOWER EDUCATIONAL STANDARDS UNNECESSARY

According to the Census Bureau estimate for 1917, the population of the United States was 106,543,317, and according to the new American Medical Directory, the total number of physicians is 147,812. At the present time, therefore, there is one physician to every 720 people. In the various countries of Europe, just before the world war began, the proportion of physicians, according to the best available authorities, was from one to every 1,500 to one to every 2,500 people.¹ Numerically speaking, therefore, more than half of the

1. Measures for the Prevention of the Introduction of Epidemic Influenza, Pub. Health Rep., 1918, 33, 1540.

1. We have not included in these calculations the thousands of osteopaths, chiropractors, naprapaths, physcultopaths, and other cult practitioners who, outside of the United States and Canada, are not to be found in other countries.

physicians of the United States, or actually 76,783, might be withdrawn from civil practice before the proportion to the population would be as low as the highest proportion in any country of Europe, namely, one to every 1,500 of population. One physician to every 1,500 people could readily supply all the needs in thickly populated communities, but the more sparsely settled rural communities would doubtless need a larger proportion—say one to every 1,000. On this basis for the entire country, it would require one physician for about every 1,200 people. If properly distributed, this would be a reasonable proportion considering the improved roads and other means of accessibility by which a physician can now cover a much wider territory than heretofore. Based on the number of applications now going through for commissions in the Medical Department of the Army, there will be at least 35,000 physicians who have been commissioned or will have been offered commissions in the Army and the Navy by Nov. 1, 1918. As a maximum, however, not more than 40,000 physicians could possibly be needed by the government service unless the war should continue more than two or three years longer. This would still leave in civil practice one physician to every 988 population. The annual output from the medical schools in recent years has been approximately 3,000 physicians, more than covering the annual loss from deaths.

It is evident, therefore, that so far as the supply of physicians is concerned, there is clearly no danger of a shortage being produced by the present world war even if we should be called on to supply the needs of some of our allies. Consequently there is positively no basis for arguments favoring the reduction of educational standards. As a matter of fact, our medical colleges might all be closed for several years and the annual supply of physicians entirely cut off, and the number of physicians in the United States would still remain in a higher proportion to the population than in the most favored country of Europe. The only valid reason why medical schools should be kept going is that in recent years they have turned out physicians who are eminently better qualified than those of earlier years, and this one reason would be removed if educational standards should be lowered. It is only during the last eight or ten years that the majority of medical graduates each year have had the benefit of higher preliminary qualifications, of better equipped laboratories, of better hospital facilities, and of a training under larger numbers of full time, salaried, expert teachers. Our superabundance of physicians is mostly made up of those who did not have the benefit of these greatly improved conditions in medical schools, many of whom, however, be it said to their credit, through graduate courses and study, have kept up with the advances made in medical knowledge.

Those who are arguing for a reduction in standards on the plea that there is a need of physicians are either misinformed in regard to the facts or have certain special interests which they are striving to uphold. In the light of these facts it is urged that licensing boards generally enforce the present reasonable standard of two years of collegiate work as the minimal requirement of preliminary education. The argument that there is a dearth of physicians should not be looked on as an excuse for lowering educational standards in the interest of any pseudomedical cult. Let the present educational standards, which have been successfully established in recent years, be upheld so that the name of America, from the standpoint of medical education, may retain the high position educationally that it has recently attained among civilized nations.

IS EPIDEMIC POLIOMYELITIS PREVALENT IN ENGLAND AND FRANCE?

During the last six months there has been observed in England¹ and France² what has seemed an epidemic of a rather obscure origin. The various names applied to the condition—infective ophthalmoplegia, toxic ophthalmoplegia, acute infective ophthalmoplegia, acute encephalitis, epidemic lethargic encephalitis, botulism, Heine-Medin disease, etc.—show that considerable doubt prevails as to its nature. In England the largest number of cases have been recorded in London, but cases have been reported from many other parts of that country and of Wales.

According to Hall,¹ the main features of the cases so far observed are as follows: The patient, while in ordinary health, begins to be languid and drowsy, with or without other symptoms. In a few hours or days the weakness has increased and, indeed, may amount to complete prostration, so that he lies helpless in bed and can hardly move a muscle. Now the drowsiness becomes more marked and deepens into lethargy. Fever may be absent, or it may be present from the first, become severe, and persist. Cerebral excitement and delirium have been prominent features in some cases. In most cases, local symptoms pointing to lesions in the bulbopontile area are present at some time or other. Of these, ptosis, ophthalmoplegias of varying extent, nystagmus, facial palsy of lower neuron type, unilateral or bilateral, speech affections and dysphagia have occurred in different combinations in different cases. Muscular tremors of a curious kind have been noted in some. In some cases the general muscular asthenia has been more marked on one side

1. Harris: Acute Infective Ophthalmoplegia or Botulism, *Lancet*, London, 1918, **1**, 568. Hall: Toxic Ophthalmoplegia, *ibid.*, 1918, **1**, 568. Melland: Epidemic Poliomyelitis, *Brit. Med. Jour.*, 1918, **1**, 559. Crookshank: Botulism and Heine-Medin Disease, *Lancet*, London, 1918, **1**, 699.

2. Netter: Epidemic Lethargic Encephalitis, *Bull. de l'Acad. de méd.*, 1918, **79**, 337.

of the body than on the other—either arm alone or arm and leg.

Lumbar puncture has been negative bacteriologically and otherwise. Persons of all ages have been affected, but by far the majority of all cases have occurred in persons over 20 years of age. Sex and occupation seem to play no part, and in only one instance were there two cases in one family.

There has been observed congestion of the meninges and small hemorrhages in the brain substance, sometimes so large that the spinal fluid is bloody. There is cellular infiltration around the vessels and especially those in the bulbar and basal nuclei. Other parts of the brain may be involved.

In England the mortality has approached 20 per cent.; in France it was over 50 per cent., but the recovery seems to be complete in those that survived. The disease may last only a few days or it may persist for weeks or two or three months or more, the patient finally recovering when a fatal termination seemed inevitable, the sacrum, buttocks, spine and heels being covered with eschars. In fatal cases the length of the illness has varied from ten days to six weeks, and death seemed to be due to bulbar paralysis. The signs and symptoms thought to point to botulism have been vomiting, transient facial palsy, transient ptosis, absence of spinal paralysis, drowsiness and absence of fever and constipation, with dryness of the nose and mouth. Although in a considerable number of cases there was a history of the recent consumption of canned food, cheese, bacon, ham and sausages, these and other now exceptional foods had not been consumed in the majority of the cases, and no particular food has been found to be related to the outbreak. So far, no bacteriologic proof is forthcoming that any of the cases were due to bacterial infection or to intoxication by the products of bacterial activity, whether associated with food consumption or not. Against the suggestion of botulism is the fact that a case has been observed in an infant at the breast, and also that thus far *Bacillus botulinus* has not been identified.

Netter² insists that the disease cannot be a form of poliomyelitis, stating that this epidemic occurred during the winter and spring months, while poliomyelitis occurs almost always in the autumn; that the majority of persons affected were adults, while poliomyelitis affects mostly children, and that the spinal fluid was normal, which is not the case in poliomyelitis. In the present epidemic there were also few meningeal symptoms, and the mortality was very high—50 per cent. In poliomyelitis the meningeal symptoms are much more marked, and the mortality is much lower—about 11 per cent.

Reviewing the facts in regard to poliomyelitis, we find that epidemics very much similar to the one in question have been reported before. Hence we are probably here dealing with an epidemic of poliomy-

elitis, though perhaps of a rather unusual distribution in the nervous system. In regard to season, Wickman has reported an epidemic in Sweden lasting through the winter with its maximum in April and May. As to adults, there are great variations; at times the percentage is high and at other times low. An epidemic is reported by Müller, on the island of Nauru, where some 700 cases occurred, the majority of which were in adults.

In regard to the spinal fluid, it is sterile and usually clear in poliomyelitis. There is cellular increase consisting of polymorphonuclears at first and later of lymphocytes; but the cells rapidly disappear from the fluid so that after the first two weeks the count is either normal or nearly so. As to globulin, during the first week it is found in only half of the fluids, and after the third week there is a decrease. Accordingly the condition of the spinal fluid would depend on the time it was examined. At any rate, the question of whether a person may have poliomyelitis without having any changes in the spinal fluid is at present an open one.

The meningeal form of poliomyelitis is, of course, common, and at times the picture of meningitis may be so marked as actually to obscure the real nature of the disease; but there is also the atoxic or asthenic form in which there is drowsiness, stupor, etc., as in the present epidemic. Many of the reported cases, in England at least, have also shown marked meningeal symptoms. The mortality rate varies in the different epidemics of poliomyelitis. The younger children have a better chance for life than the older children and adults. In Wickman's cases the mortality was 27.6 per cent. in persons between 12 and 32 years of age. In one small epidemic he saw a mortality of 42.3 per cent. Lindner and Mally report a mortality of 50 per cent. in persons over 10 years of age. In the New York epidemic in 1916 the fatality rate was 27.2 per cent. in New York City. This tallies closely with the present epidemic in England and France. The various eye symptoms reported indicate an involvement of the third, fourth and sixth cranial nerves; the facial paralysis, involvement of the seventh; and the difficulty in swallowing and affection of the tongue, involvement of the ninth and twelfth. As a matter of fact, these cranial nerves are those most frequently involved in poliomyelitis. In the bulbar form of poliomyelitis, which means localization in the pons and medulla, the combinations of paralyses mentioned are observed.

Further investigations are in progress. From this without doubt we shall learn that this is not a new disease, but that the epidemic is one of poliomyelitis, the cerebral type being predominant, and in many respects both epidemiologically and clinically similar to the New York epidemic of 1916.

Current Comment

THE PRESENT EPIDEMIC OF INFLUENZA

The present epidemic of influenza spreads so rapidly—attacks in a new spot so suddenly—that it is difficult to discuss its incidence at the time *THE JOURNAL* goes to press without great fear that it will have completely changed by the date of publication. As we write it is reported that cases in the Army camps are decreasing, some 11,750 new cases having been reported in all Army camps during the twenty-four hours ending noon, October 8. New cases of pneumonia have likewise decreased, totaling some 2,181 with a mortality of 781 for the twenty-four hours. At that date the total number of cases of influenza reported from all Army camps since the disease became epidemic was placed at almost 200,000, with some 20,000 pneumonia cases and between 5,000 and 6,000 deaths in the Army alone. The civilian population has likewise suffered greatly, particular points of attack being in the New England states, in Pennsylvania and in Indiana.

As pointed out elsewhere, the great danger is not from influenza, but from secondary complications communicated in the same manner as the influenza itself. Influenza uncomplicated by cross-infection, in the ordinary person, will run its course, and those who have it will recover. The secondary pneumonia is quite infectious and a serious complication, which up to date has occurred in some 10 per cent. of the cases and which has a mortality between 25 and 33 $\frac{1}{3}$ per cent. of all the persons whom it attacks. The prevention of this pneumonia is dependent on a strict isolation of the influenza patient, not so much to protect others against the influenza, but to protect the patient against pneumonia through cross-infection.

In some cases at least an exceedingly rapidly progressing form of pneumonia develops early in the disease, with a great deal of fluid, the lung being only partially consolidated. The patients may die with a great deal of frothy fluid in the bronchi, trachea, throat and nose, practically drowning in their own fluid. In many cases this pneumonia begins practically at the same time as the influenza itself, and it is these cases which proceed to a rapidly fatal termination. At the same time, indications are that other forms of pneumonia likewise occur. In others, the influenza is a simple uncomplicated and rather harmless disease.

An interesting feature of the present epidemic is the change in the attitude of the public toward public health methods. The changes incident to the war have caused the public to accept freely orders and suggestions as to their mode of living. When health authorities place a ban on public gatherings, when they insist that the windows of public conveyances be kept open, when they insist on absolute quarantine

in order to stop the spread of the disease, the public is ready to obey, and does obey to the fullest measure. Another feature is the confidence of the public in public health authorities, apparently the result of the intense education of the public in prophylaxis of disease which has been going on during the past decade. Orders concerning the epidemic are received without panic or alarm.

MEDICAL STUDENTS IN THE STUDENTS' ARMY TRAINING CORPS

Authority has finally been secured from the War Department for the transfer of students in the Medical Enlisted Reserve Corps to the Students' Army Training Corps, and full instructions will be issued shortly—after certain details have been arranged. This will affect students in the second, third and fourth years of the medical schools. Those enrolled as freshmen medical students are eligible for the Students' Army Training Corps in such medical schools as have established units, or any medical schools that are connected with universities having such units. This provides for uniforms, housing, board, tuition, and pay of \$30 a month, the same as for other students in the Students' Army Training Corps. Premedical students likewise may enter the Students' Army Training Corps if the colleges in which they are students have units. All this, aside from students transferring from the Medical Enlisted Reserve Corps, applies only to registrants on September 12. It is expected that some provision will also be made for students who registered prior to September 12. Those in Class 1 who are not qualified for general military service are eligible for admission to the Students' Army Training Corps, and those belonging to deferred classes, if physically qualified, are eligible to enter the Students' Army Training Corps.

DEVELOPMENT FOR PHYSICALLY DISQUALIFIED STUDENTS

It is reported that between 20 and 25 per cent. of the boys examined for the Students' Army Training Corps in the universities and colleges are failing to meet the physical standards adopted for soldiers. This is due largely to underdevelopment and underweight. These boys therefore fail to gain admission to the Students' Army Training Corps; they are not entitled to wear uniforms, and remain in school as civilians. Boylike, these young fellows in civilian clothes are sensitive, and fear that they may be branded as slackers. It has been suggested that the school authorities recognize this condition and provide for some insignia to distinguish those boys disqualified for physical reasons from those who have made no attempt to qualify. While we do not believe in grownups wearing a badge as a proof of their patriotism, there may be some reason for the wearing of such a badge in these schools. But we suggest that instead of supplying these boys with badges, the school authorities recognize the splendid opportunity and institute a plan for developing these boys so that they may become physically fit to wear the uniform. The ideal thing would be for the individual schools to form Development Corps of

those physically disqualified and put them in a uniform adopted by the school itself. This would be a stimulus for the boys to cooperate with the University in attaining physical fitness and promotion to the Students' Army Training Corps.

Medical Mobilization and the War

Appointment in the Medical Reserve Corps and Acceptance of Commission

The important decisions relative to appointment in the Medical Reserve Corps have just been promulgated by the Surgeon-General's Office:

(a) Graduates of 1918 will be required to serve one year's internship in a civil hospital before being considered eligible for a commission.

(b) No more appointments are being made in the Medical Reserve Corps. All commissions issued are in the United States Army. There is no inactive status in the United States Army, consequently the order to active duty invariably accompanies notices of appointment from the Adjutant - General's Office. The newly appointed officers are given fifteen days in which to comply with the Adjutant - General's orders. A failure to comply or to accept a commission within the specified time will be considered by the Adjutant-General as a declination of commission. The appointment will be cancelled and if the applicant wishes a new appointment it will be necessary for him to be reexamined as for an original appointment.

Physicians Needed by Public Health Service

We again call attention to the fact that the United States Public Health Service is in need of physicians to assist it in carrying out its enlarged work in connection with the health conditions in extracantonment and camp zones. This offers an opportunity for those physicians who want to do war work, and who can not, or do not want to, obtain a commission in the Medical Corps of the Army or Navy. Physicians desiring to help in this work should write to the Surgeon-General of the Public Health Service, Washington, D. C. THE JOURNAL is prepared to supply forms on which to make formal application. These forms are for the purpose of indicating the applicant's qualifications, and to show in what way he can be best used—whether in a hospital or in public health and sanitary work. The pay is from \$2,000 to \$2,500 a year. If quarters and subsistence are furnished, the pay is \$1,800 a year. No physical examinations are required other

than to ascertain whether the physician is able to perform the duty for which he desires to be appointed. These appointments are as acting assistant surgeons since at this time there is no provision for commissions. No examinations are required to qualify. The appointment does not exempt one from the Selective Service Law.

SURGEON-GENERAL MERRITTE W. IRELAND

On October 3 the President sent to the Senate the following nomination: "To be Surgeon-General with the rank of Major-General: Major-General Merritte W. Ireland, M. C., U. S. Army." It may be taken for granted that this nomination will be confirmed by the Senate. The appointment of General Ireland to this position will give general satisfaction to the Medical Department of the Army. The record of General Ireland in the Medical Department is a record of thorough, conscientious service fitting him particularly for the position which he now is to occupy.

He was born at Columbia City, Ind., May 31, 1867, was graduated from the Detroit College of Medicine in 1890, and followed his graduation with an internship in St. Mary's Hospital, Detroit, from 1889 to 1890; was graduated from Jefferson Medical College, Philadelphia, in 1891, immediately afterward entering the service as first lieutenant and assistant surgeon on May 4, 1891. He began his military career at Jefferson Barracks, Mo., on May 27, 1891, on May 4, 1896, he was made captain and assistant surgeon. In the Spanish-American War he served with the Fifth Army Corps in Cuba and later at Camp Wyckoff, N. Y., on April 17, 1899, becoming surgeon with the rank of major of the 45th United States Infantry. At this time he went with his command to the Philippine Islands, serving in several campaigns and being officially commended by the chief surgeon.

In April, 1900, he took charge of the medical supply depot of the Division of the Philippines at Manila, and was honorably discharged from volunteer service, June 30, 1900. In 1902 he entered the Surgeon-General's Office, working under Surgeon-General O'Reilly and continuing under Surgeon-General Torney. He was promoted to major and surgeon and to major, M. C., Aug. 3, 1903, and to lieutenant-colonel, May 1, 1911. He left the office of the Surgeon-General in 1912, again going to the Philippines, where he was stationed as post surgeon at Fort William McKinley. He thus had a continuous service in the Surgeon-General's Office of approximately ten years. He returned to the United States and was placed in charge of the base hospital at Fort Sam Houston in 1916, and accompanied General Pershing to Mexico as surgeon of the American Expeditionary Forces to Mexico. When the United States entered the great war he accompanied General Pershing to France as chief surgeon of the American Expeditionary Forces, was promoted to the rank of brigadier-general, May 1,



SURGEON-GENERAL MERRITTE W. IRELAND

1918, and more recently to the rank of major-general and Surgeon-General of the expeditionary forces.

Our new Surgeon-General is, therefore, fitted especially to conduct the medical service of the Army through the remainder of the war, as well as in times of peace. He has filled practically every position to which the men who will serve under him may be called—surgeon of volunteers, post surgeon, assistant in the Surgeon-General's Office, supply depot, surgeon-general of the expeditionary forces—a complete record which indicates that the chief will know what confronts each of his subordinates.

BRIGADIER-GENERAL NOBLE TO BE SURGEON-GENERAL FOR EXPEDITIONARY FORCES

Included with the nominations sent to the Senate by the President, October 3, was the appointment of Brig.-Gen. Robert E. Noble to take the place vacated by General Ireland as Surgeon-General for the American Expeditionary Forces.

General Noble was born in Georgia in 1870. He was educated in the Polytechnic Institute of Alabama, receiving his B.S. degree in 1890 and the M.S. in 1891 and was graduated in medicine by Columbia University in 1899. He was appointed assistant surgeon in 1901, and was an honor graduate of the Army Medical School in 1904, then was appointed captain and assistant surgeon in the Medical Corps, June, 1906, and major in January, 1910. From 1907 to 1914 he served with General Gorgas in the Canal Zone and was efficient in helping to secure the wonderful sanitary results which made the building of the Panama Canal possible. When General Gorgas was made Surgeon-General, Major Noble accompanied him to the Surgeon-General's Office, taking over the personnel department. As chief of the personnel division he was instrumental in building up the large personnel of the Medical Reserve Corps which today constitutes the large majority of the commissioned portion of our Medical Department. Later, in addition to his other duties, he was called to assume the duties of director of hospitals on this side of the Atlantic, and at the time of his present appointment was engaged in completing arrangements for the care of the sick and wounded who are to be returned from Europe, or who may need hospital care in the United States. This is the fundamental work in the Department of Reconstruction and Rehabilitation.

General Noble has had a wide experience in sanitation, and as assistant Surgeon-General is thoroughly acquainted with the administrative work of the Surgeon-General's Office which will be helpful in his new position. In every respect he is well qualified for the new functions and responsibilities he will assume in France as head of the Medical Division of our Expeditionary Forces.

Promotions of Medical Officers

Recent records carry the following promotions: Major-Gen. Merritte W. Ireland (Colonel, M. C.), now holding the emer-

gency rank of Major-General, to be Major-General and Surgeon-General; Brigadier-Gen. Robert E. Noble (Lieutenant-Colonel, M. C.), now holding the emergency rank of Brigadier-General, to be Major-General for the period of the present emergency, for service abroad, succeeding Major-General Ireland as first assistant Surgeon-General; Col. Edward L. Munson to be Brigadier-General for the period of the emergency; Col. James D. Glennan, William S. Thayer and John M. T. Finney to be Brigadier-Generals, M. C. Lieutenant-colonels, M. C., to colonels, M. C. (emergency), Sept. 4, 1918: E. F. Geddings, Fort Adams, R. I.; G. McD. Van Poole, Honolulu, T. H.; J. F. Hall, Plattsburg Barracks, N. Y.; L. M. Hathaway, Fort Baker, Calif.; A. M. Whaley, Washington, D. C. Majors, M. C., to lieutenant-colonels, M. C. (emergency), Sept. 6, 1918: H. C. Coe, New York; J. B. Carnett, Philadelphia; E. S. Kilgore, San Francisco; A. W. Elting, Albany, N. Y.; W. D. Webb, Washington, D. C.; J. B. Walker, New York; D. D. Lewis, Chicago; E. H. Fiske, Brooklyn; W. M. L. Coplin, Philadelphia; C. L. Chase,

Chickamauga, Ga.; S. C. Gurney, Detroit; V. P. Blair, St. Louis; A. Greenwood, Boston, Sept. 7, 1918: J. W. Ames, Denver; A. E. Cohn, New York; J. J. Dowling, Boston; W. Gillespie, Cincinnati; S. McGuire, Richmond, Va.; G. B. Webb, Colorado Springs, Colo.; W. F. Wesselhoeft, Boston.

Promotions in Medical Corps of the Navy

The following promotions in the Medical Corps of the Navy are announced: As rear admirals, U. S. Navy, medical directors Albert M. D. McCormick and Robert Morris Kennedy; as permanent captains, Surgs. Charles E. Riggs, Ammen Farenholt, Middleton S. Elliott, Frank L. Pleadwell, Dudley N. Carpenter, James C. Pryor and Washington B. Grove; as temporary captains, Surgs. Raymond Spear, John B. Dennis, Eugene J. Grow, Frank E. McCullough, Granville L. Angeny, William H. Bell, Holton C. Curl,

Edward G. Parker, Henry E. O'Dell, James S. Taylor, Joseph A. Murphy, Charles E. Freeman, Charles St. J. Butler and John M. Brister.

Appointment in War Risk Bureau

Dr. Edson W. Glidden, 2d, has been appointed assistant medical director of the War Risk Insurance Bureau, Medical Department, in charge of the tuberculosis department. This will interest those who realize how many tuberculous ex-soldiers and sailors are cared for by this bureau. Dr. Glidden was for several years assistant superintendent of the Lakeville Tuberculosis Sanatorium, Middleboro, Mass.

For Addition to the Hygienic Laboratory

A bill is under consideration in Congress for an appropriation of \$250,000 to build a much needed addition to the Hygienic Laboratory of the Public Health Service in Washington, D. C., and in the House, a special rule has been brought in making this bill a special order.



MAJOR-GENERAL ROBERT E. NOBLE

COMMISSIONS ACCEPTED, MEDICAL CORPS, U. S. ARMY

Previous lists published in THE JOURNAL, June 1, 22 and 29, July 13, 20 and 27, August 3, 10, 17, 24 and 31, September 7, 14, 21 and 28 and October 5.

ALABAMA

Birmingham—Edmondson, J. H.
Weed, W. A.
Downs—Sankey, J. M.

ARKANSAS

Banks—Smith, S. E.
Drakes Creek—Hill, N. J.
Greenbrier—Henderson, G. L.
Hoxie—Stidham, J. H.
Little Rock—Judkins, W. D.
Warren—Martin, R.

CALIFORNIA

Banning—Coffman, H. L.
Burlingame—Burnham, M. P.
Eagle Rock—Dirks, C. B.
Fillmore—Osborn, H. B.
Lindsay—Tourtellott, W. W.
Los Angeles—Fellows, A.
Mann, H. H.
Oakland—Pomeroy, G. T.
San Francisco—Kinslow, F. A.
Spiro, H.
Waste, J. M.
Sherman—Perry, J. R.
Venice—Sands, R. A.

COLORADO

Carbondale—Tubbs, W. R.
Denver—Bergtold, W. H.

CONNECTICUT

West Haven—Rogers, P. H.

DISTRICT OF COLUMBIA

Takoma Park—Adams, J. L.
Washington—Key, S.
Malloy, W. J.

FLORIDA

Orlando—Pillans, P. P.

GEORGIA

Albany—Ward, M.
Atlanta—Graham, J. M.
Nelson—Turk, J. P.

ILLINOIS

Belvidere—Andrews, R. B.
Blue Island—Finkel, M.
Chicago—Beaton, L. A.
Davis, B. F.
Ellis, J. D.
Fomon, S.
Klempter, D.
Kretschmer, H. L.
Levett, J.
Oliver, E. W.
Seidner, M. P.
Wright, R. F.
Findlay—Gregory, C. S.
Hobinson—Allen, J. L.
Kampsville—Woltman, F.
La Salle—Woods, R. H.
Moline—Wahlberg, K. W.
Oak Park—Potter, W. E.
Rushville—Fleming, C. M.
Shelbyville—Thompson, T.
Toulon—Berfield, C.
Waukegan—Claeboc, A. H.

INDIANA

Evansville—Hurst, W. R.
Indianapolis—MacDonald, J. A.
McCool, J. F.
Reynolds, D. M.
Wheeler, H. H., Sr.
Linton—Custer, A. T.
Lowell—Iddings, J. W.
New Albany—Funk, C. C.
New Town—Stanfield, W. V.
Redkey—Markley, H. W.
Rockport—Weiss, H. G.
Terre Haute—Gekler, W. A.
Waynetown—Roark, C. A.

IOWA

Cherokee—Donahoe, G.
Earlville—Rogers, C. B.
Knoxville—Weiss, J. M.
Montour—Corns, W.
New London—Boggs, N.
Shenandoah—Weaver, J. O.
Sibley—Winkler, F. P.

KANSAS

Clay Center—Speer, W. L.
Kansas City—Harder, I. E.
Lansing—Faulkner, J. T.
Wichita—Seydell, E. M.

KENTUCKY

Burkesville—Talbot, J. G.
Covington—Smith, L. L.
Louisville—Allen, E. S.
Gribble, B. G.
Morris, C. D.
Paducah—Shemwell, A. H.
Summer Shade—Wells, G. M.

LOUISIANA

New Orleans—Bell, T. P.

MARYLAND

Annapolis—Hopkins, W. H.
Purvis, J. O.
Baltimore—Crook, C. S.
Parker, L. M. C.
Savage—Shipley, F. E.

MASSACHUSETTS

Boston—Ahern, J. F.
Gooding, J. H.
Stearns, R. T.
Concord—Bartlett, W. B.
East Boston—Wilcox, C. F., Jr.
Laurel—Seay, T. H.
Malden—Howard, H. J.
Middleborough—Burkhead, J. H.
Palmer—Cheney, H. C.
Pittsfield—Bard, H. H.
Springfield—Goodell, W.
McKechnie, F. J.
Radding, M. B.
Rice, A. G.
Westborough—Downing, D. F.
West Roxbury—Jillson, F. C.
Worcester—Cahill, J. W.

MICHIGAN

Detroit—Cowen, R. L.
Currie, E. M.
Hall, A. C.
Sanderson, A. R.
Highland Park—Nerthrup, H. F.
Ogden Center—Vandusen, C. A.
South Haven—Wiley, H. W.

MINNESOTA

Duluth—Anderson, L. N.
Hibbing—Lee, T. A., Jr.
Little Falls—Holst, C. F.
Rochester—Horgan, E. J.
St. Paul—Nelson, L. A.
Waseca—Guyer, L. G.

MISSISSIPPI

Greenwood—Kennedy, J. P.
Mount Olive—White, J. P.
Thomastown—O'Cain, E. C.

MISSOURI

Bonne Terre—Monroe, L. E.
Cane Hill—Allder, A. E.
Carrollton—Atwood, W. G.
Farmington—Tate, P. S.
Fredericktown—Slaughter, S. C.
Hume—Williams, J. H.
Kansas City—Bryant, C. H.
Dorsheimer, G. V.
Poplar Bluff—Eure, J. B.
Roscoe—Stratton, C. S.
St. Joseph—Hansen, W. J.
Minton, W. H.
St. Louis—Fitzporter, A. L.
Gettys, H. B.
Hughart, H. H.
McKellops, L. G.
Reim, W. H.
Tilles, R. S.
Wayland—Riggs, J. M.

MONTANA

Billings—Balsam, E. G.
Great Falls—Titus, C. I.
Rudyard—Schulberg, P. A.
Shelley—Riddle, M. D.

NEBRASKA

Archer—Paxton, C. C.
Wakefield—Coe, C. B.

NEVADA

Reno—Smith, L. V.

NEW JERSEY

Dover—Costello, W. F.
Jersey City—Brown, H. W.
Ovens, R. C.
Newark—Haussling, F. R.
Lowery, J. H.
Princeton—Tenbroeck, C.

NEW MEXICO

Roswell—Fall, H. V.

NEW YORK

Auburn—Sisson, L. B.
Bellmore—Holcomb, H. V.
Broadalbin—Hall, R. M.
Brooklyn—Blackmar, B. G.
Doyle, G. J.
Doyle, S. B.
Gissel, H. W.
Morrison, R. P.
Siulzinski, M. R.
Buffalo—Critchlow, G. R.
Cortland—McGraw, W. H.
Leicester—Fiero, C. M.
New York—Bondy, J.
Epstein, A. A.
Hall, J. S. K.
Holladay, E. W.
Hunt, J. R.
Lanbsacher, S. H.
Meeker, H. E.
Mixsell, H. R.
Roberts, P. W.
Rosenfeld, M.
Stillman, E. G.
Tenner, A. S.
Norwich—McNitt, H. W.
Rochester—Buck, T. D.
Kennedy, E. W.
Searles, W. I.
Summer, C.
Staten Island—Craig, H. A.
Syracuse—Potter, C. F.
White Plains—Parker, J. S.
Yonkers—Trotter, J. P.

NORTH CAROLINA

Ashboro—Miller, J. F.
Raleigh—Knox, A. W.

OHIO

Ada—Neiswander, L. C.
Ansonia—Stephen, C. I.
Barberton—Livermore, F. B.
Pellefontaine—Stinchcomb, W. G.
Canton—Exline, C. E.
Cincinnati—Schlemmer, E. W.
Cleveland—Hanzlik, P. J.
Dayton—Meckstroth, H. L.
Wellbrook, G. H.
East Liverpool—Davis, F. F.
Mantua—Knolton, E. H.
North Star—Hartzell, J. D.
Ottawa—Beardsly, C. O.
Portage—Fisher, E. W.
Quincy—Curl, A. M.
Spencerville—Baxter, I. D.
Strasburg—Bainter, G. F.
Tiffin—Leister, R. B.
Toledo—Sinkey, R. E.
Smead, L. F.
Vetter, E. F.
Youngstown—Ranz, W. E.
Ryall, W. W.

OKLAHOMA

Centrahoma—Nelson, J. A.
Hugo—Wolfe, R.
Hulen—Burnett, B. H.
Kusa—Thompson, W. A.
Muskogee—Vitus, J. S.
Oklahoma—Burns, T. C.
Shawnee—Scott, T. H.
Tulsa—Woody, W. W.

COMMISSIONS ACCEPTED, U. S. NAVAL RESERVE FORCE

Previous lists published in THE JOURNAL, June 29, July 13, 20 and 27, August 3, 10 and 31 and September 7, 14 and 28.

ALABAMA

Montgomery—McGehee, W. W.
Mertins, P. S.

CALIFORNIA

Holtville—Mosher, W. F.
Los Angeles—Snure, H.
Williams, P. M.
San Francisco—Bohm, J. E.
Harrison, W. H.

COLORADO

Denver—Shea, R. M.

CONNECTICUT

Derby—Treat, W. H.
New Haven—Hoegen, J. A., Jr.
Torrington—Woodhouse, L. W.

GEORGIA

Atlanta—Ballenger, W. L.
Savannah—McDowell, I. W.

INDIANA

Owensville—Montgomery, J. R.

PENNSYLVANIA

Chambersburg—Gelwix, J. M.
East Brady—Wallace, W. S.
Glenfield—Lyon, W. R.
Imperial—Sprowle, G. M.
Milford—Kenworthy, W. B.
Philadelphia—McKeage, W.
Silverman, A.
Pittsburgh—Bryant, W. C.
Crozier, A. W.
Cruikshant, O. T.
Jahn, A. H.
Tucker, G. F.

RHODE ISLAND

Providence—Appleton, P.

SOUTH CAROLINA

York—McDowell, J. D.

SOUTH DAKOTA

Aberdeen—Farrell, W. D.

TENNESSEE

Chattanooga—Lake, W. F.
Cornersville—Moffitt, S. A.
Dyer—Jackson, J.
Medling, W. L.
Nashville—Sharp, W. B.

TEXAS

Aransas Pass—Noble, W.
Corsicana—Jester, H. B.
Dallas—Bullington, S. D.
Davis, J. S.
El Paso—Irvin, E. H.
Iredell—Turner, G.
New Braunfels—Hagler, M. C.
Port Arthur—Crumpler, W. E.
Post—Castleberry, G. G.
San Angelo—Knight, J. R.
San Antonio—Ross, R. R.
Waco—Smith, E.

UTAH

Beaver—Shepherd, W. B.
Devils Slide—Dorland, C. E.
Nephi—Rees, N. J.

VERMONT

Montpelier—Burr, C. H.
Lindsay, W.
Rochester—Huntington, W. M.
St. Albans—King, J. S.
Wilder—Goss, R. J.

VIRGINIA

Mathews—Hoskins, R. R.
Richmond—Coleman, C. C.
Roanoke—Saunders, W. H.
Staunton—Thomas, G. H.

WASHINGTON

Elma—Whitty, J. T. W.
Seattle—McDowell, A. E.
Toppenish—Rowland, S. I.

WEST VIRGINIA

Reedy—Gordon, A. T.
Spencer—Staats, H. H.

WISCONSIN

Green Bay—DePierre, A.

WYOMING

Sunrise—Lowe, W.

NEBRASKA
Wauneta—Bailey, B. G.

NEW JERSEY
Hackensack—Finke, J. H. D.
Trenton—Kent, M. M.

NEW YORK
Albany—Branan, J. H.
Brooklyn—Delany, J. J., Jr.
Palmer, G. H.
Jamaica—Chasick, J. M.
Jamestown—Sackrider, J. R.
New York—Burrows, E. C.
Gaines, J. S., Jr.
Klein, E.
Pike, H.
Schwartz, A.
Smith, J. M.
Van Fleet, J. F.
Norwich—Jennings, W. B.
Syracuse—McGuire, R. J.
Weinheimer, L. H.

NORTH CAROLINA
Concord—Patterson, J. A.
Lumberton—Martin, J. A.

OHIO
Kenton—Wynn, H. R.

PENNSYLVANIA
Farrell—Kelly, R. A.
Philadelphia—Keegan, A. P.
Smith, F. W.
Pittsburgh—Billings, F. T.
Boggs, R. H.
Moyer, R. P.
Weiss, E. A.

TENNESSEE
Chattanooga—Watson, R. B.

TEXAS
Marfa—Darracott, J. C.

VIRGINIA
Richmond—Bowles, J. P.

WASHINGTON
North Seattle—Buschmann, T. W.
North Yakima—Cooper, P. B.
Seattle—Griswold, W. S.
Hopkins, R. T.

To Camp Sheridan, Ala., base hospital, Capt. R. B. MacFEETERS, Jacksonville.
To Camp Wheeler, Ga., for instruction, Capt. F. J. WAAS, Jacksonville.

Georgia

To Camp Gordon, Ga., base hospital, Capt. R. G. McALILEY, Atlanta.
To Camp Joseph E. Johnston, Fla., Lieuts. P. L. NEVIL, Claxton; T. S. USSERY, Decatur; W. L. ORR, Riverdale.
To Camp Meade, Md., Lieut. W. W. MASSEY, Moultrie.
To Camp Sheridan, Ala., Lieut. S. M. COPELAND, Surrency.
To Fort McPherson, Ga., Lieut. G. L. ECHOLS, Milledgeville.
To Fort Oglethorpe for instruction, Major C. V. WOOD, Cedartown; Capt. J. T. FLOYD, Atlanta; S. D. BROWN, Royston; Lieuts. J. T. STUKES, Americus; J. E. G. GREER, Chattahoochee; J. A. GREEN, Clayton; B. DANIEL, Cordele; C. H. WALKER, Macon; W. H. SUTTON, Midville; E. W. CROCKETT, Sylvester.

Idaho

To Camp Dodge, Iowa, base hospital, for instruction, Lieut. E. W. FOX, Arco.
To Camp Fremont, Calif., base hospital, Lieut. F. A. IRMEN, Buhl.
To Fort Riley for instruction, Capt. J. L. KELLY, Nezperce; Lieut. G. G. ESPE, Rexburg.

Illinois

To Ann Arbor, Mich., State Psychopathic Hospital, Capt. E. BOWE, Jacksonville; O. O. STANLEY, Urbana.
To Camp Custer, Mich., base hospital, Capt. T. W. FLOYD, Peoria.
To Camp Grant, Ill., Lieut. L. GLASSMAN, Chicago. Base hospital, Capt. G. S. DUNTLEY, Bushnell; G. T. JORDAN, Chicago; C. E. MAYOS, East Moline. Base hospital, for instruction, Lieut. R. G. SAVAGE, Oak Park. To examine the command for nervous and mental diseases, Lieut. W. G. MURRAY, Jacksonville.
To Camp Meade, Md., Capt. J. C. FURLONG, Spring Grove.
To Camp Pike, Ark., base hospital, for instruction, Lieut. J. T. O'NEILL, Joliet.
To Camp Sevier, S. C., Lieut. M. H. WILKINSON, Dwight.
To Camp Sherman, Ohio, Capt. E. W. BROOKS, Beecher City.
To Camp Wadsworth, S. C., base hospital, Capt. W. W. MELOY, Chicago.
To Camp Zachary Taylor, Ky., base hospital, for instruction, Lieut. L. J. MAY, Anna.
To Fort Oglethorpe for instruction, Capt. W. H. GALLAND, J. M. GRIFFIN, J. MYERS, Chicago; T. A. BRYAN, Mattoon; R. W. OAKLEY, Moline; Lieuts. G. W. WESTERMEIER, Carlinville; H. A. SHAFFER, Charleston; J. A. ABELL, F. L. ANDREWS, V. I. ARMEN, M. J. BADZMIEREWski, F. A. LAGORIO, A. E. LEHNER, J. J. McCARTY, Jr., E. F. SLAVIK, J. B. SONNENSCHEIN, L. L. WALLS, W. WILLIAMS, Chicago; W. F. HAGER, Effingham; G. B. BORMANN, Waukegan.
To Fort Riley for instruction, Capt. S. P. HART, Auburn; R. E. GRAVES, Chicago; W. L. FINN, Iuka; A. M. KING, Jacksonville; W. H. PERRY, Sterling; Lieuts. P. K. ANDREWS, Ashmore; L. J. HENSLEY, Carrollton; G. J. HALL, Cherry Valley; W. N. GOONE, F. C. HANMORE, J. F. KUCERA, W. M. THOMPSON, Chicago; T. E. CARNEAL, Iuka; J. E. GOODMAN, Pleasant Hill; H. A. CUNNINGHAM, Salem; L. E. HARTWICK, Seymour; W. J. REAM, Spring Valley; C. H. DOWSETT, Woodland; C. S. CAMPBELL, Nenia.
To New Haven, Conn., Capt. G. W. WAGNER, Lieut. R. G. PESCHMAN, Chicago. Yale Army Laboratory School, for instruction, Lieut. L. J. TINT, Chicago.

Indiana

To Camp Dodge, Iowa, base hospital, Capt. W. F. HOWAT, Hammond.
To Camp Grant, Ill., base hospital, Capt. C. BOARDMAN, Gary.
To Camp Jackson, S. C., base hospital, for instruction, Lieut. C. E. COX, Indianapolis.
To Camp Sherman, Ohio, base hospital, Capt. O. E. McWILLIAMS, Anderson; J. R. GILLUM, Terre Haute.
To Fort Des Moines, Iowa, base hospital, Capt. L. Z. BREAKS, Terre Haute.
To Fort Oglethorpe for instruction, Capt. E. A. BROWN, E. F. KISER, Indianapolis; C. S. HOUGLAND, Milroy; F. E. WOLFE, New Albany; F. H. GREEN, Rushville; Lieuts. H. P. LONG, Dillsboro; C. J. ROTHSCHILD, Fort Wayne; H. W. COX, Indianapolis; C. E. JUMPER, Terre Haute.
To Fort Riley for instruction, Capt. C. W. ASBURY, Hymers; Lieuts. A. C. CHENOWETH, Andrews; F. M. BIDDLE, Battle Ground; J. B. MOSER, Bloomington; W. D. BRETZ, Huntingburg; R. J. D. PETERS, Indianapolis; T. M. SMITH, Marysville; R. O. KENNEDY, Milroy; H. M. CROWE, South Bend.
To New Haven, Conn., Lieut. C. J. STEVENS, Rockville.
To Washington, D. C., Surgeon-General's Office, Capt. C. ROGERS, Indianapolis.

Iowa

To Camp Pike, Ark., for instruction, Lieut. C. C. LYTLE, Lansing.
To Fort Oglethorpe for instruction, Capt. H. A. WHITE, Clinton; W. A. DUNLAP, R. R. MORDEN, Des Moines; Lieuts. P. A. PARK, Atkins; T. A. BURKE, Mason City.
To Fort Riley, Capt. R. H. GREGORY, Creston. For instruction, Capt. G. T. McDOWELL, Gladbrook; F. F. EBERSOLE, Mount Vernon; Lieuts. C. S. HICKMAN, Centerville; R. W. PRATHER, Des Moines; G. E. SNEARLY, Goodell; J. R. BLACK, Jefferson; G. G. GIBSON, Lehigh; G. S. WESTLY, Manly; B. B. EVERALL, Menona; M. O. STAUCH, Whiting.

Kansas

To Camp Beauregard, La., base hospital, for instruction, Capt. G. F. ZERZAN, Holyrood.
To Camp Bowie, Texas, base hospital, for instruction, Capt. R. R. NEVITT, Mildred.
To Camp Cody, N. M., base hospital, Capt. J. W. SIMMONS, Salina.
To Camp Pike, Ark., base hospital, for instruction, Lieut. G. A. KING, Maplehill.
To Fort Oglethorpe for instruction, Lieuts. A. J. WEDEL, Hesston; C. MAYFIELD, Hutchinson; C. C. FUNK, Smith Center.
To Fort Riley, base hospital, Lieut. W. P. CALAHAN, Wichita. For instruction, Capt. C. A. FISHER, Fontana; C. F. McNAIR, Haven; E. L. ASBELL, Kansas City; J. S. FULTON, Kiowa; E. LIEURANCE, Neosha Falls; Lieuts. H. RICHERT, Goessel; P. F. WESLEY, Havi-

COMMISSIONS OFFERED AND ORDERS TO DUTY ON ACCEPTANCE

Alabama

To Camp Sheridan, Ala., Capt. J. E. GARRISON, Birmingham; Lieuts. F. W. HARRIS, Birmingham; L. C. DAVIS, Gordo; H. W. HOWELL, Hamilton; E. E. TAYLOR, Silas.
To Fort Oglethorpe for instruction, Capt. E. T. FIELDS, Ensley; A. W. RALLS, Gadsden; V. H. WILLIAMS, Jasper; Lieut. W. H. BOOZER, Sylacauga.
To Washington, D. C., St. Elizabeth's Hospital, Major G. H. SEARCY, Tuscaloosa.

Arizona

To Camp Cody, N. M., base hospital, Lieut. C. W. ADAMS, Globe.
To Camp Kearney, Calif., Lieut. J. W. BAZELL, Holbrook.
To Camp Logan, Texas, base hospital, for instruction, Capt. N. C. BLEDSOE, Bisbee.

Arkansas

To Camp Beauregard, La., Lieut. E. B. BROWN, Cotton Plant.
To Camp Logan, Texas, Capt. J. E. CASHIN, Dierks.
To Fort Oglethorpe for instruction, Capt. W. L. SHIREY, Foreman; Lieuts. A. C. KOLB, Hope; W. L. SNIDER, J. B. STRACHAM, Hot Springs.
To Fort Riley for instruction, Lieuts. T. A. CLIFTON, Hot Springs; R. L. FRASER, McCrary; S. M. GATES, Monticello; E. B. SWINDLER, Stuttgart.

California

To Camp Cody, N. M., base hospital, Lieut. L. M. ROSE, Santa Clara.
To Camp Fremont, Calif., Lieut. T. F. MADDEN, Sanger. Base hospital, Capt. H. A. HUNTOON, Los Angeles; J. A. NELSON, P. RICE, San Francisco. Base hospital, for instruction, Lieuts. E. R. HANLON, O. F. SCHULLIAN, Los Angeles.
To Camp Kearney, Calif., Capt. L. J. ROTH, Los Angeles; J. C. SILIMAN, Palo Alto; L. D. GREEN, San Francisco; W. E. SMITH, Whittier; Lieuts. C. C. WAGGONER, Los Angeles; E. M. CLARK, Oakland; J. B. LUCKIE, Pasadena; E. E. EWING, H. R. KING, San Francisco. Base hospital, Capt. E. S. DEPUY, T. REA, Oakland; Lieuts. H. R. BECK, Los Angeles; A. A. ALEXANDER, Oakland; L. D. RIGGS, San Diego. Base hospital, for instruction, Major T. E. BAILEY, San Francisco; Capt. W. F. HOLMAN, Los Angeles; G. H. LILIENCRANTZ, J. H. SAMPSON, Oakland; Lieuts. G. T. MOUNTFORD, Coalinga; H. D. BARNARD, Sacramento.
To Camp Lewis, Wash., Capt. F. R. DELAPPE, Modesto; S. E. SIMMONS, Sacramento.
To Fort Oglethorpe for instruction, Lieuts. G. P. LATON, Los Angeles; H. A. TODD, Porterville.
To San Francisco, Calif., Letterman General Hospital, Capt. W. T. CLARKE, Los Angeles; D. A. CONRAD, Santa Barbara.
The following order has been revoked: To Camp Kearney, Calif., as assistant to camp surgeon, Capt. C. F. METCALF, South Pasadena.

Colorado

To Azalea, N. C., Lieut. W. V. MULLIN, Colorado Springs.
To Camp Cody, N. M., for instruction, Lieut. T. A. DAVIS, Portland.
To Camp Pike, Ark., base hospital, Capt. J. T. ELLIOTT, Denver.
To Fort Des Moines, Iowa, base hospital, Lieut. S. S. GOLDHAMMER, Denver.
To Fort Oglethorpe for instruction, Capt. F. P. GENGENBACH, Denver.
To Fort Riley, Capt. F. L. WASHBURN, Telluride. For instruction, Capt. T. A. TRIPLETT, Denver; Lieuts. G. F. EWING, Julesburg; A. R. WILLIAMSON, Pueblo. Base hospital, for instruction, Lieut. R. L. CHARLES, Denver.

Connecticut

To Fort Oglethorpe for instruction, Capt. F. F. SIMONTON, Thompsonville.
To Morrison, Va., Lieut. T. A. O'BRIEN, New Haven.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Capt. R. E. BLACK, New London.

District of Columbia

To Camp Lee, Va., Lieut. W. A. MESS, Washington.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Capt. A. M. MacNAMEE, Washington.

Florida

To Camp Joseph E. Johnston, Fla., Capt. B. H. MAYNARD, Lakeland; S. B. STRONG, Palatka; Lieuts. F. A. COPP, Middleburg; J. E. GARNER, Wauchula.

land; P. C. ANDERS, Hays; W. E. MICHENER, Ottawa; O. C. LOWE, Paola; L. S. FISHER, Raymond; G. H. GRIEVE, Turon.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Capt. H. N. MOSES, Salina.

Kentucky

To Camp Greene, N. C., Capt. L. S. SILER, Woodbine.
To Camp Hancock, Ga., base hospital, for instruction, Capt. J. R. COWAN, Danville.
To Camp Jackson, S. C., Capt. J. I. SMITH, London; Lieut. C. L. HANCOCK, Smithfield.
To Camp Shelby, Miss., base hospital, for instruction, Lieut. J. F. MORGAN, Cynthiana.
To Camp Sherman, Ohio, base hospital, for instruction, Lieut. H. TYLDESLEY, Central City.
To Camp Zachary Taylor, base hospital, Capt. J. W. SCOTT, Lexington; Lieut. W. D. LEVI, Louisville.
To Fort Oglethorpe for instruction, Capt. W. M. RUSH, Buechel; E. T. GRASSER, Louisville; S. S. FOSS, Valley Station; Lieuts. D. R. BOTKIN, Hazard; T. J. CRICE, H. G. HARTMAN, H. M. RUBEL, Louisville; C. H. JONES, Lynn Grove; J. R. McGARY, Owensboro.
To Fort Riley for instruction, Capt. C. C. ENGLISH, Lieut. W. H. EMRICH, Louisville.

Louisiana

To Camp Beauregard, La., Lieut. L. T. LANE, Reids.
To Camp Joseph E. Johnston, Fla., Lieut. J. W. PHILLIPS, Boyce.
To Camp Shelby, Miss., base hospital, Lieut. E. A. HOGAN, New Orleans.
To Camp Sheridan, Ala., Lieut. W. L. LITTON, Belmont.

Maine

To Camp Devens, Mass., base hospital, Capt. F. Y. GILBERT, Portland.
To Camp Greene, N. C., Lieut. C. F. TRAYNOR, Biddeford.
To Camp Jackson, S. C., Lieut. J. G. HUTCHINS, Camden.
To Fort Oglethorpe for instruction, Capt. H. W. SAMPSON, Monson; Lieuts. I. B. GAGE, Atlantic; L. O. ROY, Lewiston.

Maryland

To Camp Jackson, S. C., base hospital, Capt. T. P. SPRUNT, Baltimore.
To Camp Meade, Md., Lieut. G. S. M. KIEFFER, Baltimore. Base hospital, for instruction, Capt. J. R. B. BRANCH, Baltimore.
To Camp Sevier, S. C., Capt. I. J. SPEAR, Baltimore.
To Fort Oglethorpe for instruction, Lieuts. R. Z. G. CROSS, R. W. EBE, M. L. RAEMORE, A. L. RETTALIATA, F. C. WARRING, Baltimore; H. C. HESS, Govans.
To New Haven, Conn., Lieut. E. J. LEOPOLD, Baltimore.

Massachusetts

To Camp Devens, Mass., Lieut. H. L. McDONALD, Attleboro. Base hospital, for instruction, Capt. W. S. BUCKLEY, Boston.
To Camp Dix, N. J., base hospital, Capt. W. H. McMANN, Boston.
To Camp Greene, N. C., Capt. D. F. MacDONALD, Taunton.
To Camp Jackson, S. C., base hospital, Major G. S. C. BADGER, Boston; Capt. C. E. STREET, Springfield.
To Camp Lee, Va., Capt. E. V. HARTWICK, Dorchester.
To Camp Meade, Md., Lieut. A. W. BERR, Lawrence.
To Camp Sevier, S. C., Lieut. D. J. ELLISON, Lowell.
To Camp Wadsworth, S. C., Lieuts. R. R. ROOT, Georgetown; W. L. QUENNELL, Tewksbury.
To Fort Oglethorpe for instruction, Capt. G. M. MASON, Boston; T. E. CAVANAUGH, Holyoke; W. L. HOARN, Lynn; R. W. GUILER, Newton; F. R. CLARK, Newtonville; E. J. DAILEY, Somerville; J. N. BOYER, E. C. SULLIVAN, E. J. SWEENEY, Springfield; Lieuts. E. W. SMALL, Belmont; E. R. GOOKIN, E. D. HARTNETT, J. H. ROOT, R. F. SHELDON, Boston; H. B. DUNHAM, Brockton; A. W. SLATE, Indian Orchard; W. F. DOLAN, Quincy; G. V. HIGGINS, Randolph; H. C. GERRARD, Springfield; O. S. MAYHEW, Vineyard Haven; P. A. DEVANEY, Waverly; C. BAKER, Worcester.
To New Haven, Conn., Capt. J. P. TREANOR, Boston; Lieut. R. MORGAN, Westfield.
To Plattsburg Barracks, N. Y., Capt. B. T. BURLEY, Worcester.
To Walter Reed General Hospital, D. C., Capt. F. A. BARDWELL, Boston.

Michigan

To Camp Jackson, S. C., Lieut. C. R. W. SOUTHWICK, Partello.
To Fort Oglethorpe for instruction, Capt. O. WHITNEY, Adrian; P. B. TAYLOR, C. A. WOODRUFF, Detroit; W. H. ENDERS, Jackson; Lieuts. L. P. SCHROEDER, Calumet; F. E. REEDER, Flint.
To Fort Riley for instruction, Lieuts. F. W. GOTTSCHALK, Detroit; B. R. SLEEMAN, Linden.

Minnesota

To Camp Dodge, Iowa, base hospital, Capt. G. F. BROOKS, Hibbing; C. D. FREEMAN, St. Paul. Base hospital, for instruction, Lieut. C. A. TRAEGER, Faribault.
To Camp Pike, Ark., base hospital, for instruction, Lieut. S. V. HODGE, Minneapolis.
To Fort Oglethorpe for instruction, Lieuts. A. H. SCHWARTZ, Duluth; W. M. EMPIE, Virginia.
To Fort Riley for instruction, Lieuts. H. O. RUDD, Fosston; J. D. WATSON, Holdingford; F. L. HAMMERSTRAND, Sacred Heart; M. L. LARSON, W. R. MCCARTHY, C. WOOLSON, St. Paul.

Mississippi

To Camp Beauregard, La., Lieut. J. J. WILSON, Coldwater.
To Camp Joseph E. Johnston, Fla., Lieut. R. N. S. YOUNG, Brooklyn.
To Camp Sheridan, Ala., Capt. J. D. SMITH, Laurel; Lieut. G. W. BOUNDS, Meehan Junction.
To Fort McPherson, Ga., Capt. W. W. SMITHSON, Jackson; Lieuts. S. J. GADDY, Sumrall; G. C. HARALSON, Vicksburg.
To Fort Oglethorpe for instruction, Capt. V. A. LEA, Gloster; Lieut. L. B. HUDSON, Hattiesburg.

Missouri

To Camp Doniphan, Okla., Lieut. E. P. MONAHAN, Kansas City.
To Camp Lee, Va., base hospital, Lieut. J. A. PRINGLE, St. Louis.
To Camp Logan, Texas, Lieut. R. M. WINN, Hannibal.
To Camp MacArthur, Texas, Lieut. J. W. WINN, Higbee.

To Camp Pike, Ark., base hospital, Lieut. V. W. McCARTY, Kansas City. Base hospital for instruction, Lieut. M. PITZMAN, St. Louis.
To Des Moines, Iowa, base hospital, Lieut. E. E. HEIN, St. Louis.
To Fort Oglethorpe for instruction, Capt. O. W. BUTLER, H. B. DAVIS, F. J. HATCH, T. T. SAWYER, Kansas City; E. W. STACY, Princeton; C. A. GOOD, J. M. DOYLE, St. Joseph; Lieuts. R. CAL. LAGHAN, J. E. RAY, Kansas City; J. C. FLEISCHMAN, St. Louis.
To Fort Riley, Capt. A. C. KIMBALL, St. Louis; Lieuts. G. W. HORROM, Rolla; R. T. MULFORD, St. Louis. For instruction, Capt. J. F. MacKEY, Kansas City; C. S. BLACKMAN, Parma; C. H. WERNER, St. Joseph; Lieuts. F. H. EMMONS, Auxvasse; S. L. DURHAM, Dearborn; O. R. CROOKS, C. G. PARMENTER, E. L. RUBLE, C. A. SHERMAN, Kansas City; C. H. BULKLEY, La Plata; M. W. ROGERS, Princeton; G. R. STEVENSON, St. Joseph; S. J. KING, R. TURNER, St. Louis.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Major D. L. HARRIS, St. Louis; Lieut. J. D. JACKSON, Kansas City.
To report to the commanding officer, Central Department, Capt. R. L. MOUNT, Polo.

Montana

To Camp Dodge, Iowa, base hospital, for instruction, Capt. G. L. CHAPMAN, Great Falls.
To Fort Oglethorpe for instruction, Capt. S. E. SCHWARTZ, Butte.

Nebraska

To Camp Dodge, Iowa, base hospital, Capt. H. B. LANDIS, Broken Bow. Base hospital, for instruction, Lieut. H. P. WEKESER, Lincoln.
To Camp Logan, Texas, base hospital, Capt. J. B. McPHERSON, Hastings.
To Camp Pike, Ark., for instruction, Capt. G. E. WILLIAMS, Havelock.
To Denver, Colo., Capt. L. R. JONES, Scotts Bluff.
To Fort Oglethorpe for instruction, Capt. W. H. HEINE, Hooper; F. A. LEMAR, Humphrey; Lieut. R. L. SMITH, Lincoln.
To Fort Riley for instruction, Lieuts. A. A. TYRRELL, Beatrice; R. F. DECKER, Pyron; G. A. DES JARDIN, Lincoln.

Nevada

To Camp Pike, Ark., for instruction, Capt. F. C. PACHE, Mina.

New Hampshire

To Camp Jackson, S. C., Lieut. E. J. DELANEY, Concord.
To Fort Oglethorpe for instruction, Capt. E. A. TRACY, Keene; Lieut. E. D. MIVILLE, Manchester.
To Mineola, N. Y., Hazelhurst Field, Lieut. L. R. BURNETT, Peterboro.
To Morrison, Va., Lieut. H. B. HAZEN, Lebanon.

New Jersey

To Camp Dix, N. J., base hospital, Capt. B. MORGAN, Bloomfield; M. A. SHANGLE, Elizabeth; G. W. SHERA, Jersey City.
To Camp Greene, N. C., Lieut. H. F. TIDWELL, Jersey City. For instruction, Lieut. J. WILLIS, Jr., Jersey City.
To Camp Holabird, Md., Capt. F. A. FINN, Jersey City.
To Camp Jackson, S. C., base hospital, Lieut. T. J. E. HOLMES, Paterson.
To Camp Lee, Va., base hospital, for instruction, Capt. G. MILLS, Morristown.
To Camp McClellan, Ala., for instruction, Capt. T. A. DINGMAN, Paterson.
To Camp Meade, Md., base hospital, Capt. G. B. V. WILKINSON, Morristown.
To Camp Sevier, S. C., Capt. G. W. FITCH, Asbury Park; Lieuts. E. D. McGIVERIN, J. L. ROSENSTEIN, Jersey City; S. HIRSCHBERG, Newark.
To Camp Shelby, Miss., base hospital, Capt. F. H. TODD, Paterson.
To Fort Oglethorpe for instruction, Capt. P. B. THOMPSON, Bloomfield; C. L. DECKER, J. I. FORT, Newark; Lieuts. J. W. HUGHES, Atlantic City; J. G. L. BORGMEYER, Bayonne; T. H. PLATT, Dunellen; R. B. THOMAS, G. D. WHITE, Jersey City; M. WEGMAN, Newark; G. J. VAN SCHOTT, Passaic; H. E. BRIODY, J. J. GREENGRASS, Paterson; W. J. HUDSON, Pleasantville; W. A. RULLMAN, Red Bank; E. S. BLACK, Williamstown.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. H. E. BURBANK, Belleville.
To Washington, D. C., St. Elizabeth's Hospital, Capt. P. C. WASHBURN, Cape May Court House.
To Williamsbridge, N. Y., Capt. C. R. O'CROWLEY, Newark.

New Mexico

To Camp Cody, N. M., as tuberculosis examiner, Lieut. S. H. JAMES, Lordsburg.

New York

To Azalea, N. C., Capt. W. M. MEHL, Buffalo.
To Camp A. A. Humphreys, Va., base hospital, Lieut. M. RASHBAUM, New York.
To Camp Custer, Mich., base hospital, Capt. T. F. FOLEY, Elmira.
To Camp Devens, Mass., Lieut. E. M. POATE, New York. Base hospital, Lieuts. S. J. LIEBMAN, V. A. NARDIELLO, New York.
To Camp Dix, N. J., base hospital, Capt. B. SAMUELS, New York; Lieut. F. J. McMENAMIN, Oneonta. To examine the command for nervous and mental diseases, Lieut. H. A. OSSERMAN, New York.
To Camp Gordon, Ga., base hospital, Lieut. W. H. CONKLIN, New York.
To Camp Holabird, Lieuts. F. M. ROCHFORD, Brooklyn; H. C. SENKE, Genesee.
To Camp Jackson, S. C., Lieuts. F. N. BIBBY, L. M. LESSER, New York; J. V. HIBBARD, Olive Bridge. Base hospital, Capt. W. E. CALDWELL, H. A. GRIFFIN, New York.
To Camp Lee, Va., Lieut. F. J. MacDONALD, Schenectady. Base hospital, Capt. F. W. MANLY, Naples; Lieut. A. L. OBERDORFER, New York. Base hospital, for instruction, Lieut. J. W. McCHESNEY, Baldwin.
To Camp McClellan, Ala., base hospital, Capt. J. J. KING, New York.
To Camp Meade, Md., Capt. L. C. BEEBE, Hamilton; Lieuts. C. H. TOPPING, Jefferson; R. J. LYNCH, Otisville. Base hospital, Capt. W. J. HEIMANN, New York.

To Camp Sevier, S. C., Lieuts. L. C. WARREN, Franklin; D. ELLNER, New York; W. A. MINOR, Utica. Base hospital, Lieut. D. W. JENNINGS, Catskill. Base hospital for instruction, Capt. W. E. BOWEN, Rochester.

To Camp Sherman, Ohio, Lieut. I. TRACHTENBERG, New York.

To Camp Wadsworth, S. C., Capt. H. J. VARY, Rochester; Lieut. A. WELLER, New York.

To Fort Oglethorpe for instruction, Capt. L. B. MOUNT, Albany; J. S. DORIAN, Brooklyn; P. J. CANDEE, Buffalo; L. B. HONEYFORD, Catskill; E. M. GRIFFITH, Chadwicks; M. M. LUCID, Cortland; G. LINDSAY, Freeport; W. H. CANTLE, Mamaroneck; L. W. CALLAN, C. J. DILLON, E. S. GUSHEE, F. X. PIDGEON, P. S. SABINE, New York; J. H. FINNESSY, W. H. SUTHERLAND, Rochester; P. E. GARLOCK, Schenectady; E. C. REIFENSTEIN, Syracuse; G. H. DILL, Utica; N. L. HAWKINS, Watertown; C. C. ZACHARIE, White Plains; Lieuts. A. E. CORDES, L. T. FRICKE, D. LIVINGSTONE, Brooklyn; A. H. CLARK, R. C. FISHER, Buffalo; A. C. COMBES, Elmhurst; M. F. HALL, Elmira; H. C. MANN, Holland; J. F. BOURKE, Jamaica; F. W. DALRYMPLE, New Rochelle; H. L. BALAMUTH, H. BLUM, A. BROOKS, R. T. COREY, L. W. CROSSMAN, A. F. A. DOOLING, D. I. FREY, J. S. HEIMAN, J. A. KELLER, I. J. LEVY, S. MILBANK, S. J. RAPHAELSON, S. SHEIFER, M. K. SMITH, New York; D. H. MILIS, Oneonta; E. F. STEWART, Ozone Park; R. W. MOE, Peekskill; E. H. BURNES, F. J. COLGAN, M. HOLTZ, H. L. PRINCE, E. R. REYNOLDS, G. B. VAN ALSTYNE, G. V. VETTER, Rochester; T. A. HULL, Troy.

To Lakewood, N. J., Lieut. L. L. SHAPIRO, New York.

To Mincola, N. Y., Hazelhurst Field, for instruction, Capt. A. J. BEDELL, Albany; E. P. HALL, Syracuse.

To Morrison, Va., Lieut. F. GAUCH, Brooklyn.

To New Haven, Conn., Lieuts. H. E. COHEN, E. L. CREEDEN, C. C. HAINES, G. G. HATZEL, J. KRANER, New York; V. M. PARKINSON, Wilton. Yale Army Laboratory School for instruction, Lieuts. M. LEDERER, T. S. WINSLOW, New York.

To New York, Neurological Institute, for instruction, Lieuts. H. S. BULL, Auburn; J. MARSHACK, I. J. SANDS, New York.

To Plattsburg Barracks, N. Y., Capt. T. E. BAMFORD, Syracuse.

To report to the commanding officer, Eastern Department, Capt. C. R. BAKER, Kingston.

To Walter Reed General Hospital, D. C., Major D. L. ROSS, White Plains.

To Washington, D. C., St. Elizabeth's Hospital, Capt. A. E. SOPER, New York.

North Carolina

To Camp Sevier, S. C., Capt. W. F. COLE, Greensboro.

To Fort Oglethorpe for instruction, Lieut. W. M. WILLIS, Farmville.

North Dakota

To Camp Grant, Ill., base hospital, for instruction, Capt. R. R. HOGUE, Linton.

To Fort Oglethorpe for instruction, Capt. A. A. WHITTEMORE, Bowman.

To Fort Riley for instruction, Capt. A. D. McCANNEL, Minot; G. W. CALLERSTROM, Northwood.

Ohio

To Ann Arbor, Mich., State Psychopathic Hospital, Lieut. V. ADAIR, Lorain.

To Army Medical School for instruction, Lieut. I. B. SMOCK, Canton.

To Camp Beauregard, La., base hospital, for instruction, Capt. C. A. HOWELL, Columbus.

To Camp Dodge, Iowa, base hospital, Capt. R. B. McLAUGHLIN, Centerburg; Lieut. H. G. BEATTY, Columbus.

To Camp Greene, N. C., base hospital, for instruction, Lieut. B. B. BRIM, Toledo.

To Camp Jackson, S. C., Lieuts. B. R. MILLER, Tiffin; H. L. PROUTY, West Unity. Base hospital, for instruction, Lieut. C. J. ALTMAYER, Marion.

To Camp Lee, Va., Lieut. F. R. CLEMSON, Thornville.

To Camp Meade, Md., Lieut. G. D. BLACK, Toledo.

To Camp Sevier, S. C., base hospital, for instruction, Lieut. D. H. PATTERSON, Cleveland.

To Camp Sheridan, Ala., base hospital, Capt. A. D. KNISELY, Lima.

To Camp Sherman, Ohio, Lieuts. K. H. CHANDLER, W. E. TREGO, Cleveland; W. C. MARTIN, Monroeville. Base hospital, Capt. H. R. GEYER, Zanesville; Lieuts. W. O. BONSER, Toledo; C. G. McPHERSON, Xenia. To examine the command for nervous and mental diseases, Lieut. C. H. CREED, Columbus.

To Camp Wadsworth, S. C., base hospital, Lieut. C. R. STEINKE, Akron.

To Camp Zachary Taylor, Ky., to examine the command for nervous and mental diseases, Capt. W. RAVINE, Cincinnati.

To Fort Oglethorpe for instruction, Capt. E. R. SCHOOLFIELD, Bucyrus; C. D. SLAGEL, Centerville; F. M. BURNS, Cincinnati; J. B. AUSTIN, S. W. EVANS, E. H. SEASON, Cleveland; J. B. URY, Defiance; W. H. RABBERMAN, Forest; E. S. PROTZMAN, Kenton; O. S. STEINER, Lima; C. B. MESSERLY, Martins Ferry; R. H. QUICK, Toledo; Lieuts. J. L. JONES, Akron; A. N. VANDEMAN, Bellbrook; L. D. STONER, Canton; W. D. MOCCABEE, Cardington; S. R. BAME, Carey; W. H. THOMPSON, Celina; J. J. CONZETT, E. HAHN, W. S. KAUTZ, Cincinnati; E. G. KUHLMAN, Cleveland; M. D. GODFREY, L. F. LAUFERSWEILER, Columbus; W. W. MANNHARDT, Custar; L. R. ELLARS, Dayton; E. J. LAUBER, Defiance; C. SMITH, Elida; T. P. FAST, Grover Hill; A. W. ANDERSEN, Lakewood; I. G. WHITACRE, Lodi; R. S. DOMBAUGH, Marion; W. A. STOUTENBOROUGH, Mechanicsburg; T. QUINN, Napoleon; L. L. FROCK, New Berlin; A. F. BURSON, Oakwood; K. G. EVANS, Payne; R. D. SPENCER, Piqua; F. G. SMITH, Reily; F. W. CONLEY, Sherwood; T. W. MAHONEY, Springfield; H. E. DRAILEY, Swanton; R. M. CAMPBELL, J. STAMM, E. S. WENDT, Toledo; E. G. REPLOGLE, Versailles; T. A. CAMPBELL, Wapakoneta; F. F. DEVORE, Whitehouse; W. E. HIGGS, A. M. ROSENBLUM, Youngstown.

To Morrison, Va., Lieut. P. M. PATTERSON, Toledo.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. H. F. ROHRS, Napoleon.

To Washington, D. C., Capt. J. M. BESSEY, Toledo.

Oklahoma

To Camp Bowie, Texas, base hospital, Capt. L. A. HAHN, Guthrie.

To Camp John Wise, Texas, Lieuts. A. E. BALLARD, Madill; H. A. JERGENSEN, Tulsa.

To Camp Logan, Texas, Capt. J. B. CLARK, Coalgate; Lieuts. E. GUINN, Antlers; J. M. WATSON, Lamont; E. F. HURLBUT, Meeker; J. M. LANNING, Muskogee; L. E. PEARSON, Reed; G. C. CAMPBELL, Sand Springs; R. G. McDONOUGH, Tulsa.

To Fort Oglethorpe for instruction, Capt. D. F. COLDIRON, Red Rock; Lieuts. H. WRIGHT, Grandfield; J. M. FEWKES, Gray; J. P. GAY, McAlester; W. O. HARTSHORNE, Spiro.

To the governor of the Panama Canal, Lieut. C. M. DRIVER, Mounds.

Oregon

To Camp Kearney, Calif., Capt. O. C. HAGMEIER, Seaside.

To Camp Lewis, Wash., Lieut. F. G. HEWETT, Independence. Base hospital, Capt. F. M. BROOKS, R. E. L. HOLT, Portland; Lieut. E. B. STEWART, Roseburg.

To Fort Riley for instruction, Lieut. E. D. LAMB, Union.

Pennsylvania

To Camp Custer, Mich., base hospital, for instruction, Capt. H. R. DECKER, Pittsburgh.

To Camp Dix, N. J., Lieut. J. F. DORAN, Wilkesburg. Base hospital, Lieut. W. L. CARISS, Philadelphia.

To Camp Gordon, Ga., base hospital, for instruction, Capt. J. E. GOTWALS, Phoenixville.

To Camp Greene, N. C., base hospital, Capt. F. O. LEWIS, Philadelphia.

To Camp Jackson, S. C., Lieuts. G. M. DICKSON, Adamshurg; J. B. FEELEY, Glassport. Base hospital, Capt. S. A. S. METHENY, Philadelphia.

To Camp Lee, Va., base hospital, Lieut. G. H. MOORE, Schuylkill Haven.

To Camp Meade, Md., Lieuts. H. I. SHOENTHAL, New Paris; W. W. POULSON, Philadelphia; S. P. BOYER, Pittsburgh; G. K. LEVAN, Reading; T. E. McMURRAY, Wilkesburg. Base hospital, Lieut. E. S. WEIMER, Pittsburgh.

To Camp Sheridan, Ala., base hospital, Capt. L. M. GURLEY, Johnston; Lieut. W. D. GRIESEMER, Reading.

To Camp Sherman, Ohio, to examine the command for nervous and mental diseases, Lieut. J. C. FULMER, Williamsport.

To Camp Wadsworth, S. C., base hospital, Lieut. M. R. DINKELSPIEL, Wilkes-Barre.

To Fort McPherson, Ga., Lieut. J. O. BOWER, Wynote.

To Fort Oglethorpe for instruction, Capt. W. E. FINE, Ambler; S. P. GRAY, Chester; S. CHANDLER, M. F. PERCIVAL, W. S. WRAY, Philadelphia; R. S. HENSELL, C. A. HILL, Pittsburgh; Lieuts. D. T. DITCHBURN, Arnot; J. H. BURKARTMAIER, Avondale; A. H. ZIEGLER, Butler; W. C. ROHRKASTE, Dormont; R. C. SEIPEL, Easton; W. E. HODGSON, Glassport; G. R. BLACKBURN, Greensburg; J. A. CORRIGAN, Hazleton; J. L. FOSTER, Hoboken; M. A. BARBOUHR, Johnstown; E. E. CLARK, Knoxville; J. C. DEAL, W. H. HAINES, C. F. LEONARD, R. R. SAUNDERS, Philadelphia; C. A. HAUCK, J. R. JOHNSTON, E. C. McADAMS, Pittsburgh; C. K. KISTLER, Reading; L. D. HEIM, Schuylkill Haven; W. E. CAMPBELL, Sharon; G. E. CRAMER, W. C. DIESS, Sharpsburg.

To Morrison, Va., Lieuts. G. T. FOX, Bristol; W. E. BOYER, Williamsport.

To New Haven, Conn., Capt. W. M. HAMILTON, Elrama. Yale Army Laboratory School, for instruction, Lieut. A. G. SANDBLAD, McKeesport.

To Walter Reed General Hospital, D. C., Capt. J. M. REED, Pittsburgh.

Porto Rico

To Camp Las Casas, P. R., Lieut. G. E. BIRD, Carolina.

Rhode Island

To Fort Oglethorpe for instruction, Lieuts. E. L. MYERS, W. C. ROCHELEAU, Woonsocket.

South Carolina

To Camp Gordon, Ga., base hospital, Capt. S. B. FISHBURNE, Columbia.

To Camp Jackson, S. C., Capt. J. I. BARRON, York. Base hospital, Major W. WESTON, Jr., Columbia.

To Camp Lee, Va., Lieut. W. L. BYERLY, Hartsville.

To Fort Oglethorpe for instruction, Capt. J. W. DAVIS, Clinton; C. N. RAKESTRAW, Rock Hill; Lieut. B. D. CAUGHMAN, Columbia.

South Dakota

To Camp Dodge, Iowa, base hospital, Capt. J. E. SCHWENDENER, Bryant; F. M. BALDWIN, Redfield.

To Fort Riley, base hospital, for instruction, Lieut. W. P. COLLINS, Howard.

Tennessee

To Camp Sevier, S. C., Lieut. C. S. KINZER, Kingsport.

To Camp Shelby, Miss., base hospital, Capt. B. D. AUSTIN, Nashville.

To Camp Wheeler, Ga., base hospital, for instruction, Capt. J. W. JOHNSON, Chattanooga.

To Camp Zachary Taylor, Ky., to examine the command for nervous and mental diseases, Lieut. L. E. TRENT, Nashville.

To Fort Oglethorpe for instruction, Capt. J. R. W. FOWLKES, Greenfield; W. J. MATTHEWS, Johnson City; M. M. COPENHAVER, Knoxville; J. H. DYER, Wartrace; W. L. HENDERSON, Woodstock; Lieuts. H. Q. FLETCHER, B. L. JACOBS, Chattanooga; G. B. ALDER, Coalmont; W. P. HOLLOWAY, Covington; V. D. KING, Memphis; H. S. SMYTHE, Mountain City; C. G. GRIFFIN, Nashville; C. B. A. TURNER, Newbern.

Texas

To Camp Bowie, Texas, base hospital, Capt. H. T. AYNESWORTH, Waco.

To Camp Logan, Texas, Major A. B. KENNEDY, Bonham; Capt. B. E. BRASSETON, Bridgeport; R. H. GOUGH, Fort Worth; Lieuts. W. C. GOULD, Bells; J. B. LATHAM, Blackwell; W. B. SAUNDERS, Brashear; K. C. KNOLLE, Brenham; J. H. STEPHENSON, Dallas; J. R. HARRIS, Everman; S. A. LUNDY, A. J. MULLENNIX, Fort

Worth; A. A. SPEEGLE, Palestine; R. A. WILSON, Pontotoc; R. R. DAVIS, Three Rivers. Base hospital, Capt. H. L. WARWICK, Fort Worth; Lieut. S. H. GRANT, Deport. Base hospital, for instruction, Lieut. G. G. WYCHE, Iago.

To Camp MacArthur, Texas, Lieuts. C. E. FARRELL, Edgewood; J. R. HUNTER, El Paso; E. D. SHIPMAN, Purmela. Base hospital, Lieut. D. L. BETTISON, Dallas. Base hospital, for instruction, Lieut. J. S. CALHOUN, Dallas.

To Camp Travis, Texas, base hospital, Lieut. B. N. ARD, Dallas.

To Fort Bayard, Texas, Capt. C. W. COUTANT, San Antonio.

To Fort Oglethorpe for instruction, Major E. V. DE PEW, San Antonio; Capt. S. R. MILLIKEN, Dallas; A. L. LANE, Wichita Falls; Lieuts. J. S. TOMKIES, Dallas; J. M. DOSS, Flint; G. W. COVINGTON, Fort Worth; M. R. SHARP, Granger; W. P. HARRISON, Teague; G. G. BELL, Tyler.

To Fort Riley for instruction, Lieut. B. R. CARPENTER, Clifton.

To Fort Sam Houston, Texas, base hospital, Lieut. J. R. MIDDLEBROOK, Alpine.

To Fort Worth, Texas, Talliaferro Field, Lieut. W. T. McREA, Ennis.

To Leon Springs, Texas, Lieut. H. A. GILLIAM, Lamesa.

Utah

To Camp Cody, N. M., base hospital, Lieut. R. M. BROWN, Ogden.

To Camp Kearney, Calif., Capt. E. E. HINCKLEY, Salt Lake City.

To Fort Riley for instruction, Lieut. W. H. BASH, Sunnyside.

Vermont

To Fort Oglethorpe for instruction, Lieuts. D. J. CARROLL, Vergennes; D. S. DRAKE, White River Junction.

Virginia

To Camp Greene, N. C., base hospital, Capt. J. W. C. JONES, Newport News.

To Camp Joseph E. Johnston, Fla., Lieut. J. W. MARTIN, Richmond.

To Camp Meade, Md., Lieut. T. A. WILLIAMS, Middletown.

To Camp Sevier, S. C., Lieut. R. W. WOODHOUSE, JR., Virginia Beach.

To Camp Wadsworth, S. C., Lieuts. W. R. CULBERTSON, Coeburn; W. H. EVANS, Lynchburg.

To Camp Wheeler, Ga., Lieut. C. A. AMOS, Rosemont.

To Camp Zachary Taylor, Ky., base hospital, Lieut. D. P. WEST, Norfolk.

To Fort Oglethorpe for instruction, Lieuts. L. P. TAYLOE, Orange; H. G. JOHNSON, Pearisburg; J. D. WILLIS, Roanoke; J. A. OWEN, South Boston.

To Newport News, Va., Lieut. R. L. HUDNALL, Beverlyville.

The following order has been revoked: To Hoboken, N. J., Lieut. F. M. HORSLEY, Lovington.

Washington

To Camp Kearney, Calif., Capt. G. E. MURPHY, Olympia; W. H. APPLETON, Spokane; Lieuts. W. K. COCKLIN, Moxee City; W. A. MILLINGTON, Onalaska; B. F. BROOKS, Sedro Woolley; W. E. FORDYCE, Sunnyside.

To Camp Lewis, Wash., Lieuts. R. L. ROSS, Mineral; H. J. HARDS, Tacoma. Base hospital, for instruction, Lieut. H. C. COWAN, Walla Walla.

To San Francisco, Calif., Lieut. C. E. YOUNG, Rimrock.

West Virginia

To Camp Colt, Pa., Lieut. M. N. MASTIN, Piedmont.

To Camp Greene, N. C., Lieut. A. L. AMICK, Charleston.

To Camp Meade, Md., Lieuts. C. G. STROUD, Erbacon; O. V. BROOKS, Moorefield; V. L. NOE, Newton; T. GILLESPIE, Wheeling.

To Camp Sevier, S. C., base hospital, Capt. O. B. BEER, Buckhannon.

To Fort Oglethorpe for instruction, Capt. W. J. LEAHY, Maunington; M. D. CURE, Weston; T. SLAYDEN, Williamson; Lieuts. W. J. THOMAS, Accoville; H. H. ESKER, Clarksburg; H. A. ROSENTHAL, Gypsey; R. C. MITCHELL, Junior.

To Morrison, Va., Lieut. C. M. KIMBLE, Austen.

Wisconsin

To Camp Jackson, S. C., base hospital, Capt. A. J. PATEK, Milwaukee.

To Camp Meade, Md., Lieut. V. G. FOLEY, Wauwatosa.

To Camp Pike, Ark., for instruction, Lieut. A. YAFFE, Milwaukee.

To Fort Oglethorpe for instruction, Capt. W. A. PROUTY, Burlington; C. A. FIDLER, Milwaukee; R. W. JONES, Wausau; Lieuts. E. S. McNEVINS, Green Bay; J. J. HEFFRON, Milwaukee.

To Fort Riley, Capt. L. W. SAYLES, Baraboo. For instruction, Lieuts. G. E. BILSTAD, Cambridge; A. M. CHRISTOFFERSON, Colby; J. E. DONNELL, Cuba City; F. P. MARSHALL, Fond du Lac; F. L. CRIKELAIR, Green Bay; S. W. MURPHY, Kenosha; H. E. SCHMIDT, Milwaukee; C. M. SCHULDT, Platteville; J. A. COX, Wautoma.

To Mincola, N. Y., Hazelhurst Field, for instruction, Lieut. V. L. SIMONES, La Crosse.

Wyoming

To Camp Dodge, Iowa, base hospital, for instruction, Lieut. E. E. DALE, Lusk.

To Camp Meade, Md., Lieut. W. S. PUNCHEON, Rock Springs.

ORDERS TO OFFICERS OF THE MEDICAL CORPS, U. S. ARMY

Alabama

To Army Medical School for instruction, Lieut. P. P. SALTER, Montgomery.

To Camp Alfred Vail, N. J., from Nashville, Capt. J. W. FENN, Eufaula.

To Camp Beauregard, La., base hospital, from Camp Shelby, Lieut. R. P. BURKE, Montgomery.

To Camp Crane, Pa., from Camp Devens, Lieut. C. D. GASTON, Birmingham; from Camp Travis, Lieut. D. H. SPARKS, Ensley.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. C. W. HILLIARD, Dothan.

Alaska

The following order has been revoked: To Army Medical School for instruction from Fort William H. Seward, Capt. H. M. CRAIG, Haines.

Arizona

To Camp Crane, Pa., from Camp Sherman, Major C. T. STURGEON, Globe.

Arkansas

To Camp Dix, N. J., from Fort Riley, Lieut. A. E. TATMAN, Eureka Springs.

To Hot Springs, N. C., from Fort Sam Houston, Capt. J. S. JENKINS, Pine Bluff.

California

To Camp Fremont, Calif., base hospital, Capt. C. D. Baker, Los Angeles. Base hospital, for instruction, Capt. R. PATEK, San Francisco.

To Camp Grant, Ill., from Long Island City, Major M. A. WILLIAMSON, Long Pine.

To Camp Meade, Md., from Fort Oglethorpe, Lieut. C. C. DICKINSON, McCloud.

To Camp Pike, Ark., base hospital, Lieut. A. H. CURRIE, Los Angeles.

To Camp Sherman, Ohio, base hospital, from Camp Lewis, Lieut. E. H. McMILLAN, Pasadena.

To Fort Oglethorpe for instruction, Capt. A. F. HAMMAN, Long Beach; Lieuts. R. L. CRUM, Los Angeles; R. K. BARRY, Sunnyvale.

To Fort Riley for instruction, from San Francisco, Capt. C. B. HARE, San Jose.

To Fort Sheridan, Ill., base hospital, from Camp Kearney, Lieut. G. A. BRIGGS, Sacramento; from Camp Lewis, Capt. A. A. ATKINSON, Dorris.

To Fort Snelling, Minn., base hospital, from Camp Kearney, Capt. H. A. FISKE, Pasadena; P. M. Savage, San Bernardino; J. WEHRLY, Santa Ana; from Camp Lewis, Capt. M. L. LOOMIS, Los Angeles; from San Francisco, Capt. F. K. COLLINS, Los Angeles; R. A. Whiffen, San Jose; Lieut. L. R. JOHNSON, Stockton.

Honorably discharged, Major A. C. MAGEE, San Diego, Capt. G. M. DUNNE, San Francisco.

Canal Zone

To New Haven, Conn., Yale Army Laboratory School, from Army Medical School, Lieut. J. W. SHERRILL, Ancon.

Colorado

To Camp Crane, Pa., from Camp Cody, Capt. E. G. GRIFFIN, Denver; from Camp Lewis, Capt. A. W. METCALF, JR., Henderson.

To Camp Gordon, Ga., Capt. C. H. FISCHER, Walden.

To Camp Travis, Texas, Lieut. C. ENOS, Denver.

To Camp Zachary Taylor, Ky., from Army Medical School, Lieut. W. D. FLEMING, Denver.

To Denver, Colo., Capt. J. F. WALLACE, Woodmen. As examiner, from Plattsburg Barracks, Major F. H. McNAUGHT, Denver.

Connecticut

To Camp Custer, Mich., to examine the command for nervous and mental diseases, from Fort Des Moines, Capt. J. F. FAULKNER, New Britain.

To Camp Greene, N. C., base hospital, from Fort Oglethorpe, Major J. M. SLEMONS, New Haven.

To Camp Sevier, S. C., to examine the command for nervous and mental diseases, from Camp Jackson, Lieut. C. F. VERNLUND, Hartford.

To Fort Benjamin Harrison, from Hoboken, Capt. A. B. COLEBURN, Middletown. Base hospital, from Camp Custer, Major H. M. LEE, New London.

Delaware

To Camp Crane, Pa., from Lakewood, Lieut. A. K. LOTZ, Wilmington.

To Camp Jackson, S. C., base hospital, from Camp Joseph E. Johnston, Lieut. J. R. ELLIOTT, Laurel.

To Fort Oglethorpe for instruction, Lieut. H. H. DODD, Millsboro.

District of Columbia

To Boston, Mass., from the Surgeon-General's Office, Col. J. T. CLARKE.

To Camp Cody, N. M., as division surgeon, from Washington, Lieut. Col. J. J. REDDY.

To Camp Crane, Pa., from Camp Dix, Lieut. D. W. PRENTISS, Washington.

To Camp Devens, Mass., from Army Medical School, Lieut. I. C. RIGGIN, Washington.

To Camp Gordon, Ga., from Army Medical School, Lieut. J. B. WHITE, Washington.

To Camp Sherman, Ohio, from Army Medical School, Lieut. M. C. SOSMAN, Washington. As division surgeon, from Washington, Lieut. Col. W. T. CADE, JR.

To Camp Wadsworth, S. C., as division surgeon, from Washington, Lieut. Col. J. F. JOHNSTON.

To New Haven, Conn., Yale Army Laboratory School, from Army Medical School, Lieut. A. L. GUERRA, Washington.

Florida

To Camp Beauregard, La., base hospital, from Camp Shelby, Capt. F. J. BOWEN, Jacksonville.

To Camp Crane, Pa., from New Haven, Capt. H. O. BYRD, Trilby.

To Camp Gordon, Ga., from Army Medical School, Lieut. C. W. HENDERSON, Tampa.

To Camp Greene, N. C., base hospital, from Camp Wheeler, Major J. A. LIVINGSTON, Jacksonville.

To Camp Sherman, Ohio, from Fort Oglethorpe, Major M. B. SWIFT, Orlando.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. R. R. NIBLACK, New Smyrna.

Georgia

To Camp Beauregard, La., base hospital, from Camp Jackson, Lieut. J. S. STEWART, Athens; from Camp Sevier, Lieut. J. E. MORRISON, Savannah; from Fort Oglethorpe, Lieut. H. L. SUMMERLIN, Meigs.

To Camp Crane, Pa., from Camp Wheeler, Major C. C. HARROLD, Macon.

To Camp Custer, Mich., Lieut. J. O. KINARD, Atlanta.
To Camp Jackson, S. C., base hospital, from Camp McClellan, Lieut. W. M. FOLKS, Waycross.
To Camp Joseph E. Johnston, Fla., Lieut. R. N. BURCH, Milltown.
To Camp McClellan, Ala., evacuation hospital, from Fort Sam Houston, Lieut. S. P. WISE, Plaine.
To Fort Oglethorpe for instruction, Lieut. L. T. WATERS, Egypt.
To Hoboken, N. J., from Camp Mills, Major C. C. HARROLD, Macon.
To Hot Springs, N. C., from Camp Greene, Lieut. M. BLANCHARD, Columbus.
To Madison Barracks, N. Y., from Fort Oglethorpe, Lieut.-Col. C. W. HAVERKAMP.
Honorably discharged, Lieut. P. J. PENISTON, Newman.

Hawaii

To Camp Zachary Taylor, Ky., from Army Medical School, Lieut. G. C. MILNOR, Honolulu.

Idaho

To Camp Grant, Ill., base hospital, Lieut. W. L. LINDSAY, Neuman.
To Camp Kearney, Calif., base hospital, from Camp Lewis, Capt. E. G. BRADDOCK, Lewiston.

Illinois

To Army Medical School for instruction, Lieuts. H. C. CAROTHERS, J. STEVENSON, Chicago.
To Camp A. A. Humphreys, Va., as orthopedic surgeon, from Fort Oglethorpe, and on completion to Boston, Mass., Harvard Graduate School of Medicine, for instruction, Lieut. A. M. WASHBURN, Chicago.

To Camp Abraham Eustis, Va., camp hospital, from Millington, Tenn., Lieut. L. L. TURNER, Chicago.

To Camp Beauregard, La., base hospital, from Camp Logan, Capt. J. F. STRAUSS, Chicago; from Camp Pike, Capt. C. W. COMPTON, Springfield; from Camp Shelby, Capt. C. R. LOCKWOOD, Kankakee; from Camp Sheridan, Capt. B. J. LACHNER, Rock Island; from Camp Wadsworth, Lieut. B. J. SCHWARTZ, Waukegan; from Fort Oglethorpe, Capt. D. C. PHILLIPS, Lieut. B. J. MUSSELWHITE, Chicago; from Hot Springs, Ark., Capt. G. A. DARMER, Aurora.

To Camp Crane, Pa., Lieut. C. E. SMELTZER, Aledo; from Army Medical School, Lieut. L. R. KRATZE, Chicago; from Camp Custer, Lieut. J. T. MEYER, Chicago; from Camp Lee, Capt. C. H. ZOLLER, Itasca; from Camp Wadsworth, Capt. F. C. SIBLEY, Carmi; Lieut. C. F. HARRIS, Chicago; from Camp Wheeler, Capt. A. E. GAMMAGE, Chicago.

To Camp Greene, N. C., Lieut. R. A. VOIGHT, Chicago. Base hospital, from Camp Wadsworth, Capt. E. M. RUNDQUIST, Rockford.
To examine the troops for cardiovascular diseases, from Lakewood, Lieut. A. SUMMERS, Oak Forest.

To Camp Hancock, Ga., base hospital, from Camp McClellan, Lieut. A. J. WEIRICK, Marseilles.

To Camp Joseph E. Johnston, Fla., from Fort Oglethorpe, Lieut. W. E. CLAY, Mount Carroll.

To Camp Kearney, Calif., from Fort Oglethorpe, Capt. J. M. BLUM, Chicago.

To Camp Lee, Va., to examine the command for nervous and mental diseases, from Camp Zachary Taylor, Lieut. E. C. PRATT, Kankakee.

To Camp Meade, Md., from Washington, Lieut. M. J. RABBINS, Chicago.

To Camp Sevier, S. C., base hospital, from Camp Logan, Capt. C. H. PARKES, Chicago; from Camp Travis, Lieut. W. K. REED, Chicago; from Fort Oglethorpe, Lieut. R. GRIFFY, Oblong.

To Camp Sherman, Ohio, from Columbus, Lieut. F. M. McNAIR, Sugar Grove. Base hospital, from Fort Oglethorpe, Capt. C. L. PATTON, Springfield.

To Camp Travis, Texas, from Fort Riley, Capt. C. S. DAVIS, Campaign; G. F. JOHNSON, East Moline.

To Camp Zachary Taylor, Ky., base hospital, Lieut. J. S. EISENSTAEDT, Chicago; from Fort Oglethorpe, Lieut. H. F. MOORE, Rockford.

To Denver, Colo., from Walter Reed General Hospital, Capt. S. M. SALA, Rock Island.

To Edgewood, Md., base hospital, from Camp Meade, Capt. O. A. R. DONNELLY, Lieut. E. J. DEVINE, Chicago.

To Fort Benjamin Harrison, base hospital, from Camp Dodge, Lieut. E. A. CORCORAN, Chicago.

To Fort Des Moines, Iowa, from Walter Reed General Hospital, Major J. L. PORTER, Chicago.

To Fort McHenry, Md., from New York, Capt. P. P. HAZLITT, Marshall. For instruction, Capt. J. B. MOORE, Zeigler.

To Penniman, Va., from Army Medical School, Lieut. H. L. LE SAULNIER, Red Bud.

To Rockefeller Institute, Lieut. S. A. SMITH, Chillicothe.

To Washington, D. C., from Camp Lee, Major S. V. BALDERTON, Evanston.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. C. F. BURKHARDT, Effingham; C. P. COLBY, Springfield; B. F. HOCKMAN, Sumner; Lieuts. C. C. Montgomery, Lincoln; W. F. JUSTUS, Littleton.

The following order has been revoked: To Fort Snelling, Minn., base hospital, from Camp Grant, Lieut. A. S. SANDLER, Chicago.

Indiana

To Camp Beauregard, La., base hospital, from Camp Travis, Lieut. G. M. COOK, Mooresville; from Fort Oglethorpe, Capt. W. R. DAVIDSON, Evansville.

To Camp Logan, Texas, from Fort Riley, Capt. M. F. HUNN, Shipshowana.

To Camp Sevier, S. C., as tuberculosis examiners, from Camp Jackson, Lieut. C. F. VOIGT, New Albany; from New Haven, Lieut. J. M. GORDON, South Bend.

To Camp Sherman, Ohio, base hospital, from Camp Custer, Lieut. C. A. SELLERS, Hartford City.

To Camp Travis, Texas, from Fort Riley, Lieut. F. H. RILEY, Linnsburg.

To Camp Upton, N. Y., as orthopedic surgeon, from Jefferson Barracks, Capt. W. C. MOSS, Bunker Hill.

To Camp Zachary Taylor, Ky., from Terre Haute, Lieut. J. L. FORTUNE, Terre Haute. Base hospital, Capt. F. S. CROCKETT, LaFayette; from Camp Custer, Lieut. P. S. JOHNSON, Sheridan; from Fort Benjamin Harrison, Lieut. T. L. SULLIVAN, Indianapolis.

To Carlisle, Pa., from Baltimore, Capt. J. H. NILES, Seymour.
To Fort Bayard, N. M., from Camp Newton D. Baker, Lieut. B. R. KIRKLIN, Muncie.

To Fort Benjamin Harrison, Lieut. J. E. McCABE, Buck Creek.

To Fort Oglethorpe, base hospital, from Camp Dodge, Lieut. E. N. BENNETT, Kokomo. Evacuation hospital, from Camp Sherman, Lieut. C. C. BITLER, New Castle.

To Hot Springs, N. C., from Camp Bowie, Lieut. F. KLEINMAN, Hebron.

To San Diego, Calif., Roekwell Field, from Mineola, Lieut. K. M. KOONS, Indianapolis.

To Washington, D. C., from Fort Benjamin Harrison, Capt. F. M. WHISTLER, Wabash.

Honorably discharged, Lieut. C. S. ALBERTSON, Walton. On account of physical disability existing prior to entrance into the service, Lieuts. J. KENTLING, Bloomington; A. J. BAUER, LaFayette.

Iowa

To Camp Crane, Pa., from Camp Green, Capt. P. E. SAWYER, Sioux City.

To Camp Custer, Mich., from Fort Oglethorpe, Lieut. L. T. REED, Gravity.

To Camp Devens, Mass., base hospital, from Camp Dodge, Capt. M. A. HEALY, Boone; Lieut. J. G. CLAPSADDLE, Burt.

To Camp Dodge, Iowa, base hospital, for instruction, Lieut. C. A. MANAUAN, Marengo.

To Fort Benjamin Harrison, Lieut. P. V. KETCHUM, Des Moines. Base hospital, from Camp Grant, Capt. A. D. McKINLEY, Lieut. H. E. RANSOM, Des Moines.

To Fort Oglethorpe, base hospital, from Camp Dodge, Lieut. A. C. DAVIS, Iowa City. For instruction, from Camp Bowie, Lieut. B. S. BARNES, Shenandoah.

To Fort Snelling, Minn., base hospital, from Camp Dodge, Lieut. M. O. BRUSH, Shenandoah.

To Hot Springs, N. C., from Wichita Falls, Texas, Lieut. C. KAIL, Stratford.

To Plattsburg Barracks, N. Y., from Fort Oglethorpe, Major C. VAN EPPS, Iowa City.

Honorably discharged, Lieut. F. H. GAFFEY, Bradgate.

Kansas

To Camp Beauregard, La., base hospital, from Camp Pike, Capt. L. S. COPLAN, Wellington.

To Camp Crane, Pa., from Fort Riley, Capt. F. J. WALKER, Wichita.

To Camp Custer, Mich., to examine the command for nervous and mental diseases, from Fort Des Moines, Capt. C. E. ROSS, Wichita.

To Camp Devens, Mass., from Fort Riley, Capt. L. S. WAGAR, Florence. Base hospital, from Camp Dodge, Lieut. H. A. ALEXANDER, Topeka.

To Camp Dodge, Iowa, base hospital, Capt. F. A. ECKDALL, Emporia.

To Camp Greene, N. C., base hospital, from Camp Gordon, Lieut. E. D. RODDA, Arma.

To Camp Sherman, Ohio, base hospital, from Fort Oglethorpe, Lieut. M. F. RUSSELL, Great Bend.

To Rock Island, Ill., Capt. W. D. HUNT, Emporia.

Honorably discharged, Lieut. J. L. WORK, Topeka. On account of physical disability existing prior to entrance into the service, Lieut. O. J. DIXON, Mound Valley.

Kentucky

To Camp Crane, Pa., from New Haven, Lieut. G. S. BRZOZOWSKI, Louisville.

To Camp Custer, Mich., base hospital, from Camp Zachary Taylor, Capt. C. WILSON, Greenville.

To Camp Gordon, Ga., base hospital, for instruction, Lieut. A. H. SHOMWELL, Paducah.

To Camp Greene, N. C., base hospital, from Camp Sheridan, Capt. W. H. SMITH, Danville; Lieut. W. I. HUME, Louisville.

To Camp Jackson, S. C., base hospital, from Camp Sevier, Lieut. W. T. BRUNER, Louisville.

To Camp Zachary Taylor, Ky., Lieut. G. F. JONES, Henderson.

To Fort Oglethorpe for instruction, Capt. H. J. McKENNA, Louisville.

To Washington, D. C., from Louisville, Lieut.-Col. J. P. FLETCHER.

Honorably discharged, Lieut. L. E. GILBERT, Marion. On account of physical disability existing prior to entrance into the service, Capt. J. F. BRYANT, Corbin; D. J. WILLIAMS, Richmond; Lieuts. G. W. BOOHER, Berry; K. B. WOOLERY, Falmouth; J. R. COTTELL, Louisville; J. A. KIRK, Philpot.

Louisiana

To Camp Beauregard, La., base hospital, from Camp Pike, Lieut. H. D. VAN SCHAIK, Elizabeth.

To Camp McClellan, Ala., with the board examining the command for tuberculosis, from Camp Joseph E. Johnston, Lieut. B. R. HENINGER, New Orleans.

To Camp Sevier, S. C., to examine the command for nervous and mental diseases, from Camp Jackson, Lieut. P. Y. DONALD, Jackson.

To Camp Sherman, Ohio, evacuation hospital, from Camp Beauregard, Lieut. C. H. SHARP, New Orleans.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. A. R. TRAHAN, Lafayette.

Maine

To Camp Crane, Pa., from Camp Devens, Lieut. J. E. POULIN, Augusta.

To Fort Oglethorpe, base hospital, from Camp Zachary Taylor, Capt. H. J. EVERETT, Portland.

To Newport News, Va., from Fort Oglethorpe, Lieut. W. J. LEWIS, Freeport.

Maryland

To Camp Crane, Pa., from Camp Lee, Lieut. B. M. JAFFE, Baltimore; from Fort Oglethorpe, Lieut. H. L. ROGERS, Baltimore.

To Camp Custer, Mich., from Army Medical School, Lieut. H. G. JOHNSON, Baltimore.

To Camp Gordon, Ga., from Army Medical School, Lieut. G. H. PRESTON, Baltimore.

To Camp Grant, Ill., from Army Medical School, Lieut. C. M. REDDIG, Baltimore.

To Camp Jackson, S. C., from Army Medical School, Lieut. S. O. REESE, Jr., Baltimore. As orthopedic surgeon, and on completion to Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieut. L. BRADY, Baltimore.

To Camp Meade, Md., base hospital, for instruction, Lieut. S. H. STREET, Baltimore.

To Camp Sevier, S. C., base hospital, from Camp Jackson, Lieut. J. T. NELSON, Baltimore.

To Camp Sherman, Ohio, base hospital, from Camp Sheridan, Capt. G. M. LINTHICUM, Baltimore.

To Fort Oglethorpe, evacuation hospital, from Camp Joseph E. Johnston, Capt. M. LEVY, Baltimore.

To Newport News, Va., Lieut. R. ROSEN, Baltimore.

To Walter Reed General Hospital, D. C., from Fort Oglethorpe, Lieuts. W. T. ANDERSON, L. BRADY, Baltimore.

To Washington, D. C., for consultation, from Hoboken, N. J., Capt. R. FAYERWEATHER, Baltimore.

Massachusetts

To Boston, Mass., Parker Hill, from the Surgeon-General's Office, Major P. BROWN, Boston; from Walter Reed General Hospital, Major F. J. COTTON, Boston.

To Camp Crane, Pa., from Camp Devens, Major E. L. DAVIS, Springfield; Capt. E. J. HUSSEY, Holyoke; Lieuts. G. A. BUCKLEY, Brockton; J. J. PAGLIA, Worcester; from Rockefeller Institute, Lieut. A. B. LYON, Boston; from Walter Reed General Hospital, Lieuts. G. W. BLOOD, Fall River.

To Camp Custer, Mich., base hospital, Major W. E. FAULKNER, Boston.

To Camp Devens, Mass., base hospital, for instruction, Lieut. P. D. BLANCHARD, Lowell.

To Camp Gordon, Ga., as camp psychiatrist, from Camp Upton, Major G. E. McPHERSON, Harding.

To Camp Greene, N. C., base hospital, from Camp Wadsworth, Lieuts. J. J. DONOVAN, Boston; C. T. COBB, Northampton; C. A. SCHILLANDER, Springfield.

To Camp Hancock, Ga., base hospital, from Walter Reed General Hospital, Major E. B. BIGELOW, Worcester.

To Camp Jackson, S. C., as orthopedic surgeon, and on completion to Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Camp Jackson, Lieut. D. F. MURPHY, Beverly.

To Camp Meade, Md., from Fort Oglethorpe, Lieut. D. S. KING, Brookline.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. J. B. THOMES, Pittsfield.

Michigan

To Camp Gordon, Ga., base hospital, from Camp McClellan, Capt. W. T. PARKER, Corunna.

To Camp Greene, N. C., base hospital, from Camp Gordon, Capt. O. L. RICKER, Cadillac.

To Camp Shelby, Miss., evacuation hospital, from Fort Oglethorpe, Lieut. D. L. PULFORD, Detroit.

To Camp Sherman, Ohio, evacuation hospital, from Camp Zachary Taylor, Capt. H. MacMULLEN, Manistec.

To Camp Zachary Taylor, Ky., as orthopedic surgeon, and on completion to Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieut. E. J. LYNCH, Detroit. Base hospital, from Camp Sevier, Capt. A. W. McDONALD, Detroit. Base hospital, for instruction, Capt. J. N. BELL, Detroit.

To Fort Oglethorpe for instruction, Capt. C. F. SMITH, Whitehall.

To Fort Riley for instruction, Lieut. D. C. SMITH, Flushing.

To Hoboken, N. J., from Fort Oglethorpe, Lieut. P. R. URMSTON, Bay City.

To Hot Springs, N. C., from Camp Lee, Lieut. C. R. MUELLER, Detroit.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. H. L. CHARLES, Calumet.

Minnesota

To Camp Crane, Pa., from Fort Oglethorpe, Lieut. G. T. NORDIN, Minneapolis.

To Camp Custer, Mich., base hospital; from Camp Grant, Lieut. D. D. TURNACLIFF, St. Paul; from Camp Sherman, Lieut. H. J. A. J. HARTIG, Minneapolis.

To Camp Dodge, Iowa, base hospital from Camp Sherman, Lieut. F. N. KNAPP, St. Paul.

To Camp Grant, Ill., from Army Medical School, Lieut. C. F. SNELL, Twin Valley.

To Camp Meade, Md., from Camp Lee, Major J. C. SESSIONS, Minneapolis. Evacuation hospital, from Camp MacArthur, Lieut. F. W. WHITMORE, St. Paul.

To Fort Riley for instruction, Lieut. F. V. SANGENDORFER, St. Paul.

To Fort Sheridan, Ill., base hospital, from Camp Zachary Taylor, Capt. M. J. LYNCH, Minneapolis.

To report to the commanding general, Southern Department, from Fort Bayard, Lieut. V. H. MOATS, Minneapolis.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. J. A. McLAUGHLIN, Minneapolis.

Mississippi

To Camp Crane, Pa., from Camp Lewis, Lieut. L. B. NEAL, Jackson, from Jefferson Barracks, Lieut. F. H. RUSSELL, Wayside.

To Camp Jackson, S. C., base hospital, from Camp Sheridan, Lieut. T. G. CLEVELAND, Meridian.

To Camp Zachary Taylor, Ky., base hospital, from Fort McPherson, Lieut. M. C. ARMSTRONG, Arm.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. W. E. MOODY, Lake, Lieuts. M. E. BRIDGES, Bobo; W. C. NORRIS, Quitman.

Missouri

To Camp Beauregard, La., base hospital, from Camp Pike, Capt. J. W. MacDONALD, St. Louis; from Camp Shelby, Capt. N. SAENGER, Lieut. G. C. LYTTLE, St. Louis.

To Camp Cody, N. M., as assistant to division surgeon, from Camp Beauregard, Lieut. L. M. SPALDING, Olean. Base hospital, from Camp Travis, Capt. A. R. TIMERMAN, St. Joseph.

To Camp Crane, Pa., from Camp Dix, Capt. W. U. KENNEDY, St. Louis; from Camp Hancock, Lieut. F. F. HAAS, St. Louis; from Camp Lewis, Lieut. W. C. KLEIN, Kansas City; from Camp Zachary Taylor, Capt. J. M. DEAN, Lieut. P. McGENNIS, St. Louis.

To Camp Custer, Mich., as sanitary inspector, from Camp Pike, Capt. T. R. AYARS, St. Louis. Base hospital, from Camp Grant, Lieut. L. O. MUENCH, St. Paul. Base hospital, for instruction, Major J. H. OUTLAND, Kansas City.

To Camp Devens, Mass., from Fort Riley, Lieut. A. R. STONE, Palmyra.

To Camp Logan, Texas, Lieut. F. H. HARNAGEL, St. Louis.

To Camp Pike, Ark., base hospital, for instruction, Lieut. A. J. CAMPBELL, Sedalia.

To Camp Sevier, S. C., base hospital, from Camp Logan, Lieut. L. S. JAMES, Blackburn.

To Camp Sheridan, Ala., from Fort Oglethorpe, Lieut. J. T. MALONE, St. Louis.

To Camp Zachary Taylor, Ky., base hospital, from Camp Morrison, Lieut. J. C. PEDEN, St. Louis.

To Dansville, N. Y., from Camp McClellan, Capt. W. T. PATTERSON, Hannibal.

To Fort Oglethorpe, base hospital, from Camp Dodge, Lieut. J. L. SWARTZ, St. Louis.

To Fort Sheridan, Ill., base hospital, from Camp Grant, Capt. E. T. SENSENEY, St. Louis; from Cape May, Capt. J. R. VAUGHAN, St. Louis.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. E. H. BRADLEY, Springfield; Lieut. W. B. INMAN, St. Louis.

Montana

To Camp Gordon, Ga., base hospital, from Camp Shelby, Capt. R. L. OWENS, Hamilton.

To Camp Travis, Texas, from Fort Riley, Lieut. J. E. STUART, Livingston.

To Fort Benjamin Harrison, Capt. P. H. McCARTHY, Butte.

To Fort Riley for instruction, Lieut. P. S. RENNICK, Stevensville.

To Fort Sheridan, Ill., base hospital, from Camp Grant, Lieut. J. W. OLSON, Troy; from Camp Kearney, Major R. HORSKY, Helena.

Nebraska

To Camp Crane, Pa., from Camp Custer, Lieut. O. E. COLEMAN, Ainsworth.

To Camp Custer, Mich., base hospital, from Western Department, Capt. C. H. CAMPBELL, Columbus.

To Camp Jackson, S. C., base hospital, from Camp Joseph E. Johnston, Lieut. J. W. DUNCAN, Omaha.

To Camp Sherman, Ohio, base hospital, from Cape May, Major E. C. HENRY, Omaha.

To Camp Travis, Texas, from Fort Riley, Capt. H. L. STARKEY, Wood River.

To Fort Leavenworth, Kan., Lieut. H. H. JOHNSON Winnebago.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. E. R. PORTER, Omaha.

Nevada

To Camp A. A. Humphreys, Va., base hospital, from Camp Lee, Capt. J. P. CRAWFORD, Mina.

To Fort Oglethorpe for instruction, from Fort Sam Houston, Lieut. J. T. REES, McDermitt.

New Hampshire

To Camp Beauregard, La., base hospital, from Fort McPherson, Capt. J. B. WOODMAN, Franklin.

To Camp Crane, Pa., from Camp Devens, Capt. J. E. TOYE, Charleston.

To Fort Oglethorpe, evacuation hospital, from Camp Travis, Lieut. G. A. JOHNSON, Concord.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. C. E. JOHNSTONE, Portsmouth.

New Jersey

To Army Medical School for instruction, from Walter Reed General Hospital, Lieut. C. F. VOORHIS, Palmyra.

To Camp Crane, Pa., from Camp Lee, Lieut. J. L. FARDEN, Irvington.

To Camp Dix, N. J., from Army Medical School, Lieut. T. W. CONNOLLY, Jersey City.

To Camp Gordon, Ga., base hospital, Lieut. C. P. CLARK, Summit.

To Camp Greene, N. C., as orthopedic surgeon, and on completion to Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieut. W. G. McCORMACK, Whippany.

To Camp Jackson, S. C., Lieut. M. B. WEINSTOCK, Newark.

To Camp Meade, Md., from Army Medical School, Lieut. J. J. MANN, Perth Amboy.

To Fort McHenry, Md., for instruction, Capt. J. L. FEWSMITH, Newark.

To Fort Porter, N. J., Lieut. R. STEWART, Secausus.

To Hot Springs, N. C., from Edgewood, Lieut. J. J. MacDONALD, Jersey City; from Fort Ontario, Capt. E. B. ROGERS, Collingswood.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. H. DAY, Chester; Lieuts. C. C. FERGUSON, Jersey City; T. L. CALDRONEY, North Hackensack.

New Mexico

To Whipple Barracks, Ariz., from Camp Cody, Capt. T. E. PRESLEY, Roswell.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. N. D. FRAZIN, Tyrone.

New York

To Army Medical School for instruction, Lieut. F. A. KNOPE, Rochester; from Camp Crane, Capt. G. M. PARKHURST, Bath; from Camp Raritan, Lieut. T. M. CALLADINE, Perry.

To Camp Beauregard, La., base hospital, from Camp Jackson, Lieut. W. C. MILLER, New York; from Fort Oglethorpe, Lieuts. M. L. HILLSMAN, Little Valley; W. W. OLIVER, New York.

To Camp Crane, Pa., from Army Medical School, Lieut. M. L. BRANDT, New York; from Camp Devens, Capt. R. A. EDSON, Buffalo; Lieuts. A. W. BECK, Brooklyn; E. A. CLARKE, Buffalo; from Camp Dix, Capt. H. S. CAMPBELL, Otto; Lieuts. J. P. HEN-

NESSY, JR., New York; F. S. SCHOONOVER, Rochester; from Camp Greene, Capt. G. W. CONTERNO, New York; from Camp Jackson, Lieut.-Col. W. A. LAWRENCE, White Plains; from Camp Lee, Lieut. J. L. PRESTON, New York; from Camp Meade, Lieuts. J. L. EVERLOF, C. V. O'BRIEN, Brooklyn; from Camp Sheridan, Lieut. B. WILSON, New York; from Camp Zachary Taylor, Lieut. R. G. CARLIN, New York; from Fort Des Moines, Major T. WRIGHT, Buffalo; Capt. J. TENOPYR, Brooklyn; from Fort McPherson, Lieut. A. A. BERSIN, Brooklyn; from Fort Oglethorpe, Lieut. J. GOLDSTONE, New York; from New Haven, Lieut. A. SCHULTZ, Brooklyn; from Walter Reed General Hospital, Lieut. C. G. STEINHAUSER, Rochester; from Williamsbridge, Major L. G. COLE, New York.

To Camp Custer, Mich., from Army Medical School, Lieut. R. M. DEGRAFF, Buffalo. Base hospital, from Camp Sherman, Capt. J. R. HERRICK, Hempstead; D. S. CONLEY, New York.

To Camp Lee, Va., from Fort Oglethorpe, Major T. DARLINGTON, New York.

To Camp McClellan, Ala., base hospital, from Camp Beauregard, Lieut. H. W. KEMP, Brooklyn. To examine the troops for cardiovascular diseases, from Lakewood, Lieut. A. TOWBIN, Flushing.

To Camp Meade, Md., Lieut. R. MALCOLM, Yonkers; from Army Medical School, Lieuts. R. BOGAN, Brooklyn; H. T. COMPTON, New York.

To Camp Sevier, S. C., base hospital, from New Haven, Capt. W. A. GROAT, Syracuse.

To Camp Sheridan, Ala., as orthopedic surgeon, from Camp Wheeler, Lieut. L. FASKE, Brooklyn.

To Camp Upton, N. Y., Capt. F. OVERTON, Patchogue; from Army Medical School, Lieuts. F. DAMRAU, W. V. MOORE, Brooklyn; W. S. BENNETT, Glen Falls; C. G. IRISH, E. A. LANE, New York.

To Camp Wadsworth, S. C., as sanitary inspector, from Camp MacArthur, Major T. W. MALONEY, Geneva.

To Camp Zachary Taylor, Ky., base hospital, from Camp McClellan, Capt. F. M. O'GORMAN, Buffalo; from Fort McPherson, Lieut. S. E. APPEL, Dover Plains.

To Fort Benjamin Harrison, base hospital, from Camp Cody, Lieut. I. M. LEAVY, New York.

To Fort Hancock, N. J., from New York, Capt. J. R. FARRELL, New York.

To Fort Meyer, Va., from Hampton, Va., Major A. G. CUMBE, Mineola.

To Fort Oglethorpe for instruction, Lieuts. C. E. CURTISS, Manlius; L. A. GERACI, F. W. RICE, New York.

To Fort Porter, N. Y., from Fort Oglethorpe, Lieut. A. B. FERGUSON, New York.

To Fort Sheridan, Ill., base hospital, from Camp Devens, Lieut. W. H. HAWKINS, New York.

To Hoboken, N. J., from Camp Gordon, Lieut. T. W. NEUMANN, Poughkeepsie; from Camp Upton, Lieut. M. A. RAMIREZ, New York. Base hospital, from Camp A. A. Humphreys, Capt. I. HOLLEY, Brooklyn.

To Walter Reed General Hospital, D. C., for instruction in amputation and artificial limbs, from the Surgeon-General's Office, Capt. C. E. E. PANNACI, Gloversville.

To Washington, D. C., for consultation, and on completion to Camp Lee, Va., as orthopedic surgeon, from Fort Riley, Major C. D. NAPIER, Brooklyn. On completion to Camp Shelby, Miss., from Syracuse, Capt. M. A. ROTHCHILD, New York. For instruction, from New York, Capt. H. W. HAYNES, New York. St. Elizabeth's hospital, for instruction, from Plattsburg Barracks, Lieut. M. E. COSTELLO, Branchport.

To Williamsbridge, N. Y., Lieut. M. D. GOLDFEIN, Brooklyn. Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. O. C. J. VON RENNER, Buffalo.

The following orders have been revoked: To Army Medical School, from Rockefeller Institute, Lieut. W. C. STADIE, New York. To Fort Snelling, Minn., base hospital, Lieut. M. SONKIN, New York.

North Carolina

To Azalea, N. C., from New Haven, Capt. T. P. CHEESBOROUGH, Asheville.

To Camp Lee, Va., from Army Medical School, Lieuts. J. W. CLARKSON, Hickory; J. H. BULLOCK, Oxford.

To Camp Sherman, Ohio, base hospital, from Fort Oglethorpe, Capt. F. J. PATE, Greensboro.

To Fort Oglethorpe, as instructor in internal medicine, from Camp Custer, Major T. FRAZER, Asheville.

To Washington, D. C., for consultation, and on completion to Camp Crane, Pa., from Camp Greene, Lieut.-Col. H. M. SNYDER.

North Dakota

To Camp Grant, Ill., base hospital, for instruction, Lieut. A. J. KAESS, Fargo.

Ohio

To Camp Abraham Eustis, Va., camp hospital, Lieut. S. WOLF, Cincinnati.

To Camp Cody, N. M., from Fort Oglethorpe, Capt. W. M. BLAINE, Youngstown.

To Camp Crane, Pa., from Camp Custer, Lieut. C. T. BAHLER, Walnut Creek; from Camp Dix, Capt. C. D. HOY, Columbus; from Camp Jackson, Lieut. M. S. GRIFFITH, Batavia; from Fort McHenry, Major N. M. JONES, Cleveland; from Fort Oglethorpe, Capt. A. E. IBERSHOFF, Cleveland; from New Haven, Lieuts. R. H. MARKWITH, Columbus; V. B. HALBERT, Sylvania.

To Camp Joseph E. Johnston, Fla., from Fort Oglethorpe, Lieut. C. A. LINGENFELTER, Bucyrus.

To Camp McClellan, Ala., Lieut. R. A. THORNTON, Columbus.

To Camp Pike, Ark., base hospital, Lieut. A. H. CARR, Reading.

To Camp Shelby, Miss., base hospital, Capt. D. C. HOUSER, Urbana. Base hospital, for instruction, Lieut. C. V. DAVIS, Cleveland. Evacuation hospital, from Fort Sam Houston, Lieut. R. E. LIGHTNER, Kingston.

To Camp Sheridan, Ala., base hospital, Capt. H. M. TARR, Cleveland Heights Village.

To Jefferson Barracks, Mo., from Fort Riley, Lieut. G. H. REEVE, Cleveland.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieuts. J. L. TODD, Canton; J. T. BOYKIN, Cleveland; E. E. SHEFFIELD, Elyria; I. P. SEILER, P'keton; W. A. ORT, Springfield.

Oklahoma

To Camp Crane, Pa., from Camp Hancock, Lieut. R. L. WESTOVER, Okmulgee; from Camp MacArthur, Lieut. C. N. BERRY, Norman; from Fort Riley, Lieut. C. A. BRAKE, Oklahoma City.

To Camp Gordon, Ga., base hospital, from Fort Riley, Capt. E. L. BAGBY, Fairfax.

To Camp Greene, N. C., base hospital, from Fort Oglethorpe, Lieut. H. BLENDER, Okeene.

To Camp Sevier, S. C., base hospital, from Camp Joseph E. Johnston, Capt. B. LOVELADY, Guthrie; Lieut. V. C. TISDALE, Elk City.

To Camp Sherman, Ohio, base hospital, from Camp Bowie, Lieuts. C. E. CALHOUN, Sand Springs; C. E. DAVIS, Woodward; from Fort Des Moines, Lieut. R. L. PENDERGRAFT, Hollis.

To Camp Travis, Texas, Lieut. W. H. AARON, Pawhuska.

To Camp Zachary Taylor, Ky., base hospital, from Camp Sevier, Lieut. L. M. SACKETT, Oklahoma City.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. J. G. THOMAS, Alluwe.

Oregon

To Camp Devens, Mass., from Fort Riley, Capt. V. R. ABRAHAM, Hood River.

To Camp Gordon, Ga., as orthopedic surgeon, and on completion to Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieut. R. E. WATKINS, Portland.

To Philadelphia, Pa., Jefferson Medical College, for instruction, from Camp Abraham Eustis, Lieut. A. O. WALLER, Eugene.

Pennsylvania

To Camp Beauregard, La., base hospital, from Fort Oglethorpe, Capt. J. W. SCHOFFSTALL, Sunbury.

To Camp Crane, Pa., from Army Medical School, Lieut. J. M. FLEMING, Blairs Mills; from Camp Custer, Lieut. C. B. LAMP, Seminole; from Camp Devens, Capt. J. TURNER, Philadelphia; from Camp Dix, Major P. H. MOORE, Philadelphia; Capt. S. W. MILLER, Lancaster; Lieuts. I. H. SHELLY, Ambler; L. C. RUMMAGE, Sweet Valley; from Camp Dodge, Capt. J. WARD, Lucernemines; from Camp Lee, Lieuts. E. M. HUGHES, Butler; V. P. VIESLET, Charleroi; A. E. S. CASEY, Philadelphia; from Camp Pike, Lieut. G. B. SCHOONMAKER, Philadelphia; from Camp Sevier, Lieut. A. E. COLCHER, Philadelphia; from Camp Sherman, Lieut. G. GINSBURG, Philadelphia; from Fort Oglethorpe, Lieut. J. E. MAGEE, Carnegie; from New Haven, Lieut. H. W. KINDERMAN, Philadelphia.

To Camp Dix, N. J., from Army Medical School, Lieuts. W. C. McCONNELL, Norberth; G. A. BROWN, J. B. HAINES, E. W. KEMNER, Philadelphia; L. H. FITZGERALD, Pittsburgh; from Walter Reed General Hospital, Lieut. S. B. PEARCE, Pittsburgh.

To Camp Dodge, Iowa, base hospital, Capt. C. E. McKEE, Pittsburgh.

To Camp Greene, N. C., evacuation hospital, from Southern Department, Lieut. D. M. AIKMAN, Brockwayville.

To Camp Jackson, S. C., from Army Medical School, Lieut. P. S. SEABOLD, Philadelphia.

To Camp Las Casas, P. R., camp hospital, Major C. H. SMITH, Uniontown.

To Camp Meade, Md., from Army Medical School, Lieut. G. M. UNDERWOOD, Philadelphia.

To Camp Sevier, S. C., base hospital, from Camp Joseph E. Johnston, Lieut. G. S. HENSLEY, Mahoney City; T. B. HERRON, Monesson.

To Camp Wadsworth, S. C., Lieut. R. H. LUKE, North Erie.

To Denver, Colo., from New Haven, Capt. J. C. FOLTZ, Philadelphia; N. D. MacARTAN, Cresson.

To Detroit, Mich., from Cleveland, Capt. A. B. SHATTO, York.

To Fort Benjamin Harrison, base hospital, from Lakewood, Lieut. C. W. ESPY, Wilkes-Barre.

To Fort Oglethorpe, evacuation hospital, from Ann Arbor, Lieut. J. P. BOYLE, Philadelphia. For instruction, Lieut. J. M. KEICHLIN, Petersburg.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. A. K. WANNER, Reading; Lieut. D. M. KOONTZ, New Kensington.

The following order has been revoked: To Walter Reed General Hospital, D. C., from Fort Oglethorpe, Lieut. W. C. REESE, Wilkes-Barre.

Philippine Islands

To San Francisco, Calif., from Philadelphia Department, Major A. C. MILLER.

South Carolina

To Camp Crane, Pa., from Camp Devens, Lieut. F. L. MARTINE, Mullins; from Camp Dix, Lieut. A. E. BROWN, Greenville; from Walter Reed General Hospital, Lieut. J. K. WICKER, Newberry.

To Camp Wadsworth, S. C., from Panama Canal Department, Capt. T. I. PEAKE, Clinton.

The following order has been revoked: To New Haven, Conn., Yale Army Laboratory School, for instruction, from Columbia, S. C., Lieut. J. A. HAYNES, Columbia.

South Dakota

To Camp Beauregard, La., base hospital, from Camp Pike, Capt. B. A. BOBB, Mitchell.

To Camp Crane, Pa., from Camp Dodge, Lieut. R. REAGAN, Garretson.

To Fort Benjamin Harrison, base hospital, from Camp Grant, Lieuts. G. E. VAN DEMARK, Sioux Falls; V. R. HODGES, Terry.

To Fort Warren, Mass., from Fort Oglethorpe, Lieut. B. C. MURDY, Aberdeen.

Tennessee

To Camp Cody, N. M., as tuberculosis examiner, from Fort Bayard, Capt. F. B. BREWER, Nashville.

To Camp Dodge, Iowa, base hospital, from Biltmore, N. C., Capt. O. B. CHANDLER, Union City.

To Camp Shelby, Miss., base hospital, Lieut. H. K. ALEXANDER, Nashville.

To Fort Oglethorpe, evacuation hospital, from Ann Arbor, Lieut. P. J. TRENTZSCH, Rives. For instruction, Major R. M. KIRBY-SMITH, Sewanee.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. B. E. NOBLITT, Fayetteville.

Texas

To Camp Beauregard, La., base hospital, Lieut. E. L. MAXWELL, Delhart; from Camp Logan, Capt. E. F. McMANUS, San Antonio. Base hospital, for instruction, Capt. H. M. LANHAM, Waco.

To Camp Crane, Pa., from Camp Bowie, Lieut. T. C. GILBERT, Dallas; from Camp Custer, Major S. F. Terrell, Dallas; from Fort Oglethorpe, Lieut. E. V. HENRY, Coleman.

To Camp Gordon, Ga., base hospital, from Camp Shelby, Major J. G. FLYNN, Galveston; Lieut. F. W. FRANCIS, Fort Worth.

To Camp Greene, N. C., from Dayton, Capt. D. L. SANDERS, Wills Point. Base hospital, from Southern Department, Lieut. L. J. LOGUE, Houston.

To Camp Hancock, Ga., evacuation hospital, from Fort Sam Houston, Capt. G. W. WILHITE, Calsetine.

To Hot Springs, N. C., from Camp Bowie, Lieut. A. R. AUTREY, Port Arthur.

To New Haven, Conn., Yale Army Laboratory School, from Army Medical School, Lieut. O. T. KIRKSEY, Galveston.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. L. P. ALLISON, Brownwood; Lieut. W. L. BABER, Winnsboro.

The following order has been revoked: To Camp Joseph E. Johnston, Fla., base hospital, Lieut. A. S. GRAYDON, Paris.

Utah

To Camp Crane, Pa., from Camp Cody, Capt. P. INGEBRETSEN, Ogden; from Camp Fremont, Capt. F. M. McHUGH, Salt Lake City; from New Haven, Lieut. B. A. DENNENBERG, Heber.

To Camp Dodge, Iowa, base hospital, from Camp Cody, Lieut. W. N. PUGH, Salt Lake City.

To Camp Wheeler, Ga., evacuation hospital, from Camp Cody, Capt. H. P. KIRTLEY, Salt Lake City.

Vermont

To Camp Crane, Pa., from New Haven, Capt. H. L. CRAHAN, Rutland.

To Camp Gordon, Ga., base hospital, from Fort Oglethorpe, Capt. E. G. TWITCHELL, Burlington.

To Camp Upton, N. Y., base hospital, from Hoboken, Major C. D. WILKINS, Brattleboro.

To Camp Wheeler, Ga., base hospital, Lieut. L. M. KELLY, Manchester Center.

To Fort McHenry, Md., from Walter Reed General Hospital, Capt. W. J. TINDALL, Montpelier.

To New Haven, Conn., Yale Army Laboratory School, for instruction, from Rockefeller Institute, Lieut. A. L. FOGG, Underhill.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. N. R. CALDWELL, Groton; S. S. MARTIN, Windsor.

Virginia

To Camp Crane, Pa., from Fort Oglethorpe, Lieut. W. S. TUCKER, New Glasgow; from New Haven, Lieut. C. B. COURTNEY, Fairfax.

To Fort Oglethorpe, base hospital, from Newport News, Capt. T. C. FIREBAUGH, Harrisburg.

To report to the commanding general, Philippine Department, from Fort Ontario, Major J. W. HOPE, Hampton.

To Syracuse, N. Y., from Fort Meyer, Major A. G. COOMBE.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieuts. H. S. SCOTT, Emory; L. B. STATON, Norfolk.

Washington

To Camp Crane, Pa., from Camp Cody, Capt. G. A. GRAY, Spokane.

To Camp Zachary Taylor, Ky., base hospital, from Camp Custer, Lieut. J. S. DAVIES, Tacoma.

To Fort Oglethorpe, evacuation hospital, from Camp Lewis, Lieut. J. HEHIR, Sedro-Wooley.

To Fort Sheridan, Ill., base hospital, from Camp Custer, Lieut. W. H. BOONE, North Yakima.

To Fort Snelling, Minn., base hospital, from Camp Lewis, Lieut. W. F. CUNNINGHAM, Seattle.

The following order has been revoked: To Camp Kearney, Calif., Lieut. C. S. PASCOE, Tacoma.

West Virginia

To Camp Bowie, Texas, base hospital, from Camp Gordon, Capt. C. DENHAM, Weston.

To Camp Crane, Pa., from Fort McPherson, Lieut. B. B. COX, Morgantown.

To Camp Custer, Mich., base hospital, for instruction, Major J. E. CANNADAY, Charleston.

To Camp McClellan, Ala., evacuation hospital, from Fort Sam Houston, Lieut. T. E. VASS, Bluefield.

To Camp Meade, Md., Capt. C. P. SHIRKEY, St. Albans.

To Camp Sevier, S. C., base hospital, Lieut. W. T. OWENS, Clarksburg.

To Fort Oglethorpe for instruction, Capt. G. A. MacQUEEN, Charleston.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. A. E. BAYS, Barboursville.

Wisconsin

To Army Medical School for instruction, from Rantoul, Ill., Lieut. D. L. DAWSON, Rice Lake.

To Camp Abraham Eustis, Va., camp hospital, and on completion to Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Capt. J. W. POWERS, Burlington.

To Camp Custer, Mich., from Fort Oglethorpe, Lieut. S. J. SEEGER, Milwaukee. Base hospital, from Camp Sherman, Capt. F. E. ANDRE, Kenosha.

Base hospital, for instruction, Lieuts. R. E. FLYNN, La Crosse; H. McCABE, Milwaukee.

To Camp Gordon, Ga., base hospital, from Camp Gordon, Lieut. J. W. HANSEN, Milwaukee.

To Camp Grant, Ill., from Army Medical School, Lieut. C. A. CIBELIUS, Racine.

To Camp Jackson, S. C., base hospital, Capt. S. G. PAKE, Hayward.

To Camp Sherman, Ohio, as sanitary inspector, from Camp Zachary Taylor, Major W. W. PRETTS, Platteville. To examine the command for nervous and mental diseases, from Camp Grant, Capt. J. F. WENN, Milwaukee.

To Camp Travis, Texas, from Fort Riley, Capt. F. W. McKEE, Richland Center; Lieut. S. C. McCORKLE, Wallis.

To Fort Benjamin Harrison, base hospital, from Camp Custer, Lieut. V. STARNES, Mauston; from Camp Grant, Lieut. J. B. VEDDER, Marshfield.

To Fort Riley for instruction, Capt. A. J. GATES, Tigerton; Lieut. H. J. GRAMLING, Milwaukee.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. G. F. KENNEY, Milwaukee.

Wyoming

To Fort Benjamin Harrison, base hospital, from Camp Custer, Capt. C. E. HARRIS, Basin; from Fort Riley, Capt. G. A. FOX, Cheyenne.

To New Haven, Conn., from Fort Riley, Capt. M. A. NEWELL, Sheridan.

ORDERS TO OFFICERS OF THE UNITED STATES PUBLIC HEALTH SERVICE

Surg. JOHN McMULLEN, proceed to Nitro, W. Va., for conference relative to treatment of applicants for employment suffering from trachoma.

Surg. G. W. McCOY, represent the service at the meetings of the Laboratory Section of the American Public Health Association at Chicago.

P. A. Surg. F. A. CARMELIA, relieved at Newport News, Va. Proceed to bureau for duty.

P. A. Surg. E. W. SCOTT, relieved at Washington, D. C. Proceed to Rosebank, Staten Island, N. Y., for duty.

P. A. Surg. JOSEPH BOLTON, relieved at the Hygienic Laboratory. Proceed to the San Francisco Quarantine Station for duty.

P. A. Surg. W. L. TREADWAY, proceed to Nitro, W. Va., and advise regarding installation and operation school medical inspection system.

P. A. Surg. J. G. TOWNSEND, proceed to Ranger and Petrolia, Texas, to supervise sanitary work.

Asst. Surg. W. F. FOX, visit Houston, Texas, to study venereal disease control methods.

Prof. C. W. STILES, proceed to Wilmington, N. C., for duty.

Prof. E. B. PHELPS, proceed to places in the vicinity of Washington to investigate public need of a contemplated improvement.

Pharm. C. H. BIERMAN, proceed to Boston Quarantine Station for temporary duty.

A. A. Surg. O. D. ADAMSON, relieved at Columbia, S. C. Proceed to Fayetteville, N. C., for duty.

A. A. Surg. J. B. ELLIOTT, relieved at Florence, Ala. Proceed to Little Rock, Ark., for duty.

A. A. Surg. ROBERT E. GRAMLING, proceed to Leavenworth, Kan., for duty in venereal control.

A. A. Surg. W. F. REASNER, proceed to Hattiesburg, Miss., for duty.

A. A. Surg. I. P. ROBINSON, relieved at Leavenworth, Kan. Proceed to Washington, D. C.

A. A. Surg. GEORGE W. SHIRK, proceed to Houston, Texas, for duty in venereal disease control.

San. Eng. H. W. STREETER, proceed to Cincinnati and Lima, Ohio, to investigate public health value of contemplated improvements.

Asst. San. Eng. H. F. S. TAIT, proceed to Shreveport, La., to investigate public health value of contemplated improvement.

Asst. Epid. C. C. APPLEWHITE, relieved at Englewood, N. J. Proceed to Atlanta, Ga., for duty.

Scien. Asst. SAMUEL SAUNDERS, JR., assume charge of health activities in Brunswick and Glenn County, Ga.

Asst. Director DAVID ROBINSON, proceed to Philadelphia and confer with the State Council of National Defense concerning venereal control measures.

Surg. J. GOLDBERGER, directed to proceed to New England and other states to undertake studies in regard to the etiology of influenza with special reference to its transmission.

Surg. L. P. H. BAHRENBURG, deliver an address at the Missouri Baptist state convention at Fulton, Mo., Oct. 22, 1918.

P. A. Surg. H. J. WARNER, relieved at Atlanta, Ga., proceed to Ellis Island, N. Y.

P. A. Surg. W. F. DRAPER, proceed to Boston, Mass., to assume charge of Service operations in connection with control of epidemic diseases.

P. A. Surg. G. A. KEMPF, proceed to Boston, Mass., for duty in the suppression of influenza.

P. A. Surg. J. H. LINSON, proceed to Boston, Mass., for duty in the suppression of influenza.

Asst. Surg. H. C. YARBROUGH, proceed to the Reedy Island Quarantine Station for temporary duty.

Asst. Surg. T. B. H. ANDERSON, proceed to Wichita and other points in the state of Kansas for duty in inaugurating venereal disease clinics.

Asst. Surg. C. R. ESKEY, relieved at Montgomery, Ala., proceed to Boston, Mass., for duty in the suppression of influenza.

Asst. Surg. CHARLES ARMSTRONG, proceed to Boston, Mass., for duty in the suppression of influenza.

Asst. Surg. R. E. DYER, proceed to Boston, Mass., for duty in the suppression of influenza.

Asst. Surg. J. K. FULLER, proceed to Boston, Mass., for duty in the suppression of influenza.

Asst. Surg. R. P. SANDIDGE, relieved at Louisville, Ky., proceed to Boston, Mass., for duty in the suppression of influenza.

A. A. Surg. D. A. BUCK, relieved at Baltimore, Md., proceed to Norfolk, Va., for duty.

A. A. Surg. W. C. EDMUNDS, proceed to Boston, Mass., for duty in the suppression of influenza.

A. A. Surg. F. F. FARNSWORTH, attend the meeting of the American Public Health Association at Chicago, Ill., Oct. 14-17, 1918.

A. A. Surg. ARTHUR R. PILLSBURY, proceed to Boston, Mass., for duty in connection with venereal disease control measures.

A. A. Surg. STAFFORD B. SMITH, proceed to New York City for duty in venereal disease control measures.

A. A. Surg. ABRAHAM TRUMPER, relieved at San Antonio, Texas, proceed to Montgomery, Ala., for duty in extracantonment sanitation.

A. A. Surg. W. A. WILSON, proceed to various places in the state of New York for duty in connection with venereal disease control.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARKANSAS

Medical Society Meeting Deferred.—After a consultation with the executive officers of the Third District Medical Society, it was decided to defer the annual meeting until next year because of the disturbed conditions in the profession. The meeting was to have been held at Lonoke.

Quarantined on Account of Influenza.—The town of Carlisle was quarantined, September 24, on the order of Dr. Jacob C. Geiger of the United States Public Health Service, on account of influenza, of which there were 125 cases on that date. The epidemic was traced to two sailors who had come to Carlisle on furlough from Boston. Lieut. A. M. Jones of the medical service was placed in charge of the situation by Dr. Geiger.

CALIFORNIA

Personal.—Dr. J. Perry Lewis, San Diego, who has been seriously ill is reported to be convalescent.—E. H. Meyers, Napa, is reported to have been found guilty of violating the Harrison Narcotic Law, and is said to have been ordered to pay a fine of \$200 or as an alternative to be imprisoned for fifty days in the county jail.

GEORGIA

Personal.—Dr. Jarrett W. Palmer, Ailey, has been appointed a member of the state board of medical examiners for a term of four years, from September 1.

Hospital Annex Opened.—The annex to the Savannah Marine Hospital, located in the former home of Dr. William Duncan, East Oglethorpe, was opened, September 16, with accommodation for twenty-four patients.

Sanatorium Sold.—The Williams Private Sanatorium, Macon, founded by the late Dr. Howard J. Williams, formerly president of the state board of health, has been sold to Drs. Max Jackson, Olin H. Weaver, Thomas D. Walker, Jr., and Charles H. Richardson, Jr. The sanatorium will be operated under its original name.

ILLINOIS

Practicing Without a License.—Six midwives who were practicing in Joliet without a license were arrested and each of them fined \$100 and costs, recently, by the Department of Registration and Education of the State of Illinois.

Infantile Paralysis.—During July and August 125 cases of infantile paralysis were reported to the state department of health from thirty counties in Illinois. Of these cases forty-seven were reported from Cook, thirteen from Kankakee and ten from Jo Daviess County.

Mandamus Petition Denied.—A report from the Department of Registration and Education of Illinois states that Judge Hebel has declined to grant the petition of the Chicago Hospital College of Medicine for mandamus against the department to compel restoration of good standing.

Personal.—Dr. H. Eugene Delavergne, Belvidere, secretary of the Boone County Medical Society, is about to move to Kankakee. The Boone County Medical Society at a meeting, September 25, presented Dr. Delavergne with a mahogany office chair.—Dr. Robert C. Mitchell, Belvidere, has been elected secretary of the Boone County Medical Society.—Dr. Philip F. Gillette, Elgin, has returned to his old position as assistant physician to the Elgin State Hospital.—Dr. Frazier N. Cloyd, Danville, has been appointed surgeon for the New York Central Lines, to succeed Dr. George L. Williamson, Danville.

Chicago

Medical College Not Suspended.—The statement published, October 5, saying that the Hahnemann Medical College and Hospital of Chicago has suspended for the duration of the war and which appeared to be based on good authority has proved to be incorrect. The college has recently received authority from the government to establish a unit in the Students' Army Training Corps.

Personal.—Dr. Henry F. Lewis resigned, September 30, as professor and head of the department of obstetrics and gynecology in the School of Medicine of Loyola University.—Dr. John E. Macklin has been commissioned captain, C. A. M. C., and has been assigned to temporary duty at the Willows Camp, Victoria, B. C.—Lieut.-Col. Ernest E. Irons, M. C., U. S. Army, on duty at Camp Custer, Mich., is reported to be ill with influenza.—Major Edmund J. Doering, M. C., U. S. Army, president of the local board of examiners for the Medical Corps of the Army, has been promoted to the rank of lieutenant-colonel.—Dr. Adolphe R. Caron has been operated on in the Passavant Hospital. He expects to enter Red Cross service in France.—Dr. H. I. Davis has been commissioned for service with the American Red Cross in France.

Illegal Practitioners Arrested.—The following violators of the Medical Practice Act, all residing in Chicago, were arrested by the Department of Registration and Education of the State of Illinois, and fined the amounts stated:

David Reeder, 5039 Cottage Grove Avenue, \$25 and costs. Mr. Reeder informed the court that he was leaving Illinois for Indiana, his home state.

M. Szczechowski, 1610 N. LaSalle St., \$25 and costs.

Roman Tzumalski 1600 N. LaSalle St., \$25 and costs.

Stan Kierzek, 4758 Justine St., case dismissed on payment of costs amounting to \$8.50.

Madison M. Ormsby, 20 S. Clark St., turned over to the probation court and an officer appointed to look after him. Ormsby is 76 years old and very feeble.

Michael Crawczyk, \$25 and costs on a charge of violating the medical practice act by treating Charles Zuraj without a license.

MARYLAND

Personal.—Dr. Alma Rothholz, who has distinguished herself as a war worker in France, has been requested by Queen Elizabeth of Belgium to take charge of a hospital near the front for the babies of Belgium. The mission of the institution is to provide medical attention for all the babies of that stricken country.

State Hospital Train in Public Health Service.—Following a request from Surgeon-General Blue, made through the Public Health Service, the Maryland State Hospital Train was sent in less than eleven hours after the call was received to Fall River, Mass., to combat the spread of the influenza. This is the first time the train has been put into service since its equipment. The train was ready very soon after the request was received, but its departure was held up by the fact that physicians and nurses, now very scarce, could not be secured on time. Ten nurses, six from the Union Protestant Infirmary and four from the University Hospital, responded to the call and the following physicians were secured: Drs. Edgar M. Parlett, Baltimore, Calvin N. Gabriel, John W. Abbott and Thomas C. Worthington. Dr. Daniel Z. Dunott, chief surgeon of the Western Maryland Railroad, is in charge of the train.

MINNESOTA

Health Merger Bill.—At a meeting in the office of Hennepin County Medical Society, Minneapolis, September 18, the consolidation of all public health organizations under a single head was discussed. A bill providing for this consolidation will go before the state legislature this fall. The mayor and five members of the city council will be members of the board.

Personal.—Dr. Gustav A. Renz, assistant city health officer of St. Paul, who has been ill at St. Joseph's Hospital, has recovered and assumed practice.—Dr. John Sundwall, Lawrence, Kan., has been appointed health commissioner of the University of Minnesota.—A medical military unit is being formed at Rochester with Dr. Frederick L. Smith as captain and Dr. Willis S. Lemon as first lieutenant.

Course in Public Health Nursing.—The University School for Nurses at the request of the Minnesota Public Health Association, according to the weekly journal of that association for September 26, has determined to provide a four months' intensive course in public health nursing for graduates and to accredited schools of nursing for the benefit of their senior students. It has been the aim of the university school to establish a regular course in this work, but the exigencies of the war have delayed this action.

Tuberculosis Clinics.—A rural clinic was held at Fertile, September 25, by Dr. Charles H. Cole, medical director of Sunny Rest Sanatorium, Crookston, under the auspices of the advisory commission of the State Sanatorium for Consumptives. At this clinic twenty-two persons presented themselves for examination and twelve of these cases were referred to the sanatorium. Regular clinics are held every Tuesday

at the Sunny Rest Sanatorium and every Thursday at Oakland Park Sanatorium, Thief River Falls, of which Dr. Cole is also medical director. At these clinics from four to eight persons come for examination each week.—A tuberculosis clinic in Renville County was held at the County Court House, Olivia, September 30, from 11 a. m. to 1 p. m., and from 3 p. m. to 6 p. m., under the charge of Dr. Abraham P. Terk of Riverside Sanatorium, Granite Falls.—A free tuberculosis clinic was conducted at the office of the health department of Eveleth, September 12, by Dr. Arthur T. Laird of Nopeming Sanatorium.—The antituberculosis committee of the Minneapolis Associated Charities at its annual meeting, September 20, voted to expend \$18,000 during the coming year toward the assistance of the Red Cross in caring for returned soldiers suffering from tuberculosis; for the establishment of a Childrens' Preventorium to be located at Glen Lake; for tuberculosis dispensaries to be located in settlement houses; for two physicians to be added to the force in charge of tuberculosis clinics, and for the salary of a nurse to be added to the nurse force of the tuberculosis division of the city health department.

MONTANA

Hospital Cornerstone Laid.—The cornerstone of the new St. Vincent's Hospital, Billings, was laid with appropriate ceremonies, September 29. The building will cost about \$400,000.

The Handling of Venereal Diseases.—At a meeting of the state board of health two new divisions were created for the handling of venereal diseases under the government plan. One division will have charge of the enforcement of rules and regulations, and the other will handle the publicity and education.

Personal.—Dr. John M. Scanland, superintendent of the State Hospital for the Insane, Warm Springs, has been commissioned captain, M. C., U. S. Army.—Dr. A. P. Stevenson, Roundup, has been appointed health officer of Musselshell County, to succeed Dr. George A. Lewis, who has resigned to enter the military service.—Dr. Oscar M. Lanstrum, Helena, has won the republican nomination for United States Senator from Montana.

NEBRASKA

Social Morality.—Dr. Abby Virginia Holmes, Omaha, is disposing of her practice and will devote her entire time to lectures on social morality and sex education in colleges and universities and also in communities adjacent to training camps.

Personal.—Dr. Albert P. Fitzsimmons, formerly of Tecumseh, but now treasurer of the Philippine Islands, is paying a visit to his old home.—Dr. Edward A. Hudson, Edison, is seriously ill as the result of a cerebral hemorrhage.—Dr. George M. White, Ingleside, has been appointed assistant superintendent of the Ingleside State Hospital.—Dr. Wilford H. Crutcher, superintendent of the State Orthopedic Hospital, Lincoln, has resigned to enter the military service.—Dr. Dellizon A. Foote, Omaha, was operated on at Rochester, Minn., September 18, and is reported to be doing well.—Dr. Charles W. Ervin, Lincoln, has been appointed assistant adjutant-general of the state.—Dr. Beverly A. Finkle, assistant superintendent of the Norfolk State Hospital, has been appointed superintendent of the State Orthopedic Hospital, Lincoln.—Dr. Lawrence B. Pilsbury, superintendent of the Lincoln State Hospital, has resigned to enter the military service.

NEW JERSEY

Centennial of Medical Society.—The Gloucester County Medical Society celebrated its one hundredth anniversary at Winona, September 19. The twenty-nine members of the organization were all present, together with invited guests.

Influenza at Gloucester City.—According to the board of health records of Gloucester City there were, October 4, 3,000 cases of influenza, of which 300 had developed pneumonia. The situation in the shipyards was a serious one, 600 workers being ill. Dr. D. C. Bowen of the state board of health made a survey and telephoned to the National Red Cross headquarters at Washington for six trained nurses. Three additional physicians were secured and another hospital, in the auditorium of the city hall, was opened. At Pusey and Jones (shipyards) twenty-five patients were in the temporary hospital.

Personal.—Dr. Irwin W. Kirk has been elected city physician of Millville to succeed Dr. Charles H. Mayhew, who

has resigned to enter the military service.—Dr. Norman S. Garrison, Rutherford, has been elected medical inspector for the Deerfield and Lawrence township schools.—Dr. W. S. Jones, Trenton, has resigned as a member of the State Board of Charities and Correction to become commandant of the Soldiers' and Sailors' Home at Vineland.—Under the adjustment made by the state board of health, Dr. Henry A. Cotton has withdrawn his resignation as medical director of the Trenton State Hospital and will resume his duties with an increase in salary from \$4,500 to \$6,000 a year.

NEW YORK

The Home Touch for Medical Officers.—The Onondaga County Medical Society has issued a monthly publication known as *The Bulletin*, which will contain news items of interest to medical officers from that part of the state on duty with the American Expeditionary Forces, and so will keep them in touch with local events of interest.

Personal.—Dr. Frank Vander Bogart, Schenectady, has been appointed medical supervisor of child welfare work with the American Red Cross in Italy.—Dr. Franklin C. Gram, acting health commissioner of Buffalo, has been commissioned captain, M. C., N. Y. State Guard, and has been assigned to duty with the 65th Infantry.—Major William G. Bissell, Buffalo, M. C., N. Y. State Guard, assigned to duty with the 65th Infantry, has been selected as professor of military hygiene and sanitation in the student course to be given under the auspices of the War Department at Canisius College.

New York City

Personal.—Dr. Elbert M. Somers, Brooklyn, has entered the service of the American Red Cross as hospital superintendent in France.

Harvey Society Lecture.—The first lecture of the Harvey Society course will be given, October 19, at 8:30 p. m., by Dr. Edward K. Dunham, on "Certain Aspects of the Application of Antiseptics in Military Practice."

OHIO

Physician Fined.—Dr. Julius P. Haynes, a colored practitioner of Toledo charged with illegally furnishing habit-forming drugs, is reported to have pleaded guilty in the probate court, and to have been fined \$100 and costs.

Personal.—Dr. Henry C. Eyman, because of age and failing health, has resigned as superintendent of the Massillon State Hospital after thirty-four years' continuous service in state hospitals, and has been succeeded by Dr. Arthur G. Hayde, who has been for several years superintendent of the Cleveland State Hospital.—Dr. Charles E. Sawyer, Marion, chairman of the War Savings Campaign, has been presented by the Ohio War Savings Committee with a gold medal for distinguished service.—Dr. Francis A. McCullough, Mansfield, who was operated on at the Protestant Hospital, recently, is reported to be convalescent.

Miscellaneous Health Activities.—An inspector of the state department of health reports that at Canton there are five times as many cases of tuberculosis as are being cared for or receiving attention from public health nurses. There are also many cases of trachoma in the city.—The state department has joined the United States Public Health Service in recommending that smallpox vaccination and antityphoid inoculation be required of all employees in industrial plants, on the ground that the protection of the health of employees making war munitions is just as important as that of the soldiers in the field.—The department has adopted the plan of checking disease reports against death reports to obtain evidence against physicians who fail to report communicable diseases. In this manner eleven unreported cases of typhoid fever were discovered in June. Local health departments are urged to follow a like plan with reference to reports of communicable diseases.

Recent Gifts Toward Western Reserve University Medical Group.—Two years ago a plot of land which approximated 15 acres in extent, known as the Ford Estate, was purchased as a site for the new buildings of the Medical Department of Western Reserve University and for a new Lakeside Hospital, for a babies' and for a maternity hospital. It was the plan to create a group of hospital buildings combined with the medical school to make an ideal teaching plant for the teaching of medicine. This tract is situated next to the literary departments of Western Reserve University and the Case School of Applied Science. Although the war has postponed the erection of any of these buildings, Lakeside Hos-

nital lately received some noteworthy contributions and bequests which will materially hasten the buildings. By the will of the late Col. Oliver Payne a large and generous gift of \$1,000,000 came to Lakeside to be used at the discretion of the trustees. By the will of the late Mr. W. S. Tyler, Cleveland, a trustee of Lakeside, a bequest of \$200,000 was provided to be applied toward the erection and endowment of a maternity ward on the new site. Mr. Samuel Mather, president of Lakeside, opened the new building fund of the hospital by a gift of \$350,000. There is also a fund held by the trustees of Lakeside for the benefit of the children's and maternity wards amounting to something over \$150,000.

PENNSYLVANIA

Tuberculosis Dispensaries Close.—Dr. B. Franklin Royer, Harrisburg, acting state commissioner of health, has ordered all the 120 tuberculosis dispensaries of the department of health closed so that the nurses may be used in the general epidemic work. This is the first time in the history of the department that it has been necessary to take such a step.

Epidemic Increasing.—October 4, at Harrisburg three deaths and 1,000 cases of influenza were announced by the local board of health. Six hundred cases had been reported during the previous twenty-four hours. Churches and schools were closed.—Bethlehem reported 125 new cases within the twenty-four hours ending October 4.—No cases were reported at Lebanon, but the city was closed as a preventive measure.—In Pittsburgh, moving picture and other theaters and all public meeting places, were closed. October 4, all Liberty Loan and other public meetings were prohibited. The universities, where the students of the Army Training Corps are located, were placed under guard to insure strict quarantine.

Personal.—Dr. Samuel G. Foster, Franklin, was taken ill while performing an operation, September 18, but is now reported to be improving.—Dr. William F. Doyle, Pottsville, is ill at his home with pneumonia.—Dr. Granville H. Walker, Bellevue, who has been seriously ill at his home, is reported to be improved.—Dr. Charles M. Rickert, Millersburg, has been appointed assistant chief medical inspector for the state department of health, to succeed Dr. John J. Mallowney.—Dr. Charles J. Swalm has been elected medical inspector by the Conshohocken School Board.—Dr. Mariam E. K. Frisbie, South Williamsport, has been appointed medical supervisor of the State Hospital, Somerset, to succeed Dr. John S. Marian, who has resigned to enter the military service.

Philadelphia

Campaign for Roosevelt Hospital.—The members of the staff of the Roosevelt Hospital and their friends, September 24, began a campaign to raise \$300,000, the amount needed to erect a larger, modern and fully equipped hospital in the district served by the hospital for the last fifteen years.

Beds for Sailors Endowed.—Thirty-five beds for sailors have been endowed at St. Francis Country House at Darby, which has been selected by the government as a convalescent home for men in the service. Many of these beds, the endowment of which is \$100, have been given in the name of some American, who has given his life for this country.

Sails for France.—Dr. Caroline M. Purnell has sailed for France as a member of the second unit, American Women's Hospital. Dr. Purnell is also special commissioner in the American Women's Hospital in France, and her mission is to inspect the medical hospitals, and consult with the French authorities and American Red Cross, and survey the field generally.

Personal.—Dr. John A. Kolmer, who has been conducting an investigation of influenza at his laboratory in the Philadelphia Hospital, has been stricken with the disease and is confined to his home.—The following municipal appointments have been announced: Dr. T. Ruth Hartley, special inspector, board of health; Drs. Katherine Radley, Rose Harrison and Samuel Friedenburg, school medical inspectors.

Influenza Epidemic Increasing.—Within the twenty-four hours, ending at noon, October 5, 1,480 new cases had been reported with 159 deaths directly due to the influenza. In the week ending at noon, October 4, there were reported in the city 1,191 deaths from all causes. Of this number 399 were directly chargeable to influenza, 330 being adults and 69 minors. Pneumonia was the cause of the death of 229 persons, of whom 45 were minors and 184 adults; while bronchopneumonia was responsible for the death of 79 persons of whom 44 were adults and 35 minors.—By order of the board

of health all schools and churches have been closed, public gatherings prohibited and the sale of liquor stopped throughout the city. Hotels, restaurants, cafes and all political clubs have been ordered to close their bars by the department of health, and retail drug stores have been permitted to sell spirituous and malt liquors only on presentation of a doctor's prescription.

VERMONT

State Society Meeting Postponed.—By order of the state board of health the program for the annual meeting of the Vermont State Medical Society, which was to have been held October 10 and 11, has been postponed.

CANADA

Canadian Medical Protective Association.—The report of the annual transactions of this body has recently been mailed to all members. The report of counsel stated that the association had been called on during the past year to assist some ten members in defending suits for alleged malpractice; in three, action has not been proceeded with; in another the plaintiff withdrew his case, and in still another the plaintiff withdrew and admitted that the conduct of his medical man had been satisfactory. No case of a serious charge against a member occurred.

Medical Society News.—The Academy of Medicine, Toronto, opened for the season, October 1, when Col. Alexander Primrose, C.B., delivered the presidential address.—The Aesculapian Club, Toronto, held its first regular meeting, Thursday evening, October 10, under the presidency of Dr. Harry B. Anderson. The Rev. Canon Gould, M.D., thirteen years a medical missionary in Palestine and Arabia, gave an address on "Palestine and Arabian Factors in the Allied Cause."—At the first open meeting of the Peterborough (Ont.) Medical Society, the evening of October 3, Drs. Richard A. Reeve and Harry B. Anderson, Toronto, were present and delivered addresses.

Blind in Canada.—There are said to be about 700 blind persons in Canada; two-thirds of these lost their sight after reaching 21 years of age. There are five schools for the blind in the dominion with more than 300 pupils. At the present time there are about eighty blinded soldiers. Recently the Canadian National Institute has been incorporated for the purpose of helping the blind. The ways they will be helped are in industrial training, with workshops and other necessary offices. It is believed that \$100,000 will be required for the first year's work and \$70,000 for the second. Among the blind members of this institute are Dr. Charles R. Dickson, the eminent Canadian electrotherapist, and Dr. Thomas Milroy, Winnipeg, Man.

GENERAL

Railway Surgeons to Meet.—The twenty-eighth annual meeting of the New York and New England Association of Railway Surgeons will be held at Hotel McAlpin, New York City, October 21, under the presidency of Dr. James S. Hill, Bellows Falls, Vt.

Dies After Long Service.—Sergt. First Class, David Robertson, Medical Department, U. S. Army, 85 years of age, who had served for sixty-four consecutive years on Governors Island, N. Y., died at his quarters, August 13, from cancer of the intestine and right kidney.

Appropriation for Combating Influenza.—Both the House and Senate have passed House Joint Resolution 333 appropriating \$1,000,000 to be expended by the Public Health Service in combating influenza in the present epidemic and other communicable diseases. The money will be available until June 1, 1919, and the work is to be done in conjunction with the medical services of the Army and Navy.

Bequests and Donations.—The following bequests and donations have recently been announced:

Toronto General Hospital, \$2,000 for the endowment of a bed; Hospital for Sick Children, \$2,000 for the endowment of a bed, contributed by Miss W. J. Barr, Toronto.

Hahnemann Hospital and Philadelphia Home for Incurables, each \$5,000 by the will of Mrs. Mary Stotesbury Crozier.

Burlington County Hospital, Mount Holly, N. J., \$500, and Friends' Asylum, Frankfort, a sum for the erection of a memorial cottage, by the will of Margaret H. Jones.

Physicians of Southwest to Meet.—At the annual meeting of the Medical Association of the Southwest to be held in Dallas, October 15 to 17, under the presidency of Dr. Edward H. Martin, Hot Springs, Ark., a special war program will be presented. Lieut.-Col. Harry Mock of the Surgeon-General's Office will speak on "The Reconstruction Work as Planned

by the Government." The American Red Cross, the Public Health Service, the Pure Food Department and the Council of National Defense will also be represented at the meeting.

Tuberculosis Conference.—The North Atlantic Tuberculosis Conference, representing the states of New York, New Jersey, Pennsylvania, Delaware, District of Columbia, Maryland, Virginia and West Virginia, will be held at the William Penn Hotel, Pittsburgh, October 17 and 18, under the auspices of the National Tuberculosis Association. Dr. Thomas McCrae, Philadelphia, is president, and the program is in the main devoted to the discussion of tuberculosis war problems. The chief topics announced are: "Health Education of the Civilian Population in War Times," "The Need of Adequate Tuberculosis Programs in War Times," and "Adequate Care of Tuberculous Soldiers."

FOREIGN

Deaths in the Profession Abroad.—Dr. R. Saundby, emeritus professor of medicine at the University of Birmingham, a former president of the British Medical Association, aged 79. His book on medical ethics reached a second edition in 1907, and he had a wide reputation as a clinician, administrator and author.—Dr. Margaret Todd, medical officer to the Edinburgh Hospital for Women and Children, known as a writer under the pseudonym "Graham Travers."—Dr. J. Vera, a neurologist and alienist of Madrid, member of the board of the Beneficencia provincial.—Dr. A. Mendoza, the pioneer in microphotography in Spain, chief of the laboratory of the Beneficencia provincial and of the scientific institute in charge of Cajal. He took a prominent part in stamping out epidemics of cholera in 1884 and later.

SOUTH AND CENTRAL AMERICA, MEXICO AND WEST INDIES

Circulating Library Founded to Add to Hospital Fund.—At Bogota a circulating library has been founded to aid Hospital San José. Books are donated and the fees for circulation are given to the hospital.

Elections of Officers.—The Sociedad de Cirugia of Bogota at its recent annual meeting elected Drs. L. C. Marquez, president; M. Rueda, secretary, and Dr. H. Machado, director of the work of the Hospital de San Jose.—The Sociedad de Pediatria elected Dr. J. M. Montoya, president, and Dr. J. Bejarano, secretary. The Club Medico, Dr. M. A. Iriarte, president; Dr. C. J. Lopez, secretary.

Buildings for the Medical School in Colombia.—The *Repertorio* of Bogota hails the inauguration of the new pavilions for the study of anatomy, histology and pathologic anatomy, which are to serve as the basis for the equipment for the study of medicine in the republic of Colombia. It states that a new era for the study of medicine is opening in the country, and the men who are to be thanked for it are Drs. L. C. Marquez, president of the Academia Nacional de Medicina, H. Machado, rector of the medical faculty, and P. Martinez. They have accomplished what others regarded as a dream incapable of realization.

MEXICO LETTER

MEXICO CITY, Sept. 23, 1918.

Eighth Anniversary of Founding of University

As yesterday was the eighth anniversary of the founding of the National University here, it was celebrated with a musical-literary ceremony in the morning, in the amphitheater of the National Preparatory School, attended by all connected with the university. Addresses were made by the rector of the university, Dr. J. N. Macies, who spoke in Latin. After these ceremonies a portrait of the late Dr. J. E. Liz, LL.D., who was the first rector of the university, was placed in the rector's office.

At noon a banquet with 150 covers was served in the Chapultepec restaurant, the rector presiding, with the members of the university faculties, the professors and a number of alumni. Among the guests were Mr. H. P. Fletcher, the ambassador from the United States, the Duke de Amalfi, the minister from Spain, and also the ministers from Uruguay and Nicaragua, the president of the city council, and other dignitaries. The culminating note of the conviviality was the toast that the American ambassador offered, expressing his desire to work for the interchange of university professors and students between Mexico and the United States. Señor Fletcher's address, frank, loyal and cordial, elicited enthusiastic "vivas" for the American Union, Spain and President Wilson.

The National University of Mexico was founded under the auspices and patronage of the Universities of California, Oviedo (Spain) and Paris.

Regulation of the Practice of Medicine

The legislature of the state of Jalisco has passed laws regulating the practice of the profession in that state. Before entering on practice in Jalisco, a professional degree is now required of lawyers, physicians, pharmacists, engineers, veterinarians, obstetricians and dentists. These requirements are to be enforced under penalty of fine or imprisonment, except that at points where there are no qualified persons the practice of lay persons will be tolerated. Holders of degrees from foreign schools will have to present their diplomas for verification or submit to an examination. The president of the state has not yet signed the law. Jalisco is the first state in Mexico to enact any law of the kind in this matter, which is of such transcendental social importance. Elsewhere in the country there are no legal restrictions on the practice of unqualified practitioners of medicine and other professions.

Personal

At the request of the rector of the National University, Dr. N. Leon has been appointed the representative of Mexico in the Congreso de Americanistas, which is to convene at Rio de Janeiro in June, 1919. Dr. Leon is professor of anthropology at the National Museum, and has been the official representative of Mexico at various American international gatherings. He is a pupil of Prof. A. Hrdlicka of Washington, and is known in the scientific circles of the American Union.

Dr. T. G. Perrin has been elected a member of the Pedro Escobedo Medical Society, and his inaugural address was entitled "Our Attempts at Bacteriotherapy." It made a good impression. Dr. Perrin is a pupil of Cajal, and is a distinguished Spanish pathologist and bacteriologist who has been residing here for several years.

Dr. F. C. Najera has returned from New York, where he has been on an official commission, and has resumed charge of the Juarez Hospital.

New Medical Periodical

With August began the publication of the *Revista Medica*, at the city of Puebla, which comes to fill the vacuum left by the suspension of nearly all the medical periodicals of the country. The *Revista* aspires to be the organ of the medical corps in Mexico, and although the first number leaves something to be desired, we can hope that with time it will improve. The directors of the periodical are Drs. F. Bello and F. L. Casian, the latter director of the Medical School at Puebla. Dr. A. Cabrera, governor of the state, guarantees the expenses of the publication until it becomes self-supporting.

Sugar Treatment of Tuberculosis

The Mexican consul in Italy reported to the government the statements of Dr. D. Lo Monaco of Rome in respect to the benefit from subcutaneous injections of an isotonic and sterilized solution of saccharose in cases of pulmonary tuberculosis. He said that this cures or at least relieves the tuberculous and, what is still more interesting, the tubercle bacilli disappear from the sputum. The Departamento de Salubridad has established a free public dispensary in which these injections are given to needy patients who apply. Arrangements have also been made to supply physicians with ampules of the solution of saccharose ready for use, with the single condition that they will inform the sanitary authorities of the results of treatment to learn whether they fulfil the flattering promises of the Italian professor.

BUENOS AIRES LETTER

BUENOS AIRES, Aug. 24, 1918.

Epidemic of Typhus

The sanitary commission in charge of Professor Kraus of this city has established the existence of an epidemic of typhus in the provinces of Salta and Jujuy. In 1916 a commission, composed of Drs. Neiva and Barbará, had observed a clinical case and collected data testifying to the existence of this disease, until then not known certainly in Argentina, although it is known in Peru, Bolivia and Chile. Before this there had been only a suspicion of the existence in Argentina of a small epidemic among some recently arrived Russians a few years ago. The data collected by the commission now prove that typhus exists in almost an endemic form in the moun-

tainous and scantily populated provinces of Salta and Jujuy. In the town of Molinos there have been numerous cases, with fourteen deaths among the sixty cases encountered by Dr. Fernandez who was sent to combat the epidemic. At Mendieta (Jujuy) there were four deaths in nine cases, but the general mortality to date seems to have been about 20 per cent. The reason why this disease has not been recognized before was because the endemic foci are in such remote and almost uninhabited regions far from the towns and railroads.

Changes in University Staffs

The conflict that has been going on in the University of Cordoba has grown more acute. The rector and several of the members of the faculties have presented their resignations. The head of the national government has appointed the minister of public instruction to take charge of the matter personally, and reorganize the staff of the university. At the request of the minister of public instruction, the medical faculty of the university of Buenos Aires did not appoint a new dean at the close of the term of office of Dr. Bazterrica, and this post is filled provisionally by the member of the university council who has been longest in office, Dr. E. Canton, until the reorganization of the university statutes has been sanctioned.

Professor of Pathologic Anatomy

Dr. J. Llambias, at present the *intendente municipal* of the city of Buenos Aires, has been appointed professor of pathologic anatomy in the faculty of medicine of the University of Buenos Aires.

PARIS LETTER

PARIS, September 12, 1918.

Campaign Against Malaria

In a previous letter mention was made of an important communication by Dr. Marchoux, physician-in-chief of the Place de Paris, on the campaign against malaria (THE JOURNAL, Sept. 15, 1917, p. 926). Marchoux insisted particularly on the fact that systematic microscopic examinations of the blood would reveal the parasites of malaria two or three days before the appearance of the febrile attack, and the patient could then be sterilized by the administration of a few grams of quinin. As a matter of fact, hospitalization is not the solution of the question, for the majority of malaria patients need care only during the paroxysms, which occur at irregular intervals. The hospitals should not be filled up by men who do not need constant care. On the other hand, these men cannot be returned to military duty because they may be incapacitated by an attack at any time. The solution of this problem has been found by the creation of the anti-malaria dispensary of the Pasteur Institute. This dispensary will keep these patients under observation during the period of development of the hematozoon, making frequent examinations of the blood, so that the appearance of the next paroxysm may be anticipated and be prevented by a prophylactic dose of quinin. If it is possible to check the paroxysms and the multiplication of the hematozoon which is the direct cause of the attack, the patient will have to deal with only one generation of hematozoa, diminished in numbers and in virulence, and thus an important step toward a cure will have been taken.

The dispensary has been installed in a large hall of the hospital of the *centre de réforme* at Vaugirard. It is provided with a series of small stalls separated by wooden partitions, and here come, at the day and hour specified, the patients who are under treatment. The microscopic examination of the blood is made by a group of young army physicians who are specializing in this work. All the other work which is to be done in this department is assigned to Red Cross nurses. Ordinarily a blood examination would consume much time, but by resorting to the so-called "thick drop" method, *a goutte épaisse*, with the hemoglobin removed, first proposed by Ronald Ross and perfected by Tribondeau, these examinations can be made very quickly.

The essential feature of this antimalaria dispensary is the fact that the patient is not hospitalized. The Service de Santé is not put to any expense. The malarial soldier is placed where he can be of most service; he may be placed in the auxiliary service, but, as a rule, he works at his trade in Paris. Therefore, he is not unproductive during the course of his treatment.

Campaign Against Poisonous Gases

For the purpose of instituting proper measures to combat the toxic or poisonous gases used by the Germans, especially the gas known as mustard gas or "ypérite" (so named

because it was used for the first time at Ypres), a bathing and cleansing service has been organized by the Service de Santé militaire. It has been discovered that if the victims of these vesicating gases, like "ypérite," are given a bath and proper care within three hours after exposure to the gas, complications will not, as a rule, occur.

Each section for the disinfection of clothing and the douching of the gassed is mobile. It consists of a motor lorry or truck and a trailer. The truck transports the tent, the douche or bath apparatus, floor boards and other necessary accessories. The trailer carries a stove to disinfect the clothing. The whole outfit can be set up very quickly, and it operates in a very simple manner. The men undress in a part of the tent, separate from the bathing outfit. Their clothing is placed in the disinfecting apparatus while they are bathing, and on leaving they receive their clothing which has been freed of every trace of "ypérite." Forty men at a time can be doused; one hundred can be taken care of in an hour by one outfit. The Service de Santé intends to supply each division with one of these outfits.

There has also been organized a special clinic for the treatment of gas victims. This clinic is installed in the school of commerce (*hôpital auxiliaire 101 de l'Union des Femmes de France*), and is under the scientific direction of Dr. Ch. Achard, professor of pathology and general therapeutics in the Medical Faculty of Paris. This is at the same time a hospital where the gassed are given treatment and where army physicians are instructed in the methods of treatment applicable to these cases of gas poisoning. A research laboratory is attached to the hospital.

Mumps

At a recent session of the Académie de Médecine, Dr. Capitan read a very interesting paper based on his observation of 700 cases of mumps treated in his contagious disease service at the Hôpital militaire Bégín since the beginning of the war. Capitan directed special attention to a new sign, one which he has never failed to find, namely, a very distinct enlargement of the spleen appearing with the onset of the disease and disappearing at its termination. He has also seen in some cases a generally distributed reddish eruption which disappeared in the course of convalescence. Sometimes, though rarely, symptoms are present of irritation of the meninges at the base of the brain; they are not severe and disappear after eight or ten days. Capitan has observed one case of severe cerebrospinal meningitis as a sequel of mumps, but it terminated in recovery.

The Clinical Thermometer

A law has been passed which provides that after nine months no clinical thermometers can be delivered, placed on sale or sold without having first been subjected to verification. Each instrument must bear the name of its manufacturer and after verification it should be suitably stamped, bearing also the date of inspection. Infringements of this law will be punished in the same manner as the use of false weights or measures (a fine of from 11 to 15 francs); furthermore, the instrument will be seized and confiscated. Repetition of the offense will incur a fine of from 50 to 100 francs. In case of false branding, the culprit will be punished by imprisonment of from six months to five years.

Repatriation of Interned Persons

Word has been received from Geneva that the repatriation of the French interned, which has been interrupted for several weeks because of an epidemic of grip prevalent in Switzerland, will be resumed in the usual manner.

Evacuation of the Wounded by Waterways

On account of the difficulty of transportation of the wounded from certain sectors by hospital trains, the Service de Santé militaire has for some time been considering the establishment of a waterways transport for the evacuation of the wounded. However, no definite steps were taken to establish this transport without due consideration of all factors involved. During the recent battles more than 4,000 wounded were transported by water under the best conditions. Orders were issued to make a study of the waterways available for transport between the Oise, the Aisne and the Marne, and to provide the boats needed for such service. The wounded were far more comfortable in the boats than in the trains, which more than compensated for the longer time required to evacuate them. It is necessary, however, to equip the boats in such a manner that operations may be performed as is now done in the ambulances.

Deaths

Capt. George Shrader Mathers, M. C., U. S. Army, Chicago; Rush Medical College, 1913; a son of Dr. William R. Mathers, Prosper, Texas; a Fellow of the American Medical Association; died in Baltimore, October 5, of pneumonia; aged 31. Captain Mathers was a member of the staff of the John McCormick Institute for Infectious Diseases where he had done notable work in isolating the streptococcus in the nervous system in poliomyelitis, in studying the streptococci involved in acute epidemic respiratory infections in man and in studying a remarkable streptococcus epidemic in horses; also in an extensive study of meningitis in one of the military establishments. He entered the service as a lieutenant in March, 1918, and was stationed at Washington, D. C., at Newport News, Va., and finally as director of the laboratory in the base hospital at Camp Meade, Md. It was while working on material in connection with the present epidemic of influenza and the secondary pneumonia that Captain Mathers became a victim of the disease.



Died in the Service
CAPT. GEORGE S. MATHERS, M. C.,
U. S. ARMY, 1887-1918

Capt. Charles Henry Gallagher, M. C., U. S. Army, Ithaca, N. Y.; University of Syracuse, N. Y., 1896; aged 42; a Fellow of the American Medical Association; a specialist in anesthesia; whose military service commenced with a tour of duty at Fort Oglethorpe, Ga., when he was ordered to a replacement battalion at Allentown, Pa., and sailed to England, and then to France, where he was a member of the staff of Base Hospital No. 202, Orleans, France; died in that institution, August 28, from bronchial pneumonia.

Wilbur Alson Hendryx, New York City; Rush Medical College, 1874; aged 69; formerly a practitioner of Grand Rapids, Mich., and lieutenant-colonel in the Michigan National Guard; donor of a bacteriologic laboratory to the Medical College of Southern California, Los Angeles; more recently interested in mining; said to have been the inventor of the cyanid process of separating metal from ore, and of many types of mining machinery now in general use; died suddenly in Allentown, Pa., September 21.

Capt. Rae Wyant Whidden, M. R. C., U. S. Army, New York City; Harvard Medical School, 1911; aged 33; a Fellow of the American Medical Association and New York Academy of Medicine; a specialist in diseases of the lungs; visiting physician to Bellevue Hospital, assistant physician at the Presbyterian Hospital Dispensary and assistant surgeon to the Manhattan Eye, Ear and Throat Hospital; died at the Massachusetts General Hospital, Boston, September 25, from pneumonia, following influenza.

Col. Charles E. Doerr, M. C., U. S. Army; Medical College of Ohio, Cincinnati, 1906; aged 35; a Fellow of the American Medical Association; commandant of the Base Hospital at Camp A. A. Humphreys, Accotink, Va.; who entered the Medical Reserve Corps in 1908; was made first lieutenant, Medical Corps, in 1909, and promoted to captain, Medical Corps, in 1912; died at Camp Humphreys, October 3, from pneumonia, following influenza.

Uriah Newton Mellette, Bellingham, Wash.; Eclectic College of Medicine and Surgery, Cincinnati, 1858; aged 83; at one time a member of the Oklahoma State Medical Association; formerly a member of the Florida State Board of Health, and a member of the Oklahoma State Board of

Pharmacy; was killed accidentally by a train in one of the tunnels of the Great Northern Railway, near Bellingham, September 22.

Lieut. John Lee Fisher, Assistant Surgeon, U. S. Navy, Wilmington, Del.; Hahnemann Medical College, Philadelphia, 1912; aged 30; a Fellow of the American Medical Association; who entered the naval service, Nov. 17, 1917, and was assigned to duty on the *U. S. S. Kearsarge*; died, September 24, in the U. S. Naval Hospital, Chelsea, Mass., from influenza.

Thomas William Kohr, Robertsdale, Hammond, Ind.; New York University, New York City, 1884; aged 75; a member of the Indiana State Medical Association; secretary and president of the board of health of Hammond from 1902 to 1905; proprietor of the Robertsdale Pharmacy; died at his home, September 20, from cerebral hemorrhage.

Lieut. Walter Irenaeus Ryder, U. S. N. R. F., Newton, Mass., and Boston; Tufts College Medical School, Boston, 1913; aged 29; a Fellow of the American Medical Association; stationed at the U. S. Navy Radio School, Harvard; died at his home in Newton, September 24, from bronchopneumonia, following influenza.

Capt. Cecil Goodard Morehouse, M. R. C., U. S. Army, Waukon, Iowa; State University of Iowa, College of Homeopathic Medicine, Iowa City, 1913; aged 30; a member of the Iowa State Medical Society; who had been on duty on the Western Front in France, is reported to have been killed in action, recently.

Lieut. Edward James Ware, M. R. C., U. S. Army, New York City; College of Physicians and Surgeons in the City of New York, 1885; aged 59; a Fellow of the American Medical Association and New York Academy of Medicine; visiting surgeon to the Bloomingdale Clinic; died at his home, September 30.

Carrie A. Frost, Almond, Wis.; Northwestern University, Womens' Medical School, Chicago, 1898; aged 53; a Fellow of the American Medical Association; for many years attending physician to the Home for Incurables, Chippewa Falls, Wis.; died at her home, September 22, from tuberculosis.

James Morgan Hurley, San Bernardino, Calif.; Cincinnati College of Medicine and Surgery, 1865; aged 75; at one time a Fellow of the American Medical Association; assistant surgeon, U. S. Army during the Civil War; for several years health officer of San Bernardino; died at his home, September 25.



Died in the Service
IN FRANCE
MAJOR WILLIAM B. HUDSON, M. C.,
U. S. ARMY, 1870-1918
(See *The Journal*, last week, p. 1157)

War; died at the home of his daughter in Seattle, August 12, from senile debility.

Lieut. Gilbert Mord Newburger, U. S. N. R. F., Philadelphia; Medico-Chirurgical College of Philadelphia, 1905; aged 38; a Fellow of the American Medical Association; on duty at the Philadelphia Naval Hospital; died in that institution, September 27, from pneumonia.

William B. Bullard, Los Angeles; Bowdoin Medical School, Brunswick and Portland, Me., 1859; aged 89; at one time

Marland Cooper Eaton, Beverly, Mass.; Tufts College Medical School, Boston, 1906; aged 33; formerly a member of the Massachusetts Medical Society; at one time a member of the board of health of Wenham; died at his home, recently from pneumonia, following influenza.

Butler Presson Seattle; aged 87; at one time a member of the Grant County (Ind.) Medical Society; a pioneer practitioner and clergyman of the state of Washington; a veteran of the Civil War; died at the home of his daughter in Seattle, August 12, from senile debility.

Fellow of the American Medical Association; a member of the Medical Society of the State of California; died at his home, September 23.

Emory J. Walker, New Haven, Conn.; Hahnemann Medical College, Chicago, 1868; aged 73; one of the founders of Grace Hospital, a charter member of its board and secretary of the institution since 1889; died at the home of his son in New Haven, September 9.

George William Yeaton, Milford, Mass.; Dartmouth Medical School, Hanover, N. H., 1902; aged 40; at one time a Fellow of the American Medical Association; a member of the Massachusetts Medical Society; died at his home, September 27, from influenza.

Phillip Townsend Buckley, Boston; Harvard Medical School, 1884; aged 58; a member of the Massachusetts Medical Society; died at his home, September 19, from pneumonia, following influenza.

Abraham P. Williard, Kirksville, Mo.; University of Maryland, Baltimore, 1850; aged 92; surgeon of U. S. Volunteers during the Civil War; died at his home, September 11, from arteriosclerosis.

Francis Joseph Colgan, Colorado Springs, Colo.; L.R.C.P. (Ireland), L.R.C.S. (Ireland), 1910; aged 32; died at a sanatorium in Colorado Springs, September 11, from pulmonary tuberculosis.

Herbert Abraham Hands, Cambridge, Mass.; College of Physicians and Surgeons, Boston, 1882; aged 66; died suddenly in Somerville, Mass., September 18, from heart disease.

Henry C. Carpenter, Lake Odessa and Howard City, Mich.; Homeopathic Hospital College, Cleveland, 1868; aged 82; died at farm home, near Howard City, September 13.

Francis Winfield Sapp, Columbus, Ohio; College of Physicians and Surgeons, Baltimore, 1882; aged 64; died at his home, September 20, from arteriosclerosis.

Whitfield Tillison, Eloise, Mich., formerly of Detroit (license, Michigan, years of practice, 1900); aged 80; died in the county house, Eloise, September 3.

S. Dawson Good, Ashtabula, Ohio; University of Wooster, Cleveland, 1892; aged 50; died at the home of his father in Ashtabula, September 15, from nephritis.

James Leander Forsythe, Lewistown, Ohio; Cincinnati College of Medicine and Surgery, 1875; aged 69; died at his home, September 14, from paresis.

C. W. Knickerbocker, Cedar Falls, Iowa; Hahnemann Medical College, Chicago, 1882; aged 60; died in Chicago, September 14, from heart disease.

Edward J. Buckley, Oak Park, Ill.; Rush Medical College, 1904; aged 40; died at the home of his parents in Lombard, Ill., September 24.

Marc Aurele Trudeau, Lowell, Mass.; University of Vermont, Burlington, 1899; died at the home of his brother in Canada, September 7.

William M. Safley, Townsend, Mont.; College of Physicians and Surgeons, Chicago, 1885; aged 60; died at his home, September 5.

N. A. McCoy, Jackson, Tenn.; Memphis (Tenn.) Medical College, 1855; aged 86; died at his home, September 9.

Josiah B. Custer, Bismarck, Ark. (license, Arkansas, 1903); aged 56; died at his home, September 17.

Marriages

CAPT. CHARLES WATKINS BROWN, M. C., U. S. Army, Nashville, Tenn., on duty at Vancouver Barracks, Wash., to Miss Anna Murphey of San Diego, Calif., at Portland, Ore., September 10.

LIEUT. MICHAEL FRANCIS MCGUIRE, M. R. C., U. S. Army, Chicago, to Miss Rhea F. Ferrin of Jamestown, N. Y., September 25.

LIEUT. RALPH AVERILL GOWDY, U. S. N. R. F., Minneapolis, to Miss Vera M. Unumb at Alexandria, Minn., September 16.

HENRY AUGUSTUS PETERS, Oconomowoc, Wis., to Miss Emma Nicolaus of Fort Atkinson, Wis., September 17.

GEORGE GIRDWOOD PEARCE, New Bedford, Mass., to Miss Elsie Bruce Jenney of Hyde Park, Boston, recently.

GLEN GODFREY GORDON, Baker City, Ore., to Miss Josephine Beaudoin of Joseph, Ore., September 7.

Correspondence

FRIENDLY SOCIETIES AND THE AUSTRALIAN PROFESSION

To the Editor:—I have been directed to inform you of the dispute that has been in existence for some months between the Friendly Societies of Victoria and the British Medical Association.

The lodge doctors have been paid for the past forty years on an average as little as 14s. per annum for the town; this includes attendance on the member and his family and works out at four persons for each member; for the country the average is 16s. per annum per member for the lodge doctor.

For a considerable period of time we held negotiations with the associated lodges called the "Friendly Societies Association" with a view to having the rate of remuneration increased. As the Friendly Societies refused our demands, 100 per cent. of the town members and 96 per cent. of the country members of the British Medical Association on the 31st of last October gave three months' notice of their intention to resign their appointments on the 31st of January of this year and asked for reappointment on the terms of a model lodge agreement that had been drawn up. The Friendly Societies Association refused our terms and established institutes at which the institute doctor was asked to attend from 3,000 to 5,000 patients. The government of the day was asked by the Friendly Societies to take a hand in settling the dispute. The commissioner found that the terms asked for by the British Medical Association were just and equitable. Both sides expressed their willingness to accept the finding of the Royal Commission; but the British Medical Association made it a condition that the institute which had been established should be abolished. They were unwilling to see their men sacrificed for their loyalty to the association in that they had tendered their resignations and were to be left without any means of livelihood should the commissioner's findings be accepted unconditionally.

The lodges are endeavoring to extend their institutes, but find a difficulty in procuring medical practitioners. One of our most bitter opponents, the late president of the Friendly Societies Association, Mr. Samuel Mauger, is now on his way to Canada; and it was stated in Parliament that he purposes securing 1,000 medical officers from America to fill the positions of lodge medical officers vacated by the members of the British Medical Association in what was termed by the commissioner to be "a just demand." The institute doctors are ostracized by other members of the medical profession and are not met in consultation.

My council would esteem it a favor if you would put a "warning notice" in THE JOURNAL advising any medical practitioners in your country who might think of applying for any of the positions which might be advertised in your daily newspapers that they should first of all apply for information. By so doing you would be conferring a great favor on our association.

C. STANTON CROUCH, Secretary,
Victoria, Melbourne, Australia.

ANESTHETISTS AND ANESTHETIC TECHNICIANS

To the Editor:—A gradually increasing misconception of the art of anesthesia has led to a rather unique condition of affairs.

We find that nurses and other lay persons may, by the simple acquisition of a few rules, become anesthetists. Large institutions have adopted the nurse anesthetist on grounds of economy, expediency and even sentimentality. It is argued that these workers can be employed at little expense, that the supply meets the demand, and that the feminine element eliminates fear and works for smoothness during the induction of the anesthesia.

These institutions may employ lay persons to take their roentgenograms and to make urinary, blood or sputum exami-

nations, but does any one dream of speaking of these workers as the hospital roentgenologist or the attending pathologist? They are employed as technicians. The nurse who administers an anesthetic is an anesthetic technician. She can never be more without a medical degree, for in order to understand the language of anesthesia one must have intimate acquaintance with anatomy, physiology, medicine, surgery, diagnosis, psychology and special branches.

The nurse who in discussion with a medical man attempts to defend a theory relating to anesthesia cannot fail to feel the presumption of it and, if graced with wit, to see the absurdity of such a position. Yet it has actually come to pass that medical men have suffered themselves to be instructed by a nurse in the theory and practice of anesthesia.

In justice to an important branch of surgery and to our medical confrères who devote their training and their energy to its development, let us drop the term "anesthetist" as applied to its nonmedical workers and adopt the term "anesthetic technician."

PALUEL J. FLAGG, M.D., New York.

A PHYSICIAN'S FINANCES

To the Editor:—I do not believe that advertising in a daily newspaper and in the physician's waiting room, and the sale to the highest bidder of his unpaid accounts, as advocated by physicians and noted under "Editorial Comments" in the September issue of the *Journal of the Michigan State Medical Society*, is the proper remedy for people who do not pay their physician. A more radical one is needed. Since the physician must consummate one of the great fundamental instincts of human life, that of self-preservation, or making a living, why not strike at the root of the evil, calling a spade a spade, and not beat around the bush? The health of the physician, which is his greatest asset, suffers by the fatigue of long hours in trying to conserve human life. He responds to the public's call the entire twenty-four hours of the day, while even the common laborer has the law's protection to work no more than eight—the physician being the only worker who wears himself out for people who do not pay.

A political board or the claim adjuster of an insurance company should not be permitted to fix a doctor's fee. The individual who fails to pay his physician a small fee for saving his life will pay a lawyer thousands of dollars to be saved from the penitentiary.

To keep himself efficient the physician requires both money and recreation; hence he should take the honest, fearless course, demanding spot cash payment or giving no service. Those who declare this remedy too harsh or drastic should remember that the physician has suffered long from the moth-eaten abuse, and because patients will not protect him he must protect himself unless he wants to qualify as a medical missionary. The public can profitably have a law enacted that will be a protection in case of illness not only against the overworked general medical practitioner, but also against the weary medical specialist who employs inexperienced assistants to care for his great swarm of patients—this law to limit the amount of work the physician undertakes, because beyond a certain point, as his practice increases, his efficiency to the ill diminishes.

I am of the opinion that, eventually, in the interest of both physician and patient, the state will not only graduate the physician but will support him after graduation with a just compensation—one that will be great enough to guarantee him, not only a living, but also professional necessities for which, under the present system, it is his lot to struggle.

I have been in the general practice of medicine since 1890 on the site of my birthplace in Detroit, treating patients from all sections and classes of the city. For the twenty years ending Dec. 31, 1909, during which time I treated every ill patient that applied, only 2 per cent. paid promptly, and 60 per cent. failed to pay me anything. Profiting by this experience, on Jan. 1, 1910, I adopted my present rule, to ask every new patient before he receives service if he can pay my fee. If his reply is negative he is told that I carry no accounts with strangers and that he must seek treatment from the Detroit Public Welfare Commission free medical clinics and

dispensaries, or elsewhere. For the eight and a half years ending June 30, 1918, of my total number of new patients, 47 per cent. were refused treatment, the balance paying cash and obtaining my services. Expenses dropped with diminished business, leaving my average net income per month for this period 276 per cent. more than my average net returns per month for the preceding twenty years, although it was an amount not more than that earned by the average Detroit salaried layman. The rule gives me more time for refreshment, reading and sleep—all needed to make for physical and mental efficiency in serving such of the ill as apply who are willing to pay promptly. I need not say that dead beats, deliberate grafters and delinquents make a rigorous howl against my business methods, although I treat all applicants known to be honest indigents free of charge.

Because of my experience of nearly thirty years, I recommend to physicians who have not medical missionary ambition, instead of the "schemes" above mentioned and pending the time when they will be paid out of the annual public tax budget, that they do a strictly cash business with patients whose credit is not known to be first class—the honest indigents alone excepted—and to require those with such good credit to keep their accounts paid up at least every thirty days.

JOHN LINN IRWIN, M.D., Detroit.

ENTEROCOLOSTOMY FOR ACUTE OBSTRUCTION OF THE TERMINAL ILEUM FROM INFECTION IN THE PELVIS AND LOWER ABDOMEN

To the Editor:—In his article in *THE JOURNAL*, Sept. 7, 1918, Dr. B. M. Anspach recommends an enterocolostomy for acute obstruction of the terminal ileum caused by infection in the pelvis, and cites clinical results. I am heartily in accord with his report and wish to emphasize my opinion by citing an article I wrote in the *Boston Medical and Surgical Journal* (1913, 169, 313) in which I advocated this identical procedure for just such obstructions and reported three successful cases. Since then I have had four more, one in a child aged 4 years, all successful. I had operated on my first three patients previous to an article by Cheever (*Boston Medical and Surgical Journal* (1913, 168, 719) in which he first described this type of obstruction of the terminal ileum from suppuration in the pelvis, the condition in his cases and mine being due to the appendix. He advocated enterostomy, which proved fatal in two out of three cases reported.

W. Sampson Handley (*British Journal of Surgery*, 1915, 3, 157) reports a similar condition, in addition a portion of the pelvic colon being obstructed by this inflammatory exudate, two areas of the intestine involved, to which he aptly applies the term "ileus duplex." He advocated ileocolostomy if the anastomosis could be performed below the area obstructed, and if that was impossible, to perform an ileocolostomy above the obstruction in the colon and in addition a cecostomy to drain the contents of the colon and ileum.

A colostomy or enterostomy for an obstruction is often a life-saving procedure and no doubt is not performed frequently enough; but when an anastomosis of the obstructed intestine to a point low in the colon, where absorption is nil, can be performed, with results equally as good, it is to be advocated in preference to drainage to the surface, which not only is an additional care but requires a second operation for its closure.

Dr. Anspach's report is interesting and confirms a procedure which I believe I was the first to report in August, 1913.

C. A. ROEDER, M.D., Omaha.

Dispensary as a Social Agent.—The province of the dispensary is extending far beyond the clinic walls, until it now reaches out into the community as a public agent. This is the need which has brought about a readjustment by the injection into the operation of dispensaries social service principles and public welfare interests.—Lucy C. Catlin, *The Hospital as a Social Agent in the Community*.

Book Notices

NERVE WOUNDS: SYMPTOMATOLOGY OF PERIPHERAL NERVE LESIONS CAUSED BY WAR WOUNDS. By J. Tinel, Preface by Professor J. Dejerine. Authorized Translation by Fred Rothwell, B.A., Revised and Edited by Cecil A. Joll, M.B., M.S., B.Sc. Senior Surgeon Richmond Military Hospital, Cloth. Price, \$4.50. Pp. 317, with 323 illustrations. New York: William Wood & Co., 1917.

This work has been prompted by the great number of nerve wounds produced by war injuries. There were 639 cases which formed the basis of this study, and of these, 408 involved the upper and 231 the lower extremities. A brief synopsis on the character of the injuries, the changes that take place in the nerve, degeneration and regeneration, and the formation of neuromas and pseudoneuromas forms the opening part of the first chapter. The general subject is then subdivided into four parts. Part 1 is devoted to a general survey, and consists of five chapters, on nerve lesions in war wounds, clinical examination of a nerve, electrical examination, clinical types, and general diagnosis of peripheral nerve lesions. Part 2 deals with the nerves of the upper limb and Part 3 with those of the lower limb. Part 4 presents the conclusions, some of which are interesting and may be mentioned:

We are justified in affirming that the prognosis of peripheral nerve lesions is, on the whole, favorable.

Every peripheral nerve affected by traumatism tends to regenerate.

Widespread destruction of peripheral nerves is also repairable by nerve grafting.

Nerve suture practiced under favorable condition almost invariably succeeds.

Early intervention does not appear to be an indispensable condition; we have witnessed the success of nerve sutures practiced thirteen and fifteen months after the wound.

The author, by reason of his large experience in war injuries, has been able to present in this work a valuable contribution to our knowledge of traumatic nerve lesions.

FIBROIDS AND ALLIED TUMOURS (MYOMA AND ADENOMYOMA): THEIR PATHOLOGY, CLINICAL FEATURES AND SURGICAL TREATMENT. By Cuthbert Lockyer, M.D., B.S., F.R.C.P., Vice-President Obstetrical and Gynaecological Section, Royal Society of Medicine. With an Introductory Notice by Alban Doran, F.R.C.S., Consulting Surgeon to the Samaritan Free Hospital for Women. Cloth. Price, \$25. Pp. 603, with 316 illustrations. New York: The Macmillan Company, 1918.

Dr. Lockyer has had an extensive experience, both as a clinician and as a gynecologic pathologist, during many years of work in the Samaritan Hospital, London. This volume embodies his own observations, as well as those of many other prominent workers, and may be regarded as the latest and most important work that has been written on the subject. The book consists of three parts, considering, respectively, myoma, adenomyoma and operative measures. It is illustrated in the most comprehensive manner, and both text and drawings are highly creditable to the publishers; indeed, it is one of the finest medical publications that has been produced in Great Britain in recent years.

An elaborate analysis of the work is not possible within the limits of a review article. It is a great storehouse of observations, theoretical considerations occupying but a small portion of the contents. In Part I, on secondary changes in myoma, full consideration is given to malignant complications, the author having no doubt as to the possibility of malignant transformation of the myoma cell. He points out that while sarcomas of connective tissue origin are either spindle-cell or round-cell those of muscular origin are invariably spindle-cell. Regarding hyaline degeneration, he states that this condition is often a precursor of or intimately connected with sarcomatous change. The rarity of tubal gestation in myoma uteri is emphasized, and the fullest consideration is given to the association of uterine pregnancy and myoma. Most opportune is the section dealing with radiotherapeutics. This is a valuable summary of extensive observations from various sources regarding treatment by the roentgen ray, radium and mesothorium. Lockyer believes that radiotherapy acts chiefly by destroying the ovaries, but that the roentgen ray has also a direct influence on the myoma cells, though this is variable in producing atrophic changes and shrinkage. Indeed, he is skeptical as to the ability of the

roentgen ray to cause permanent atrophy in myoma. Radium and mesothorium used alone are not so suitable as the roentgen ray, as no shrinkage of the growth can be expected. Radiotherapy should be employed only when the myoma is not complicated by adhesions, degeneration and other new growth. The contraindications outweigh the indications for radiotherapy.

Part II, dealing with adenomyoma, is a masterly review of our knowledge of this growth, and can be recommended as a valuable work of reference. The etiologic analysis gives full consideration to the wolffian origin hypothesis of von Recklinghausen, the mucous membrane origin so strongly urged by Cullen, the inflammatory theory of mucosal invasion, the embryonic or congenital theory, and the serosal theory. Lockyer believes that heterotopy of serosal epithelium is the probable explanation of the existence of epithelial spaces and cysts in most of the extra-uterine swellings found between the rectum and the genital tract. There is also a detailed description of these tumors as found in the fallopian tubes, round ligaments, ovarian ligaments, broad ligaments, rectogenital space and alimentary tract. The author is of the opinion that adenomyomas very rarely become malignant. They are more frequently associated with pelvic peritonitis than myomas. Radiotherapy is unavailing in the treatment of these tumors, and may excite inflammatory processes.

Part III, dealing with surgical measures and with post-operative complications, is written in a manner that gives evidence of a wide and sound clinical experience.

The author and publishers of this important volume are to be highly congratulated on its production. It should find a place in every medical library in America.

LOCAL AND REGIONAL ANESTHESIA, WITH CHAPTERS ON SPINAL, EPIDURAL, PARAVERTEBRAL, AND PARASACRAL ANALGESIA, AND ON OTHER APPLICATIONS OF LOCAL AND REGIONAL ANESTHESIA TO THE SURGERY OF THE EYE, EAR, NOSE AND THROAT, AND TO DENTAL PRACTICE. By Carroll W. Allen, M.D., Assistant Professor of Clinical Surgery at the Tulane University of Louisiana. With an Introduction by Rudolph Matas, M.D., Professor of General and Clinical Surgery at the Tulane University of Louisiana. Second edition. Cloth. Price, \$6.50 net. Pp. 674, with 260 illustrations. Philadelphia: W. B. Saunders Company, 1918.

The perusal of this book will prove interesting to any one who is at all concerned with the subject of local anesthesia. From the standpoint of the practical surgeon there is a great deal of valuable material, most of which evidently is presented only after prolonged, careful observation and trial by the author and his associates. There is much that may be given instant approbation; there is also much, particularly in connection with major procedures, that the prudent surgeon might not feel justified in applying unless the indications were of the most urgent nature. It must be admitted that the author is judiciously conservative and that in general the discussion is well balanced—there is no overzealous praise of pet procedures. The first eleven chapters deal with the history and theory of local anesthesia, an analysis of fifteen or twenty local anesthetics with a chapter on toxicology, and a thorough presentation of the principles of technic. The remainder of the book consists largely of descriptions of the various operations possible under local anesthesia.

NAVAL HYGIENE. By James Chambers Pryor, A.M., M.D., Medical Inspector, United States Navy. Published with Approval of the Surgeon-General, U. S. Navy and by Permission of the Navy Department. Cloth. Price, \$3 net. Pp. 507, with 153 illustrations. Philadelphia: P. Blakiston's Son & Co., 1918.

The author has been in service on board ship and in naval stations, and has taught naval hygiene in the United States Naval Medical School. The book is based on the need for a text of this character as shown by the work of the classes in the United States Naval Medical School. The problems on board ship are different from those of Army camps. Thus the question of air aboard ship and of ventilation assumes far greater relative importance than in military camps. In the same way the question of water supply and sewage disposal aboard ship are special problems. In fact, all of the problems of hygiene and sanitation in the Navy are distinctly special in character. The civilian physician called to active service in the Naval Medical Reserve Force will, therefore, find this textbook of great value. It is well illustrated, quite elementary and very practical.

Medicolegal

Burden of Proof on Party Given Wrong Medicine on Prescription

(*Fagan v. McRae* (N. Y.), 169 N. Y. Supp. 577)

The Supreme Court of New York, Appellate Term, First Department, reverses a judgment for \$500 that was rendered in favor of the plaintiff, and orders a new trial, on the ground that the plaintiff failed to sustain the burden of proof in this action against a druggist who was charged with having failed to fill a prescription given by the plaintiff's physician according to its directions. The court says that the defendant admitted the filling of the prescription, but denied that it was incorrectly filled. The medicine was prepared and delivered by the defendant on Tuesday. The plaintiff was given the medicine every three hours. On Thursday the physician called, and the plaintiff had by that time taken two thirds of the contents of the bottle. She had become very sick on Tuesday night, and had grown worse. The physician was shown the bottle on Thursday, and found the contents to be of whitish color, with much sediment. The medicine prescribed was of a clear brownish color. After that the plaintiff took no more of the wrong medicine. She continued ill, and was treated by the physician for three months. The defendant offered no evidence. The proof that the defendant had delivered a medicine different from the one ordered by the physician seemed to be adequate. The court was thus called on to determine what injury, if any, was caused by the error. Although the plaintiff was ill for three months, it nowhere appeared in the record what her ailment was at any time; in fact, it did not appear that the physician himself knew. All the court had were vague suggestions that the plaintiff might have been suffering from so-called German measles. The only evidence from which any inference might be drawn as to the effect of the wrong medicine was the physician's testimony that the plaintiff's condition was made worse; that the medicine certainly was bad for the plaintiff. The witness, being unacquainted with the ingredients of the medicine, could have had no reason for his conclusion, other than the circumstance that a different medicine was given. The fact that the plaintiff grew worse might, for all that appeared, have simply been due to the failure of the patient to receive the benefit of the remedy prescribed. The burden was on the plaintiff to show that the result of the wrongful act of the defendant—the giving of the wrong medicine—was the proximate cause of the injury claimed to have been suffered. The plaintiff failed to sustain the burden.

Liability of Lessors for Death from Failure to Heat Premises

(*Keiper v. Anderson et al.* (Minn.), 165 N. W. R. 237)

The Supreme Court of Minnesota affirms an order overruling a demurrer and holds that an action was maintainable that was brought by a woman as administratrix to recover damages for the death of her husband alleged to have been caused by the wrongful acts or omissions of the defendants in failing properly to heat a store building which they had leased to her husband and contracted to keep heated to a comfortable and proper temperature. The complaint stated the terms of the contract and alleged negligence and carelessness on the part of the defendants in failing properly to attend to the heating as the cause of Mr. Keiper's death. The defendants demurred, contending that the action could not be maintained because it was on contract, and because the statutory action to recover for death by wrongful act or omission could be maintained only when the cause of action was in tort. The court says that it is doubtless true that the word "tort," as well as the word "wrongful," usually signifies a breach of legal duty, independent of contract rights. But this is by no means always true. Take such contract relations as carrier and passenger, physician and patient, attorney and client, landlord and tenant; when there is actual negligence or wrong on the part of the carrier, physician, attorney

or landlord, is it not still negligence or a wrong notwithstanding that the duty is imposed by the contract? There may be a breach of contract without negligence, but there may be negligence or wrongful acts or omissions in the performance of a contract. It seems to the court to make no difference whether the duty to use due care is one imposed directly by law or exists because of the contract relation of the parties. The court is unable to see why the complaint in this case did not allege negligence on the part of the defendants and that Keiper's death was caused by their wrongful acts and omissions.

Society Proceedings

COMING MEETINGS

American Association of Railway Surgeons, Chicago, Oct. 16-18.
American Public Health Association, Chicago, Oct. 14-17.
Assn. for S. & P. of Inf. Mort., Asheville, N. C., Nov. 11-14, 1913.
Southern Medical Association, Asheville, N. C., Nov. 11-14, 1913.
Virginia State Medical Society, Richmond, Oct. 22-25.
Western Roentgen Society, Chicago, Nov. 20-22.

COLORADO STATE MEDICAL SOCIETY

Forty-Eighth Annual Meeting, held at Estes Park, Sept. 9-11, 1913

The President, DR. EDWARD JACKSON, Denver, in the Chair

Operations for Gastric and Duodenal Ulcer

DR. A. R. POLLOCK, Monte Vista: The surgical methods of treating stomach and duodenal ulcer are: 1. Gastro-enterostomy. 2. Direct attack of the ulcer, with or without gastro-enterostomy. 3. Pyloric closure with gastro-enterostomy, with or without direct attack of ulcer. 4. Gastroduodenostomy. 5. Resection of stomach, gastro-intestinal continuity reestablished by (a) anastomosing proximal and distal ends as is done in sleeve resection; (b) by the second method of Billroth as is done after pylorotomy; (c) by gastro-jejunosomy, the Polya operation, following extensive resection of stomach, or by (d), antecolic gastrojejunosomy, as described by Balfour. The operation should be adapted to the case.

DISCUSSION

DR. C. B. LYMAN, Denver: There is a great difference of opinion among surgeons as to what procedure should be carried out in different cases. Gastro-enterostomy is done more frequently than any other operation, but it is not a perfect procedure. Patients return with various symptoms. The right method may not have been used. The operation is done as a mechanical one and must be done right. The opening between the jejunum and stomach may have been made so close to the pylorus that there was no drainage, or the opening may be too small. The gastro-enterostomy opening must be made much larger at the time of operation than seems necessary so as to provide for future contraction.

DR. C. D. SPIVAK, Denver: Surgeons are beginning to realize that operations for ulcer of the stomach, no matter what method is used, are not always successful. The patient is not cured.

DR. FROST C. BUCHTEL, Denver: The essayist leads us to believe that we must exercise a certain amount of judgment in the selection of the operation, depending on the type of ulcer. Gastro-enterostomy cures a very large percentage of cases of peptic ulcer after they have had half a dozen so-called medical cures. Many of the cases of peptic ulcer are duodenal ulcers, and gastro-enterostomy is the best type of operation for duodenal ulcer. Some of our bad results from gastro-enterostomy come from the fact that we expect the operation to cure gastric ulcer, which it does not do. I think that surgeons are now agreed that direct attack of the ulcer, usually with some form of drainage operation, is desirable in gastric ulcers.

DR. A. R. POLLOCK, Monte Vista: Chronic ulcer is a surgical condition. It is true that some patients are not relieved by gastro-enterostomy, but gastro-enterostomy in itself is not sufficient. Something more should be done.

The Contributions of Colorado Physicians to Medical Literature, and The Journal of the American Medical Association as the Index

DR. C. D. SPIVAK, Denver: Medical literature comprises the following classes: 1. Literature of all the branches of medical sciences as taught in all the medical schools, including those usually called irregular. 2. Literature of all other sciences and arts so far as they are applied to and have a bearing on the medical sciences. 3. Biographies of medical men and of scientists who have contributed to the advancement of medicine. 4. History of medicine. 5. The writings of medical men outside of medical science in which the influence of their medical training may be discerned. 6. General literature which has a specific bearing on or reference to medicine and physicians. About 1900 THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION introduced new forms, new type, new departments. The number of readers increased, the number of advertisers multiplied. THE JOURNAL became a prosperous concern, a big business. Nothing succeeds like success. Those who scorned the idea of having their name associated with the plebeian periodical published in the wild and woolly West sat up and took notice, and then flocked to THE JOURNAL with their contributions. For who is so blind as not to see that a periodical, the circulation of which is rapidly nearing the 100,000 circulation mark, is a better medium than that of any medical publication in this country, the circulation of the best of which never exceeded 25,000 copies?

Dermatitis Seborrhoeica

DR. G. P. LINGENFELTER, Denver: No treatment will be successful unless it is thoroughly recognized that the scalp is the important factor in connection with the general disease. It is an excellent plan to remove the oil and the greasy plugs by means of deodorized benzin before applying the remedies. This is a most satisfactory and effective cleansing agent, and is much less irritating to the skin than ether. Lesions on the face are best treated by means of lotions, and for this purpose the lotio alba, with a small amount of sulphur added, serves admirably.

An excellent combination is: ammoniated mercury, 1.3 gm.; liquor carbonis detergens, 4 gm.; petrolatum, 3 gm. A paste is made and applied several times a day to the dry scaling patches frequently seen at the border of the scalp.

The thickened epidermal patches (seborrheic warts) of middle aged or elderly persons can be removed by the use of keratolytic remedies, such as salicylic acid, or by repeated exposures of the roentgen ray, by the curet, or by the application of carbon dioxid snow. The latter remedy nearly always gives satisfactory results from a cosmetic standpoint, and recurrences have been very infrequent. It is much safer and speedier than the roentgen ray, and because of the freedom from possible undesirable effects is much to be preferred. Recently, as an adjuvant to local treatment, I have had satisfactory results with the Alpine sun lamp, employing sufficient exposure to produce an intense erythema.

Necessary Cooperation in Prenatal Care and Obstetrics

DR. FOSTER H. CARY, Denver: Prenatal care should begin as soon after the advent of pregnancy as possible. The public should be educated to the importance of seeking advice soon after conception has occurred. The excellent results following the establishment and intelligent conduct of prenatal clinics have been evident not only in the diminution of avoidable complications at labor, but also in the end-results months postpartum. Many physicians fail to impress on patients the necessity of frequent visits to the office for examination. Prenatal care embraces a careful family and personal history, an early and complete examination, blood pressure readings, a Wassermann test, pelvic measurements, bimanual examination for displacements in the early months before the fundus has risen above the symphysis, urinalysis and detailed instructions as to hygiene, diet, exercise, work and excesses. The social service worker is best adapted to work in prenatal care. Her position makes it easy for her to inspire confidence and to act as a great factor in the establishment of cooperation between the charities and the physicians or hospitals.

Absolute Rest in the Treatment of Pulmonary Tuberculosis

DR. S. W. SCHAEFER, Colorado Springs: Tuberculous patients usually come to us below par in body and nervous energy and weary in mind. Rest in bed is one of the chief aids in building up the run-down body; antibodies must be formed to combat the tubercle bacilli. Instead of wasting the small store of energy the patient still has, in holding himself erect or sitting or moving about, all this energy should be concentrated on fighting the disease.

Eversion of Tissue Margins in Wound Approximation

DR. C. E. TENNANT, Denver: The most successful repair of a wound occurs when there is an accurate approximation of the various layers of tissue. Since most of these tissues are of but knife-blade thickness, it stands to reason that cell proliferation will not bridge the gap so well when these narrow margins are barely approximated with the average method of suturing, as when brought side to side by eversion. As a rule, the result of wound healing will be satisfactory in a reverse ratio to the amount of granulation tissue produced or required in the process of repair. This eversion is secured by placing a tenaculum at each angle of the incision in the layer of tissue to be united and put the tissue on the stretch. The layers to be sutured then come well out of the wound, the margins become everted, and with a good strong thumb forceps the operator grasps the everted edge, including both margins, and the needle is engaged in what seems to be one layer of tissue. The ordinary over-and-over suture or lock stitch is used for a short distance. At various intervals along the line a continuous mattress suture is dropped in order to keep the tissues in eversion when they fall back into the wound, and then again the over-and-over suture is applied for a short distance. These two types of suture are used at various intervals until the layer of tissue is completely approximated. The next layer is then sutured in like manner.

Blood Transfusion

DR. FROST C. BUCHTEL, Denver: An analysis of the last 100 blood transfusions I have given shows the following results: 46 of the 100 were given for pernicious anemia; 16 for bleeders (purpura hemorrhagica and hemophilia); 14 for acute hemorrhages; 12 for secondary anemia; 11 to prepare patients for operation (9 of this list are also included in other groups); 7 for sepsis; 1 for shock; 1 for malnutrition, and 1 for Hodgkin's disease, making a total of 109, 9 of which were counted twice. The acute hemorrhage cases give brilliant results. The transfusions under this heading were given for the following conditions: 3 for gastric hemorrhage; 3 for postoperative bleeding; 1 for hemorrhage in typhoid fever; 2 for placenta praevia; 1 for premature separation of the placenta; 1 for postpartum hemorrhage; 1 for ruptured ectopic gestation, and 1 for hemorrhage from papilloma of the bladder. Among these fourteen transfusions for acute hemorrhage there were three deaths.

There is a great field for transfusion in preparing patients for operation. Seven of the eleven patients in this group could not have been operated on at all without the transfusion. All the patients stood the operation well.

Tuberculosis in Children

DR. GEORGE CATTERMOLLE, Boulder: Recent studies have made it more certain that tuberculosis is contracted chiefly in infancy and childhood. The percentage of children that are infected before the age of 15 years varies according to locality. Between the ages of 4 and 15 years there are not many children who show active tuberculosis. Before 4 years of age, tuberculosis of the bronchial glands, meninges, peritoneum and lungs is common. After 4 years the most common seat is in the bronchial glands, the cervical glands are also often involved, and, in a smaller number of cases, the joints. The mortality from tuberculosis is low between the ages of 4 and 15 years, even though the number of children that react to the skin tests gradually increases during these years. These children have a high degree of resistance to tuberculosis, and it is then that they should acquire immunity. In those children that have active lesions in the joints, glands or peritoneum, there is a marked tendency to heal.

It is very difficult to diagnose tuberculosis in children from physical signs in the chest. The skin tests should be used in order that we may know all of the children that are infected with tuberculosis. I am in favor of a general test of all schoolchildren. It would enable us to study the progress and development of the disease and to determine whether those that are infected in childhood or those who are infected in later life are the ones who make up the army of consumptives.

Tuberculin skin tests were made by me on 419 children. Of these, 47 per cent. showed a positive and 53 per cent. a negative reaction. One hundred and sixty-five patients showed 42 per cent. positive and 58 per cent. negative reactions. Two hundred and fifty-four charity patients showed 50 per cent. each of positive and negative reactions. Of 167 children tested at the university dispensary, 47 per cent. were positive and 53 per cent. negative, even though a large number of these children were from families in which there were one or more cases of tuberculosis. Of eighty-seven children examined at the orphans' home, 57 per cent. gave positive and 43 per cent. negative. This was the highest percentage of positive reactions obtained in any group of children, probably because of the fact that these children came from homes in which one or both parents had died of tuberculosis.

A history of exposure was obtained in 202 cases. Among 101 children that gave a negative reaction, sixty-one had been exposed to tuberculous parents and had escaped infection, while forty had not been exposed to infection in the home. This is a little more evidence of exposure in the home as being the chief cause of tuberculous disease in children.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Insanity, Baltimore

July, 1918, 75, No. 1

- 1 Traumatic and Emotional Psychoses. So-Called Shell Shock. J. R. De Fursac, Paris.—p. 19.
- 2 Insane Psychoneurotic. L. G. Lowrey, Boston.—p. 53.
- 3 Pathology of Choice Reactions. F. L. Wells and H. A. Sturges.—p. 81.
- 4 Some Familial and Hereditary Features of Amaurotic Idiocy. I. H. Coriat, Boston.—p. 121.
- 5 Relation of Alcohol to Mental States. R. Armstrong-Jones, London.—p. 133.
- 6 Historical Pathology; Case of King Louis XI of France. C. Robinson, Princeton, N. J.—p. 155.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

August, 1918, 78, No. 2

- 7 *Escape of Foreign Material from Uterine Cavity into Uterine Veins. J. A. Sampson, Albany, N. Y.—p. 161.
- 8 Ossification Centers of Fetal Pelvis. F. L. Adair, Minneapolis.—p. 175.
- 9 *End-Results of Conserved Ovary. J. O. Polak, Brooklyn.—p. 199.
- 10 Shall We Cut and Reconstruct Perineum for Every Primipara? R. H. Pomeroy, Brooklyn.—p. 211.
- 11 *Medical Teaching and Research After the War. J. G. Clark, Philadelphia.—p. 220.
- 12 *Bladder of Women After Operation. A. H. Curtis, Chicago.—p. 230.
- 13 *Most Effective Methods of Control of Venereal Diseases. J. M. Baldy, Philadelphia.—p. 238.
- 14 *Why the Midwife? J. C. Edgar, New York.—p. 242.
- 15 Obstetrician's Responsibility for Conservation of Infant Life. C. Foulkrod, Philadelphia.—p. 255.
- 16 Pernicious Anemia Complicating Pregnancy; Report of Case. P. Findley, Omaha.—p. 262.
- 17 *Complete Exstrophy of Bladder with Split Pelvis as Complication of Pregnancy. C. J. Miller and E. L. King, New Orleans.—p. 267.
- 18 Pelvic Peritonitis of Female Genitalia Origin. A. B. Keyes, Chicago.—p. 274.
- 19 Malignant Tumors of Breast: Résumé. C. F. Nassau, Philadelphia.—p. 283.
- 20 Case of Fetus Papyraceous with Twin Pregnancy. G. C. Mosher, Kansas City, Mo.—p. 288.

- 7 and 11. Abstracted in THE JOURNAL, June 15, 1918, p. 1885.
- 9, 13, 14 and 17. Abstracted in THE JOURNAL, June 22, 1918, p. 1975.
12. Abstracted in THE JOURNAL, June 22, 1918, p. 1974.

American Journal of Physiology, Baltimore

August, 1918, 46, No. 5

- 21 Significance of Reaction to Shading in Chiton. W. J. Crozier and L. B. Arey, Chicago.—p. 487.
- 22 Reactions of Frogs to Heat and Cold. E. S. Brooks.—p. 493.
- 23 *Epinephrin Vasodilator Mechanisms. F. A. Hartman, L. G. Kilborn and L. Fraser, Toronto.—p. 502.
- 24 *Constriction from Epinephrin Acting on Sympathetic and Dorsal Root Ganglia. F. A. Hartman, L. G. Kilborn and L. Fraser, Toronto.—p. 521.
- 25 Multiple Sensory Activities of So-Called Rhinophore of Nudi-branchs. L. B. Arey.—p. 526.
- 26 *Acapnia and Shock. Venopressor Mechanism. Y. Henderson and S. C. Harvey, New Haven, Conn.—p. 533.
- 27 *Influence of Drugs on Intestinal Rhythmicity. W. C. Alvarez, San Francisco.—p. 554.
- 28 Motor Functions of Cecum. W. C. Alvarez and E. Starkweather, San Francisco.—p. 563.
- 29 *Histologic Study of Fat Contained in Mucosa of Alimentary Tract of Moderately Starved Cats. W. A. McIntosh, Baltimore.—p. 570.
- 30 *Extirpation of Duodenum. L. R. and C. A. Dragstedt, J. T. McClintock and C. S. Chase, Iowa City, Iowa.—p. 584.
- 31 *Venopressor Mechanism. D. R. Hooker, Baltimore.—p. 591.

23. **Epinephrin Vasodilator Mechanisms.**—That sympathetic vasodilators to the limb exist and that they are sensitive to epinephrin at the gangliar and peripheral ends is the conclusion reached by Hartman and his associates. While a limb is dilating from denervation, epinephrin produces an increase in volume with difficulty, but while the reverse change is taking place the dilator effect of epinephrin begins to reappear. After denervation of a limb, of greater duration, the dilatation from epinephrin occurs from a greater range of doses than is the case in the normal limb. The peripheral action (dilatation) becomes similar in both normal and denervated limbs after perfusion. Under these conditions also dilatation occurs with a greater range of doses. Depressor doses of epinephrin can cause dilatation of a limb by action on the gangliar mechanism. Epinephrin acts on both gangliar and peripheral mechanisms in producing dilatation of the hind limb.

24. **Vascular Response of Epinephrin on Nerve Ganglions.**—The authors found that epinephrin occasionally produces constriction in the hind limb by its action on the sympathetic and dorsal root ganglions. Constriction of the intestine is sometimes produced by epinephrin acting on the superior mesenteric and dorsal root ganglions.

26. **Acapnia and Shock.**—The purpose of this paper is to present facts indicating that, in addition to indirect vasomotor nervous influences, there is a peripheral chemical control of the volume of the venous return, and reasons for holding that it is this chemical control which is the chief factor in the high venous pressure of muscular work and in the lowering of venous pressure induced by acapnia and itself causing the circulatory depression following anesthesia and surgical operation. Two series of experiments were made. The general significance of the results obtained appears to be as follows: Procedures which strongly influence vasomotor innervation, for instance, spinal section, spinal stimulation, stimulation of an afferent nerve, splanchnic stimulation and intravenous injection of epinephrin, cause on the whole decidedly greater alterations of arterial than of venous pressure, and the alterations of venous pressure are often only momentary and therefore largely indirect and secondary to redistribution of blood. In the beheaded cat increase of carbon dioxid in the blood (with ample oxygen), which has little or no effect on arterial pressure other than an increased amplitude of pulse, causes an enormous rise of venous pressure. The pressure develops gradually as the carbon dioxid accumulates in the tissues and falls again gradually as the excess of carbon dioxid is ventilated out of the body.

These facts, and others, indicate the existence of a venopressor mechanism distinct from the vasomotor nervous regulation and consisting in a peripheral chemical control, largely through variations in the carbon dioxid content of the venous

blood, over the venous pressure and the volume of the venous return. As venous pressure and the volume of the venous return are essential elements in the diastolic filling of the heart, and thus are factors in determining the volume of blood circulated in unit time, it appears probable that the venopressor mechanism may play a part in the increased circulation during muscular exertion. It thus assists in coordinating the volume of the blood stream with the energy expenditure and gaseous metabolism of the tissues. As it is now generally admitted that in shock it is the decreased venous return which is the cause of the fall of arterial pressure, the relation of carbon dioxide to the venopressor mechanism affords an explanation of the mode by which acapnia induces circulatory failure.

27. Influence of Drugs on Intestinal Rhythmicity.—Sets of five segments from different parts of the bowel were studied by Alvarez under identical conditions in a beaker of aerated Locke's solution. Of the seventy-five drugs tested, eight increased the rate, forty-six slowed it and twenty-one had no effect. Calcium chlorid, calcium lactate, benzene, nicotin, ammonia, sodium hydrate, potassium hydrate and mercuric chlorid increased the rate. Marked slowing was produced by alum, antimony potassium tartrate, carbon dioxide, cascara, chloral hydrate, digitalis, ergot, formaldehyd solution, hydrochloric acid, ipecac, jalap, phenylhydrazin, potassium cyanid, quinin salts, senna, and sodium citrate and nitrite. With a number of the drugs the rate of the ileal segment was more affected than that of the duodenal segment; and there was a gradation in the percentage of increase or decrease from one end of the bowel to the other. This suggests that the rate in the upper part of the intestine is more stable and perhaps more nearly maximal than it is in the ileum.

Drugs which increase or decrease the tone and amplitude of contraction do not necessarily affect the rate. Thus, pilocarpin and barium chlorid, which increased the tone, decreased the rate. Calcium salts, which increased the rate, diminished the amplitude of contraction. This suggests two phases of muscular metabolism acted on, one concerned with tone and amplitude, the other with the rate. Digitalis slows the intestinal contractions much as it slows those of the heart. Excepting those cases in which the colonic rhythm was stopped entirely, it was practically unaffected by the drugs which caused marked changes in the rate of the small intestine.

29. Fat in Alimentary Mucosa of Starved Cats.—McIntosh claims that normally there is fat in the epithelial cells of the stomach and intestine which is not associated with the phenomenon of fat absorption; that this normal fat varies, however, with some definite cycle of functional activity of the cells themselves; that at certain periods the lipoids are in such a condition that they can be demonstrated by histologic methods while at others they are not demonstrable. The normal presence of these lipoids must be taken into account in estimating experimental results.

30. Extirpation of Duodenum.—The experiments here reported indicate that animals can survive indefinitely a complete extirpation of the combined jejunum and ileum. A dog was kept three months after a complete removal of the pyloric part of the stomach, the entire duodenum and the upper jejunum. The mucosa of this region of the digestive tract is not comparable to the suprarenals or parathyroids in function. The normal secretions of the duodenum and jejunum are not toxic. When bacteria are excluded from the lumen of the intestine, various pathologic changes even to complete occlusion of the blood supply to an isolated piece of intestine with resulting autolysis and reabsorption, can take place without the elaboration of sufficient toxic substances in the cells themselves or in their secretions to kill the animal. The duodenum does not excrete in the duodenal juice any substance necessary for life or for the function of the intestine lower down.

31. Venopressor Mechanism.—A preparation of the large intestine in the dog is described by Hooker on which a rise of venous pressure may be demonstrated independently of arterial and other factors. The rise of venous pressure may be obtained by (a) stimulation of the nerve to the part

(peripheral mechanism); (b) stimulation of a sensory nerve (central reflex mechanism), and (c) central stimulation by asphyxia. Attention is called to the fact that activity of the intestinal muscle may contribute to the movement and pressure of the blood in the portal venous system.

Archives of Pediatrics, New York

August, 1918, 35, No. 8

- 32 *Parenteral Administration of Fluids to Infants and Children. A. C. Silverman, Syracuse.—p. 449.
- 33 *Spinal Fluid in Anterior Poliomyelitis. J. H. Larkin and L. H. Cornwall, New York.—p. 459.
- 34 Educational Value and Opportunities of Baby Health Stations. J. Sobel, New York.—p. 468.
- 35 Case of Scurvy with Summary of Fifty Other Cases. S. McLean, New York.—p. 477.
- 36 Case of Toxic Meningitis Following Measles. F. Tweddell, Summit, N. J.—p. 482.

32. Parenteral Administration of Fluids.—Silverman's personal experience with puncture of the longitudinal sinus comprises some twenty cases. Some were done for diagnostic purposes—for obtaining blood for a Wassermann test or for chemical analysis or for blood culture. In the majority of instances, intravenous injections of salt solution, glucose or sodium bicarbonate were given. In no case were any untoward symptoms observed incidental to the injection. Some severe cases of cholera infantum have shown a marked improvement after a single injection of salt solution intravenously. In one case in which the heart had apparently stopped, experience with experimental animals suggested the use of epinephrin, and a suitable dose in normal saline was injected into the sinus with most gratifying results. The accumulated experience of the past three years gives sufficient evidence of the usefulness of this method. It should be remembered that it is used in exceedingly sick babies in whom the prognosis is at best unsatisfactory.

33. Spinal Fluid in Poliomyelitis.—Observation made in fifty cases leads Larkin and Cornwall to believe that the increase of the pressure is the most persistent of the changes in the spinal fluid and that it does not disappear until several months after the acute symptoms have subsided. After the tenth day it is present in nearly 100 per cent. of cases. An increase in pressure occurred in 93.5 per cent. of fluids examined from the first to the fifteenth day of illness. It persisted longer than any of the other fluid changes. Of the fluids, 93 per cent. showed an increase in the globulin content. This increase was noted before the pleocytosis and persisted longer. A pleocytosis occurred in 86 per cent. of fluids. The lymphocytes, especially the small variety, predominated. The cells diminished before the globulin. The total leukocytes of the blood were highest during the first ten days, averaging 18,500. As the total leukocytes diminished there was a relative increase in the polymorphonuclears. There was no curve noted with the Lange colloidal gold reaction diagnostic of anterior poliomyelitis. No parallelism existed between the colloidal gold curve and the other spinal fluid or blood findings. There appeared to be a tendency for the height of the colloidal gold curves to increase with the severity of the infection. The higher curves were more frequent from the tenth to the fifteenth day. Of the colloidal gold curves 63 per cent. were humped. Of the five fatalities among forty-nine cases, one fluid gave a curve to two, three fluids gave curves to three, and one fluid gave a curve to four. Three of the fluids from fatal cases were humped or of the syphilitic type, and two were descending, resembling the paretic type.

Boston Medical and Surgical Journal

Sept. 19, 1918, 179, No. 12

- 37 Fatigue and Exhaustion. J. M. Taylor, Philadelphia.—p. 385.
- 38 Scarlet Fever Carriers. D. M. Lewis, New Haven, Conn.—p. 389.
- 39 Treatment of Essential Facial Neuralgia by Local Alcoholization. J. A. Sicard, France.—p. 392.
- 40 Ultraviolet Light Symptomatic Cure for Eczema. J. Bryant, Boston.—p. 394.

Florida Medical Association Journal, Jacksonville

August, 1918, 5, No. 2

- 41 Practical Points in Ophthalmology for General Practitioner. W. H. Adams, Jacksonville.—p. 21.

Journal of Laboratory and Clinical Medicine, St. Louis

August, 1918, 3, No. 11

42 *Communicable Diseases in National Guard and National Army of United States During Six Months from September 29, 1917, to March 29, 1918. V. C. Vaughan and G. T. Palmer, Washington, D. C.—p. 635.

42. **Communicable Diseases in United States Army.**—This report has been prepared with the object of giving publicity during the present year to the salient features of communicable disease incidence in the United States Army during the past winter. The statistical data have been drawn from the telegraphic reports sent in weekly from each camp, cantonment and army post or station. The data given deal for the most part with thirteen National Guard camps and sixteen National Army cantonments, which represent over 70 per cent. of the troops in this country during the period in question.

It was seen that the average death rate (9.1) for the whole army is higher than that of New York (5.5), St. Louis (5.5), Pittsburgh (6.2), Chicago (5.2). The death rates in the different camps show wide variation. In three National Guard camps it was between 23 and 29 per cent.; in three between 10 to 1 per cent.; in two between 8 and 9 per cent.; in five between 2 and 3 per cent. In the National Army camps, the death rate was 30.7 in one camp; between 10 and 20 per cent. in four; between 7 and 9 in three; between 5 and 6 in three; between 3 and 4 in four, and under 3 in one.

The reasons for the wide variations in the death rates in the different camps is a difficult one to ascertain. (1) Some of the camps have acted as filters through which many troops have passed, leaving their most unfit on the filter. In a general way it can be stated that those camps which may be designated as closed camps and which have been least employed as filters are the healthiest camps. (2) Under similar conditions the negro is more susceptible to the acute respiratory diseases than the northern man. Southern whites are more susceptible to these diseases than are the northern whites. It is an opinion generally held by medical officers in southern camps that hookworm disease and chronic malarial infection increase susceptibility to the acute respiratory diseases. (3) There is no reason for believing that either morbidity or mortality in any camp has been due to faulty sanitation, as we usually understand this term. All the camps are kept clean, have unquestioned water supplies, satisfactory garbage and sewage removal, etc.

Comparing the National Army and the Guard, it will appear that the death rates have been practically the same among soldiers in tents and those in barracks. Comparing the National Guards of certain states and the National Army from the same states it is seen that the death rate in the National Army has, in each case, been higher than in the National Guard. This is probably due to the fact that the National Guard contained more seasoned troops than the National Army.

The diseases which have been responsible for the greatest number of deaths in the Army during the period covered by this report are the acute respiratory diseases. These may be named in the order in which they have caused deaths, as follows: pneumonia, meningitis, measles, scarlet fever and diphtheria. With the addition of tuberculosis these have caused 77 per cent. of all deaths. Sixteen per cent. of deaths have been due to other diseases, and 7 per cent. due to causes other than disease, such as mechanical injuries. The acute respiratory diseases have caused an excessive death rate in the Army compared with that due to the same causes in civil life. Pneumonia has caused by far the greatest number of deaths in the Army, and has been responsible for about 80 per cent. of total deaths caused by all the respiratory diseases. Each respiratory disease, except tuberculosis, has caused an excessive fatality in army life. It is evident that the low tuberculosis death rate in the Army is due to the elimination of those with active forms of this disease. Furthermore, it is probable that most of the deaths from tuberculosis in the Army have been due to the activation of inactive foci by acute respiratory diseases.

While both pneumonia and meningitis have exacted the greatest toll in life, they have not been as important a factor

in incapacitating troops as some other causes. Measles is a large factor in this connection. The annual morbidity rate for measles for all troops in this country during the six months' period was 105 per thousand. The rate for pneumonia was 24.2, that for meningitis 4.1. Pneumonia and meningitis are the more fatal diseases and therefore, although fewer cases occur, the number of deaths is great. The fatality rate, or case mortality rate, for all troops during the six months' period has been 23 per cent. for pneumonia, 27 per cent. for meningitis and 0.1 per cent. for measles. Most numerous as causes of sickness are those less fatal ailments such as colds, influenza, bronchitis and mumps.

The National Army with its new recruits fresh from civilian life shows the highest rate in venereal diseases and meningitis. National Guard troops, however, show the highest rates for measles, pneumonia, malaria and typhoid. Regular Army troops, representing those longest in the service and in all probability an older average age, show the lowest rates in everything but scarlet fever and venereal disease, the latter being slightly above the rate for the Guard. Measles, pneumonia, meningitis and scarlet fever have existed in epidemic form in a number of the camps. Measles has been by far the most prevalent of the four. Scarlet fever has been of minor consequence. Typhoid has been a negligible factor as a cause of incapacitation. Mumps, bronchitis and influenza have likewise been widespread and although not fatal in themselves, have frequently been forerunners of pneumonia.

Vaughan and Palmer point out that to hope to reduce infection among our soldiers to the minimum without adequate attention to the health of the civilian population from which the soldier comes and with which he mingles more or less freely is without justification. All the infections which have appeared in the camps are distributed among the civilian population from which the soldiers in the camp have come. If the draft men were organized and drilled in small squads at home and gradually inducted into military life, and only those found to be free from infection sent to the camps, the control of communicable disease among the soldiers would be greatly aided. Meningitis has been most prevalent in those camps whose soldiers come from areas in which this disease has been endemic. The same thing is true of scarlet fever. Typhoid and paratyphoid occurred in only three camps and even here the incidence was very low. There were twelve camps that did not have a single case of typhoid or paratyphoid. It would be difficult to put forward testimony of a more striking nature as to the efficacy of the preventive measures now being utilized in the Army against typhoid. The American soldier today has found the army camp a safer place to dwell, so far as typhoid is concerned, than in the most favorably situated civilian community.

An extended review of the situation shows that the greatest single factor in the prevalence of disease in certain camps and their absence in others has been the natural susceptibility of the men. There have been added those aggravating factors such as exposure, fatigue, lack of warm clothing, cold quarters by day, cold quarters and insufficient bedding by night. In order to prevent a recurrence of the trouble, the authors suggest: First and foremost it seems necessary to graduate the introduction of civilians into army life. The change has been too abrupt. Men should be called first to a semiactive reserve army. Here they should get drill and the essentials of sanitation and self-care by lecture and by demonstration. The drill and calisthenics should be the hardening process. After this the transfer should be made to camp where a man's entire time is given over to his military training.

Before entering camp men should be examined for incipient disease. The suspects should be separated and watched before their dispatch to camp. Vaccination for typhoid and smallpox can be completed while in the reserve force. Once established in camp the transfer of men from one camp to another should not take place without a careful examination and removal of those who show signs of illness. This will prevent this all too frequent transportation of sick men, who are dangerous to others because of their sickness. These precautions together with care in the proper mixture of work and rest, judicious selection in the quality and balancing of the

food ration, the adequate protection of the man, especially the one from the warm climate, against cold and exposure, his protection against the sick through effective quarantine measures, and discretion in the use of the physical hardening process should moderate to a large degree the experiences of the past winter.

Journal of Medical Research, Boston

July, 1918, 28, No. 3

- 43 *Investigations of Tropical Sunlight, with Special Reference to Photodynamic Action. A. W. Sellards, Boston.—p. 293.
- 44 Action of Extreme Ultraviolet of Tropical Sunlight on Complement Power of Serum. W. T. Bovie.—p. 335.
- 45 Complement Destruction as Measure of Effects of Radiation. S. C. Brooks, Boston.—p. 345.
- 46 *Immunity and Tissue Transplantation. Comparison of Heterotransplantation and Homoiotransplantation. M. S. Fleisher, St. Louis.—p. 353.
- 47 *Simple Method (Patient's Diluted Blood) for Blood Cultures. J. G. Wurtz, Pittsburgh, and S. W. Sappington, Philadelphia.—p. 371.
- 48 *Studies on Circulation of Kidney in Relation to Architecture and Function of Organ in Health and Disease. L. Gross, Toronto.—p. 379.
- 49 *Some Unusual Blood Cells in Diseases of Bone Marrow Origin. W. C. Thro, New York.—p. 385.
- 50 *Grafting of Tissues into Nearly Related Individuals in Rat, and Mode of Inheritance of Individuality—Differentials. L. Loeb, Washington, D. C.—p. 393.
- 51 Studies on Bacteriemia in Agonal Period. D. G. Richey and C. Goehring, Pittsburgh.—p. 421.
- 52 *Experimental Production of Lesions, Erosions, and Acute Ulcers in Rabbits, by Repeated Injections of Pilocarpin and Epinephrin. G. A. Friedman, New York.—p. 449.
- 53 Studies on Importance of Lymphocyte in Cancer Immunity. M. J. Sittenfield, New York.—p. 465.
- 54 Congenital Atresia of Esophagus without Other Malformation. C. T. Crowdy, Montreal.—p. 469.
- 55 Hernia Diaphragmatica Vera (Congenital Absence of Left Side of Diaphragm, Dextro Cardia; Tubular Stenosis (Coarctation) of Aorta Malformations of Liver and Lung). L. Gross, Toronto.—p. 473.
- 56 Corpora Amylacea in Lungs and Hamartomatous Nodules in Small Intestine Occurring in Case of Diaphragmatic Hernia into Left Pleura with Strangulated Bowel. L. Gross, Toronto.—p. 476.
- 57 Spina Bifida with Splitting of Cord by Exostosis from Vertebral Body. E. Smith, Montreal.—p. 479.
- 58 Degeneration, Senescence and New Growth. H. Oertel, Montreal.—p. 485.
- 59 *Treatment of Lobar Pneumonia with Antipneumococcus Serum. P. Kyes, Chicago.—p. 495.
43. **Investigations of Tropical Sunlight.**—It is by no means thoroughly established that sensitization to light in a photodynamic sense occurs spontaneously, even in the lower animals. Sellards claims that as yet there is very little evidence that such sensitization plays any significant part either in the etiology or therapy of the diseases of man.
46. **Immunity and Tissue Transplantation.**—A series of experiments in which both rabbit and guinea-pig kidney were transplanted into both rabbits and guinea-pigs was carried out by Fleisher. Guinea-pig kidney transplanted into guinea-pig shows active regeneration at an earlier period than does the same kidney transplanted into rabbits; eventually the degree of regeneration is the same in both animals. Rabbit kidney transplanted into rabbit shows far better regeneration than does the same tissue transplanted into guinea-pig. At best the rabbit kidney does not show as good regeneration as does the guinea-pig kidney. The connective tissue reaction is more marked about homoiotransplants than about heterotransplants. In general the connective tissue reaction is more marked in the guinea-pig. The rabbit seems to be a relatively better soil for the growth of guinea-pig kidney than is the guinea-pig for rabbit tissue. Fleisher failed to find evidence in his experiments that the leukocytic and connective tissue reactions are the factors of greatest importance in the poorer growth of heterotransplants, but he is inclined to believe that while these reactions may have some effect, the body fluids, through either the presence of injurious substances or the lack of substances necessary for the growth of the heterotransplant, are more important.
47. **Patient's Blood for Blood Cultures.**—According to Wurtz and Sappington the patient's blood diluted in a test tube of sterile water makes an excellent culture medium for a number of infections, at the same time furnishing the infecting organism. Evidence of this was found in fifty cases of croupous pneumonia yielding 38 per cent. of positive cultures, nineteen cases of streptococcus infection giving 47.3 per cent. of positive results, and seventeen typhoids with 64.7 per cent. positives. In pneumococcus and streptococcus infections, the method compares quite favorably with other cultural procedures; and in positive cases the bacteriologic diagnosis can be made in nearly every instance from the primary culture within twenty-four hours. In typhoid infection the bile method is superior on account of the time element, but if the slower growth is not prohibitive, the percentage of positive results with blood water will probably equal that with bile. The authors do not feel sure of the optimum dilution of blood for this work, but suggest 30 to 40 per cent. if only one tube is made, and a 5 to 10 per cent. and a 40 per cent. tube if two are taken. It is important to insure sterility of the water. The simplicity and economy of the method are obvious, and suggest its availability outside of hospitals.
48. **Circulation of Kidney.**—In contracted kidney Gross says there is a marked change from the normal in parenchymatous and vascular arrangement. The cortex is largely eliminated and has become passive, whereas the pyramids are preserved and better vascularized, possibly to take on a more active participation in the work in the kidney than in the normal physiologic sphere. This means renal insufficiency and perversity. It is justifiable to assume that these, together with the concomitant metabolic disturbances, gradually upset the economy of the whole organism, and ultimately are, at least largely, responsible for uremia and death.
49. **Unusual Blood Cells in Diseases of Bone Marrow Origin.**—In making a routine examination of the blood of a dispensary patient, the examination of the stained smear brought to light an unusual blood picture. The smears, from which the drawings were made, were stained with Hastings' modification of the Nocht-Jenner stains. The hemoglobin with the Dare was 45 per cent. The red cell count was 1,500,000. Index was high, that is 1.5. White blood cells numbered 4,000 to 5,000. In counting 300 leukocytes an equal number of nucleated red cells was noted down. Nucleated red cells of the three ordinary types were seen, that is, normoblasts, intermediates and megaloblasts. The cell called Turck's stimulation form was also present. The cells that interested Thro particularly correspond to the descriptions of Naegeli's myeloblasts or Turck's lymphoid marrow cells. In Thro's experience only one other case with pernicious anemia had a blood picture like the one described. These two patients had all the blood changes of pernicious anemia with the addition of cells characteristic of those found in so-called acute lymphatic leukemia, and it seems such are correctly designated by calling them cases of leukanemia.
50. **Grafting of Tissues.**—Loeb states that tissues transplanted from parents to children or from sisters and brothers to sisters and brothers, or from children to parents, behave in a manner intermediate between tissues after homoiotransplantation and autotransplantation. The difference between results obtained after transplantation from parents to children, and after transplantation of tissues from an animal to his sisters and brothers, is so small that it may be entirely accidental. Tissues transplanted from children to mother also show an intermediate behavior. All degrees of variation between the two extremes of results resembling those in autotransplantation on the one hand, and of homoiotransplantation on the other hand, are obtained after transplantation of tissues into near relatives.
52. **Experimental Production of Lesions.**—In all the rabbits injected by Friedman with pilocarpin, lesions, erosions, or acute ulcers were demonstrated in the mucosa of the stomach. In the rabbits injected with pilocarpin and epinephrin, lesions in the mucosa of the stomach and duodenum were evident. From these experiments it is clear, therefore, that through repeated injections of pilocarpin alone, lesions or acute ulcers were obtained in the stomach, while alternate injections of both pilocarpin and epinephrin produced in addition lesions or erosions in the duodenum.

59. **Antipneumococcus Serum Treatment of Lobar Pneumonia.**—Kyes reports 115 cases of acute lobar pneumonia in which the patients were treated with an antipneumococcus serum, and compares the mortality among these cases with the mortality in 538 similar cases of pneumonia occurring in the same institution during the same period, but not so treated. The antipneumococcus serum was produced by injecting massive doses of virulent pneumococci into the domestic fowl. Of the 538 patients not treated with the antipneumococci serum, 244 died—the death rate being 45.3 per cent. Of the 115 similar patients treated with the serum, twenty-four patients died—the death rate being 20.8 per cent. In the ward in which the serum was employed the death rate during the six weeks prior to the introduction of the serum treatment was 55 per cent. During the six weeks subsequent to the withdrawal of the serum treatment, the death rate was 51 per cent. These statistics show that among those cases treated with the antipneumococcus serum the death rate was less than one-half the rate obtaining among the similar cases not so treated, be they cases occurring in other wards during the same period, or in the same ward at other periods of the same year. This is the essential proof which Kyes has to offer that the antipneumococcus serum in question is of distinct value in the treatment of acute lobar pneumonia in man.

Journal of Urology, Baltimore

June, 1918, 2, No. 3

- 60 *Study of Primary Hydronephrosis. J. T. Geraghty and W. A. Frontz, Baltimore.—p. 161.
- 61 *Absorption of Drugs and Poisons from Bladder and Urethra. Absorption of Various Alkaloids, Antiseptics, Local Anesthetics and Salts. D. I. Macht, Baltimore.—p. 211.
- 62 Effect of Administration of Urea on Ratio Between the Rate of Urea Excretion and Concentration of Urea in Blood in Experimental Glomerulonephritis. C. K. Katanabe, New York.—p. 227.
- 63 New Operation for Epispadias. H. H. Young, Baltimore.—p. 237.
- 64 Flexible Metallic Ureteral Sound with Filiform Guide. H. W. E. Walther, New Orleans.—p. 253.

60. **Primary Hydronephrosis.**—A study of their material showed Geraghty and Frontz that the most frequent cause of so-called primary hydronephrosis is an inflammatory contraction at the ureteropelvic junction, and that more careful microscopic study of this region in cases of hydronephrosis, without apparent cause, will disclose this lesion in a large percentage of them. In many cases in which aberrant blood vessels, renal mobility, or abnormal implantation of the ureter have been assigned as the cause of the hydronephrosis, careful examination of the upper ureter and pelvis will reveal inflammatory narrowings which have unquestionably played the primary rôle. When the kidney is extensively destroyed, nephrectomy, if not contraindicated, should be carried out. When the kidney, however, possesses valuable renal function or when a bilateral condition contraindicates nephrectomy, the various plastic procedures outlined above offer considerable prospect of success.

61. **Absorption of Drugs from Bladder and Urethra.**—Macht's experiments showed that a large number of drugs and poisons can be and are absorbed from the urethra, and that the absorptive power of the bladder is very poor as compared with that of the urethra. A review of clinical evidence agrees with the experimental findings. Poisoning through the urinary tracts has been reported and is not uncommon. The absorption of a large number of drugs and poisons—alkaloids, antiseptics, salts and local anesthetics—from the bladder and the urethra in the male was studied.

Kansas Medical Society Journal, Topeka

September, 1918, 18, No. 9

- 65 Enlarging Scope of Neurologic Surgery. E. Sachs, St. Louis.—p. 211.
- 66 Pulmonary Tuberculosis; Its Nervous Manifestations. C. S. Kenney, Norton.—p. 217.

Maine Medical Association Journal, Portland

September, 1918, 9, No. 2

- 67 Health Insurance. F. E. Rowe, Augusta.—p. 33.

Medical Record, New York

Sept. 21, 1918, 94, No. 12

- 68 Treatment of Inoperable Cancer of Breast by Chemical Extirpation. (Phenol and Potassium Hydrate). C. W. Strobell, New York.—p. 487.
- 69 Common Deformities and Disabilities of Foot. J. Grossman, New York.—p. 492.
- 70 Results of Schick Test for Diphtheria Susceptibility on Five Hundred Selected Cases. C. A. Johnson, Los Angeles.—p. 498.
- 71 Control of Hemorrhage in Vaginal Hysterectomy. H. Crutcher, Tularosa, N. M.—p. 501.

New York Medical Journal

Sept. 21, 1918, 108, No. 12

- 72 General Diagnostic Study by Internist. L. F. Barker, Baltimore.—p. 489.
- 73 Locomotion as Aid in Diagnosis. P. Luttinger, New York.—p. 494.
- 74 Technic of Intravenous Medication. F. Herb, Chicago.—p. 498.
- 75 Animal Powers not Mendelian Characters. C. L. Redfield, Chicago.—p. 499.
- 76 Appendicitis in Children. J. O. Bower, Philadelphia.—p. 501.
- 77 Mucous Colitis. R. Upham, New York.—p. 503.
- 78 Mobilizing Spas and Health Resorts of Nation. N. P. Norman, Fort Leavenworth, Kan.—p. 507.

Pennsylvania Medical Journal, Athens

September, 1918, 21, No. 12

- 79 *Food Anaphylaxis and Methods of Making Tests. A. Strickler, Philadelphia.—p. 737.
- 80 Acute Suppuration of Middle Ear. J. C. Keeler, Philadelphia.—p. 743.
- 81 Laryngeal Tuberculosis. C. S. Rebuck, Harrisburg.—p. 747.
- 82 Herpes Zoster Ophthalmicus. J. F. Klinedinst, York.—p. 752.
- 83 Cooperation in Treatment. J. M. Taylor, Philadelphia.—p. 755.

79. **Food Anaphylaxis and Methods of Making Tests.**—There are two accepted methods of conducting the anaphylactic food tests. (1) The endermic and (2) the intradermic. Strickler prefers the intradermic method which consists in the introduction of a solution of a food protein in the layers of the skin by means of a hypodermic needle. As a result of this procedure a white wheal is produced at the point of injection and often there is a reddened zone around the blanched spot. This is conceded to be the most delicate method which can be employed in conducting the endermic skin test. The amount injected in this method is 0.1 c.c. In none of Strickler's cases were there any evidences of a constitutional reaction of any nature whatever. He adopted the following standard as to what constituted a positive reaction. (1) A papule must be present at the point of injection. (2) In the vast majority of cases a zone of erythema is found around the papule. (3) Tenderness is often found at the point of injection. (4) The lesion must persist for more than twenty-four hours after the injection. Wait for forty-eight hours before reading the reaction. Strickler studied fifty-four patients with eczema and the great majority of them were kept under observation for some weeks. The following proteins were employed: cow casein, egg, beef, mutton, pork, chicken, fish, oysters, clams, crabs, wheat, oatmeal, rice, barley, tomato, and strawberries. The protein is extracted by the use of weak alkali, and after shaking and incubating the solution it is filtered, absolute alcohol is added, and the solution evaporated on a water bath. A saturated solution of this dry material is made in an alkalinized sodium chlorid solution. These preparations were tested for sterility, and for their nitrogen contents by the Kjeldahl method. Twenty-eight patients were in a greater or lesser degree benefited by a changed diet, as shown by the anaphylactic food test. In thirteen cases the food tests were entirely negative, and in the remainder the correction of diet, as shown by the food tests, did not have any influence on the disease. Of thirteen patients with urticaria, eleven showed positive anaphylactic food reactions, while two were entirely negative. In this series five were acute and the remaining eight were chronic cases. In the acute cases the removal of the offending article caused a rapid subsidence of the eruption, and these tests serve as a guide to ward off further attacks. Of eleven patients suffering with psoriasis, four gave positive reaction and seven were entirely negative. Only in one case was there some improvement in the eruption following the installation of corrected diet. Strickler studied sixteen patients suffering with acne vulgaris and three with

ne rosacea. Five showed negative, the remainder positive reactions. In none of the cases, although most of them were kept under prolonged observation, did any noticeable improvement follow the corrected diet.

Southern Medical Journal, Birmingham, Ala

September, 1918, 11, No. 9

- *Oral Sepsis and Cardiovascular System. A. G. Brown, Richmond, Va.—p. 601.
- *Relation of Oral Sepsis to Nervous System. E. B. Block, Atlanta, Ga.—p. 606.
- Venereal Disease: Vital Social, Medical and Military Problem. H. Schoenrich, Baltimore.—p. 616.
- *Normal College as Factor in Dissemination of Public Health Knowledge in South. M. F. Jones, Hattiesburg, Miss.—p. 624.
- Some Unsettled Points in Surgical Treatment of Cholangitis and Cholecystitis. J. Darrington, Yazoo City, Miss.—p. 631.
- Surgery of Gallbladder. J. R. Wathen, Louisville, Ky.—p. 633.
- Indications for Removal of Gallbladder. W. C. Gewin, Birmingham.—p. 635.
- Fracture of Hyoid Bone. J. T. Crebbin, New Orleans.—p. 642.
- Mastoiditis Complicated by Unsuspected Lateral Sinus Thrombosis.—R. W. Bledsoe, Covington, Ky.—p. 643.

44, 85 and 87. Abstracted in THE JOURNAL, Dec. 29, 1917, 2207.

FOREIGN

Articles marked with an asterisk (*) are abstracted below. Single reports and trials of new drugs are usually omitted.

Brain, London

June, 1918, 41, No. 1

- Interdependence of Sympathetic and Central Nervous Systems. D. Orr and R. G. Rows.—p. 1.
- Conduction in Peripheral Nerve and in Central Nervous System. E. D. Adrian.—p. 23.
- Stimulation of Motor Cortex in Monkey Subject to Epileptiform Seizures. C. S. Sherrington.—p. 48.
- Intracranial Aneurysms. H. M. Turnbull.—p. 50.

British Medical Journal, London

Aug. 24, 1918, 2, No. 3008

- Education and Brain Development. W. A. Hollis.—p. 179.
- Restoration of Function After Penetrating Gunshot Wounds of Knee Joint. J. Everidge and A. Fullerton.—p. 182.
- *Treatment of Septic Wounds. F. W. Robinson.—p. 184.
- Bed and Some Appliances for Gunshot Wounds of Femur and Back. M. G. Pearson.—p. 186.
- Case of Septicæmic Meningitis; Recovery. J. Dunbar.—p. 187.
- Aug. 31, 1918, 2, No. 3009
- Educational Number, 1918-1919.—p. 209.

Treatment of Septic Wounds.—Robinson describes a method of keeping wounds elevated as well as compressed. He says that it allows of a complete toilet. The bactericidal ointment enhances the defensive properties of a wound, which, as is well known, are at a high state of development at the time of infection. During the progress of healing the perfect mobility of the compressed area, since all circumferential forces are inhibited at the line of constriction, gives the best condition possible for the building up of healthy scar tissue. A part inside of the constricted area is free from any strain of traction, and the edges of the wound are quite flaccid and tend to fall together.

Of equal importance in the healing process is an avoidance of anything that would tend to depreciate the vitality of the living cells. The practice of packing a wound with an absorbable dressing, such as sterilized gauze, is a familiar example of the continued disturbance of growing granulations whenever such a dressing is removed; not only is the pro-cess exceedingly painful, but a layer of germinal tissue is taken away in the dressing to which it has adhered. This, of course, means delay, and what causes delay will eventually show in the final cicatrix. It is urged, too, that germicides in destroying bacteria must in some measure impair the vitality of the surrounding cells; it is considered improbable that the bacterial protoplasm should be killed outright, and that the protoplasm of the neighboring cells should escape untouched. Many years ago Robinson invented a dressing from cancellous tissue of bone. This is deprived of fats, decalcified, bleached, and forms a soft white sponge-like tissue which adapts itself readily to the soft parts. It is both absorbent

and absorbable. Though its utility has been circumscribed and limited, it is still a most serviceable dressing for chronic wounds. It fails in freely secreting wounds, as it does not provide sufficiently for drainage. Robinson thinks that if modified the matrix of bone tissue will ultimately form a basis for dressings.

Bulletin of Canadian Army Medical Corps, Ottawa

August, 1918, 1, No. 5

- 11 Enemy Air Raids on Canadian Hospitals, May, 1918. J. G. Adami.—p. 64.
- 12 *Diagnosis of Chronic Infections with Gonococcus by Complement Fixation Test. F. B. Bowman and P. D. Saylor.—p. 73.

12. Complement Fixation Test in Diagnosis of Chronic Gonorrhea.—The specificity of the complement fixation test for gonorrhea is confirmed by Bowman and Saylor. They state that in cases in which a large amount of pus is present and intracellular gram-negative cocci are numerous, a diagnosis of gonorrhea can be accepted. But in cases in which there is no discharge, or very little, with very few bacteria present, a positive diagnosis of gonorrhea cannot be given. Three hundred and eighty-three tests have been made. Of these, 177 were positive; 77 patients gave a definite history of having had gonorrhea, and 60 of these were strongly positive and 17 negative. Of 36 cases diagnosed as epididymitis, 19 were positive, 17 were negative; of 20 cases diagnosed as prostatitis, 14 were positive, 6 were negative; of 21 cases of orchitis, 15 were positive, 6 were negative; of 4 cases of chronic gleet, 3 were positive and 1 negative; 3 cases diagnosed as rheumatic fever were positive; of 26 cases with a clinical diagnosis of myalgia and no clinical evidence of gonorrhea, 8 were positive and 18 negative. A Wassermann test was made on each of these specimens; 25 were positive, and all of these had had syphilis, or clinical evidence of this disease was actually present. The authors found no evidence of cross fixation in this series of tests. The gonorrheal test is never positive in localized anterior urethritis, nor is it usually positive before the sixth week of the disease if no complications are present. A patient should not be considered cured if the test is still positive, even two months after the disappearance of all symptoms.

Indian Medical Gazette, Calcutta

July, 1918, 53, No. 7

- 13 *Treatment of Malaria. R. Ross.—p. 241.
- 14 *Quinin Prophylaxis in Malaria. L. Rogers.—p. 249.
- 15 Treatment of Malaria by Quinin: Failure of Splenex. E. H. Wright.—p. 252.
- 16 Quinin in Malaria Prophylaxis. K. D. Pringle.—p. 258.

13. Treatment of Malaria.—From the results of treating 1,040 old cases of malaria with antirelapse quinin prophylaxis, it would appear that comparatively small doses, amounting to about 60 grains a week, distributed in various ways, reduce relapses to about 10 per cent. of the cases per month, and also diminish the severity of the relapses when they do occur. But 5 grains daily seem less effective and 15 grains daily are no more effective than 10 grains daily and less well borne by the patients. Ross has not been able to note any marked superiority in any one of the three modes of administration of quinin—oral, intramuscular or intravenous—as regards either the speedy reduction of the fever and the parasites (in relapses), or as regards complete sterilization of cases. Harrison's method of using oral and intramuscular administration together is valuable when large dosage is employed. Several medical officers favor complete rest in bed during treatment, even for two or three weeks, especially when large doses of quinin are being given. Generous diet and a little beer or wine are usually given. Arsenic and iron are also favored for the later stages of treatment, but it has not been possible as yet to obtain decisive statistical evidence in support of any of these views. Out of the total of 2,460 cases studied here, 682 or 27.7 per cent. are known to have relapsed either during treatment or afterward.

14. Quinin Prophylaxis in Malaria.—Rogers believes that in places where the great majority of the inhabitants are already infected with malaria, as shown by a very high endemic index, quinin prophylaxis has little scope except in the case of European and other immigrants, among whom it

is of the utmost importance, but for the general population full curative treatments with quinin, preferably once a quarter, are necessary materially to reduce malaria.

Quinin prophylaxis to be successful should be based on the following principles: (a) A sufficient dose should be given to kill all the invading parasites, so as to avoid the danger of any quinin resisting form surviving and making the fever more difficult to cure. For this purpose not less than 10-grain doses are indicated. (b) The intervals between the doses should not exceed two days less than the mean incubation period of the most rapidly developing form of malaria present, which will almost invariably be the malignant tertian variety with a mean incubation period of six days and a minimum of two days. The interval should therefore not be less than four days, and if an epidemic is present this should be reduced to two days. (c) The prophylactic doses should be given on two consecutive days as a rule so as to act on the stage most amenable to quinin of each brood of a double infection.

The causes of the frequently reported failures of the two most commonly employed methods are: (a) in the case of Koch's biweekly doses on two consecutive days with a five-day interval, that the interval is too long in the case of malignant tertian malaria, especially when of a virulent form; (b) in the case of daily 5-grain doses, that the dose is too small to be certain to destroy all the parasites. To be effective as a prophylactic against malaria, quinin should be given in not less than 10-grain doses on two consecutive days, with an interval of not more than four days without the drug, and in highly malarious places the interval should be reduced to two days and the dose increased to 15 grains. Ten grains every other day has also proved successful.

Lancet, London

Aug. 24, 1918, 2, No. 4956

- 17 Celiac Disease. G. F. Still.—p. 227.
- 18 *Treatment of Wounds. J. T. Morrison, J. N. J. Hartley and E. F. Bashford.—p. 230.
- 19 Postdiphtheritic Paralysis Following Cutaneous Diphtheria. F. M. R. Walshe.—p. 232.
- 20 Treatment of Staphylococcal Infections by Stannoxyl. A. Compton.—p. 234.
- 21 *Blood Pressure Measurements: Uses and Limitations in Modern Medicine. E. S. Kilgore.—p. 236.
- 32 Five Cases of Rapid Death in Young Men. A. Abrahams and N. F. Hallows.—p. 239.

Aug. 31, 1918, 2, No. 4957

- 23 Students' Number, 1918-1919.—p. 259.

18. **Treatment of Wounds.**—The Carrel-Dakin treatment of wounds is strongly endorsed by Morrison and his associates. Two hundred cases form the basis of this paper. The first 100 were patients treated in a base hospital in the wards devoted to the most serious cases; the second 100 in the surgical observation hut attached to a general hospital. These last consist of severely wounded men, moribund cases being excluded. Results vary greatly according to whether preliminary surgical treatment is undertaken in the pre-inflammatory period or after sepsis is established. The cases are therefore divided into (A) those patients operated on within twenty-four hours, and (B) those without preliminary operative cleansing, or in which this was not done till at least twenty-four hours had elapsed. Far better results were obtained in the Class A cases than in the Class B cases. This method of wound treatment is compared with other popular methods now in use greatly to their disadvantage. The proportion of really successful cases (that is, where secondary suture in the first ten to twelve days permits practically of a return to normal) is higher far than that attained under any other treatment thus far tested. The only other method giving results at all comparable is that of early operation and primary suture with or without the use of brilliant green, bipp, flavine, soap, or other fashionable adjuvants.

The authors conclude their report by saying that the dichloramin-T oil method of wound treatment is simple of application, and the claim that the action of a single application is prolonged is substantiated. The results, even when judged by modern standards, are not to be disregarded.

Dichloramin-T oil is not indifferent to granulation tissue to the skin edges of wounds, but has, especially if used for long time, a deleterious action on both. The ingrowth of skin is retarded, and the natural tendency for granulation tissue to disorganization is aggravated. The use of an oil menstruum does not altogether prevent the adhesion of dressings to the surface or obviate the repeated, if minute, injury to the tissues inseparable from each dressing. Though an improvement on some other methods in vogue, dichloramin-T oil has not yielded the improvement on neutral solution of chlorinated soda that was anticipated, perhaps because it is neither innocuous to healthy granulation tissue, nor a solvent of dead tissue; perhaps, possibly, because an oily application is not so efficacious as a watery solution in the treatment of wounds.

21. **Blood Pressure Measurements.**—Experience has shown the great practical clinical value of blood pressure measurements in connection with a limited number of conditions, namely, arterial and renal diseases, cerebral pressure, pregnant toxemias, Addison's disease, and, to less extent, aortic insufficiency. Before attributing pathologic significance to the measurements, however, Kilgore says, wider normal limits (both systolic and diastolic) should be recognized than those generally indicated in the books. Figures from normal young adults are presented in substantiation of this statement. An important and little known application of the blood pressure apparatus is its use in the detection of pulsus alternans. It is urged that systolic pressure be retained as the most important measurement, and that the simple palpatory technique be used. Blood pressure determinations in general have fallen short as clinical indicators of circulatory function. Pulsed pressure, and consequently the various formulas in which it is involved, depends on too many factors to be a very useful index for any of them. Great variation is shown among pulse pressure measurements of normal persons. The same criticism is shown to be applicable in the case of the auscultatory tone phases.

Archives Médicales Belges, Paris

August, 1918, 71, No. 8

- 24 *Tropical Diseases in the Balkans. A. Castellani.—p. 145.
- 25 *Tuberculous Otitis Media. F. Tits.—p. 168.
- 26 Treatment of Tuberculous Adenitis. L. Lecrenier.—p. 176.
- 27 Work in Treatment of Tuberculosis. Faniel.—p. 183.
- 28 Tenotomy and Flail Joints. A. de Marneffe.—p. 191.
- 29 Present Status of Lobar Pneumonia. Van Reeth.—p. 195.

24. **Malaria and Other Tropical Diseases in the Balkans.**—Castellani comments on the wide variety of clinical pictures presented by malaria in the Balkans. This is puzzling for medical men not familiar with tropical diseases. There is no internal disease that malaria may not simulate, and it may even induce a set of symptoms deceptively suggesting acute surgical affections. He reviews his experience and relates typical cases of each type, including pseudopurpura, sleeping sickness, cholera, cirrhosis, appendicitis, cholecystitis and pancreatitis—for all of which malaria was responsible, as also in 90 per cent. of some epidemics of alleged typhus. Among diseases other than malaria, trench foot has been encountered like that in France, spirochete bronchitis and jaundice. Dysentery, typhoid and tropical skin diseases are common, as also pellagra in certain parts of Macedonia.

25. **Tuberculosis of the Middle Ear.**—The young soldier has been at the front for two years, apparently healthy, when otitis media developed and proved to be of tuberculous origin, secondary to an unsuspected lesion in the lung. Tits is convinced that tuberculosis would be found responsible for otitis media in a larger proportion of cases if it were suspected in the torpid chronic cases that have no acute onset. He warns further that examination may give negative findings as in this case. Only when the examination was repeated several times were the results conclusive.

Bulletin de l'Académie de Médecine de Paris

Sept. 3, 1918, 80, No. 35

- 30 *Comparative Resonance of Tuberculous Apex. E. Boinet.—p. 190.
- 31 *Mumps. L. Captan.—p. 197.
- 32 *Aeroplane Surgical Unit. A. Nemirovsky and Tilmant.—p. 202.
- 33 *Syphilitic Peritonitis. M. Letulle.—p. 209.

30. **Resonance of the Apex.**—Boinet describes how percussion can be made most instructive to detect changes in the resonance and transsonance of the apexes.

31. **Mumps.**—Capitan analyzes his experiences with 700 cases of mumps in the troops. Careful bacteriologic examinations demonstrated, he says, that mumps is a polymicrobial infection of the blood. In some of the cases lymph nodes below the salivary glands became swollen and even suppurated, and bronchitis up to pneumonia was also occasionally countered as part of the clinical picture. The spleen was most invariably enlarged. Orchitis was observed in 16 and 15 per cent. of the cases before 1918, but during this year the proportion has been 25 per cent. The disease has been a little graver on the whole this year, and the complications are frequent. In some rare cases there was a rubeola-like eruption, and in six cases meningeal symptoms developed, relieved by lumbar puncture. All these complications of mumps proved mild. The early hypertrophy of the spleen may aid in the differential diagnosis.

32. **Aeroplane Surgical Unit.**—As mentioned in the Paris letter, page 1155, a flying surgical unit has been devised by Nemirovsky and Tilmant. The specifications were filed with the Ministère des Inventions, Feb. 21, 1918. The success of the aeroplanes devised to carry the wounded to the surgeon suggested the advantages of conveying the surgeon to the wounded, and this "aerochir" is the result. It aims to bring to the first aid stations, to advanced posts without roentgen equipment, a well equipped surgical and roentgen outfit, and aid advanced posts overwhelmed by the influx of wounded beyond what they had been organized for. The aerochir is designed to carry, besides the pilot, a surgeon and a radiologist to serve as assistant to the surgeon, and all the roentgen and surgical material for all kinds of interventions. The motor of the plane can supply the power for the roentgen current with the interposition of a small

Nemirovsky's compass, the projectiles can be located in full daylight. This compass as well as any surgical instrument needed can be placed in the aeroplane without cumbering it.

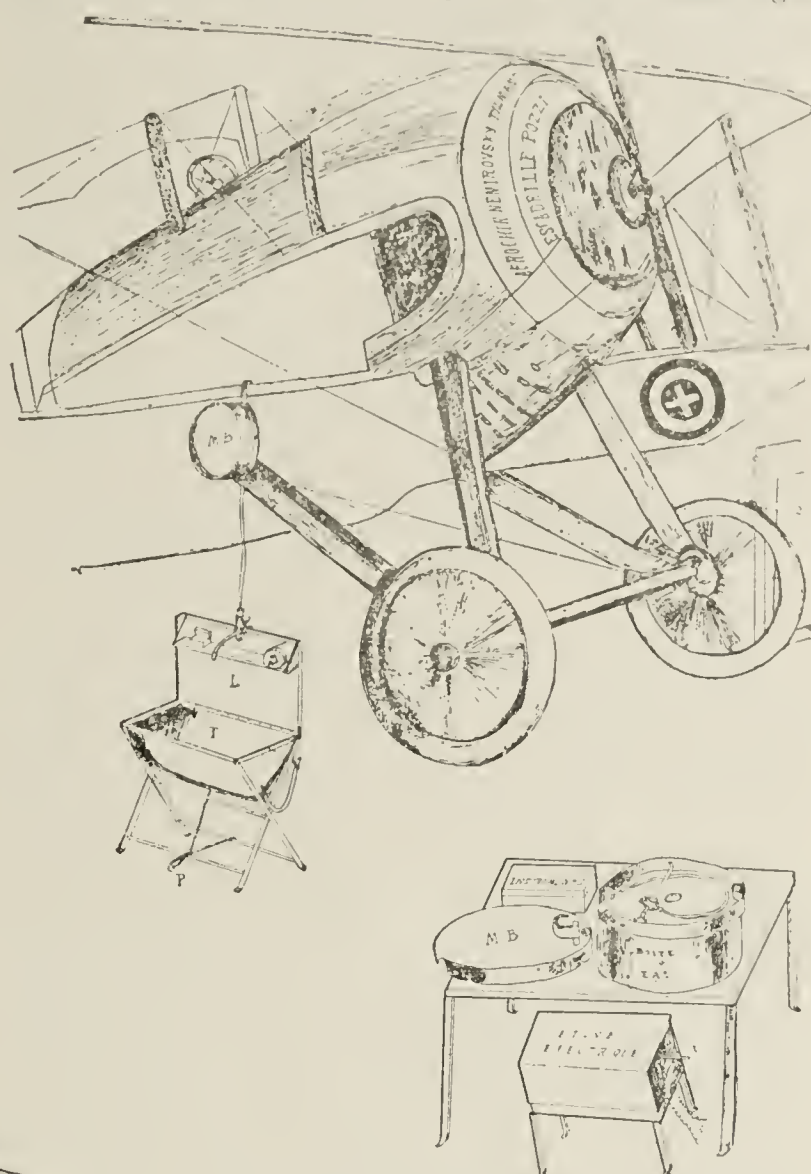


Fig. 2.—Folding washstand, instrument stand and electric sterilizer.

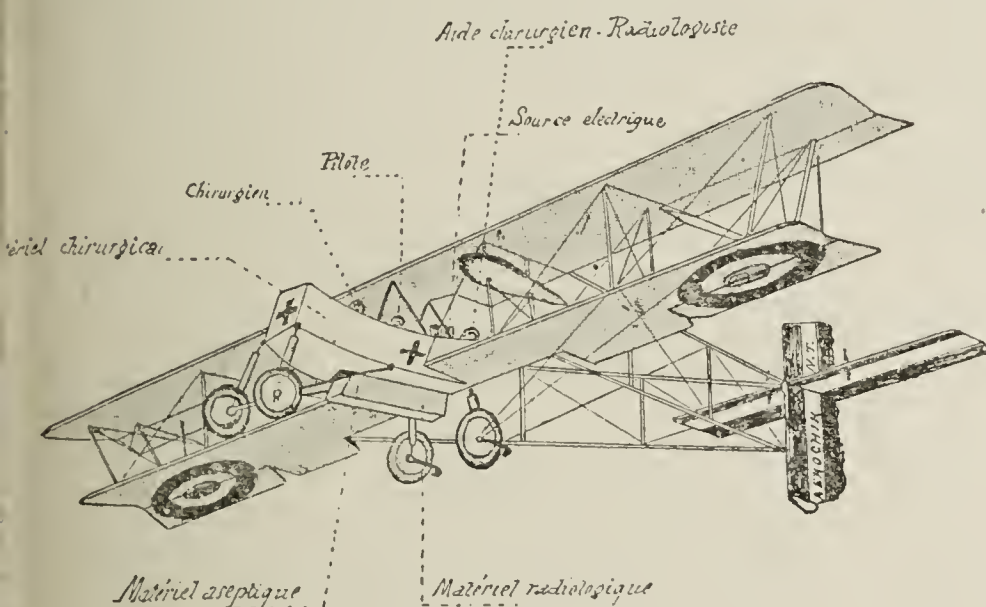


Fig. 1.—Roentgen-surgical aeroplane "Aerochir."

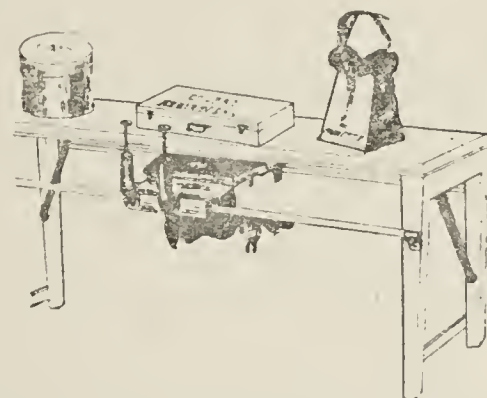


Fig. 3.—Roentgen table with compass for locating projectiles.

transformer and interrupter. It can serve also for electric sterilization, or a storage battery can be utilized for this. The apparatus are light and portable so that they can be easily carried into a first aid post or other surgical station and set to work at once, or they can be used in connection with the aerochir itself. The apparatus are not described in detail, but the advantages of a flying radiosurgical unit, whether in squadrons, are emphasized; especially the rapidity with which surgical aid can be brought, the fact that the hands are left free just at the time when they are liable to be most clogged, the speed of transit and the fact that the wounded is spared the transportation, having aid brought to him in the swiftest and most complete manner. In urgent periods the aeroplane could return to headquarters for a new outfit, so that one or two of these aerochirs could serve for hundreds of kilometers of the fighting front and no spot would be more than two hours away when summoned by telephone. Radioscopic and radiologic manipulations not requiring the patient to be undressed could be done in the aeroplane itself. With the cap devised by Dr. Mondain to be used with

33. **Syphilitic Peritonitis.**—Letulle devotes twenty-one pages to this preliminary communication on the frequency of syphilis as a factor in the development of ascites with cirrhosis of the liver. In a recent series of 152 cases of cirrhosis of the liver he found the Wassermann test positive in about 49 per cent. of the cases. His research has further demonstrated that the peritoneum is frequently the favorite culture soil for the syphilis spirochete. Syphilitic peritonitis is usually secondary to some inflammation of the liver, either a syphilitic affection of the liver or simple diffuse cirrhosis hitherto erroneously ascribed exclusively to abuse of alcohol. This secondary syphilitic peritonitis may extend throughout the whole peritoneum, but as a rule it is partial, circumscribed in special regions, around the liver, cecum, colon, etc. Whatever the extent of the lesions and their microscopic texture, this specific seritis, as he calls it, long respects the structural integrity of the organs which it covers with its fibroid shell, but finally they may become involved in its cicatricial retractions. These retractions and the consecutive atrophy at points of the peritoneum may entail redoubtable complications, and

their true nature and the outlook should be understood in the study of abdominal pathology. He gives illustrations of some typical findings; the chronically inflamed serosa throws up a hypertrophic sclerosis, and from this exudes the progressive ascitic effusion so familiar to the clinic.

Bulletins de la Société Médicale des Hôpitaux, Paris

May 24, 1918, 42, No. 18

- 34 *Lethargic Encephalitis. A. Chauffard and M. Bernard.—p. 470; Histologic Findings. P. Marie and C. Trétiakoff.—p. 475.
- 35 *Tardy Relapse of Meningitis. E. de Massary and L. Tockmann.—p. 480.
- 36 Malarial Meningitis. G. Paiseau and J. Hutinel.—p. 484.
- 37 *Eosinophilia in Pleural Effusions. M. Petzetakis.—p. 487.
- 38 *Cholesterol in Joints. M. Loeper and G. Verpy.—p. 496.
- 39 Transient Exophthalmic Goiter After Typhoid. G. Faroy.—p. 499.
- 40 *Icterohemorrhagic Spirochetosis. Costa and Troisier.—p. 502.
- 41 Peripheral Paralysis After Typhoid. Cestan and Others.—p. 506.
- 42 Polyneuritis or Hemiplegia After Paratyphoid. R. Cestan and Others.—p. 508.
- 43 Hemiplegia Complicating Typhoid. R. Cestan and Others.—p. 510.
- 44 *Hemolytic Index of Serums. de Verbizier and Marchand.—p. 512.
- 45 *Valvular Disease and Fitness for Service. A. Clerc and H. Aimé.—p. 516.
- 46 *Intraspinal Lavage in Meningitis. G. Rosenthal.—p. 521.

34. **Lethargic Encephalitis.**—In the first of the two cases reported the young woman died the ninth day after the first symptoms, diplopia, slight headache, with complete bilateral ptosis the third day, with increasing somnolency. The other young woman was four months pregnant, and the symptoms at first were profound apathy, immobility of the facial muscles, catatonic retention of attitudes, and torpor to such an extent that she seemed to be constantly asleep with the eyes open, but there were no ocular symptoms. There was a slight rise in temperature the sixth week and the woman died at the end of the seventh week. In the discussion, Nectter emphasized the differences between this lethargic encephalitis and poliomyelitis, and stated that the British have already reported 105 cases. Marie described the histologic findings in the above two cases. To the naked eye the brain seemed normal, but the microscope revealed in both a small focus of subacute inflammation in the locus niger (substantia nigra or intercalatum), spreading toward the ganglions of the base and to the gray matter close to the ventricle in the protuberance and the bulb. The lesion was strictly limited to the juxtaventricular gray matter, the nuclei around being apparently sound.

35. **Tardy Relapse of Meningitis.**—The relapse occurred four months after defervescence, but the man had not felt well in the interim. The relapse occurred after antityphoid inoculation, and the case suggests that men who have had meningitis should be spared the antityphoid inoculations. During his convalescence he presented the symptoms and aspect of general paresis, and recovery was very slow. He was finally discharged as unfit for duty.

37. **Pleural Effusions.**—Petzetakis explains that the eosinophils and basophils found in an aseptic pleural effusion are formed on the spot at the expense of the polynuclears, etc., of the effusion. He calls this *cosinoplasic*.

38. **Cholesterol Deposits in Joints.**—Loeper and Verpy found deposits of cholesterol crystals in the connective tissue, synovia, and in the synovial fluid in a man of 47 with deforming polyarthritides of the fingers and wrist who had succumbed to aortitis. There were also similar deposits in the aorta. Cholesterol deposits were also found in a soft tumor from a woman of 39 with old and extensive deforming rheumatism. In a third case the man had gouty tophi in addition to the deforming rheumatism. In a hygroma removed from the shoulder, there was an enormous proportion of cholesterol crystals with uric acid crystals. They add that to determine the nature of a deforming rheumatism it may be necessary to apply chemical tests to the deposits in the joints. Treatment would vary then according as the tests reveal, singly or combined, carbonophosphates, oxalates, uric acid or cholesterol.

40. **Icterohemorrhagic Spirochetosis.**—Two more cases are reported of the meningeal form with subjaundice, with complete recovery.

44. **Hemolytic Index.**—De Verbizier and Marchand discuss the hemolytic index of human serums in connection with the "rapid" technic for the serodiagnosis of syphilis. The research in 300 cases has confirmed the conclusions of Hecht-Weinberg in respect to the necessity for ascertaining the hemolytic index as a preliminary to the test.

45. **Valvular Disease and Fitness for Service.**—Clerc and Aimé comment with approval on the recent regulations which specify that men with valvular disease should be dismissed from the army temporarily or permanently as the commanders are unable to maintain a stable system for sedentary limited service. Occasionally this may deprive the army of the services of some man who might have stood the strain, but the army as a whole has only gained by it. In the present condition of things it is better to renounce a few than to expose the large number of men with valvular disease to the nefarious consequences of the strain of army life.

46. **Intraspinal Lavage.**—Rosenthal reports a case of cerebrospinal meningitis with the *Meningococcus crassus* which confirms the advantages of rinsing out the spinal cavity with saline and citrate solution. The solution is introduced until it comes away clear, first the 38 per cent. solution of sodium citrate; then simple saline; then the chlorocitrate solution of 7 gm. of sodium chlorid and 8 gm. of sodium citrate to the liter. A very fine needle is introduced inside the ordinary lumbar puncture needle, thus ensuring the two-way current. In the case described, the thirty-first lumbar puncture showed normal spinal fluid, confirming the clinical recovery, over two months after the first symptoms. Disinfection of the nasal fossae formed part of the treatment. The disease had run its course in waves.

The spinal cavity is rinsed out with the simple saline, introducing it 20 c.c. at a time. With patience, up to 100 c.c. even 160 c.c. can thus be used to flush the spinal cavity, using the chlorocitrate solution only for the last two syringefuls. Sodium citrate checks the production of false membranes, and a little of the chlorocitrate solution is left in the spinal cavity at last to facilitate this action. The strong citrate solution is liable to cause transient pain, and hence should be rinsed out carefully.

Journal de Chirurgie, Paris

July, 1918, 14, No. 6

- 47 *Cicatricial Stenosis of Esophagus. L. Sencert.—p. 553.
- 48 Resection of Left Angle of Colon for Cancer. Desmarest.—p. 57.

47. **Cicatricial Stenosis of the Esophagus.**—Sencert refers to absolutely impassable stenosis or stenosis which is not constantly and easily permeable. The simple, effectual and certain treatment for such cases, he declares, is a gastrostomy with retrograde "endless" dilatation. He describes in detail how to overcome the difficulties encountered in this, with typical cases from his total experience with fourteen cases. One illustration shows the cardia as seen by direct gastroscopy through the gastrostomy opening. Another shows the young man with the thread left emerging from this opening and through the mouth.

Lyon Médical

July, 1918, 127, No. 7

- 49 Case of Atypical Tetanus. Roubier.—p. 289.
- 50 Variola at Lyons in 1917. Bonnamour.—p. 299.
- 51 Low Blood Pressure and Tachycardia in the Gassed. Piéry.—p. 321.

Paris Médical

July 13, 1918, 8, No. 28

- 52 Abdominal Pain with Chronic Amebiasis. E. Deglos.—p. 33.
- 53 *Shock. G. Blechmann.—p. 38.
- 54 *Autogenous Vaccine for Brain Wounds. A. Moulouguet.—p. 44.
- 55 Recording Register for Joint Function. Dausset.—p. 44.

July 20, 1918, 8, No. 29

- 56 *War Wound of Knee. Monprofit and L. Courty.—p. 49.
- 57 *Treatment of Psychoses with Convulsions. G. Aymes.—p. 56.

53. **Shock.**—In order to get a better idea of the nature of shock, Blechmann has had each case investigated and the data recorded on a systematic plan. The chart listed each of the seven reflexes tested, the oscillometer maximal and minimal pulse, the oculocardiac reflex, the blood viscosity, coagulation and hemoglobin, lumbar puncture; white de-

tophism, etc.—over forty kinds of data from the examination being thus recorded on the chart by a uniform plan as the patient is being undressed, heated and morphinized. The sphygmometer is particularly convenient for repeated determination of the blood pressure in the wounded, as it can be applied to wrist or ankle. On each chart is recorded also the clinical impressions of the phases through which the patient passes. These records have aided in establishing that the state of shock is not due to the hemorrhage or to any single cause but to the combination of the concussion, the pain, hemorrhage, etc., and superposed on these the anesthesia, the operative shock and toxi-infection. He adds that Hille's and Roger's researches have proved the Ariadne's thread that has led us at least to warm up the wounded and give some preoperative treatment, watching over the evolution of the shock by the behavior of the blood pressure.

54. Autogenous Vaccine for Brain Wounds.—The pulsation of the brain aids in the expulsion of small splinters and foreign bodies, but the brain has very little power of defense against infection. To enhance this by an autogenous vaccine specially prepared to act on brain tissue, Moulouguet took the microbes for it from the brain lesion itself, and added human or bovine brain tissue to the culture medium. The twenty-four hour culture was emulsified in physiologic solution and heated to 60 C. for an hour. This brain autovaccine was then administered by subcutaneous daily injections. One culture tube provided three ampules, and he injected half an ampule the first two or three days and then a whole ampule after this. He has applied this treatment only in three cases to date, but the improvement was so marked under it, as he describes in detail, that he does not wait for further confirmation to commend this treatment as a prophylactic measure after an operation on the brain, to prevent the development of infection or aid in curing it if it has developed, especially in cases of subacute and chronic encephalitis, and after operative treatment of a tardy abscess in the brain developing around a splinter or projectile. He adds that this vaccine may render good service also after an operation on a brain abscess of otitic origin, or in preventing its development.

55. Perforating Wounds of the Knee.—Monprofit and Bourty tell how during the first years of the war arthrotomy, when very extensive, gave such bad results with wounds of the knee that many of the men evacuated apparently in good condition had to be amputated in the reserve hospitals. Much better results were realized when, instead of opening the joint widely, it was merely punctured to release the extravasated blood and effusion, or extract the projectile with the least possible injury to the tissues, and then sutured and immobilized. The synovial membrane does not stand well exposed to the air, and the joint heals far better when the synovialis is sutured at once with catgut and the skin with silk. When the bones are so injured that resection is necessary, it should be the typical resection. This averts amputation, drains well and gives good orthopedic results. In 16 cases the cure was complete in 15, one man requiring amputation on account of tetanus. In Tuffier's 108 cases of resection the knee was firm with slight mobility in 11 cases, with complete ankylosis in 93; the joint was loose in 5 cases.

56. Treatment of War Psychoses with Convulsions.—Aymes has been impressed with the improvement under calcium chlorid associated with a hypnotic in treatment of war psychoses with convulsions. He describes the details of the twelve cases given this combined treatment.

Presse Médicale, Paris

Aug. 8, 1918, 26, No. 45

- *Daughter Echinococcus Cysts. F. Dévé.—p. 413.
*Sepsis from the Mouth. Dufourmentel and L. Frison.—p. 145.
Extension Treatment of Bones in Hand. Lance.—p. 416.

57. Echinococcus Cysts.—Dévé describes the origin of and the pathogenic conditions inducing daughter cysts, saying that so long as the mother cyst is in a quiescent state there is no production of daughter cysts until the mother cyst is growing very old or its contents become infected or stained with bile, or the fluid contents are evacuated. All of these cases become more likely with the increasing age of the

cyst. It is important to ward off these different causes for production of daughter cysts, especially refraining from puncture. The cyst should be removed at the earliest possible moment, and we should seek for echinococcus cysts in dubious cases, even in children, as a routine measure. Many cases of cysts in adults date from childhood.

59. Sepsis of Buccal Origin.—The three cases reported proved fatal. In one there was a toxic cellulitis of the neck, and in one phlebitis of the craniofacial vessels. The primary lesion had been an acute gingivitis or abscess at the root of a tooth, and the resulting septicemia proved fatal in from two to eighteen days.

Progrès Médical, Paris

June 29, 1918, 33, No. 26

- 61 *Cholesterol Deposits in Joints. Loper and Verpy.—p. 221.
62 *Soldiers' Irritable Heart. A. Clerc and H. Aimé.—p. 222.

July 6, 1918, 33, No. 27

- 63 *Retarded Primary Suture of War Wounds. A. Chalié.—p. 229.
64 *Traumatic Lesions of the Arteries. G. Jeanneney.—p. 230.

61. Summarized in abstract 38.

62. Soldiers' Irritable Heart.—Clerc and Aimé discuss recent literature on this subject. A hyperexcitability of the entire sympathetic system seems to be the actual cause of the irritable heart and the instability of the circulation and secretory processes which generally accompanies it. A constitutional predisposition or the effect of some infection is the primary factor.

63. Primary Suture of War Wounds.—Chalié insists that it is possible to apply the primary suture even as late as twelve hours after the wound when clinical observation shows that the wound is little if any infected. In 32 cases he operated and sutured between the thirty-fifth and fortieth hour in 3; to the forty-eighth hour in 9; third day in 7; and from the fourth to the eleventh day in 13. In only 3 of the total 32 was it necessary to open up the wound again. In all the others the scar was linear and supple as with the finest early sutures. A number of the men returned to the front in less than a month, and yet the wounds had been serious ones, some including the skull, others large arteries; in 17 cases projectiles had to be extracted.

64. Traumatic Lesions of Arteries.—Jeanneney expatiates on the convenience and advantages of the Pachon oscillometer as a means to estimate the blood pressure and the diagnosis and prognosis of war wounds of arteries. Some lesion of the artery may be assumed when the oscillometric curve is lower and shorter than on the sound side. It shows whether the circulation below a ligature is growing better or worse, and thus is a guide to treatment and for the prognosis. Besides its practical value along these lines, it throws light on the vasomotor mechanism of the phenomena accompanying vascular lesions.

Correspondenz-Blatt für Schweizer Aerzte, Basel

Aug. 17, 1918, 48, No. 33

- 65 *Paroxysmal Tachycardia. O. Roth.—p. 1089.
66 The Physiologic Concomitant Reflexes. A. Rodella.—p. 1102.
67 Personal Prophylaxis of Diphtheria. F. Brandenburg.—p. 1106.
68 *Influenza. E. Lanz.—p. 1108.

65. Paroxysmal Tachycardia.—Roth describes five cases of sinus tachycardia, and says that in all he was able to arrest the attack of tachycardia by applying mechanical irritation to the vagus nerve. The simplest method for the purpose was found to be compression of the cervical portion of the vagus nerve. To ward off recurrences he gave small doses of a preparation of digitalis three times a day.

68. Influenza.—Lanz comments on the frequency of pneumonia in the present epidemic of grip. The rusty sputum of pneumonia and a crisis are seldom observed, but reduction of the chlorids in the urine and their return to normal at once when the process is arrested are reliable bases for diagnosis and prognosis. No benefit was derived from acetylsalicylic acid, optochin or salvarsan, but a mixture of digitalis, sodium salicylate and antipyrin salicylate every two hours seemed to check the spread of the pneumonia process by the intense

sweating induced and the toning up of the heart. He has had no further deaths since this treatment was instituted. No handkerchiefs are allowed, toilet paper being used for the nose and sputum; other prophylactic measures include gargling and inhalation of turpentine fumes.

Annali di Ostetricia e Ginecologia, Milan

March, 1917, **19**, No. 3. Pub'd September

- 69 *Thermo-Precipitin Diagnosis of Tuberculosis. A. Fornero.—p. 87.
70 *Radium Therapy for Uterine Cancer. Ponzio and Maiolo.—p. 99.

69. **Thermo-Precipitin Diagnosis of Tuberculosis.**—Fornero has been applying this test in his obstetric and gynecologic cases and has found it simple and reliable. Civalleri first called attention to the zonal reaction of precipitation when an extract of tuberculous sputum, obtained with chloroform, is brought into contact with antituberculosis serum. Fagioli obtained precipitation with immune tuberculosis serum, but Fornero's method is more reliable. He makes an emulsion of the sputum with physiologic solution, equal volumes, and after boiling and filtering, places it in contact with tuberculosis immune serum. The resulting precipitation reaction does not occur with normal or syphilitic serums. This technic renders the reaction more specific than without the heating. The immune serum found most striking in its effects came from an ass hyperimmunized with killed and live human tubercle bacilli. Fornero pours on 2 c.c. of the sputum twice the amount of chloroform and keeps it at 37 C. for about three hours. The chloroform is then decanted and four parts of physiologic solution are added to what is left in the tube. The whole is agitated and the resulting emulsion is boiled in the water bath for two minutes. Then it is filtered cold through a No. 590 Schleisser and Schull paper. A tube about 5 cm. tall by 6 mm. in diameter is filled half full with physiologic solution, and a layer of the filtrate is poured on the top from a pipet. The reaction reaches its height in fifteen or twenty minutes. He obtained positive results in 94 per cent. of all certain cases of tuberculosis and only in 7 per cent. of the nontuberculous. The test can be applied likewise to urine or pus, to placenta extract, etc. The test can be applied equally well with a much smaller amount, not to waste the immune serum, keeping the same proportions. Fornero's experience confirms the reliability of this technic, as he describes at length. In military barracks he has obtained positive reactions in some cases when no tubercle bacilli could be found in the sputum. This test was not considered sufficient basis for accepting the diagnosis of tuberculosis, but within three weeks tubercle bacilli appeared in the sputum.

70. **Radium Treatment of Uterine Cancer.**—The experiences with 50 cases of inoperable or recurring uterine cancer are reported in detail. In the 42 cases with an interval since of one to three years, 16 seem to be both clinically and anatomically cured, and in 14 cases the tumor has been arrested and retrogressed.

Gazzetta degli Ospedali e delle Cliniche, Milan

June 16, 1918, **39**, No. 48

- 71 Liver Abscess and Amebic Dysentery. F. Dagasso.—p. 477.
72 Chloroform Not Effectual Against Tapeworms. Borino.—p. 484.
June 20, 1918, **39**, No. 49
73 Tuberculin Treatment of Nodose Erythema. Matteucci.—p. 485.
June 23, 1918, **39**, No. 50
74 Evaluation of Disability after War Wounds. Marangoni.—p. 496.

Riforma Medica, Naples

July 20, 1918, **34**, No. 29

- 75 *The Soldier's Ration and Physiology. F. Rho.—p. 561.
76 *Chronic Cardiovascular Disease. P. Marfori.—p. 567.
77 The Recent Pandemic. U. Gabbi.—p. 572.
78 Hygiene for Aviators. D. Tanturri.—p. 574.
79 Scabies. D. Barduzzi.—p. 575.

75. **The Soldier's Ration.**—Rho is the medical chief of the Italian navy, and he here discusses the physiologic bases for a well balanced ration. He replies to Bottazzi's arguments (summarized recently, page 692), and cites the experiences in other countries. He remarks that the men in the

Italian navy average 60 kg. in weight (about 132 pounds). On destroyers and other small vessels there is often no settled ration, and the men eat to suit their taste. When this is the case, investigation has shown that they do not take over 2,700 or 2,800 calories, and are content with 90 or 96 gm. of protein. Recent research has shown further, he says, that the soldiers and sailors in general average not from 3 to 5 kg. in weight more than when the war opened notwithstanding their physical work. The present ration allows considerable liberty of choice, and consists of 130.5 gm. protein; 45 gm. fats and 535.5 gm. carbohydrates. This provides 3,149 gross calories or, including the wine ration, 3,329 calories. The Japanese war ration, he adds, includes from 108.67 to 123.96 gm. protein; from 6.11 to 15.96 gm. fats and 766 gm. carbohydrates. Rho adds that the more vegetable and fruit diet of the Italians in peace times should not be regarded as a token of inferiority but the reverse, a title of hygienic and physiologic superiority. As Alfieri said, "The plant, man, thrives better in Italy than elsewhere." A change to city life and meat eating can be a change only for the worse.

76. **Treatment of Chronic Myocarditis and Arteriosclerosis.**—Marfori ascribes great importance to dietetic treatment. Of the various drugs he has used, camphor has proved most effectual in regulating the heart rhythm. It seems to have a direct stimulating action on the formation of the heart impulse, stimulating the nodal system, that is, the Keith-Flack node. This direct biologic action of camphor differs in nature and seat from that of any other heart tonic. Camphor has no influence on the cardiac innervation. It dilates the blood vessels, thus reducing the pressure in the right ventricle and facilitating the circulation in the lungs and elsewhere, bringing down the blood pressure. This action of camphor has not been appreciated hitherto as the test of it made on the normally regular heart showed no effect. It does not seem to exaggerate normal functioning nor exhaust the reserve force, but merely brings up to normal a lagging nodal system. Zangger's recent research and clinical experience have confirmed Marfori's assertions in this line. Published a few years ago, which time is corroborating. Camphor has to be given for months and years, with intermissions, to influence the disease permanently. He usually begins by subcutaneous injection of camphorated oil (0.10 gm. in 1 gm.), continuing the drug by the mouth, sometimes associated with nux vomica or valerian. It may be given with other heart tonics as in the formula; 15 gm. each of tincture of strophanthus and tincture of nux vomica, with 2 gm. pulverized camphor. The dose is from 10 to 20 drops twice a day, suspending for a week after taking for fifteen days. Professor Marfori is director of the Instituto di Farmacologia e Terapia of the University of Naples; he has made for years a special experimental and clinical study of camphor. In this article he reviews also the action of several other drugs that influence the heart.

Brazil Medico, Rio de Janeiro

June 22, 1918, **32**, No. 25

- 80 Trichomonas Chagasi n. sp. Hasselmann and O. da Fonseca.—p. 193.
June 29, 1918, **32**, No. 26
81 Gregarina Watsoni n. sp. C. F. Pinto.—p. 201.
82 Principles and Practice of Hydrotherapy, Myotherapy and Dietetics in Obesity. G. Armbrust.—p. 201. Conc'n.

Medicina Ibero, Madrid

June 15, 1918, **3**, No. 32

- 83 Etiology of Influenza. F. Coca.—p. 297.
84 Herpes Zoster. F. de la Portilla.—p. 299.
June 29, 1918, **3**, No. 34
85 *Membranous Pericolitis. J. Blanc y Fortacin.—p. 355.
86 Chyliform Pleural Effusion. S. A. Echevarria.—p. 356.
87 Means to Promote the Physical Development of Children. M. F. Ansart.—p. 378.

85. **Membranous Pericolitis.**—Blanc operated in a case of abdominal pains and obstipation amounting to transient total obstruction on two occasions. He found the cecum covered with a network of fibrous tissue like a fine fibrous and vascularized membrane. At some points it squeezed up the

bowel into folds like an accordion. In some similar cases on record the tract of bowel involved was resected, as it is assumed that the fibrous network might reproduce itself if the fibers were merely cut. But Blanc did not consider himself justified in doing this. He merely cleared away the network, leaving the cecum and colon entirely free. The patient's previous disturbances disappeared at once, showing that the network had been unmistakably responsible for them. A month later hematemesis and melena developed, and the patient proved to have a cancer involving both stomach and intestines. Blanc is inclined to incriminate this malignant disease in the origin of the fibrous network, the irritation from the hitherto clinically latent cancer having induced the production of the fibrous membrane at some little distance. Even if the membrane was of congenital origin, it might have caused no disturbances until some irritation or inflammation in some connected area might have aggravated it to assume pathologic proportions.

36. Chyliform Pleural Effusion.—Echevarria's patient was an unmarried woman of 42 inclined to recurring bronchitis and hyperchlorhydria, who developed a pleural effusion which required tapping two or three times and was of chyliform aspect but did not contain any droplets of fat. No microbes could be discovered in it but the presence of endothelial cells and others, larger, with a large central vacuole suggested cancer. This was confirmed by the course of the case, the pleural effusion proving to have been due to a secondary metastasization from a cancer in the stomach which had been developing insidiously until this time. The first clinical phase of the malignant disease was exclusively on the part of the respiratory apparatus.

Semana Medica, Buenos Aires

March 7, 1918, 25, No. 10

- Colloidal Metals and Intravenous Medication. A. Guaita.—p. 255.
*Death Rate from Tuberculosis at Buenos Aires. E. R. Coni.—p. 261.
Necessity for Training Nurses for the Army. J. A. Lopez.—p. 264.
Psychopathology in Relation to Social Sciences. F. Del Greco.—p. 268.

May 30, 1918, 25, No. 22

- Hygienization of Milk. E. R. Coni.—p. 610.
*After Cesarean Section. V. Morinelli.—p. 612.
Tuberculosis Death Rate at Buenos Aires. E. R. Coni.—p. 624.

9. Tuberculosis at Buenos Aires.—Coni analyzes the death rate from tuberculosis grouping it by nationalities, ages and sexes. His figures show a number of actual foci of infection. Of the total 3,254 deaths from tuberculosis last year, one-fifth occurred in the hospitals and 42.4 per cent. of the tuberculous had come up from the provinces to the city.

3. After Cesarean Section.—Morinelli discusses the obstetric and gynecologic outlook for women after cesarean section. His article is based on 202 cases of cesarean section collected from various Argentine clinics, with the case histories of many of the women. In the uncomplicated cases the mortality is about that of all laparotomies done for noninflammatory diseases; namely, 5.5 per cent. In the suspected cases, the mortality ran up to 13 per cent. The morbidity and mortality of symphysiotomy are less than those of tardy cesarean section, with which alone it competes. When symphysiotomy is considered, the time for the classic cesarean is past. From his experiences related, the suture for the uterine wall which is the stoutest cicatrix and the least adhesions was with the gut in three tiers. It seems logical to sterilize a woman in a second cesarean section is required. This occurred in some of the cases reported, but Morinelli has become convinced by the experiences related that it is better to sterilize a woman at the first cesarean section when she is syphilitic, tuberculous or has chronic kidney or heart disease.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

July 13, 1918, 2, No. 2

- *Congenital Defects in Skull. J. W. T. Willink.—p. 70.
*Fracture of Long Bones. W. F. Wassink.—p. 78.
The Organized Profession and Social Medicine. E. J. Buning.—p. 86.
Botulism. J. Gewin.—p. 89.

95. Defect in the Skull.—The gap in the skull was of symmetrical outline and the convolutions of the brain were distinctly manifest at first through the thin layer of epithelial cells. The analogous cases on record are reviewed. Anomalies of this kind seem to be the result of disturbance in the development of the mesoblast. Willink loosened up the scalp and sutured it over the gap which was nearly 4 cm. square, and the infant seems to have developed normally since.

96. Fracture of Bones in the Leg.—Wassink argues that the methods of treating simple fracture of the leg bones seldom give satisfactory results. His analysis of his own experiences and series reported by others confirms that recovery was more rapid in the cases in which immobilization was less thorough and prolonged, while the joints were left less stiff, and there was less tendency to edema. Absolute immobilization is not necessary for the growing together of the stumps, and sometimes it is directly contraindicated. It may be useful, just before final consolidation is complete, to apply absolute immobilization for a short time. The effect on the patient is much better when prolonged immobilization is not aimed at; he is not condemned to absolute idleness over such a long period.

Hospitalstidende, Copenhagen

July 17, 1918, 61, No. 29

- 99 *Treatment of Paralytic Dementia. G. E. Schrøder and H. Helweg.—p. 945.
100 *Treatment of Epilepsy. A. Bisgaard, E. Jarløv and J. Nørvig.—p. 960.

99. Subdural Injections of Arsphenamin in Treatment of General Paresis.—Ten cases are reported in which treatment was with subdural injection of neo-arsphenaminized serum after trephining. The injections were kept up alternately by the vein and subdural, at intervals of two weeks or a month. It seems as if the finding of spirochetes in the brain justifies this subdural treatment. In the majority of the cases described the disease was of too long standing for much hope of benefit; but in three cases the disease seemed to have been arrested. In four cases, however, the subdural injection was followed by paresis of the arm and later of the leg, on the other side, evidently from the irritating of the meninges by the drug. It would have been better to use it in a weaker dilution. It is possible that series of repeated examination of the spinal fluid may reveal certain forms of the disease more amenable to treatment.

100. Treatment of Epilepsy.—Bisgaard and his co-workers have been studying the chemical reactions of urine and blood in epileptics during and after seizures and in the intervals. The alveolar carbon dioxide tension and electrometric determination of the concentration of oxygen ions coincide in demonstrating as a seizure impends an increase in the blood and urine of substances giving an alkaline reaction. During the seizure and afterward there is a pronounced turn to an acid reaction. They interpret the acid reaction as an effort on the part of Nature to restore the normal balance between the alkaline and acid reactions. Certain data presented render this assumption plausible, and suggest that in treatment of epilepsy efforts should be made to combat the pathologic tendency to alkalinity. This might be realized by giving acids or other substances to increase the oxygen ion content of the blood, or accomplish the same by dietetic means or physiotherapy. They emphasize the close concordance between the chemical reactions in blood and urine as they veer from normal to alkaline while the seizure impends. Then both veer to acid during and after the seizure. The conflicting findings in the literature were due in large part to the unreliability of the older technics applied. All the testimony to date indicates that the composition of the urine undergoes certain abnormal changes, by which the degree of acidity is materially altered.

Hygiea, Stockholm

June 30, 1918, 80, No. 12

- 101 *Erreur de Sexe. T. Lunden.—p. 705.

101. Pseudohermaphroditism.—Lunden was consulted by a young woman on account of a painful swelling in the groin. Examination showed the genital organs to be those of an

external male pseudohermaphrodite, but the general aspect was altogether feminine. The swelling in the groin was the undescended testicle. Two of the three sisters were of the same external male pseudohermaphrodite type, and probably likewise a maternal aunt. Lunden discusses the physician's conduct in such cases of *erreur de sexe*. He advocates removing the testicles, as they are liable to undergo malignant degeneration. The patient should be informed, he thinks, that there is malformation which would prevent child bearing, and consequently that she should not marry. It is better not to specify the nature of the malformation.

Norsk Magazin for Lægevidenskaben, Christiania

July, 1918, 79, No. 7

- 102 *Phenolsulphonephthalein Test of Kidney Functioning. K. Motzfeldt.—p. 729.
103 *Treatment of Eclampsia. K. Brandt.—p. 765.
104 *Double Uterus Bicornis. K. Haugseth.—p. 781.
105 *Invagination of Child's Intestine. N. Barth.—p. 784.
106 Breaking Up of Pleural Adhesions. W. Holmboe.—p. 799.

102. **Phenolsulphonephthalein Test of Kidney Functioning.**—Motzfeldt reviews the literature on the phenolsulphonephthalein test and his own experience with 212 applications of the test on 136 patients at the Rikshospital. Only 61 of the patients had kidney disease. In 54 with sound kidneys, from 40 to 70 per cent. was eliminated during the first two hours: the average was 65 per cent. and it was never below 50 per cent. The elimination was entirely independent of the amount of urine during the two hours, the percentage keeping the same when the subjects had been drinking a liter of water half an hour before the test, as also in a case of renal dropsy in which the output of urine increased from 1,500 c.c. one day to 8,000 c.c. a few days later. The phenolsulphonephthalein output was 35 per cent. on both these days. The findings in the 61 patients with nephritis are tabulated under different headings, and are compared with the symptoms observed.

He extols the simplicity and reliability of the test; a positive response testifying to functional impairment of the kidneys. Nephritis may exist without appreciable functional impairment, and hence negative findings do not exclude nephritis. He found evidences of retention of nitrogen in every case when the output of the phenolsulphonephthalein was below 25 per cent. The test is thus peculiarly useful in differentiating between the true and the spurious form of uremia, the *azotémie* and *chlorurémie* of the French writers. On the other hand, there is no connection between the elimination of phenolsulphonephthalein and albuminuria, edema or high blood pressure.

103. **Eclampsia.**—Brandt analyzes the twenty-seven years' record of the Christiania obstetric and gynecologic clinic. It includes 431 cases of eclampsia. In the 156 cases since 1906, there was a mortality for the mothers of 14.1 per cent. and for the children of 27.3 per cent. in the 121 cases in which the eclampsia developed before or during labor. The figures are, respectively, 25.7 and 2.5 per cent. in the cases with postpartum eclampsia. The Stroganoff prophylactic method is applied as the routine measure, that is, keeping the woman under the influence of moderate doses of morphin and chloral and protecting her against noise and light. Venesection is done when necessary, and also lavage of the stomach. Otherwise she is left in peace. If the convulsions keep up, Brandt does not push this Stroganoff method to the extreme, but delivers the woman under deep ether anesthesia, with forceps, cesarean section or otherwise as indicated. One great advantage of the Stroganoff treatment is that the general practitioner can apply it with the help of the obstetric nurse, who can keep him posted by telephone as to the patient's condition. Some recent German publications report from the Charité at Berlin 17.2 per cent. mortality in 501 cases of eclampsia, before 1912, given purely operative treatment. Since then, 168 cases given the Stroganoff and venesection treatment showed a mortality of 14.3 per cent. for the mothers and 36 per cent. for the children. Pregnancy eclampsia was found to give the most unfavorable results. Bumm also has reported that operative treatment has not fulfilled expectations, and since 1911 treatment has been expectant. The pure

Stroganoff treatment in his hands gave 44 per cent. mortality. The total mortality in 567 cases was 17.3 per cent. Necropsy revealed irreparable changes in liver, kidneys and brain. It is stated that venesection is called for only in pregnant eclampsia. In institutions, primary operative treatment seems to be preferable.

104. **Double Uterus.**—In removing an ovarian cyst, Haugseth accidentally discovered that there was a duplex uterus bicornis with vagina septa. The woman had had seven pregnancies with five living children. The pregnancies had evidently alternated in the halves of the uterus.

105. **Intussusception in Children.**—Barth became convinced in 1902 that he had overlooked some cases of intussusception and since then he has been on the lookout for it in every small child brought to him on account of gastro-intestinal disturbance. He has thus encountered five cases in recent years. In two he succeeded apparently in reducing the invagination but the child died in twenty-four or forty-eight hours. In another case the invagination was of several days' standing and the laparotomy came too late to save the child. Another child had evidently had repeated attacks of invagination which had spontaneously corrected itself. In the latest attack the bowels were flushed with water. Then the invagination was easily corrected through a laparotomy but the child collapsed and died next day, probably from absorption of virulent infectious matter by the damaged mucosa. It is evident that nonoperative measures cannot be counted on after twenty-four hours and, on the other hand, a laparotomy gives the best results when done within twenty-four hours. Even when the invagination seems to have been corrected, it may merely have slid behind the liver. Necropsy revealed this in four of Bloch's cases. Or the invagination may have been corrected, but the swollen bowel and mesentery may simulate a tumor. Passage of flatus and stools is the best sign of reduction of the invagination, but this does not occur for several hours. Bloch flushes the bowel with water and measures the quantity of water that can be introduced and flow out again. If the intussusception still persists (ileocecal and colon) only from 50 to 500 c.c. will run in, while if the invagination has been reduced, up to a liter will flow in and out. This may aid in locating the tumor, as with an invagination in the small intestine as much as a liter will run in and out without any change being apparent in the tumor.

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- 107 *The Blood in Scarlet Fever. S. Baastrup.—p. 1121.
108 Artificially Carbonated Baths. S. Marcussen and A. Faber.—p. 1142.

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- 109 *Traumatic Lumbago. K. Malling.—p. 1177.
110 *The Coarse Bread Question. M. Hindhede.—p. 1182.

107. **The Blood in Scarlet Fever.**—Baastrup tabulates the hematologic findings in fifteen patients with infectious sore throat; in ten with scarlet fever with the blood examined repeatedly during the whole course of the disease, and in eighty-seven scarlet fever patients whose blood was examined at different times during the disease. It is evident that the pronounced leukocytosis and eosinophilia even from the first will aid in differentiating scarlet fever from infectious sore throat. Leukocytosis with very few or no eosinophil cells turns the scale in favor of simple angina. After defervescence the combination of leukocytosis and eosinophilia will permit the retrospective diagnosis of scarlet fever. Neither alone is decisive, but the presumption still is in favor of scarlet fever.

109. **Traumatic Lumbago.**—Malling warns against casual remarks which may sow the seed of a traumatic neurosis. He admonishes further that roentgen examination may clear up these cases surprisingly. In some cases described this revealed actual injury of a vertebra. In three of the cases there was history of an external trauma; the pain had developed after lifting a heavy weight or slipping on ice.

110. **The Coarse Bread Question.**—Hindhede replies to Leersum and other critics of his publications on the assimilation of coarse bread. A number of them have been summarized in these columns during the last two years.

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INSANITY VERSUS MENTAL DISEASES

THE DUTY OF THE GENERAL PRACTITIONER
IN PSYCHIATRIC DIAGNOSIS *

E. E. SOUTHARD, M.D.

BOSTON

The time has come when the general practitioner must assume responsibilities new to him: he must become as much a psychiatrist as he is specialist in other directions.¹ But how specialistic, it may be asked, is the general doctor-man to be? *Quien sabe?* And times change. But so much is certain: The general doctor-man does not know as much about psychiatry either as he should know, or as he has command of, let us say, pediatrics, gynecology or dermatology. Science, C. S. Peirce defined, I believe, as the range of ignorance. Well, the general practitioner's range of ignorance *re* psychiatry is altogether too wide for his own conscience's comfort and disastrously wide for the good of society.

All this can now be shouted from housetops by reason of what the layman terms "shell shock," a problem for medicine no less wide than the whole of clinical neurology and psychiatry, the field we are coming to know as neuropsychiatry.² But already before the shell shock alarms, the American general practitioner had become responsible in these matters for more than his father had to be. In 1906 the state of Michigan had laid down its psychopathic ward at Ann Arbor and placed in control of it a specialist novel in training, functions and scope. Now, it is safe to say, no state can hold up its head in a place of the highest honor in civilization without establishing a psychopathic hospital. The commonwealth of Massachusetts, in 1912, followed the lead of Michigan. Private endowment allowed in 1913 the establishment in Maryland of another institution in which the scientific point of view made use of physicians, psychologists and trained lay workers for the high modern purposes of mental hygiene. Meantime, societies for mental hygiene had been established,³ and doubtless others

are now moving. The yeast is working, too, in the National Conference of Social Work; and just as "charities and correction" has fused and crystallized into "social work," so the former committee of that body on "feeble-mindedness and insanity" has now crystallized into a committee on "mental hygiene." The medical man who does not some year attend a meeting of the National Conference of Social Work⁴ will sooner or later wake up to reckon without his host—the social worker. In brief, no sign fails to point to an increasing demand for more medical service, as well as for more service of every technical sort, for the psychopath.

But what exactly ought the general practitioner to do for his instruction in modern psychiatry? He looks back at a meager training. He was by law as a rule excluded for a period of years from whetting his mind on medicolegal problems of commitment: the law somehow permitted him to remove an appendix the moment he passed his state board examination, but the law required experience and a partner in the matter of certifying insanity. Again, early in this century a flood of Teutonic verbiage overflowed the field, and the graduate doctor who ventured inside an asylum hastily beat a retreat when *Merkfähigkeit* raised up its head or *Dämmerzustand* closed down over all. Of course various clearly written books gave the main facts (de Fursac,⁵ Dercum,⁶ Diefendorf,⁷ Peterson,⁸ White,⁹ et al.); but there was little in the medical school memories of most men to tie these facts to, except a few *curiosa* of dismal asylum walks and some medicolegal stories too mature for the nonsocialized medical student to grasp in their proper relations. Am I painting this picture too dark? Now and then at the apex of a particular career some outstanding man is able to prevail on medical colleagues to give him enough curricular time to do the topic justice; but on the whole, even in so-called Class A medical schools, either the ignorance of committees, or curricular pressure, or remoteness of clinical material, or an overripe professional point of view, has killed in embryo the medical student's chances of learning much about psychiatry.

I consider and propose that all general practitioners who feel at a loss how practically to use the relics of their psychiatric training or the products of their reading in such books as the above mentioned should as soon as possible spend at least a week in contact with

* Read before the Section on Nervous and Mental Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

1. To show the popular interest in these topics, see any numbers, especially Current Bibliography, of Mental Hygiene, published quarterly by the National Committee for Mental Hygiene, Inc., 50 Union Square, New York City.

2. See remarks in the Sattuck Lecture for 1918: Southard, E. E.: Shell Shock and After. Boston Med. and Surg. Jour., 1918, 179, 74.

3. Connecticut, 1908; national, 1909; Illinois, 1909; New York, 1910; Massachusetts, 1913; Maryland, 1913; Pennsylvania, 1913; North Carolina, 1913; Dayton, Ohio, 1914; District of Columbia, 1915; Alabama, 1915; Louisiana, 1915; California, 1915; Rhode Island, 1916; Ohio, 1916; Tennessee, 1916; Missouri, 1916; Indiana, 1916; Iowa, 1917; Virginia, 1917.

4. Proc. National Conference of Charities and Correction, especially for 1915, Baltimore; 1916, Indianapolis; 1917, Pittsburgh; 1918, Kansas City (name now changed to National Conference of Social Work).

5. De Fursac: Psychiatry, translated by Rosanoff, latest edition.

6. Dercum: A Clinical Manual of Mental Diseases, 1917.

7. Diefendorf: Clinical Psychiatry: A Textbook for Students and Physicians.

8. Peterson, in Church and Peterson: Nervous and Mental Diseases.

9. White, W. A.: Outlines of Psychiatry.

the clinical material of some institution like the Ann Arbor Psychopathic Ward, the Boston Psychopathic Hospital, or the Henry Phipps Psychiatric Clinic at Baltimore. I specify these institutions, not because the state institution men are unable to give in some instances even more valuable instruction, but because the specified institutions have contact with the acute, curable, incipient and dubious cases that most resemble the most important psychiatric material of general practice. I have not the slightest doubt that the authorities of the specified institutions would not only tolerate but actually welcome the arrival of the general practitioners for such study purposes. I am sure that the general practitioner who comes for a week will want to stay a month and will certainly come back for more.

WHAT THE GENERAL PRACTITIONER SHOULD
KNOW OF PSYCHIATRY

I want now to sketch the main features of the psychiatric landscape as I think it should be commanded by the general practitioner.

First, the general practitioner ought to become something of a *psychiatrist* and not in the first instance try to become an *alienist*. I am here making a somewhat unfamiliar distinction. In Table 1 I summarize in parallel columns the line of distinction as I think it might well be drawn.

I recently discussed somewhat fully the intricacies of the foregoing parallel column.¹⁰ The point here rather is to ask how much of the field of mental disease, medically considered, the general practitioner ought to have in his range. I suppose there can be no doubt that the general practitioner ought to know relatively as much about psychiatry as he does about the sixteen or seventeen other main groups of topics that we denominate practical specialties. A general practitioner must be *general* in that he has actually more command of all the specialties than any one of the specialists is likely to have concerning the same

TABLE 1.—LINE OF DISTINCTION BETWEEN
ALIENIST AND PSYCHIATRIST

ALIENISTS	PSYCHIATRISTS
Field: insanity, the insane	Field: psychiatry, the mentally diseased.
Field: public, governmental, legal	Field: social, private, medical.
Field: opinion for court use	Field: medical, psychologic and social diagnosis and treatment.
Decisions alternative: Sanity versus insanity	Decisions selective: e. g., syphilitic, feeble-minded, epileptic, alcoholic, coarse brain disease, symptomatic, senescent-senile, schizophrenic, cyclothymic, psychoneurotic, etc.
Insanity implies mental disease	Sanity consistent with mental disease of mild degree or of special type
Sanity : Insanity = 1 : 0	Mental disease of all degrees, of many kinds

topics. The general practitioner must at least have the function of being able to specify the right specialist or specialists to call in consultation. If by chance the general practitioner is himself something of a specialist in pediatrics or certain aspects of internal diseases (and surely every general practitioner ought to be something of a specialist in some direction if only to gauge his knowledge concerning general medicine), it is so much the better for the fate of the particular child or adult whose illness is in question. But we do not demand of the general practitioner a fine capacity in the diagnosis of skin diseases or of the minutiae of

ophthalmology and otology. Up to recent times, we have not demanded from the general practitioner a knowledge of so much about mental diseases as we have often been able to demand for diseases of the skin, the ear or the eye. The time has come when the general practitioner must assume responsibility in this direction. Even at the expense of postgraduate work on the topic, the general practitioner is going to fail who does not proceed to acquire a grasp on the main conceptions of psychiatry.

I have recently, for the purpose of discussion with specialistic colleagues, gone over the textbooks and the main classifications used in institutions for the insane

TABLE 2.—MENTAL DISEASE GROUPS (ORDERS)

1. Syphilitic	Syphilopsychoses
2. Feeble-minded	Hypophrenoses
3. Epileptic	Epileptoses
4. Alcoholic, drug, poison	Pharmacopsychoses
5. Focal brain ("organic," arteriosclerotic)	Encephalopsychoses
6. Bodily disease ("symptomatic")	Somatopsychoses
7. Senescent, senile	Geropsychoses
8. Dementia praecox, paraphrenic	Schizophrenoses
9. Manic-depressive, cyclothymic	Cyclothymoses
10. Hysteric, psychasthenic, neurasthenic	Psychoneuroses
11. Psychopathic, paranoiac, et al.	Psychopathoses

and the psychopathic, confining my attention to American views.¹¹ I find an extraordinary unanimity on the part of these colleagues on the subject-matter of psychiatry. Those of the general practitioners who occasionally dip into the specialistic literature of mental and nervous disease strike into an atmosphere of what must seem the most lively controversy. But in point of fact the battles are greatly localized—I mean the actual battles concerning facts. There is a good deal of nomenclatural difference still preserved in sundry textbooks. I have been trying to put some order into this matter and offer in Table 2 a list of the major groups of mental disease which I think will be found approved by the vast majority of specialists.¹² In fact, I do not know a single specialist who would not agree that in some sense each of the subjoined groups exists. To be sure, some specialists might want to split the groups up further, but of the existence of this mass of medical data there is really no doubt.

I put into the left-hand column the everyday terms for these groups and in the right-hand column a revised and Hellenized nomenclature which I believe has some worth. Concerning this Hellenized nomenclature, I wish to say that in practice I would no more speak of the hypophrenoses in a school for the feeble-minded than I would of the *Leguminosae* for dinner or the *Rosaceae* for a nosegay. The advantage of the Grecian nomenclature is quite another, namely, the possibility of exact definition, which the everyday terms do not admit, particularly as some of them deal with disease entities (as dementia praecox) rather than with disease entity groups.

The practical contacts of the Boston Psychopathic Hospital with the Massachusetts profession lead me to the idea that the "range of ignorance" of psychiatry by the general profession can safely be localized.

Let us dismiss the eleventh or psychopathic group of the foregoing list, namely, a group I am sometimes tempted to call the "ragbag" group of mental diseases, since the psychopathias, monomanias, psychopathic personalities, etc., which, with varying nomenclature,

10. Southard, E. E.: Alienists and Psychiatrists: Notes on Divisions and Nomenclature of Mental Hygiene, Ment. Hyg., 1917, 1, 567.

11. Southard, E. E.: Recent American Classifications of Mental Diseases (to be published in Tr. Am. Med. Psychol. Assn., 1918).

12. Southard, E. E.: A Key to the Practical Grouping of Mental Diseases, Jour. Nerv. and Ment. Dis., 1918, 47, 1.

are dropped into this group, are the regions of densest ignorance on the part not only of general practitioners, but also on the part of psychiatrists themselves.

Limiting consideration, then, to the ten other and better defined groups, I note that the first seven are groups whose general features are well enough understood by the general practitioner, so that, barring mistakes in diagnosis and delays in handling, there is a minimum of gross error on the part of the general practitioner.

The general practitioner may not agree, nor will perhaps all of the older psychiatric specialists agree, that virtually every, if not every,¹³ case of mental disease requires consideration as possibly syphilitic (I). Nevertheless all practitioners concede that there is a syphilitic group of mental disorders, some of which require intensive treatment.

Again, with respect to the hypophrenias,¹⁴ most physicians are aware of the increasing part played by the diagnosis of feeble-mindedness (II) in modern work touching general practice with special reference to the schools and juvenile courts. Though they may be in doubt concerning the exact value and scope of mental tests, nevertheless the general rubric of feeble-mindedness has become familiar. So much emphasis has been laid on the higher grades of so-called feeble-mindedness, namely, on the "stupids" or subnormals whom it seems invidious to term "feeble-minded," that I have had no hesitation in proposing the term "hypophrenic" to cover all forms of feeble-mindedness, not merely the feeble-minded proper of English and Canadian usage, but also the imbeciles and idiots below the feeble-minded proper and the "stupids" or subnormals above the feeble-minded proper.

The epileptic group (III) and the group of mental diseases due to alcohol, drugs and poisons (IV), are reasonably familiar to the general practitioner; and although a good many bad mistakes may be committed in these groups, yet the percentage of errors committed by psychiatric specialists themselves in the same groups is so high that we should not weep about general practitioners' notes from our own specialistic eyes containing large beams.

The fifth group in the foregoing classification, namely, that of mental disease due to focal brain disorder (V), is another group sufficiently familiar to the general practitioner, as also to the neurologist whose special field it touches, and the common categories of mental symptoms found therein are likewise familiar. The general practitioner sees enough cases of arteriosclerotic brain disease, of meningitis, of brain tumor and the like, to be familiar with the not very special mental effects that these brain disorders evoke.

Again, in his everyday capacity as a diagnostician, the general practitioner gets a certain familiarity with the sixth or internist's group of mental disorders—the so-called symptomatic psychoses based on definite somatic disorder (VI), such as a typhoid fever, a pneumonia, a puerperal exhaustion, a cardiorenal disease, a dysthyroidism or even a pellagra. The symptoms here also are such as are familiar to the general practitioner and run on the same lines as the symptoms of disease in general.

The seventh, the senile and presenile group (VII), is again a group in which the symptoms are for the most part such as are easy to understand in the quantitative terms of everyday life.

But, with the enumeration of these seven groups, we have come to the conclusion of the list of diseases in which the symptoms are, as one might say, familiar and well-nigh quasinormal, following lines which the physician can readily understand by comparison with the phenomena of his own life. For in the three remaining groups, the schizophrenic (VIII), cyclothymic (IX) and psychoneurotic (X) groups, there are phenomena of such supernormal or subnormal degree or of such an abnormal and dissociative nature that a considerable specialistic study is required to unravel them. I find that many practitioners, even in haughty old Massachusetts, figuratively throw up their hands when asked to define dementia praecox (here termed schizophrenic) or manic-depressive (here termed cyclothymic) psychosis.

As for the psychoneuroses, the attitude of some practitioners, though I hope not too many, is that the symptoms in this group are "imaginary" and by consequence in some sense nonexistent. The attitude of many general practitioners to the psychoneuroses is like the attitude of the Christian scientists to disease in general: the psychoneuroses are regarded as a form, not perhaps of "mortal error," but of nonexistent disease which the patient is to be got rid of by a process akin to exorcism. This erroneous opinion¹⁵ depends on a confusion between the method of psychotherapy and the nature of the etiologic or genetic features of the psychoneuroses. Because by faith mountains are moved, one has no license to consider that faith established the mountains in the first place.

Accordingly, the difficulties of the general practitioner in confronting the schizophrenics and cyclothymics on the one hand, and the psychoneurotics on the other, are of different sorts. The practitioner of some years' standing has simply had no opportunity to study intensively in the medical school or in post-graduate work enough schizophrenics and cyclothymics to permit his understanding their nature. As for the psychoneurotics (whether in the form of hysterics, neurasthenics or psychasthenics), the general practitioner is sufficiently familiar with their general nature, having enough of them and to spare in his consulting rooms. Nevertheless, his ideas concerning them are apt, I think, to be somewhat vague, or at least vague enough to permit his calling many a case of schizophrenia or of cyclothymia erroneously a case of psychoneurosis. Hence I think are brought about a number of false prognoses and a number of poor prescriptions for sanatorium treatment, treatment by change of environment, or special treatment at home, when some other of these treatments than the one chosen would have been far better for the patient.

It is for no academic reason, therefore, that I ask the general practitioner to bring himself up level with the times in the matter of schizophrenia and cyclothymia. I feel that if he gets an adequate notion of schizophrenia and cyclothymia, his already reasonably correct notions of the psychoneuroses will get their proper balance and perspective alongside the other psychoses. I found one really eminent practitioner denouncing the word "schizophrenia" because he had

13. Southard, E. E., and Solomon, H. C.: *Neurosyphilis: Modern Systematic Diagnosis and Treatment*, Presented in One Hundred and Thirty-Seven Case Histories, Boston, W. M. Leonard, 1917.

14. For this term see remarks by the writer in *Tr. Am. Assn. for the Study of the Feeble-minded*, 1918.

15. Southard, E. E.: *Shell Shock and After*, Boston Med. and Surg. Jour., 1918, 1-19, especially pp. 76 and 77.

been practicing for decades and ought really to have known what schizophrenia meant if there really was any such symptom or condition. On inquiry, however, I found that the eminence of this practitioner, which was very genuine, had been attained in ways which excluded him from any knowledge of the peculiar symptom or condition known as schizophrenia. And what holds for dementia praecox holds also for manic-depressive psychosis. The week's excursion to some psychopathic hospital or psychiatric clinic, above suggested, ought to lay hold especially on the concepts of schizophrenia and cyclothymia; and the attainment of elementary knowledge concerning these two groups will bring the level of the general practitioner's knowledge concerning mental diseases up to the level of his general knowledge concerning the diseases of other specialties. In particular, his practice with the early cases, cases which he sees often earlier than does the psychopathic hospital or the psychiatric clinic, will be tremendously benefited thereby, and his efforts at psychotherapy will not be measurably wasted on schizophrenics and cyclothymics, but will be concentrated on the genuine psychoneurotics.

If one thinks that this program for bringing up the level of the general practitioner's knowledge in mental disease to his general level in other specialties is too dogmatic and concrete a program, I have only to say that it is at all events a program, and that measures of some sort are stringently necessary in the interest of the mental hygiene of the community.

I trust that in the foregoing paragraphs I have successfully conveyed the impression that these counsels have nothing to do with nomenclature and terminology, but only with the groups themselves under whatever name they might go. I recently gave a talk on shell shock with some literary examples of the neuroses in the group, and was assured afterward by a practitioner that he was now certain of what he had long suspected, namely, that there was no such thing as shell shock. I found that (a) his idea that there was no such thing as shell shock reduced to the idea that had been for some decades in his mind that (b) neuroses do not exist because (c) their symptoms were "imaginary" and that (d) to be imaginary meant for this man to be nonexistent. Now *is or is not this distinction between the imaginary and the non-existent too fine a distinction to implant in the medical student's mind?* Just as the laity is unable to distinguish successfully between "hereditary" and "congenital," so I find many a medical man unable to distinguish between "imaginary" and "nonexistent." If the neuroses have no structural sign postmortem, are the neuroses nonexistent? But peace to the soul of the general practitioner who listened to my shell shock talk! Calmly identifying "imaginary" with "nonexistent," he probably is a very good psychotherapist among his parochial flock.

I have adverted above to one little matter of nomenclature, insisting on the virtues of the term "hypophrenic" as including the entire swelling group of the so-called feeble-minded. The human advantages of using the term "hypophrenic" pale into insignificance beside the advantages of using some other term for the so-called dementia praecox group than the term borrowed by Kraepelin to designate a group of diseases which he had synthesized from the literature. Some day I wish to write a paper called "Nondementia, Nonpraecox."

If I tell a layman that so-and-so is suffering from shell shock, the layman is aware that the term "shell shock" connotes a great deal about the war and its effects, but quickly observes that the term denotes little or nothing, and he is forthwith thrown back on the expert for information as to what shell shock really means and what its prognosis may be. Not so when the ardent social worker learns that so-and-so is a victim of dementia praecox. Is she not almost entitled to think that a victim of dementia is demented or else is going to become demented? Are there not similar significances attached to the term "praecox"?

I believe that a great deal of harm has come to patients from the use of the term "dementia praecox," and most psychiatric specialists whom I have consulted on the point cordially agree with me. On this account I have felt that the proposal of the Swiss psychiatrist Bleuler¹⁶ to use the term "schizophrenia" for cases subject to the peculiar dissociation found in these cases is a good one. The fact that it has a peculiar sound, novel to medical ears of the last generation, is no good reason for denouncing the term "schizophrenia," since the symptoms of the disease are at least as peculiar as the name, and there is a good deal of novelty about the whole conception to many general practitioners and consulting internists.

I will not here argue in detail for the use of the term "cyclothymia" instead of manic-depressive psychosis, although I think the tendency of usage and certain logical points may be advanced in favor of cyclothymia, a term which includes in its prototheme the idea of periodicity, always potential in this disease, and in its deuterotheme the idea of affective or emotional disorder, a constant feature of the disease.

I give below the subforms of these eleven great groups of mental disease.¹⁷ These subforms are a product of some American textbooks and specimens of classification now most in vogue. I think this listing, for which I do not wish here to argue in detail, certainly shows that psychiatry is on a pretty stable basis so far as classification is concerned—possibly as stable as many other growing specialties.

Two points are to be made concerning this subjoined list. The diagnosis of these entities (or generic groups) under the greater groups (or orders) is not to be expected of the general practitioner, nor even of the psychiatric specialist on cursory or brief examination. Indeed, I hold that much harm has been wrought by an offhand diagnosis of "general paresis" when all any one could really say, with laboratory tests also in hand, was that the patient had "neurosyphilis." Many errors of this sort, both by general practitioners and by psychiatrists (including ourselves), are given in detail in the monograph published by Solomon and myself¹³ in 1917 on neurosyphilis. No, it is much better for the peace of mind of practitioner and patient that the practitioner shall stop short with his *group* diagnosis and let the *entitative* (generic) diagnosis wait on the psychiatric specialists (one of the soundest of whom is Father Time). It is not for the purposes of "brilliant," that is to say, premature and at all events merely lucky, diagnoses that I subjoin the genera which American psychiatry seems, by its textbooks, to afford.

16. Bleuler: Schizophrenie, in Aschaffenburg's Handbuch der Psychiatrie, 1911.

17. For more particulars, see Southard, E. E.: The Genera in Certain Great Groups of Mental Diseases, to be published in Tr. Am. Neurol. Assn.

The second point deals not with the objects of diagnosis so much as with the process of diagnosis. I have placed the great groups with Roman numerals (I, Syphilopsychoses; II, Hypophrenoses, etc.) in a certain sequence which I take to be the practical sequence of successive exclusion and elimination that is of the most value in the present phase of psychiatric theory. No one need use this sequence if one prefers another, and the sequence will inevitably change in the course of time when new facts and new tests are granted to us. And not only the sequence but also the list itself will inevitably alter. Not only have I placed the greater groups or orders of mental disease in a particular practical sequence, but I have endeavored also to place the smaller groups or "genera" of mental disease in a practical diagnostic sequence under each greater group. Again, any one who chooses to use the items as a *list* and not as a *sequence* is entitled to do so: I would claim only that *some* sequence is of practical value in diagnosis, at least for tyros.

TABULATED SUGGESTIONS FOR GENERIC CLASSIFICATION OF MENTAL DISEASE GROUPS

I. SYPHILOPSYCHOSES (the syphilitic mental diseases):

Genera:

General paresis	Less common genera:
Juvenile paresis	Syphilitic feeble-mindedness
Nonparetic forms:	Syphilitic epilepsy
Meningitic	Tabetic psychosis ¹⁸
Vascular	Syphilitic paranoia
Gummatous	Atypical

II. HYPOPHRENOSES (the feeble-mindednesses, including graded forms of idocy, imbecility, moronity (in the English nomenclature feeble-mindedness proper) and subnormals):

[Syphilitic ¹⁹]
Encephalopathic:
Microcephaly, hydrocephalus, focal brain disorder
Glandular:
Cretinism, infantilism, dysadenoidism, mongolism(?)
Hereditary:
Feeble-mindedness, amaurotic family idiocy
Atypical

III. EPILEPTOSES (the epileptic group):

[Syphilitic ²⁰]	Jacksonian
[Feeble-mindedness with epilepsy ²¹]	Symptomatic
Alcoholic	Idiopathic
Traumatic	Equivalent
Encephalopathic	Narcoleptic
	Borderland

IV. PHARMACOPSYCHOSES (the group of mental diseases due to alcohol, drugs and poisons):

[Epileptic ²²]
Alcoholic:
A. Pseudonormal:
Drunkenness, pathologic intoxication, dipsomania
B. Peripheral—Central ²³
Delirium tremens, hallucinosis, Korsakow's disease, pseudoparesis
C. Central
Jealousy-psychosis, paranoia(?), dementia
Drug:
Morphin, cocain, alkaloid
Poison:
Lead, gas, mercuric chlorid, special

18. Of course this is sharply to be distinguished from ordinary tabes dorsalis and nervous disease, and from so-called taboparesis, which by the best nomenclature is a subform of general paresis.

19. Syphilitic feeble-mindedness has been classified under the syphilopsychoses, Group I.

20. These have been classified under the syphilopsychoses, Group I.

21. These have been classified under the hypophrenoses, Group II.

22. These have been classified under the epileptoses, Group III.

23. The nomenclature of these subgenera must remain dubious. I think most workers among the alcoholic psychoses would recognize the value of dividing them in some such triple way as above. The general practitioner has not yet at all clearly in mind, I think, the distinction now drawn by specialists between drunkenness and pathologic intoxication and between delirium tremens and alcoholic hallucinosis. Perhaps it would be well enough to leave these distinctions to the specialists were it not for the fact that so many medicolegal points hinge on the practical decision in cases that fall into the hands of the police.

V. ENCEPHALOPSYCHOSES (focal brain lesion group of mental diseases):

- [Syphilis²⁴]
- [Feeble-mindedness²⁴]
- [Epilepsy²⁴]
- [Alcohol, gas²⁴]

Traumatic. Note that the traumatic *neuroses*, although they form a group of mental diseases, belong not here in Group V, but below in Group X, the psychoneuroses.

Infectious. The infectious group of encephalopsychoses here listed refers to cases like brain abscess and meningitis in which the organism has produced local destructive effects in the brain.

Neoplastic

Vascular. Under this group would fall the great group of arteriosclerotic dementias which, be it noted, are parted out from the old age psychoses, Group VIII, below.

Degenerative

VI. SOMATOPSYCHOSES²⁵ (the so-called symptomatic group of mental diseases):

- [Glandular feeble-mindedness]
- [Symptomatic epilepsy]
- Infectious, e. g., typhoid
- Exhaustive, e. g., puerperal
- Metabolic, e. g., cardiorenal
- Glandular, e. g., thyrotoxic
- Pellagrous

VII. GERIOPSYCHOSES²⁶ (the presenile-senile group of mental diseases):

- | | |
|------------------|--------------------------|
| [Epilepsy] | [Involution melancholia] |
| [Vascular] | Presenile psychosis |
| [Alzheimer's] | Senile dementia |
| [Progeria] | Presbyophrenia |
| [Late catatonia] | Senile psychoses |

VIII. SCHIZOPHRENOSES (the dementia praecox group):

- | | |
|----------------------------|------------------------|
| Hebephrenia | Schizophasia |
| Catatonia | Dementia praecocissima |
| Paranoid | Dementia simplex |
| Cyclothymoid ²⁷ | Paraphrenia |

IX. CYCLOTHYMOSES (the manic-depressive and cyclothymic group of mental diseases):

- | | |
|--------------------------------|------------------------|
| Cyclothymic constitution | Mania |
| Manic-depressive ²⁸ | Mixed ²⁸ |
| Melancholia | Involution-melancholia |

X. PSYCHONEUROSES:

- Hysteria
- Neurasthenia
- Psychasthenia

XI. PSYCHOPATHOSES (the psychopathic group of mental diseases):

- | | |
|----------------------|-----------------------------|
| Prison psychosis | Sense deprivation psychosis |
| Folie à deux | Monomania |
| Litigation psychosis | Psychopathia sexualis |
| Paranoia | Psychopathic personality |

SUMMARY

The psychiatrist is a specialist in a very complicated field with numerous great groups of diseases for his diagnostic consideration. Each of these great groups is likely to be as complicated within itself as, for example, the group of Bright's disease or the exanthems. The psychiatrist is logically opposed to the

24. These have been classified, respectively, under syphilopsychoses, Group I; hypophrenoses, Group II; epileptoses, Group III, and pharmacopsychoses, Group IV.

25. The term "somatic" is here used following a frequent neurologic plan which employs the term "soma" for the body at large, as against the "encephalon" or brain.

26. This term is adopted provisionally as against the possible term "presbyopsychoses" because of Nascher's choice of the term "geriatrics" for his proposed branch of medicine, dealing with the diseases of old age.

27. This genus, if it be such, is devised to include a practically very important group of cases in which the schizophrenic process is precipitated by phenomena that resemble manic-depressive psychosis, or in which there is a definitely cyclothymic course in itself suggesting the true cyclothymoses.

28. These two forms are designed to include, respectively, cases in which phases of pure mania of depression follow one another, and the cases in which depression and maniacal phenomena are commingled within the single phase.

alienist. The latter has the function of the public and medicolegal adviser, whereas the psychiatrist is a practitioner whose aim is not merely diagnostic with respect to commitment; his aim is diagnostic with respect to a great number of therapeutic possibilities.

The general practitioner must now advance to at least as much responsibility in psychiatry as he has in pediatrics, gynecology or dermatology. The general practitioner, if he is to remain of value, ought to know more about all the specialties than each specialist would be apt to know about all other specialties than his own.

Recent reviews of the ideas of psychiatric specialists show a great deal of unanimity as to the major groups of mental diseases. This genuine unanimity is obscured by nomenclatural divergence. At the risk of increasing the nomenclatural divergence, I have been of late proposing a pragmatic key to the group of mental diseases, dividing up the groups according to general and special therapeutic possibilities. I have accordingly no etiologic or somatosystematic suggestions to offer. My classification is purely practical and has no relation either to obvious clinical units from the standpoint of observation or to anatomic resemblances. For example, I would contend that a grouping of mental depressions as sometimes syphilitic, sometimes cyclothymic, sometimes symptomatic, etc., gives the practitioner no orderly means of making his decision in a brief space of time. Such a classification on the ground of clinical resemblances is, in office practice, next to useless, whereas the bigger decision as to whether the patient probably belongs in one of the eleven groups as herein presented is practically much more valuable. Then if the quest can be localized to two or three of the eleven groups, the patient's fate will be greatly benefited.

Again, I feel that the classification of certain diseases as organic dementias hurts the outcome for the patient by delaying decision. The practitioner is rather apt to feel satisfied with thinking that a case is somehow organic, whereas it may be his immediate duty to settle once for all whether the patient is syphilitic, and then to proceed to the more careful differentiation of the possibilities in the focal brain lesion group. But my attitude in general with respect to the general practitioner's duties in diagnosis is that in the first place it is his duty to determine whether the case belongs in the mental group and then to proceed to answer as many questions as available ordinary clinical tests can answer with respect to the place of the patient in some one of these major groups. It is certainly a waste of time for the general practitioner to approach the neurologic specialist with an at all complicated or longstanding case in which the serum test for syphilis has not been performed. With the multiplication of opportunities for mental tests, it is also a waste of time for the general practitioner not to have submitted his case to such tests before bringing the patient to the specialist. I do not mean that the general practitioner should himself perform these tests but that he should utilize some local psychologist competent to perform them.

And so through the list, if the general practitioner knows the main features that distinguish these greater groups of mental diseases from one another, he will be able to utilize the specialist to much greater advantage. The specialist who should fear that his practice

would be diminished by such a process on the part of the general practitioner would be so foolish that I suspect he could not be an effective specialist; for if the general practitioner could grasp the main features that distinguish these eleven greater groups of mental diseases from one another, he would carry to the specialist scores and hundreds of cases more than he now carries. For under these circumstances, the general practitioner would know how to couch a great many more questions.

Meantime I find from my Boston Psychopathic Hospital practice that the general practitioners are pretty well grounded in the first seven of the major groups of diseases listed. The general practitioner also has certain ideas concerning the psychoneuroses, but is rather apt to make somewhat obvious errors in the field of the schizophrenias (*dementia praecox*) and the cyclothymias (manic-depressive group). Sundry patients suffer therapeutically on account of delayed diagnosis in the two latter groups and especially from an erroneous identification of them as belonging to the group of the psychoneuroses.

As for the psychopathias in general, the general practitioner need not rush in where the psychiatric specialists fear to tread.

CONCLUSIONS

1. The advance of the mental hygiene movement throws more responsibilities in psychiatric diagnosis on the general practitioner.

2. The general practitioner should bring his specialistic knowledge of psychiatry up level with his specialistic knowledge, in ophthalmology and dermatology, for example.

3. Alienists are to be distinguished from psychiatrists, and forensic psychiatry ("alienistics") from practical psychiatry, in certain ways (Table 1).

4. There is at present great unanimity on the part of American specialists in mental disease, as indicated by the adoption of common statistical forms (American Medico-Psychological Association).

5. For arriving at a diagnosis of mental disease, I suggest an arbitrary order of exclusion by eleven great groups, into which I have thrown the accepted entities.

6. Nomenclatural divergences are much more frequent than divergences on facts.

7. The use of Bleuler's term "schizophrenia" for *dementia praecox* and of the term (in cognate use) "cyclothymia" for manic-depressive psychosis is advocated in the line of exactitude and the ready formation of adjectives and relative terms.

8. The use of a new term "hypophrenia" for the various feeble-mindednesses is advocated.

9. The ending "*osis*" is in general advocated for the larger groups of mental diseases, parallel with the use of "*aceae*" and "*osae*" for botanical orders.

10. A tentative list of "genera" under these orders is given in the text.

Baking Bread with Waste Heat.—The city council of Reykjavik, Iceland, has begun the experiment of baking bread in a special bakery which utilizes the waste heat from the local gas works. The result has been excellent and in a short time, according to a report of Consul B. L. Agerton at Copenhagen, *Commerce Reports*, Sept. 17, 1918, all the black bread which may be needed will be baked in the new bakery. This is thought to be the first experiment in bread baking by waste heat.

CEREBRAL EDEMA FROM PRESSURE*

W. A. JONES, M.D.

MINNEAPOLIS

The title of this paper may not be entirely in keeping with the contents, but it is intended to open the subject of localized cerebral edema from various causes, particularly from pressure conditions, and also to bring out similar cases, recorded or observed by members of this section, in which focal symptoms suggest a more extensive lesion of the brain which, if operated on, shows that a simple edematous state presents itself, after which the symptoms subside, leaving the diagnosis either a speculative one or one which may be properly termed a localized cerebral edema.

General cerebral edema is undoubtedly a frequent accompaniment of many of the somatic disorders. The most common, probably, is a chronic nephritis or the triad of heart, kidneys and blood vessels. These diseases of the circulatory and eliminatory systems are very commonly associated with stupor, convulsions and neuroretinal lesions and papilledemas. When such a combination of symptoms occurs, it is reasonably fair to assume that the mobility of the cerebrospinal fluid has been altered perhaps on account of a change in the circulatory system within the cranial box. When one considers the relation of the arachnoid and the pia to the fluid contents of the skull, it is easy to hypothecate a probable edema of the membranes or of the cortex itself. Then, too, we have learned that tension of the occupied spaces in the head, either from tumors or thickenings, not infrequently tend to crowd the brain into the foramen magnum; and this in itself is quite explanatory of an edematous state, either peripheral or central.

The delicate tissue strands, which bind the pia and the arachnoid together with the perivascular spaces through which the fluids of the brain circulate, may easily become altered, because it is known that the cerebrospinal fluid, although it is partly protective and offers itself as a water bed to the brain, is intimately connected with the venous circulation through small rudimentary sinuses. Moreover, the cranial nerves themselves, notably the first and second, surrounded as they are by perivascular spaces and delicate tissues, offer a convenient outlet for some of the cerebral fluid contents, although most of the fluids escape into the sinuses, whether large or small. One can readily imagine that a general or local infection of any kind which blocks the venous channels may easily lead to an edematous local condition, such as occurs in thrombosis of the longitudinal sinuses or in a congenitally and badly constructed drainage system in the brain, whereby an old hydrocephalus is either lighted up or is followed by a local or a general cerebral edema.

THEORIES OF EDEMA OF THE BRAIN

E. M. Baehr¹ discusses edema of the brain from a general, as well as a local symptom group, and advances with others the theory that coma, from whatever toxic agent, presents its symptoms through cerebral edema, local or general.

Tauber's theory adds to this a probable acidosis, and incidentally states that these edematous cerebral conditions are not relieved for any length of time by injections of alkalines, as this method is usually a

failure on account of the blockade of the cerebral blood stream. Then, too, we have the kidney theory in which the theorist believes that a toxin has developed, but where, when, or how no one knows, although Baehr advances the idea that some toxin developing from the kidney condition may be responsible for a cerebral edema. Baehr asserts, further, that there are four groups of symptoms that occur and are diagnostic of cerebral edema: first, an altered mental state in which the patient varies from a noisy state to one of moroseness; second, a state in which convulsions develop, sometimes accompanied by paralysis, but this is usually temporary. The third group consists of those which come under the heading of comas, and the fourth group in which there is impairment of the functions of the medulla, a poor mechanical condition, accompanied by dyspnea, disorders of the heart rhythm and occasional vomiting and diarrhea.

Mills, in his book, "The Nervous System and Its Diseases," devotes a short section to edema of the brain, and says that in former years it was customary to discuss edema as a separate disease, but that in recent years the tendency has been to consider it only in connection with those systemic diseases and focal disturbances of which it is a feature. Preston, from whom Mills quotes, concludes that among other things edema should receive recognition both from a clinical and a pathologic standpoint; that, although it follows the laws of edema elsewhere in the body, it is considerably modified by the anatomic lymph spaces of the brain and its membranes; that the effused serum may exert mechanical pressure and offer occasion for toxic influences; and that it would be a more common and serious affection, were it not for the free communication which exists between the various lymph spaces as shown by the decided symptoms produced when these cavities are isolated by inflammatory adhesions. Mills mentions, also, that edema of the brain may be partial or general, acute or chronic, and that when it is locally present it is usually due to a local inflammation or pressure from a focal lesion, such as a tumor or an aneurysm. Now that infections have occupied a very large place in our diagnostic outlook, it is even more probable that localized edemas may occur and be followed by a fairly well defined chain of symptoms which resemble in type the symptoms due to the pressure of diseased areas or growths of various kinds. Then, too, in studying the question of fractures, injuries to the head, we find that the penetration wounds, which occur sometimes in such minute forms as to escape detection, may in turn produce a local edema followed by an infection and a breaking down of the membranes of the cortex itself. Under such causative states, edema is probably a secondary condition, but not infrequently an edema may occur without these provocations, but be due to some obstacle in the network of the cerebral veins.

In his book, "The Surgery of the Skull and Brain," L. Bathe Rawling refers to edema following injuries associated with the vasomotor depression and accompanied by engorgement of the superficial cerebral veins with an increase of the cerebrospinal fluid and edema both of the pia-arachnoid region and of the brain itself. Even under concussion, localized edemas may arise, due, probably, to the same obstructive or destructive conditions which occur in the veins or perivascular channels. In referring to traumatic neurasthenia, Rawling further defines edematous conditions of the pia-arachnoid and of the cortex,

* Read before the Section on Nervous and Mental Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Baehr, E. M.: *Lancet-Clinic*, 1914, **111**, 696-701.

and in exploratory operations he is particularly impressed by the fact that in a large proportion of cases one finds what appears to be a condition of local edema, some fluid beneath the dura mater, and a greater excess of the same in the pia-arachnoid meshwork, and he says that Leonard Hill's experiments show that edema is dependent on chronic vascular changes, arterial anemia, venous congestion, and cerebrospinal and serous accumulation. Not infrequently an epilepsy has for its focal origin an edema of the membranes and, occasionally, of the cortex. In some of these cases the patients are relieved or cured by a decompression operation. Just so are cases of acute maniacal disorders, and those which follow an accident within a few hours or a few days. The acute cerebral edema is not infrequently present and due to a severe grade of vasomotor depression; it is occasionally, although not always, preceded by a cerebral injury. Some of the patients who have been operated on for supposed cortical or subcortical growths show, on removal of the bone and resection of the dura, that cloudiness only is present. The condition of such patients may clear up immediately after the operation, with a clinical or actual recovery, due to the relief of conditions which have produced pressure and temporary or transient edema.

REPORT OF CASES

CASE 1.—W. L. was admitted to hospital Jan. 5, 1917, with a negative family history. His father, a vigorous Scotchman, is still living. There had been no deaths in the family except that of his mother, who died in early life of pneumonia. There is no history of nervous or mental disorder. He had had some of the diseases of childhood, but never was seriously ill. He denied any venereal contagion, and none was evident by examination. Although a man, aged 30, he had been singularly quiet in his habits, rather more so than is necessary for the average growing individual. In fact, most of his social life had been in the neighborhood of the Sunday school, church picnics and things of that order.

The patient, so far as he knew, had been in good health up to Dec. 23, 1916, about two weeks before his admission to the hospital. He was a hard worker in a bank, but somewhat retiring in his disposition, bashful and unwilling to display his activities. He had had neither worry, strain nor disappointment to contend with, nor any physical disease that he could recall.

December 23, he suddenly realized that his left arm and hand felt queer, as he expressed it—a numb sensation, as if the limb had been cold. This occurred during a busy hour, and he paid very little attention to it. The following two or three days, during which Christmas intervened, he went to work, and soon found that his left hand was clumsy, and he had difficulty in executing the finer movements. He went to a physician, who advised massage, but gradually the limb grew worse, and the left leg became involved, until he was obliged to go to bed for a few days. He had no rise of temperature, and no special pains except the numbness and an occasional catch in his limbs, arm and leg, on moving them. He had no headache, no visual disturbance, and he was not exposed, so far as he knew, to cold, nor did he have a sore throat. During the night, while on a train coming to Minneapolis, his arm grew very much worse, and he had frequent contracting movements in his fingers, hand, wrist and forearm. When he arrived he was unable to use the hand, and he found it very difficult even to extend his fingers in any way. He had no trouble with his voice, nor was there any involvement of any of the cranial nerves. He remembered that on two occasions in December, 1916, he had had transient dizzy attacks, but he had attached no importance to them, as they had not inconvenienced him for any length of time.

His weight was 135 pounds, and there had been no change in that so far as he knew. His nutrition and general development were fairly good, but he appeared rather pale and worn.

The pulse was 92, and blood pressure 98 systolic and 62 diastolic, and there was no thickening of the arteries, but the heart sounds were distant and rather poor in quality. There were no murmurs or apparent failure in his heart muscle. He had a pharyngeal reflex, and his tongue, although slightly coated, was a little tremulous and, he thought, a bit swollen. There was no trouble with his bladder or rectum. His teeth were in fairly good condition. There was engorgement in both fundi, and the disks showed a marked cupping, but no edema was noted. The right pupil was smaller than the left and irregular in outline. The right pupil was practically stationary, while the left showed slight reaction. The movements of the eyeball were capable in all directions, but there was a slight nystagmoid movement on his looking to either side. His motor power was impaired on the left side, involving the arm and, to a lesser degree, the leg. There was a slight tremor in extending the hands. There was incoordination in the left arm, but coordination was good in the left leg. His gait naturally had a hitch in the left leg, but it was not very marked. There were no contractions and no atrophy. There was no loss of tactile sensibility on the paralyzed side, but there was a loss to vibration sense in both leg and arm, and his astereognostic sense was markedly impaired on the left side. Joint sense and heat and cold sense were normal. Both of the deep reflexes were double plus, and the reflexes of his upper extremities in both sides were present, with a little overactivity in the left biceps and triceps. There was an overactivity of the Achilles tendon in each heel. He had no clonus, and his abdominal and cremasteric reflexes were present. He had a Babinski reflex in the left foot.

On the day following his admission he received a spinal puncture, in which the fluid presented a rather cloudy appearance, but without increase in pressure. The examination of blood and spinal fluid was negative. After the puncture he became very faint. His pulse went down to 48, and it was several moments before he revived. The asynergy of the upper left limb was very marked, and he complained of increased sensation and drawing or contraction of the arm muscles.

During the four days following his admission, there was an increase in his symptoms, particularly in the joint sensation in the left arm, which involved fingers, wrist, elbow and shoulder. In the foot joint, sensibility was retained and was apparently normal, but vibration sense was impaired in both leg and arm on the left side. Incoordination had increased on the left side, particularly and notably in the left arm. During the course of the examination it seemed as if the right arm showed slight impairment in coordination, but it was not worthy of consideration.

January 12, the patient was removed to a surgical hospital and was operated on the following day. Before the operation he complained that his eyes were tired, but he had no hemianopia or increase in his hyperemia or enlargement of the fundi. The operation was done over the right posterior, parietal region, and was a large bone flap operation.

After resection of the dura, a localized edematous spot, involving not only the pia-arachnoid but the outer layers of the cortex of the brain, was found. This pia-arachnoid accumulation was easily removed and the membrane scarified. The cortex itself was scarified lightly over a reddish area. During the operation the edematous condition cleared up and left the brain in what seemed to be a normal color and condition.

After the usual few days of postoperative symptoms the patient improved very steadily and rapidly. His motor power was improved, and his general mental attitude resumed its normal phase. His vision cleared and the pupils reacted to accommodation, but did not change much in their outline and were slightly irregular, and four weeks after the operation he was practically well. There was no hitch in his gait, and the movements in the left leg, which had previously been restricted, resumed a normal tone. His station was good, and there was no Romberg sign. He complained of a slight feeling in his tongue, and there was a slight tremor at the end of two weeks. His general coordination was apparently normal, and the motor power in his left arm was approximately what

it is in all right-handed people; that is, the difference between the two was normal. In his sensation he had a restoration of all touch, pain, joint and vibration sense, which showed a very marked change from the condition at the former examinations. His astereognostic sense was normal. The reflexes of the upper extremity were equal on both sides and approximately in a normal condition. Since his operation in January, 1917, he has been heard from on several occasions. He has resumed his work as assistant cashier in a bank and has used his right and left arms with equal facility. In a recent letter he has expressed himself as feeling perfectly well and very anxious to get into Army service; but, on account of his osteoplastic operation and the condition found there, he was discouraged from entering the service.

CASE 2.—H. G., aged 25, admitted to the hospital Jan. 6, 1914, was a salesman, whose family history was from all points negative. He had had measles, mumps and erysipelas when a child. The father gave a history that when the boy was 5 months old he was in a runaway and was knocked senseless, but at that time no evidences of fracture or depression of the skull were found. The patient had begun to drink when he was 12 years of age, and had continued his drinking from that time up to the time he was seen in the hospital. When he had been a young boy he had been very difficult to manage and had shown all sorts of tendencies that were more or less of the defective type. Like many other boys, perhaps, he had been guilty of petty thieving from his home and his father, and sometimes would appropriate a horse or motor and go off for a day. During the time when the boy was not drinking he was extremely likeable and very industrious. He always slept well, and there were no evidences of any disorder of mentality after he had passed the age of puberty. There was some reason to suspect that he had a thick skull, although there could be no diagnostic symptoms of this given. The idea was that he was possibly defective, and an examination of his head, after it was shaved, showed some minor depressions over the parietal and occipital region. He was subjected to a double subtemporal decompression. Three days later he had a convulsion, and within a week he ran away from the hospital, but came back willingly and smilingly. From that time on his recovery was rapid. He came under observation again six months later. He came up to the family's standard physically and mentally, and they said that since the operation he had had no desire for alcohol. He later married, and has been well ever since.

CASE 3.—E. P., aged 18 years, had a father and mother living. The only history of any moment obtainable was that the paternal grandfather had epilepsy late in life. This boy was well until he arrived at the age of 14, when in a fall he struck on his head. He had been unconscious for an hour, complained of headaches afterward, and was nervous from that time continuously; but when he was able to avoid excitement he did very well up to within a month of his appearance in Minneapolis on Jan. 19, 1912. Then he began to have attacks of unconsciousness, which occurred with great frequency. During these attacks, or after them, he was evidently laboring under some hallucinations or became frenzied so that he threatened to kill people for minor causes. Before coming to Minneapolis he had spent a month in the State Hospital for the Insane at Rochester, Minn., where he had been observed, but was reported unimproved. His family thought he had an indentation of the skull at a point where he struck in falling, but it was not easy to map out, and when he was operated on later there was no evidence of fracture. During his attacks of unconsciousness he resembled the average epileptiform patient, except that there were no movements or frothing at the mouth. But he always complained of a headache and he was inclined to sleep after the attack. In one of his attacks before he went to the state hospital he had wandered off into the fields and had to be returned to the house and watched. The history further brings out the fact that three months after his accident, which was in 1907, he had had a few of the present type of attacks of unconsciousness.

Without any localizing symptoms in view, without any findings in the eyegrounds and without any evidence of any involvement of other cranial nerves, and purely because of the attacks he had, it was assumed that he had a hard skull and

that he probably had some pressure symptoms that might be relieved by an operation. He was in a peculiar state of mind—excited, alert and inclined to irritability. All of his reflexes, both superficial and deep, were extremely active.

Jan. 29, 1912, he was operated on. A scalp flap was raised on top of the head with an anterior attachment, and two trephine openings of an inch in diameter were made on either side of the median line, just behind the frontal parietal suture. The skull was very dense and very thick. The openings made by the trephine were enlarged with a rongeur and revealed a thickened dura, which was opened and turned back. The pia-arachnoid showed a cloudy thickening and resembled a cyst between the membranes, but this prevailed in all parts of the opening. These filled areas and edematous places were scarified thoroughly, and the brain was swabbed with $\frac{1}{1000}$ mercuric chlorid solution. The dura was left open and tucked under the scalp for permanent drainage. A thorough exploration of both the inside and outside of the dura for two inches around the opening was made, but nothing was discovered in the way of a tumor or any other disease.

Perhaps two of the interesting points about this case were the clearing of the grayish membranes and the relief of the edema when the skull was opened. We watched this process in each opening, and before the operation was completed both of the areas were free from edema and showed the normal pink surface of the cortex.

This man made a quick recovery and has remained free from either attacks or mental disorder ever since.

CONCLUSIONS

1. There are undoubtedly many cases of local or generalized cerebral edema that are unsuspected.

2. Patients who give a history of an injury, however remote, provided it is localized, may have a local cerebral edema from pressure and from a fracture of the internal table of the skull, or from simple concussion of the brain, or a blow on the head, with or without infection.

3. Occasionally cases exhibiting focal symptoms may be wholly due to a localized edema, and too few cases of epilepsy, acute and violent but with transitory mental excitements, justify an exploration for a suspected edema.

4. There are many cases of hard, thick skulls, obstructing free circulation in the pia-arachnoid and in the cortical veins and perivascular spaces, which may be temporarily or permanently relieved by decompression operations.²

ABSTRACT OF DISCUSSION

DR. FRANK P. NORBURY, Jacksonville, Ill.: I would like to ask Dr. Jones how he excluded the cardiovascular renal states in the first cases reported. I have a case under observation now, and I think it is wholly a cardiorenal condition. Whether we are justified in opening the skull in a cardiorenal case is a question I would like to have answered.

DR. ANDREW L. SKOOG, Kansas City: Referring to the point relative to edema causing the focal type of epilepsy, there still remains a certain number of cases with an epileptic syndrome in which we do not know the etiology. It is possible that the edema of the brain is the cause of this disturbance primarily. On the other hand, in a large number of cases of edema of the brain we do not know the cause. Possibly they are due to some obscure intoxication of the cortex, which causes either focal or generalized edema of the brain. In regard to treatment, I see no objection to doing a decompressive operation in some cases. However, I think we are justified in first trying to relieve these patients by removing cerebrospinal fluid, possibly once, possibly two or three times. I have had several of the cases, in which I believe the results were just as good

2. Many of the compilations embodied in the first few paragraphs are from Keen's "Surgery" and accredited to Cushing and Bordley, 7, 728.

by resorting to such a simple procedure, as might have been obtained if a decompression operation had been performed.

DR. ALBERT E. STERNE, Indianapolis: It depends entirely on what we mean by edema of the brain. We should not use that term unless we mean a cellular encephalitic process, a serous encephalitis. We should distinguish between edema and any form of hydrocephalus. Furthermore, in certain conditions, an encephalitic process frequently arises in the brain no matter what the etiology may be, whether it is traumatism, tumor, infection, exhaustion, sunstroke, or due to a drug or syphilis. Under those conditions the only thing the brain cell can do, primarily, is to swell. This is the preliminary stage of an inflammatory process. Then, if by the term edema of the brain, Dr. Jones means such a process as that, I would subscribe to such a conception. But I do not believe I should consider that edema of the brain arises in a purely local manner. Without doubt there can be intensification of the general swelling in a given territory, but I do not believe it arises in a circumscribed fashion and remains circumscribed.

DR. JOSEPH BYRNE, New York: I confess to having doubts as to the localization in the first case Dr. Jones reported. There are a few inconsistencies in the sensory manifestations. For instance, motor power and stereognosis were defective in the left hand, but the author did not specify as to these functions in the right hand. I would ask just what the condition was in that respect. If the left hand only was involved, the trouble probably would be in the commissural fibers. The second point is as to the question of vibration. There are two elements in vibration: the affective or thalamic element and the critical or cortical element. These two things should be differentiated sharply. The specific element of heat as such, as well as the element of rapidity in vibration, implies comparison and is to that extent critical or cortical, whereas the pleasant or unpleasant feeling of heat or vibration (affective element) is mediated by the thalamus. The question of edema has not been settled satisfactorily to physiologists. It is the problem of physiologists to-day just as it was many years ago, Dr. Martin Fisher's work to the contrary notwithstanding.

Another question that comes up is the mechanism of cerebral nutrition. I do not want to be overcritical, and it may be merely a play on words, but there are no lymph vessels in the brain tissue or spinal cord. There are perivascular spaces but no lymphatics. Then, another question comes up as to the rôle of a very important structure the function of which has not been defined clearly. The neuroglia is in close anatomic relation with the perivascular spaces on the one hand and with true neural tissue on the other, and hence may play an important rôle in neural nutrition. We are a long way from having a true conception of the mechanisms of cerebral nutrition.

I differ somewhat from Dr. Jones as to diagnosis and localization, although I agree with him as to his method of treatment. Our practical work in cases like this has been most successful. I believe that in all these cases a decompression on one or the other side has great influence in restoring nutrition and function.

DR. BAYARD HOLMES, Chicago: I have been interested in the possibility of reducing edema of the brain on account of its occasional appearance as a terminal factor in dementia praecox. When the two cases that were reported by Nissl came out I began to look for some method of reducing the increased intracranial pressure and edema which seemed to be present in those cases, and found that when there was a high intraspinal pressure, which presupposed, perhaps, a high intracranial pressure, it could be reduced by the intravenous injection of large quantities of a concentrated solution of glucose, the concentration being about 33½ per cent. or higher. And I wondered whether in such instances as those reported a concentrated solution of glucose might not be useful in reducing edema of the brain, perhaps anticipatory of any surgical interference. In the few instances wherein we used the intravenous injection of a concentrated solution of glucose the intraspinal pressure went down and remained only a short time, not to exceed twenty-four to forty-eight hours, when the intraspinal pressure rose to the high point from which it had come. In most cases we found the pressure to be from

150 to 380 mm. of water, and six hours after injection of the glucose it had fallen, in one case, to 40 and in another to 80 mm.

DR. WILLIAM A. JONES, Minneapolis: The discussion has brought out the points I wished to emphasize. I think there is absolute justification in the decompression of many people who have ill-defined conditions in the cortex and meninges, and I believe we will find many localized edemas, from whatever cause. One case of mine might have been a cardiovascular renal case. At all events, the patient had the condition, and the swelling was large enough so that it was circumscribed and scarified, relieving the symptoms, and the man recovered, though he had exhibited all the focal symptoms described. He may have another attack later. The question of epilepsy is very important as to the possibility of some local troubles being responsible for the epileptiform attacks, and those cases may safely be decompressed, and I think many of them would be improved if not relieved entirely. As Dr. Sterne suggests, I believe there is a swelling of the cells which surround a certain definite area in the pia-arachnoid and unquestionably in the localized territory of the cortex, but a swelling here can be relieved just as well by decompression and scarification as it can elsewhere. The astereognostic sense was limited and localized and defined very definitely. It was carefully worked out and found to have absolutely disappeared within two weeks after operation. I think that proves we struck the right point, because an exudative and perhaps inflammatory process was found, though typically edematous in appearance.

ETIOLOGY OF THROMBO-ANGIITIS OBLITERANS (BUERGER) *

WILLY MEYER, M.D.

NEW YORK

On the basis of extensive clinical observation and a variety of laboratory examinations of patients suffering from the so-called thrombo-angiitis obliterans (Buerger), some points that may prove of interest are presented herein as tentative conclusions. They may have to be revised from time to time as our knowledge of the disease deepens.

Chemical analysis of the blood of these patients has shown that:

1. There is no retention of waste nitrogenous constituents.
2. There is no marked decrease in the alkaline reserve of the blood, as demonstrated by the carbon dioxid combining power of the blood plasma (method of Van Slyke).
3. In all the cases thus far studied, the ingestion of 100 gm. of glucose, after a brief fasting period, has produced hyperglycemia.

This observation shifts the whole question of the etiology of the disease to new ground, and the old designations appear no longer appropriate.

For the present I would propose naming the disease "glycophilia," and shall so call it in the course of this paper. The similarity of the name to "hemophilia" is intended to point to sex limitation and other obscure features of the disease.

GENERAL CHARACTERISTICS OF THE DISEASE

The disease usually develops soon after puberty, rarely after the fiftieth year.

Abuse of tobacco, particularly excessive smoking of cigarets, may occasionally be a contributory etiologic factor, though some patients afflicted with this disease

* Read before the Section on Surgery, General and Abdominal, at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

have claimed they are very moderate cigaret smokers. The disease is a chronic one, usually extending over many years. Periods of activity may alternate with periods of quiescence.

TABLE 1.—CHEMICAL ANALYSIS OF THE BLOOD

Case	Age	Red Blood Cells	Platelets	Wassermann	Milligrams, 100 C.c.					Chlorids, per Cent.	CO ₂ Comb. Power, Vol. per Cent.	Sugar, per Cent.
					Nonprotein N	Urea N	Uric Acid	Creatinin	Cholesterol			
H. K.*	33	6,120,000	.....	Neg.	25	12	1.8	2.0	188	....	47	0.136
M. B.*	42	5,200,000	.....	Neg.	30	14	1.0	0.5	188	....	65	0.129
V. M.*	39	5,800,000	.....	Neg.	27	12	1.5	0.4	231	0.62	70	0.126
M. S.	40	6,170,000	.....	Neg.	22	11	1.9	0.4	231	0.57	68	0.138
A. S.	47	5,400,000	544,000	Neg.	35	18	3.1	0.8	214	0.62	57	0.102
J. C.	44	5,900,000	720,000	Neg.	25	12	3.1	0.6	185	0.56	61	0.116
W. R.	30	5,500,000	416,000	Neg.	25	12	2.0	1.0	125	0.56	48	0.110
I. K.	43	6,814,000	484,000	Neg.	23	10	1.9	1.0	150	0.62	53	0.106
C. M.	37	7,200,000	524,000	Neg.	25	12	1.3	0.8	188	....	..	0.110
M.	..	5,336,000	544,000	Neg.	25	11	2.9	1.0	214	0.70	57	0.100
H. F.	..	5,100,000	383,000	Neg.	30	14	2.9	1.0	213	0.70	78	0.120
M. G.	33	5,984,000	496,000	Neg.	27	13	1.2	0.8	200	0.60	71	0.116
L. M.	34	5,240,000	416,000	Neg.	25	11	2.5	0.8	188	0.66	67	0.103
I. B.	41	4,584,000	312,000	Neg.	25	11	2.0	0.8	188	0.66	65	0.168
I. A.	40	.....	.....	Neg.	25	12	1.5	0.5	200	0.56	65	0.10

* Blood cultures negative.

The early symptoms are: pains in the calf of the leg on walking (intermittent claudication); spontaneous, uncontrollable pains in the toes, feet and legs, especially during the night, when in horizontal posture. Later on, the arteries usually become occluded and spontaneous gangrene develops. The upper extremities also may become affected.

GENERAL CHARACTERISTICS OF THE PATIENTS

All the patients we have had have been males; women seem to be immune.¹ They were all Jews of the poor classes who had emigrated from Russia, Poland, Galicia or Roumania—countries whose population is known to be especially subject to disturbances of sugar metabolism. This particular type of poor immigrant Jew has for ages been living under most unsanitary conditions, closely confined and forced into intermarriage. They are hereditarily heavily encumbered; amaurotic family idiocy is specific among them; diabetes is a frequent disease; at one clinic it was associated with tuberculosis in 60 per cent. of the cases, against from 6 to 27 per cent. in other countries than those named above, according to general diabetes statistics. In one of my recent cases Irish descent was aimed. Investigation disclosed an Irish mother and Polish Hebrew father; the son (my patient) had been left in ignorance of his father's descent.

Patients afflicted with a similar trouble are said to have been found also among the Swedes in Wisconsin and Minnesota (Ochsner), among the Japanese (Koga), in Cuba and in Persia, but the identity of

the disease found in these countries with that of these Jews has not been proved.

The majority of the patients have a high red blood count and proportionately high count of blood platelets.

In trying to find a donor for blood transfusion in these individuals, three years ago, it was seen by the serologist of our hospital, Dr. A. L. Garbat,² that they all belong to a special class.

Almost all the patients seen by us have flatfoot.

INVESTIGATION OF THE DISEASE

On previous occasions I have given expression to my conviction that the disease under discussion would turn out to be a blood disease. I determined to get more light on this question, if possible. Therefore, beginning with February of this year, during my service at the Lenox Hill Hospital (formerly the German Hospital) of New York, I arranged for the admission of a limited number of these patients and had their blood examined in every conceivable direction by Dr. Adolf Bernhard, the pathologic chemist of the hospital, to whom I am greatly indebted for his untiring cooperation (Table 1). After a series of negative results in various directions, we found a disturbance of the sugar metabolism.

The sugar tolerance in glycopphilia has been studied in fifteen patients up to the present time. The results thus far obtained are embodied in Table 2.

The concentration of sugar in the blood of fasting normal individuals varies from 0.08 to 0.10 per cent. When 100 gm. of glucose are ingested, the sugar concentration of the normal individual does not rise above 0.15 per cent. at the end of one hour, and by the end of the second hour the concentration of blood sugar has again returned to the normal or to a somewhat lower level. If the concentration of blood sugar one

TABLE 2.—CARBOHYDRATE TOLERANCE TEST

Case	Age	Blood Sugar before Glucose, per Cent.	Blood Sugar 30 Min. to 1 Hr. after 100 Gm. Glucose, per Cent.	Blood Sugar 2 Hrs. after 100 Gm. Glucose, per Cent.	Urine before Glucose	Urine after Glucose
1. M. B. 9343	42	0.129	0.180	.....	Neg.	Neg.
2. V. M. 9333	39	0.126	0.212	.....	Neg.	Neg.
3. M. S. 29	40	0.138	0.248	.....	Neg.	1st hr. trace 2d hr. trace 3d hr. trace
4. A. S. 953	47	0.102	0.198	0.198	Neg.	Neg.
5. J. C. 1272	44	0.116	0.180	.....	Neg.	1st hr. trace 2d hr. trace 3d hr. trace
6. W. R. 1610	30	0.110	0.189	0.120	Neg.	Neg.
7. I. K. 1912	43	0.106	0.189	0.159	Neg.	1st hr. neg. 2d hr. trace
8. C. M. 2152	37	0.110	0.212	0.096	Neg.	Neg.
9. M.	..	0.100	0.174	0.100	Neg.	Neg.
10. H. F.	..	0.120	0.153	0.112	Neg.	Neg.
11. M. G. 3454	33	0.116	0.189	0.174	Neg.	Neg.
12. L. M. 2498	34	0.106	0.138	0.215	Neg.	1st hr. neg. 2d hr. trace 1st hr. neg. 2d hr. large amt.
13. I. B. 2468	41	0.168	0.192	0.126	Neg.	3d hr. trace 1st hr. trace 2d hr. 1.5% 3d hr. trace
14. I. A. 3288	40	0.100	0.174	0.138	Neg.	1st hr. 0.6% 2d hr. 1.6%
15. S. S. 3696	51	0.096	0.232	0.192	Neg.	

hour after the ingestion of the glucose reaches a higher level than 0.15 per cent., hyperglycemia exists.

This hyperglycemia may be accompanied by glycosuria. In the cases studied, the fasting level of the blood sugar varied between 0.096 and 0.168 per cent.

1. In a recent case hyperglycemia was also found in a Jewess who complained of continuous cold sensations in her feet and showed absence of pulse in both peroneal arteries.

2. Meyer, Willy: Conservative Treatment of Gangrene of the Extremities, Ann. Surg., 1916, 63, 280.

In seven cases the concentration of blood sugar before the ingestion of glucose was higher than the normal figure, varying between 0.116 and 0.168 per cent. In other words, some of these patients come to us with a certain degree of hyperglycemia, without having taken the glucose.

One hour after the ingestion of 100 gm. of glucose, the blood sugar concentration in these patients varied between 0.138 and 0.248 per cent., whereas in the normal individual, as already stated, it does not rise above 0.15 per cent. Two hours after the ingestion of the glucose, the blood sugar concentration varied between 0.10 and 0.215 per cent.

One case, M., No. 2498, did not show a *marked* increase in blood sugar concentration after the ingestion of glucose, it being 0.138 per cent. one hour later. However, this case showed the highest concentration of blood sugar after two hours, at which time it was 0.215 per cent. It is the only case in our series that shows a higher concentration of blood sugar at the end of the second hour than at the end of the first hour.

In six other cases the blood sugar at the end of the two hours did not reach the original level obtained before the ingestion of glucose.

The results of these investigations indicate some disturbance in the carbohydrate metabolism of the patients. The studies are being continued in our hospital, and their progress will be reported from time to time.

The general clinical aspect of these cases in many respects shows such a close similarity to what we are accustomed to see in cases of diabetes mellitus that their classification as "near diabetics" appears justifiable, and I fully expect to find this diagnosis verified after the study of a greater number of cases.

The characteristic difference in the sugar tolerance of healthy individuals, glycophilics and diabetics is diagrammatically shown in the curves in the accompanying chart.

The probable cause of hyperglycemia in glycophilia, and also of the erythrocytosis which is frequently found combined with it, I expect to take up soon in another communication.

The chemical blood analyses of Dr. Bernhard appear to justify the above proposed change in the nomenclature of this trouble. "Thrombo-angiitis obliterans"—the name given it by Dr. Leo Buerger of New York—implies a thrombus formation, due to inflammation of the blood vessels. I do not believe, however, that the occluding masses within the small arterial blood vessels are really thrombi, nor do I believe that an inflammatory process of the blood vessel walls plays a rôle from an etiologic point of view.

I am rather inclined to explain these masses as originally being a conglomeration of red blood corpuscles due to erythrocytosis and stasis, the latter being a

sequence to the increased viscosity of the blood. They may appear to the eye of the pathologist, macroscopically and microscopically, as thrombi. Yet, I feel that microscopic lenses of higher power than we know at present will probably show them to be something different.

This is also the reason why the name "thrombophilia," which I recently proposed³ for this disease has been discarded.

CLINICAL OBSERVATION AND TREATMENT

In my service at the Lenox Hill Hospital five beds were set aside in the early part of this year for the study and treatment of glycophilia. They have been constantly occupied by these patients, and for weeks at a time by the same men. At certain periods it was necessary to increase the number of beds to seven. I feel the need of at least fifty beds for this purpose. But to have set aside more than from five to seven would have crippled the service.

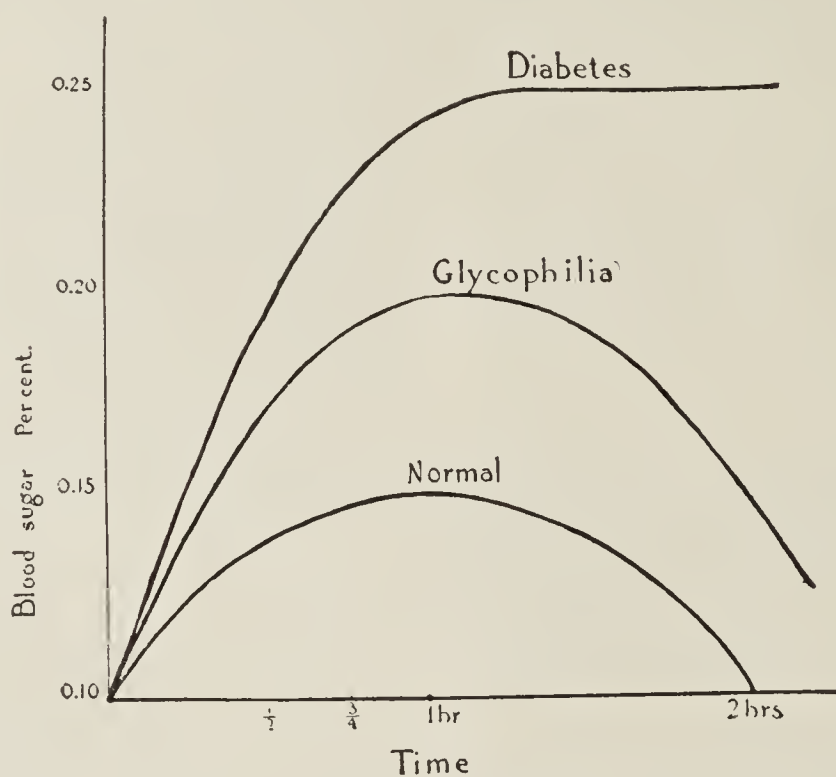
In order to handle with these limited facilities the greatest possible number of individuals, I have endeavored to shorten the time required for their treatment at the hospital. Out of the first empiric steps and the feeling of our way, a sort of routine has gradually developed, as follows:

On the patient's admission to the hospital a complete chemical analysis of his blood is made, also a complete blood count, platelet count and Wassermann test. Then the sugar tolerance test is carried out. According to our present view, a positive result places the patient in the glycophilic class, and he is retained for treatment.

In order still further to cut down the time required for preliminary examinations and to save several days of hospital attendance, the blood tests and the sugar tolerance tests have of late been made in an ambulatory fashion at the dispensary. The work there has been placed in charge of a special assistant, Dr. M. Greenberger.

A most conspicuous feature in the picture of glycophilia seems to be a considerable dehydration of the tissues. A glycophilic may be compared to a flower withering for the want of water. Our treatment, therefore, consists in supplying an abundance of water to the system.

From the start, the treatment is intensive. It aims at producing quickly the highest possible degree of hydremia. This is obtained by the simultaneous use of duodenal flushing with the help of Einhorn's duodenal tube, as suggested by McArthur⁴ of Chicago, combined with hypodermoclysis. In duodenal flushing, from 8 to 10 quarts of Ringer's solution, or a



Comparative blood sugar curves after ingestion of 100 gm. of glucose.

3. Report of Surgical Section, New York Academy of Medicine, Med. Rec., New York, 1917, 92, 262.

4. McArthur, L. L.: Surg. Clinics, Chicago, 1917, 1, 499.

solution of sodium bicarbonate (from 15 to 30 gm. of the salt per day) of body temperature, are given by the rapid drop method within twenty-four hours. Ringer's solution or a solution of sodium bicarbonate seems to have a better effect than plain water.⁵ In duodenal flushing the actual absorption of the water into the system by way of the blood has been proved by the fact that about as much urine is discharged as water is poured into the intestinal tract.

More recently we have made the patient buy the tube before he enters the hospital. Here he is taught its use, and as soon as he has learned it, he is sent home to continue the treatment there for from three to five weeks, provided it is a mild case; if he represents a more serious case, he remains at the hospital for additional hypodermoclyses. We are now about to transfer to the dispensary the giving of hypodermoclyses, and we are arranging for three treatments per week for each patient, under special supervision. Of course, only patients who are able to walk can be subjected to such ambulatory treatment.

Hypodermoclyses are given with the maximal quantity of Ringer's solution the patient can endure, and repeated daily, if possible. Intravenous infusion of Ringer's solution is not resorted to, because the aim is the attainment of the greatest possible penetration of fluid into the body tissues. Extensive literature shows the latter to remain quite dry when the liquid is introduced intravenously.

The injection of such quantities of fluid is made principally for the purpose of reducing the viscosity of the blood and thus enable it to pass again through the narrowed arterial channels.

During this treatment the condition of the patient occasionally runs the following course: The incessant, most excruciating pains, not controllable by any other means, decrease in intensity. At first only a few hours of sleep can be enjoyed by the patient while sitting upright, for the night, in a chair. Soon he goes to bed and keeps the affected leg hanging out; then he risks lifting it to a horizontal posture; eventually he rests comfortably in bed, free from pain.

The foregoing refers to patients without local gangrene, either of the superficial or deeper tissues. If gangrenous lesions of the skin and subcutaneous tissues are present, it has been found best, as regards saving time in the treatment, and particularly in alleviating the pain, to touch the ulcerative spot *lightly* with the actual cautery. The sealing of the hyper-sensitive sore does away with a good deal of pain. Under the scab, often healthy granulations form which tend to more rapid healing. Sometimes the eschar stays on until cicatrization of the formerly obstinate wound is completed. The light, dry gauze dressing is changed as little as possible during the time that the artificial hydremia is being maintained.

In the majority of cases the deeper tissues, particularly periosteum and bone, are affected. Often it will be seen that what at first glance appeared to be a paronychia is a necrotic osteoperiostitis of, say, the third phalanx of the toes or fingers. This may have the tendency to invade the central cavity of the bone, and later involve the interphalangeal joint; or it may be that a seemingly superficial gangrene, for instance,

over the os calcis laterally or at the calx itself, runs straight down to the bone. If conservative treatment is at all contemplated in a case like this, it is unwise to treat these wounds with all kinds of dressing, until the demarcation line has formed. Circumcision of the necrotic tissue with a knife, and the use of the actual cautery on the surface of the fresh wound, are better. Although with the latter procedure it will take a long time before the wound heals, the patient's pains are often much lessened.

When it comes to operating—enucleation or amputation—I prefer to undertake the operation after the patient's system has been thoroughly permeated with fluid. It may then be sufficient to enucleate or amputate a toe or a finger, where formerly larger parts of the extremity had to be sacrificed. In other cases, amputation below the knee will give a good result, while without the preceding hydration of the system, amputation above this joint would probably have been required. It almost seems as if this temporary saturation of the system with fluid would enable us to operate more peripherally, with greater and more frequent success, than could be obtained formerly. Further experience is needed definitely to determine this point. Probably the degree of improvement in the circulation and the condition of the blood will differ in different individuals.

Without doubt there are abortive cases of the disease.

A most remarkable consequence of the treatment in some cases has been the restoration of pulsation in arteries over which, before the treatment, no pulse could be felt. Koga observed the return of almost normal pulse in ten out of thirteen Japanese cases, after a course of hypodermoclysis. I have seen it in only a few instances. Still, I have seen it, and the mere fact that pulsation does return in previously pulseless major arteries—or, expressed in other words, that occluded arteries become again patent, and within a comparatively short time—makes me look with doubt on the theory that ascribes the occlusion to thrombosis. It rather inclines me to attribute the occlusion to stasis, as far as the arteries are concerned. In the veins the occlusion is probably a true, though secondary, thrombosis.

Patients without gangrene are discharged as soon as their pains have subsided. When this goal is not reached, ligation of the deep femoral vein below Poupart's ligament, or amputation, is performed. In spite of one very good result of arteriovenous anastomosis between the femoral vessels in Scarpa's triangle, in one of my patients, aged 31, I could not make up my mind thus far to have this operation take the place of a regular intermediate step, before amputation is resorted to.

However, be it specially emphasized, none of these patients are cured; they are merely improved, whether or not operation is done. In either event, their trouble returns sooner or later. This, at least, has been the rule so far. Of course, there may be fortunate exceptions. The reason for this fact is that the underlying cause of the disease is as yet unknown, and until it is known, we cannot hope to bring more than temporary relief to these patients. Our treatment, conservative as well as radical, thus far has been only palliative. True, after amputation of the leg, the old tormenting pains subside as by magic; but the disease goes on nevertheless. Frequently the other extremity after a while shares the fate of the one amputated, and still

5. In making up Ringer's solution we have employed the tabloids furnished by the firm of Burroughs Wellcome & Co., dissolving two tabloids in 1 pint of water. Each tabloid contains: calcium chlorid, 0.05 gm.; potassium chlorid, 0.05 gm.; sodium chlorid, 2.25 gm.; sodium carbonate, 0.025 gm., and glucose, 0.25 gm. One tabloid dissolved in 250 c.c. of water forms Ringer's solution.

later on, the upper extremities may be attacked. Proof of the continuance of the disease after the discharge of the patients, with their symptoms improved and their wounds healed, is the fact that they are usually unable to do much walking without getting pains and becoming excessively tired.

We put these discharged patients on a mild anti-diabetic diet and advise them to take up work that will not unduly tax the muscles of the respective extremity, although the latter advice is usually difficult to follow for this class of mostly poor patients. They are further instructed to report back for blood examination at varying intervals, according to conditions present.

Much work remains to be done to clear up this fascinating affliction. I am convinced that it is primarily a disease of the blood of endocrine origin—due principally, perhaps, to a disturbance in the normal function of the suprarenals—and not a disease of the blood vessels. Should we succeed in tracing it back to its original cause and then find a way of correcting the disturbance, not only untold suffering would be spared these pitiful patients and their families, but vast sums of money saved to the country at large.

CONCLUSION

Although the number of cases studied is small, the results thus far obtained definitely show that there is something defective in the carbohydrate metabolism of these patients.

Regarding the theory I have advanced above, that one or more glands of internal secretion are pathologically affected and cause the disturbance, I fully realize that it rests as yet on slender support. But I take kindly to this theory, because it tends to remove the disease from the realm of the mysteriously obscure, and brings it into the purview of an already thoroughly explored field of medicine, thus making available for its elucidation a vast treasure of experimentation already laid down in literature. However, even with this help, the task of finding a path through the many contradictory observations and apparent inconsistencies is altogether too big for individual effort, and recognizing this to the full, it seemed to me best to make known at this time what we have found thus far and to urge the cooperation of all those who are called on to treat this class of patients.

The best way to make real progress in this matter would be to get some philanthropist interested in the subject and induce him to equip liberally and endow a commission, composed of specialists from the various fields of medicine involved and having for its sole object the study of glycophilia.

700 Madison Avenue.

ABSTRACT OF DISCUSSION

DR. V. L. SHRAGER, Chicago: It is very sad that this condition is not better understood, particularly clinically. It does not matter so much that we do not know what the cause is at this time. At Mount Clemens, where I have been a patient myself, many patients were treated for rheumatism when they had only the early stages of thrombo-angiitis obliterans. Flatfoot is frequently associated with angiitis obliterans, which suggests an anatomic theory. Oppenheim and a few others have found that these patients have a congenital smallness of the blood vessels. Many of them, whether treated or not, develop epigastric distress and excruciating pain. I have seen cases of spasm of the epigastric region entirely ignored. The angiospasm is very much the same as a cramp in the calf of the leg. I must say in defense of the Ringer solution that while it does not modify the disease, it is a blessing to

the patient. I have never known any of them that did not get absolute relief. I have extended the use of Ringer's solution to trophic diseases of the foot and other diseases. I have treated several cases of diabetic arterial changes, and I have found that Ringer's solution gives them a great deal of relief.

DR. WILLY MEYER, New York: Dr. Buerger has made careful pathologic studies of the type of the blood vessel occlusion. I so far would disagree with him with reference to the interpretation of his findings. Our laboratory examination has shown the hyperglycemia often before the ingestion of glucose, surely soon after. I believe that these patients are "near-diabetics." Such assumption will explain easier also the cases with open blood vessels and gangrene, as in diabetes. From the standpoint of symptomatic treatment we can best improve the condition of these patients by pouring as much fluid into their system as possible, particularly by using the duodenal tube. Nobody can drink 8 to 10 quarts of fluid a day for a number of weeks. That the fluid is actually absorbed and not to greatest extent discharged by the rectum is shown by the large amount of urine voided by these patients. As a matter of course, some fluid is retained in the system.

Regarding surgical treatment, it seems unwise in patients with superficial gangrene to wait for further developments. We should act immediately and touch the gangrenous spot lightly with the cautery; under the eschar the wounds often heal. If we remove the nail in a patient with what appears to be a paronychia, we will often find under the same an osteomyelitis, not infrequently combined with osteomyelitis, of the third phalanx, which seems to be a reactive inflammation to localized bone gangrene, and if treated properly will greatly relieve the pain. A most interesting observation, which will be valuable if corroborated by further clinical data, is, that if we pour a large amount of liquid into the system of these patients, a required amputation can likely be done more peripherally; in other words, we may with it, for instance, more often be enabled to amputate below the knee rather than above the knee without recurrence of gangrene. If we should be able to find the cause of this disease and correct it, certainly great expense would be saved to the community at large, not to mention the unspeakable suffering of these patients and their families. For the trouble is comparatively frequent, especially in the large centers of our country, and those stricken by the disease always spend months and years in hospitals.

Mortality Among Women from Causes Incidental to Child-Bearing.—Between the ages of 15 and 44 the diseases and conditions incidental to child-bearing account for more deaths of women than does any other disease or class of diseases except tuberculosis. This statement is made by Louis I. Dublin, of the Metropolitan Life Insurance Company, in an article on a study of mortality among women from causes incidental to child-bearing, and it is based on the records of death of a large number of insured women in the industrial department of the Metropolitan company. During the six year period, 1911 to 1916, covered by the study it is estimated that 14,694,260 insured women between the ages named were under observation. From this number 10,056 deaths occurred from diseases and conditions incidental to childbirth, in the ages between 15 and 44. Most important of these diseases was septicemia, which was responsible for 4,321, or 43 per cent., of the total. Albuminuria and convulsions caused 2,654, or 26.4 per cent., of the total. It will be seen that these two conditions accounted for 69.4 per cent. of the total deaths from causes incidental to childbirth. The figures relating to mortality on account of childbirth in the Metropolitan company are steadily improving, due, as is said, to the extension and improvement of the prenatal and postnatal nursing service inaugurated in 1909. In 1916, of a total of 160,843 women policy holders visited during illness, 41,572, or 25.8 per cent., were cases resulting from disease or conditions incidental to the puerperal state. In the period between 1911 and 1916 the death rate among white policy holders from these causes fell 10.7 per cent., the decline in mortality from septicemia being 17.3 per cent.

RELATIONSHIP OF FOCAL INFECTIONS
TO CERTAIN DERMATOSES

FURTHER OBSERVATIONS *

M. L. RAVITCH, M.D.

AND

S. A. STEINBERG, M.D.

LOUISVILLE, KY.

The present paper is in a way a continuation of a former paper,¹ and a review of the conclusions presented then in the light of further observations and experience. We were very much pleased when we were asked to choose this subject, for it is a field in which we feel ourselves comparative pioneers. As far back as 1905, we reported² cases which we considered due to hematogenous infection of the skin. Of course, we lay no claim to priority in this field; it is very well known that, according to Gosse,³ Mackenzie called attention to the connection between rheumatism and erythema nodosum in 1886, and since that time numerous references have been made to a connection between rheumatic infections and various dermatoses. However, it was not until the epochal work of Billings and Rosenow that we really had a base of facts from which to work. With the proved relationship of focal infections to more or less widely disseminated infection throughout the body we found ourselves in a better position to prove that the skin may suffer from such infections as well as the joints, muscle, heart, nerves, and other structures.

Now if we dermatologists have one fault, it is that in our enthusiasm, in our desire to clear up the many problems of diagnosis and etiology, in our efforts to place our treatment on a really scientific and rational basis, we have more than once gone to the extreme in making up new fads and theories. How often what we have acclaimed one day we have had to renounce the next! Theories have come and gone — uric acid diathesis, autointoxication, trophoneuroses, internal secretions, anaphylaxis, focal infections—each hailed by the enthusiasts as the explanation of all the unsolved problems. Only too often the pendulum swings as far to the other extreme when the reaction comes, leading to denial of any value to the theory or to neglect of study of the subject entirely. Now this is ever our danger: that we are apt to lose our impartial judgment and render valueless any observations we have made, owing to prejudices and preconceived theories; we take sides in a controversy before we have sufficient data at hand. Rather should we make a point to take no sides in controversial argument, but to act as impartial judges in bringing out all the evidence, then, as impartial jury, weigh its importance. We should be careful not to minimize, distort or conceal any evidence which may be opposed to what we have already begun to believe, nor to exaggerate what tends to prove our views correct. In this way we shall the sooner arrive at well founded conclusions in which further investigations may be based; in this way we shall more surely get all the possible value out of any subject, and in this way we shall avoid the errors of faddism in which all of us have fallen

at some time. It must be remembered, too, that even if we are disappointed by finding that what promised to open up a tremendous field in diagnosis or treatment has proved to be quite otherwise, still we have not wasted our time entirely; we shall have gained knowledge at least, and with every investigation we narrow down the number of possible causes and make more certain the ultimate solution of our most difficult problems.

RELATION OF DERMATOSES TO FOCAL INFECTIONS

For several years now we have been trying to determine what connection there might be between any of the dermatoses and the focal infections or infections commonly considered as usually or frequently due to focal infection. We tried not to allow ourselves to be influenced by any preconceived ideas; even when the dermatosis was of a character that made it certain to us that such infection could play no part, still we have made it a point to inquire about previous attacks of sore throat, tonsillitis, pyorrhea, abscesses in the mouth, antrum and sinus infections, pain around the joints or in muscle, nerve or tendon, endocarditis, pericarditis, varicose ulcers, appendicitis and similar infections. Also we have examined the mouth, throat and nose in practically all cases. In many cases we were unable definitely to locate any focus of infection, although we were fairly sure of its presence, owing to the expense and time which would have been necessary for a thorough examination.

In many other cases we were unable to disprove the possibility of a focal infection, even though we felt that there was no evidence of such infection, owing again to the impossibility of making the necessary examinations in every case. Patients with a slight dermatosis are not willing, as a rule, to have their teeth examined by the roentgen ray, suspicious fillings removed, their throats, antrums and sinuses examined—it simply is not feasible in the great majority of cases. What we can do and what we have tried to do is to get a thorough history of the presence or absence of any signs of focal infection, of any rheumatic attacks or allied conditions, and then note the state of the tonsils, throat, nose, mouth and teeth. This does not exclude, we admit, the possibility that the patient has an unsuspected infection in one of the sinuses, a pyosalpinx, a cholecystitis, vesiculitis, cystitis, prostatitis, appendicitis, any of which conditions may be present without pain or other appreciable symptom, even without apparent effect on the patient's health; also any of these conditions might furnish a constant or intermittent stream of infection or products of infection, whereby direct or indirect reactions in the skin might be caused without other tissues or organs being affected sufficiently to cause symptoms.

The burden of proof, however, certainly lies with the affirmative and we should not be asked to believe that a person without discoverable focus must have a focus because he has a dermatosis which we are trying to connect with such infections. It is bad enough to be offered the mere presence of a focus of infection as proof of the same connection. In the first place, the mere coincidence of any dermatosis with foci of infection should be considered as suggestive only. We must remember the many possible conditions which may act as foci of infection; we must remember how many people have one or more of these conditions, and how few people are actually free from any focus whatever. Since many people suffer from

* Read before the Section on Dermatology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Ravitch, M. L.: Focal Infection in Relation to Certain Dermatoses, *THE JOURNAL A. M. A.*, Aug. 5, 1916, p. 430.

2. Ravitch, M. L.: *Kentucky State Med. Jour.*, 1905.

3. Gosse, A. H.: *Erythema Nodosum; An Analysis of a Hundred Cases*, Practitioner, London, 1913, 91, 240.

different foci of infection without any skin manifestations, it is not surprising that we find many dermatoses coincident with focal infections; the wonder is that we find so many in whom no focus can be found. At any rate, the proportion of persons having some focus of infection is so large, that to find a high ratio in some dermatosis is not enough. The ratio must be distinctly higher than the usual ratio. The coincidence of focal infection and a dermatosis is by itself practically proof of nothing. It merely serves to add value to other evidence.

FURTHER OBSERVATIONS

There are other ways in which we may endeavor to determine the connection than by noting coincidence of the two. For instance, when the recognized treatment has been given a thorough trial and failed and there are undoubted foci of infection, the dermatologist is warranted in doing what he can to persuade the patient to get rid of these foci, not only for the possible effect on the dermatosis, but because we know that these foci are constant menaces to the patient's health. We then have the opportunity to study the effect on the dermatosis after the removal of the focus. The tendency of many dermatoses to disappear spontaneously must be remembered, and therefore we must not accept too readily the often temporary improvement that follows tonsillectomy or other procedures as proof that the focus removed was the etiologic factor in the case. Before these cases are recorded as evidence of anything they should be watched over a long period, and relapses or recurrences noted, also any other symptoms of focal infection, for all foci may not have been removed, or a little tonsillar tissue left in the tonsillar bed may become hypertrophied and cause more trouble than before. There are, of course, many other methods of gathering proof in these cases, such as pathologic and bacteriologic examination of the lesions to ascertain whether direct infection of the skin has occurred and whether this infection is of the same character as in the focus. As our various methods of differentiating strains improve, we may hope to be able to recognize subdivisions in the streptococci, staphylococci and other forms, just as we have succeeded already in dividing the pneumococci into four types according to their serum reactions, also the meningococci and parameningococci, and the typhoid and paratyphoid. Experimental inoculation with the different strains should prove of greater value, too, when we can distinguish between the strains. Experiments on the effect of injecting sterilized pus from closed foci may prove enlightening by showing the possible action of such pus in causing anaphylactic or toxic reactions. However, we, as dermatologists, are more concerned now with what has been discovered and what we may discover through clinical observation.

INFLUENCE OF FOCAL INFECTION IN CERTAIN DERMATOSES

Fairly early in our work we noticed that we were more suspicious of a focal infection cause for erythemas than for any other dermatosis. This was partly due to our knowledge of the work of Rosenow and others in erythema nodosum, partly to the fact that we encountered many forms of erythema in mild and severe septicemias, rheumatism and similar conditions. Several cases of erythema multiforme, exhibiting many small hemorrhagic lesions and occurring during early stages of generalized joint, heart and kidney

infection came under our notice. Study of these lesions revealed that they were practically small abscesses, infection of the capillaries with cocci, with damage to the endothelium and adjacent tissue, hemorrhage and infiltration with round cells, sometimes small necrotic areas; however, the necrotic areas were too small, the extension of the infected area too limited, the proteolytic action too feeble to often result in the macroscopic formation of pus or extension of the pus to the surface. The lesions usually retrogressed during favorable progress of the case and fresh crops appeared during relapses. The extent of the dermatosis was not a measure of the severity of the case, since the dermatosis was entirely absent in several severe cases and present in mild ones. Erythema iris was encountered in several cases of acute exacerbation of chronic rheumatism. Cases of erythema nodosum usually occurred in rheumatics, though not necessarily during exacerbations or acute stages. On the other hand, we have had typical herpes iris, as well as other forms of erythema, in which we could demonstrate no focal infection and which had no other symptoms of any kind. Although some of the cases of erythema which we considered of infectious origin showed certain characteristics not usually seen in noninfectious erythemas, there was absolutely no difference in the appearance of the erythema iris cases as far as we could judge, whether they were of infectious origin or otherwise.

The urticarias and angioneurotic edemas were probably next to the erythemas in apparently showing connection with rheumatic or focal infection; yet here, too, the majority of such cases did not seem to us at all so connected. These cases, especially the urticarias, nearly always show an eosinophilia, and experimental work in anaphylaxis has shown such an intimate connection between the anaphylactic reaction and eosinophilia that this alone would turn our attention to the possibility of anaphylaxis playing a part in the causation of these dermatoses. Combine with this the appearance of urticarial eruptions as one of the symptoms of experimental anaphylaxis and the well known fact that urticaria often appears following ingestion of certain foods or exposure to certain animals or plants in susceptible individuals, and we have a fairly firm connection established. If the focal infections, then, are the cause of certain urticarias, it is natural to suspect that it is through an anaphylactic phenomenon, although it is possible, of course, that this may not be true in any or all these cases. With the angioneurotic edemas one would include the possibility of there being an actual infection or toxic irritation of certain trophic nerves.

We might divide purpuras into three classes: (1) cases accompanying focal infection, especially rheumatism, and probably due to that cause; (2) cases due to anaphylaxis, and (3) cases of unknown or other origin.

Herpes zoster has been attributed to infection of the posterior root ganglions. Cocci have been found present in this tissue and a similar infection has been produced by injecting this coccus into the blood stream. We can only say that we have seen very few cases of herpes zoster that were due to infection, but we have seen many cases certainly due to other causes, such as arsenic. In some cases we could find no focal infection nor other explanation. In some cases the patient gave a history of trauma or exposure; these may have been due to focal infection lodging in chilled

or injured nerve structures. Evidently a herpetic eruption may result from irritation of certain nerve structures and this irritation may occur in more ways than one.

Among the eczemas we find cases of such widely varying etiology that it is possible that focal infection may be among the causes. We have seen eczemas due to nephritis and disappearing when the renal function was restored sufficiently. We have seen eczemas which are considered due to disturbance of internal glandular secretion, such as the breast-fed babies of hyperthyroidic mothers, and the eczema cleared up promptly when the baby was taken from the breast and given a little iodid. We have seen eczema from surplus of carbohydrate or fat in the diet; at least, correcting the diet resulted in a cure. We have seen trade eczemas; when the patient stopped working in the chemical, drug or other substance responsible the eczema yielded to mild external applications. And we have seen many cases of eczema in which we could find no cause, search as we might. We have not in our own practice seen any case of eczema which we thought due to focal infection. We admit the possibility of a toxic action on the skin from such a focus producing an eczema and we have reported a case apparently due to an ulcerated appendix.

Scleroderma has usually in our experience been easily connected with disturbance of thyroid secretion. If focal infection plays any part in its causation we should judge that it must be through affecting the thyroid. No other mode of action seems feasible to us.

Vitiligo we mention only because it has been mentioned in this connection. We absolutely fail to see how the two can be connected.

Psoriasis, also, must be considered. In the first place, various authors have written of a rheumatic factor in this disease; Chipman⁴ reports finding apical abscesses in several psoriatics. Autogenous vaccines from the patient's throat or tonsils have been employed; in fact, we have tried out some experiments along this line in our own laboratory during an investigation into the cause of psoriasis. Our conclusions then are our beliefs now: that psoriasis is not due to an infection of the skin structures; it is not due to a communicable virus in the skin or blood; it cannot be transmitted by any way that we know; it occurs in individuals who may be otherwise perfectly healthy; the attacks do not occur with any relationship to rheumatic attacks; lesions in rheumatic patients show no sign of clearing up with amelioration of the rheumatic symptoms; the lesions likewise show no relationship to tonsillitis or sore throat, so that, thus far no connection has been established between focal infection and psoriasis, and we do not think there is any.

Lichen planus seems as unlikely to be due to focal infection as any condition we can mention. We grant, not for the sake of argument, but to avoid argument, that it might be possible for the skin to react in all these totally different and diverse ways to various focal infections, forming an erythema in one person, a psoriasis in another, a vitiligo in another, a wart in another, a freckle in another, but we do insist that it is too far fetched to insist for a moment that the skin really does react to these mysterious and diversified influences in such limited types of infection as we are now considering.

OTHER FORMS OF INFECTIONS

There is another group of cases of which I wish to speak—cases due to internal blood-borne or lymph-borne infections, yet not true focal infections by any means. For instance, furunculosis and carbunculosis may be local infections at first, then gain entrance to the blood stream and appear in other parts of the body for months and months. Erysipelas following infected wounds, or even septicemia, belongs to this group, too. Somewhat different from the foregoing are those erythematous lesions of nose, throat, or face commonly associated with ulceration in the nose, fistulas of the gums or other infection in adjacent tissue. One or two cases of acne rosacea have seemed to come in this category, although the majority show no connection with focal or other infections unless local and external. The other types of acne were never associated with focal infections in our experience.

SUMMARY AND CONCLUSIONS

To sum up what we have gathered from our own observations, the observations of other dermatologists, correlated material from internal medicine and other specialties and the reports of the pathologists and bacteriologists, we present the following conclusions:

1. If we are to gain information from observation we must try to maintain a strict impartiality.

2. We must use other methods of gaining knowledge in this field, such as laboratory experimentation.

3. We must remember the large percentage of people who have one or more form of focal infection and not accept a certain number of coincidental cases as proof.

4. Though we acknowledge other ways than direct infection of the skin by which focal infections may be causative of dermatoses, still we must not assume, without direct proof, a hypothetic power of focal infections to cause such a variety of reactions as has been mentioned in this connection.

5. Focal infections—and in that class we include those conditions, such as arthritis, endocarditis, neuritis and similar affections, which, it is now admitted by most authorities, may result from such infections—are causative of a small percentage of such dermatoses as the erythemas, urticarias, purpuras and perhaps herpes zoster.

6. Some cases of the dermatoses just mentioned which have lesions identical with the conditions referred to, are not due directly or indirectly to focal infections.

7. We can see no relationship between focal infection and such dermatoses as psoriasis, lichen planus, pernio, acne, vitiligo, scleroderma and alopecia areata.

8. Although these conclusions are based on work covering several years and a careful study of the work of others, still they are only tentative, not final; we expect them to be changed, more or less; we are not taking either side in this matter, but are open to correction from the experiences and experiments of others, recognizing that our entire point of view may be changed tomorrow.

Sudden Paralysis of Ocular Muscles.—Wertheim Salomonson writes to the *Nederlandsch Tijdschrift* to call attention to seven cases recently encountered in which children and adults developed a sudden, peculiar paralysis of the ocular muscles. It was accompanied by gastro-intestinal disturbances only in a few, but he lists the cases as "botulism." The outcome was favorable in all.

4. Chipman, E. D., Focal Infection in the Etiology of Skin Disease, Jour. Cutan. Dis., 1917, 35, 646.

THE ETIOLOGY OF LICHEN PLANUS*

ERNEST DWIGHT CHIPMAN, M.D.

(SAN FRANCISCO)

Captain, M. R. C., U. S. Army

CAMP CRANE, ALLENTOWN, PA.

In discussing the etiology of lichen planus most writers have been content to enumerate certain generalities as to age, sex and environment, and to epitomize our ignorance in some such phrase as "the exact etiology is unknown" or "the causes are obscure." Of those who take a definite stand on the question, some hold the view that the disease is connected with infectious microbic agents or that it is due to a toxemia, while others believe it simply the outward expression of deranged nerves, a condition resulting from overwork, grief, worry or emotional crises.

VIEWS HELD REGARDING THE ETIOLOGY

In Great Britain, Norman Walker believes the anatomic appearances suggest an infective inflammation and cites a severe case of lichen in a professional golfer, inferentially indicating that the disease is not due to "nerves" because occurring in one who typifies the phlegmatic temperament; Malcom Morris, on the contrary, places lichen frankly among the diseases due to nerve disorder.

French writers, including Brocq, Darier and others, incline strongly to the theory of nerve influence.

Of the American dermatologists, Fordyce, Montgomery and Alderson and Engman and Mook suggest toxemic or microbic elements as the paramount etiologic factors.

One may roughly classify the opinions of these three schools of dermatology as follows: (1) British, divided; (2) French, favoring nerve theory; (3) American, tending strongly to theory of infection.

INFECTION FROM DISEASED TEETH

In connection with the pathology of the disease, Ormsby states: "Many observers believe that lichen planus is a constitutional disease with cutaneous manifestations, produced by an unknown toxic agent acting on the nerve centers." This approximates the view which it is the purpose of this paper to suggest, namely, that lichen planus may result from systemic toxemia or bacteremia, the origin of which is most often, if not always, in the teeth.

The theory of focal infection as the chief etiologic factor in lichen planus is not new even though it receives little if any notice in the most recent editions of American textbooks. It was definitely suggested before this section in one of the discussions at the 1915 meeting. It was mentioned again before this section in 1916, and was further the subject of extended discussion at the annual meeting of the American Dermatological Association in 1917.

If it may not seem too insistent the suggestion is respectfully reiterated before this section in 1918 that the most probable exciting cause of lichen planus is tooth infection. Further, so many reasons exist which suggest nerve involvement, we may tentatively add that the nervous system plays a complementary part in the production of the lesions to the extent that either special vulnerability to any toxic or bacterial substance obtains in certain individuals, or that definite

tissue affinity is present for a special toxic or bacterial substance in any individual.

It would seem that ample clinical observation alone will suffice to establish the relationship of lichen planus with focal infection. If a part be conceded to the nervous system the decision as to whether it is a question of specific tissue affinity or simply one of diminished resistance following overwork, emotional excitement and similar influences must rest rather on the fulfilment of the usual laboratory postulates.

Unfortunately the exigencies of the military situation have prevented the elaboration of this idea as planned. It will be the aim of this paper, therefore, to present a short series of typical histories from private practice and to indicate a few reasons why tooth infections are frequently overlooked.

In addition to the case histories which follow, there might have been included, if available, the records of numerous others seen in hospital services in none of which was evidence of tooth infection lacking.

REPORT OF CASES

CASE 1.—H. K., an ex-prisoner of war, who had escaped after passing through a period of marked mental stress, presented characteristic papules on the flexor surfaces of the arms and forearms as well as the trunk. Repeated and thorough treatments with arsenic and mercury both by mouth and subcutaneously, as well as local applications, failed to ameliorate the condition. Roentgenograms revealed apical abscess of a molar tooth. A few weeks after this he received proper surgical treatment, the lesions resolved and although a year now has passed there has been no recurrence.

CASE 2.—Mrs. B., a stout woman, of nervous temperament, who was easily fatigued and easily irritated, presented marked papules on flexor surfaces of the legs and inner aspect of thighs, accompanied by severe paroxysms of itching. When referred to me the usual general and local remedies had been employed without avail. Roentgenograms revealed a definite abscess about a molar tooth which was removed. Following this treatment the patient went on a vacation to the country and in two months the cure was complete.

CASE 3.—A. M., a middle aged man inclined to obesity, a heavy eater and smoker and a moderate drinker, presented a papular eruption on the outer aspect of both legs. Some of the lesions were discrete and some had coalesced into infiltrated patches the size of a 25-cent piece. The treatment consisted of restricted diet, avoidance of alcohol, tobacco and all stimulants, together with the internal administration of red mercuric iodid and the local application of the ultraviolet rays. Although the roentgenogram had revealed definitely abscessed areas about two teeth, the patient demurred when treatment of them was proposed. Under the treatment noted some improvement was registered, but a cure did not follow, and when later the treatment was relaxed an exacerbation occurred. On resumption of the treatment, improvement was again noted and the patient desired further delay before undergoing treatment for the abscesses of the teeth. When last observed the lesions, then of some six months' duration, were still apparent.

CASE 4.—Mrs. H., a young woman with inclination to overweight and a somewhat nervous temperament, complained of widespread lichen planus papules involving the flexor surfaces of wrists and arms, the trunk, legs and thighs. When the possibility of tooth trouble was suggested it was promptly and vehemently repudiated on the ground that she had just paid a dentist \$600 for professional services. Nevertheless, a series of roentgenograms was made and six infected areas were disclosed. The subsequent recommendations of a dental surgeon called for such radical treatment that the patient elected to suffer from lichen planus rather than undergo the surgical treatment indicated. The lesions, which were acute in type, responded in about ten weeks to treatment with red mercuric iodid internally and calamine lotion externally.

* Read before the Section on Dermatology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

CASE 5.—Mr. A. was a middle aged man with classically arranged whitish papules on both lateral walls of the buccal cavity. This patient presented palpably diseased conditions of the teeth with pyorrhea. He came from a distance, was seen once only, and was advised as to treatment of teeth. Results not known.

CASE 6.—J. R., a man, aged 30, by occupation an electrician, presented typical lichen planus papules of both forearms. Examination of the teeth revealed an abscess of a crowned bicuspid tooth. Treatment of this condition was recommended, but the case could not be followed further.

CASE 7.—Mrs. A., an elderly woman, with no evidence of nervous temperament, complained of a papular eruption on the hands and wrists of one month's duration. Although several stumps of infected teeth were present, no treatment of them was attempted, because the lesions resolved under the internal administration of red mercuric iodid.

CASE 8.—Mrs. G., a middle aged woman of exceptional tranquillity and poise, came with characteristic papules of hands and forearms. Itching was severe. Rather prompt disappearance of lesions followed the use of biniodid of mercury. In one year there was a recurrence and the same treatment was not effective. On this occasion an abscessed tooth was found and treated. Recovery followed in a few weeks.

IMPORTANT FEATURES OF THESE CASES

Now an analysis of the general factors involved in these cases would possibly not vary greatly from that of a much larger series.

As to age, no patient was under 30; the average was about 45. The number of men and women was exactly the same. In only one patient was there history of marked emotional disturbance. Of the four women concerned, only two were to be classed as "nervous," while of the men not more than one would fall into that category, so that the proportion of those palpably nervous is possibly no greater among those suffering from lichen planus than in those free from it, at least as far as this series reveals.

The question of age is of additional interest because it is a common observation that lichen planus is rarely observed before the first two decades of life are passed. This squares perfectly with the assumption that it may originate in a tooth infection, for such infections occur with relative infrequency in those under 20 years of age.

SOURCES OF ERROR

In attempting to prove a connection between any condition whatever and tooth infection, certain definite principles must be established. Several years ago in one of the section discussions one of the members remarked that only a certain small percentage of some skin disease in his practice showed evidence of tooth infection. It has occurred to me many times since then that had he based his conclusions on data procured in the same way that I was procuring mine at that time, the results might reasonably be expected to have been even less convincing. When the conception of focal infection first became widespread it was my custom to inquire of the patient's dentist if there was a possibility of any infective area about the teeth. The percentage of positive reports was so small and negative reports were so often rendered, only to be nullified later by roentgenograms, the fixed rule became soon established that only work from approved laboratories was considered as having significance, and the opinion of no dentist was given any weight unless good evidence was at hand as to his qualifications to approach the subject from a truly surgical point of view.

The mere statement of a patient's dentist that there is no focal infection is insufficient; his statement may be correct, but in no case can the question of infection be conclusively settled without roentgenograms. Again, the fact that a patient claims to be toothless, except for the artificial variety, need not be convincing, for the reason that hidden stumps may be revealed under the searching eye of the roentgen ray.

Still another source of error is found in the failure to obtain cure after admittedly infected teeth have been extracted. I have had occasion to observe the unfortunate results which followed in several instances when such teeth were "pulled." By reason of the unsurgical procedure certain infective elements were left behind and these combined with the trauma caused the development of a secondary infective process of greater severity than the primary one.

In this connection it is gratifying to point out the work that is being done by Novitzky,¹ who takes the stand that any dead tooth left in the body will sooner or later become a source of local or systemic infection. Recently he has emphasized two points: (1) A micro-organism, a poisonous protein, or a toxin introduced into the blood stream by way of cancellous bone would be more active than would be the same amount if introduced into the stomach, and (2) on account of ills resulting from the retention of dead teeth in the jaws and on account of the impossibility of rendering dead teeth permanently aseptic we must conclude that teeth should not be devitalized.

Novitzky's technic for the removal of dead teeth is partially described as follows:

Under local anesthesia the gums and the periosteum may be cut loose and retracted along the entire side of the jaw if this is necessary in order to gain space for operating. If the gums are carefully sutured back in normal position against the teeth, reattachment will take place. Ordinarily it is sufficient to cut a triangular flap with the apex pointing to the gingival margin of the tooth to be removed. This flap is raised and held back. Enough bone is removed with the chisel to give access to the apical region. The tooth may be hooked out sidewise, either before or after the apical exploration and curettement, depending on whether or not the entire root length of the buccal plate has been removed. The external periosteum flap is pulled into the opening at completion of the operation with a suture.

The advantages of this technic are: The avoidance of fractures, the opportunity for complete curettement, the avoidance of septic bone, granulating and low grade suppuration.

This may appear as a digression from our subject. Its vital relation, however, will be felt by those who have had the unpleasant experience of seeing their patients grow worse instead of better on removal of dead or diseased teeth simply because the dentist to whom the work was entrusted did not base his procedure on sound surgical principles. Its importance in relation to the etiology of any disease lies in the fact that if we believe the infective focus removed clearly, when in reality it is more septic than ever, we are certain to entertain false opinions as to its relationship with the disease in question.

CONCLUSIONS

1. In the study of a limited number of cases the only constant factor was tooth infection.

2. The rôle played by the nervous system remains to be determined.

¹ Novitzky, Josef: Dead Teeth, New York Med. Jour., 1918, 107, 548.

3. Great care must be exercised in the diagnosis of infected teeth and the results of operation should not be used as the basis of statistics or opinions unless performed by a competent surgeon.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. RAVITCH AND STEINBERG, AND CHIPMAN

DR. RICHARD L. SUTTON, Kansas City: I have been impressed with Dr. Chipman's conservatism. I want to call attention to an excellent monograph on focal infections by Duke, which is just off the press. In it you will find a lot of information on many obscure points. Of course we are interested in focal infection mainly from a cutaneous viewpoint. Recently, in an aged man, suffering from chronic pemphigus, we found eleven apical abscesses; after these had been eradicated and the patient's mouth thoroughly cleaned up, the skin lesions promptly disappeared under the use of simple, soothing applications, and there has been no recurrence during a period of several weeks. In my opinion, all cases of discoverable focal infection should receive prompt attention, even though there is no traceable connection between them and the disease for the relief of which the physician is consulted. In acne, particularly, you will find that the removal of a pair of badly infected tonsils will often prove a long step toward bringing about the cure of the cutaneous disorder.

DR. KING SMITH, Toronto: The procedure now in force in the Army affords a good opportunity to see these cases. Every man in the hospital in France and in other places has his teeth examined. This is a routine examination made by the dental department, not the thorough examination with the roentgen ray. There is no class of men whose teeth are so bad as the British Tommy; he has pyorrhea and every other kind of trouble. In a hospital where 21,000 passed through, skin diseases were very rare, except for pus infections. The British Army probably had only one dentist to 1,000 men, whereas the American and Canadian armies have a dentist for every 500 men; so the teeth are being well looked after. With so much focal infection of the teeth I was interested to see so little skin infection. As to infection from suppurating sinuses, throughout the Canadian Army last year a large percentage of returned men had a dermatitis resembling an eczema. We began to examine them by different methods and soon it was noticed that practically all had returned on one hospital ship. Word came that every suppurating case coming into that port must have swabs taken and a bacteriologic examination made. It turned out to be a diphtheritic infection. There was no diphtheria on the ship, but all these cases were due to this bacillus, when there had been no sign of diphtheria for months, and all came from this one hospital ship.

DR. JOHN E. LANE, New Haven, Conn.: I am a firm believer in the clean mouth and in the removal of pus wherever it may be found. However, I do not think that we yet have sufficient evidence for believing that focal infection is an etiologic factor in all the diseases that have been mentioned. It seems to me that in deciding the etiologic importance of focal infections a lot of rubbish must be cleared away before we get down to the productive soil of conclusive experiments. Focal infection does not always necessarily affect the general health. One important question is whether the infection is confined under enough pressure to cause absorption. The wall of an abscess is a very poor organ of absorption, but if it is confined and under pressure there undoubtedly will be some absorption though it is frequently difficult to decide whether this is taking place. It is evident that in many cases of pyorrhea with free drainage there is little or no absorption and no constitutional symptoms of absorption. All the patient is getting is pus and bacteria, which he swallows and digests, with health which is astonishingly good under such filthy conditions. A much better absorptive surface is offered by the tonsils than is found in pyorrhea. It is more difficult to determine the rôle played by apical abscesses. I am not at all convinced whether focal infection is or is not an etiologic factor in any of the conditions discussed. I am convinced that there is an etiologic relationship between focal infections, especially of the tonsils and of the teeth, and many of the arthritides.

DR. FREDERICK G. HARRIS, Chicago: I am not yet convinced of the rôle that focal infection plays in the etiology of all these various dermatoses. If we assume that these infective foci contain any of possibly half a dozen different organisms, we find that these few micro-organisms can cause very many different diseases, varying in type from eczema to pemphigus and from lichen planus to dermatitis herpetiformis. I think it is time for us to get down to true scientific work. Why have not the various organisms been isolated and identified? Let us see if the same disease supposedly due to apical abscess shows the same bacteria as the abscess. Then, let us study the metabolic products of these bacteria both chemically and in their effect on the skin. It seems to me that focal infection is an accessory after the fact and not before.

DR. M. SCHOLTZ, Cincinnati: A sufficient number of cases has been reported to establish firmly the causative relationship of focal infection to skin diseases. However, focal infection should not be considered as the sole etiologic factor in all cases. Other pathogenic factors should be considered in possible correlation, all working, as it were, in a vicious circle. For instance, focal infection may induce skin anaphylaxis due to proteids of bacteria or their toxins; this in its turn may affect the system of endocrine glands with a new train of symptoms. In regard to lichen planus, there is no question that some of the cases may be traced to focal infection, but why should we limit the sources of it to teeth and tonsils only? On the other hand, the fact that the patient improves after the removal of a focal infection does not always establish the causative relationship. The patient may get well simply because after a weakening or toxic effect of an infected focus had been removed, the system may regain vitality enough to combat other coexistent pathogenic factors which may be present in the case.

DR. EVERETT S. LAIN, Oklahoma City: I am still largely of the opinion that the field of focal infections in dermatology is quite limited. I have observed, as have Dr. Chipman and Dr. Ravitch, the various skin lesions in connection with focal infections in a casual way also, and have tried to follow one certain disease for several months, studying the cases carefully. Again, I want to stress what has already been said, that the mere passing on the mouth by the dentist is not at all confirmative, especially if that dentist is the one who has put the crowns on the teeth or done the bridgework. It is always more satisfactory to have the roentgenographic work done in one's own office than to depend on somebody else on account of the various angles which are needed for correct diagnosis. My experience with urticaria has not been positive in regard to focal infection. In lupus erythematosus I suggest that if every case is carefully noted I think we shall see that this disease also bears a very close relation to focal infection. With reference to zoster sometimes being caused by arsenic, that is an established fact, but could that not be an exacerbation due to the breaking up or scattering of these toxins, the same as we have seen in the secondary stages of syphilis after giving arsenic? The extraction of a tooth often lights up the trouble, as has been mentioned.

DR. DAVID LIEBERTHAL, Chicago: I wish to call attention to the familial occurrence of lichen planus, which strongly suggests infection as a cause. There are about thirty cases on record which showed simultaneous appearance of the disease in two or more members of the same family. The theory of focal infection has created a great deal of enthusiasm and confusion and caused many patients to lose teeth unnecessarily. If methods could be devised to drain pus foci around teeth without sacrificing the latter, no harm would be done nor adverse criticism heard to focal infection around teeth being offered as an etiologic factor.

DR. J. S. EISENSTAEDT, Chicago: In the discussion of lichen planus I am traveling on thin ice, for the reason that my results are less favorable in the treatment of lichen planus than any other disease. I have treated lichen planus in professional wrestlers, who are not of a nervous type. Several years ago I had patients whose parents had syphilis. I thought I saw a relation, but the patients had negative Wassermann reaction and it was probably only a coincidence. I have obtained results by giving mercury internally or by

injection; I have also had results from arsenic—Fowler's solution, or sodium cacodylate, or sodium arsenate, and then again other cases did not respond to that treatment. Among other cases seen recently was a case in which the teeth were very bad and I had them removed. Afterward I used mercury and arsenic, but the improvement was very slow. I believe that lichen planus is still mysterious as regards its etiology, and equally so as regards the prognosis from the usual types of therapy.

DR. K. A. ZURAWSKY, Chicago: Dermatologists have been very unjustly accused of splitting hairs regarding the classification of diseases, and now we are going to the other extreme and generalizing everything under one head. I would like to make a few objections. In the first place, to say in the twentieth century and the present status of dermatology that certain diseases are due to "focal infection" without stating what that infection is, is bearing a little bit too hard on one's credulity and powers of imagination. There can be and there are some skin diseases which are due to infections; but we cannot expect that the cleaning out of an apical abscess or the taking out of the tonsils will remove all the causes of the half-dozen or dozen, or two or three dozen different diseases. Our friends, the dentists, who have started so much of the talk about focal infection, have given us the idea about focal infection, but have not told us of what that infection consisted. They have told us of the staphylococcus and streptococcus and other bacteria, but have never isolated any one of them, and until they do we should not talk of focal infection as a definite factor. Dr. Scholtz mentioned some of the ductless gland disorders that might be considered as the cause of local reaction. I think anything of this kind may exaggerate the patient's condition, whatever may be the etiologic factor.

DR. JOHN H. STOKES, Rochester, Minn.: Focal infection certainly impresses one as having been the stamping ground of the *post hoc propter hoc* type of clinician. The conservativeness of Drs. Ravitch and Chipman's papers is therefore eminently praiseworthy. Much experimental work is still needed before any of us can feel that the subject has passed beyond the realm of speculation. The mere fact that a lesion clears up following the removal of an abscessed tooth or the use of a vaccine is not yet to be accepted as a demonstration of the causal relation of the abscess or the specificity of the vaccine therapy. Speaking purely as a clinician, I have been much impressed by the apparent relationship between the foci of pyogenic infection in the teeth and tonsils and the generalized exfoliative type of dermatitis. I think a similar type of relationship may exist between pemphigoid eruptions and foci of infection. Several of my cases have seemed to respond exceptionally well to measures directed at a definite focus. I have even seen cases of alopecia areata come on abruptly following unintelligent dentistry and clear up after the removal of abscessed teeth. It must be obvious to any one with even a modicum of critical faculty that argument of this type does not justify sweeping statements at the present time.

DR. WALTER J. HEIMANN, New York: I have seen some remarkable cases that have cleared up in the same way that Dr. Stokes has mentioned. There is something about focal infection, but what? We are talking about it as being the etiology of skin diseases of a certain type. Everybody here has said that it is not. It may be a contributing factor, and we might look for the prostate gland, the fallopian tubes, the appendix, etc. I protest against the classification of diseases furnished by Dr. Lain. We know that rosacea is due either to gastrointestinal disturbance or to disturbance of the internal organs. This has been proved definitely. As to lupus erythematosus, while we do not know what it is, I am perfectly willing to concede that some cases may be due to focal infection, whatever that may be. I must enter a protest, however, against herpes zoster. We know that that is a definite clinical entity. A man has one attack and is immune. After the herpes zoster has disappeared the focal infection remains. Is it possible for the etiologic factor to cause a disease, the disease disappear and the etiologic factor remain? I think that is one of the greatest absurdities, and I wish that sort of reasoning could be eliminated from scientific discussions.

DR. MICHAEL L. RAVITCH, Louisville, Ky.: I have not changed my opinion in the least. I am very conservative about focal infection and I do not believe that so many dermatologic cases are due to focal infections. I am in the middle of the road and trying to learn the true facts.

DR. ERNEST D. CHIPMAN, San Francisco: We seem to be in the process of being swept by a wave of skepticism. Dr. Harris seems to feel that we should have a lot of experimental evidence in support of certain facts. If a man with diabetes is thirsty, you do not have to go to the laboratory to prove it. If a patient has a tapeworm, we need not go to the laboratory to know that he is hungry. I wish you to consider the connection of focal infection. I do not like the attitude of *laissez faire* in connection with our treatment of skin diseases. I submit that it is time to make an effort to do something constructive. If we cannot support our facts in a clinical way, let us at least do a little reasoning. I do not subscribe to Dr. Heimann's remarks regarding herpes zoster. Ample work has been done there. If one will read the work of Rosenow and Billings he will find that the same kind of organisms have been found in these lesions as in the nerves. It seems to me that if anything has been proved it is the connection between herpes zoster and erythema nodosum. A more extensive study may change my opinion, but at present, it is sure, we cannot ignore it. If we do, it is like an ostrich putting its head in the sand.

Dr. Ravitch spoke as if I was claiming that psoriasis was caused by focal infection, which was not the case. A year ago I reported seven cases of psoriasis that had a focal infection. I gave that simply for what it was worth. Since then I have had a case of psoriasis in which we found two abscessed teeth. They were extracted, the external treatment remained the same and the disorder cleared up. Within a month's time he had a recurrence. That did not square with the fact. The patient said he was sure he still had trouble with the teeth and another examination showed that this was the case. I do not say that psoriasis is caused by focal infection, but in these cases, if the patient has pus which is being absorbed slowly, or which is confined, we do not do our best for that patient if we ignore it. I think we are all agreed that we should do our best for our patients in every way.

As to lichen planus, I am not claiming that focal infection is a definite etiologic factor in this disease, but that it has been present in all the cases that I have seen.

ROENTGENOGRAPHIC STUDIES OF TISSUES INVOLVED IN CHRONIC MOUTH INFECTIONS *

ARTHUR D. BLACK, A.M., M.D., D.D.S.
CHICAGO

In a paper¹ presented before this section at the New York meeting last year there was included a tabulation covering a critical examination of 3,000 roentgenographic films of the teeth and adjacent bone of the mouths of 300 adults. During the past year these studies have been continued with results that very closely parallel the previous figures. The present tabulation, which includes that of last year, covers 600 roentgenographic mouth examinations, for each of which ten small films were made—a total of 6,000 films.²

The object of this study is primarily to determine as nearly as possible the average percentage of chronic mouth infections, which are of two types: (1) those that begin with inflammations of the gingivae and

* Read before the Section on Stomatology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Black, A. D.: Roentgenographic and Microscopic Studies of Tissues Involved in Chronic Mouth Infections, *THE JOURNAL A. M. A.*, Aug. 25, 1917, pp. 599-602.

2. The 6,000 films, mounted, were exhibited in connection with the presentation of this paper.

progress along the side of the root toward the apex, destroying the peridental membrane and adjacent alveolar process—chronic suppurative pericementitis; (2) those which, subsequent to the death of the pulp of the tooth, cause a destruction of the bone about the apex of the root—chronic alveolar abscess. Secondary to the foregoing, other data are being compiled, such as the existing relationship between these mouth infections and the general health, the number of teeth present at various ages, the number of teeth having root fillings, notations as to whether the root fillings are good or poor, and the frequency of alveolar abscess about the apexes of well filled and poorly filled roots. These studies are therefore considered to be of fundamental importance from two points of view: (1) that of chronic mouth infections as a cause of systemic disease, and (2) that of the dentist's technic in pulp treatment and root filling in relation to the occurrence of alveolar abscess.

An effort has been made to take roentgenograms of the mouths of persons as we meet them on the street, that is, without previous inquiry as to the condition of their mouths or their health, in order that our figures may represent average conditions. The 600 persons included in the tabulation consist of about 300 dental students, about fifty Dental and Medical Reserve Corps officers, about fifty of my own patients, and patients applying for dental service at Northwestern University Dental School. It is believed that the figures represent very close to average conditions for persons of less than 40 years of age, but the number of infective foci in persons past 40 is doubtless too high, because there are included a few who presented themselves because of systemic conditions that called for mouth examination.

Of the 600 adults examined, 78 per cent. are shown by the roentgenograms to have definite areas of bone destruction about the teeth. If we make every possible allowance for variations from the average which these 600 cases may represent, the fact remains that a high percentage of adults have chronic infections involving the maxillary bones. With our present knowledge of focal infections in relation to systemic disease, these mouth conditions constitute a serious menace to the health-producing power and longevity of the people.

AREAS OF CHRONIC INFECTION

The accompanying tabulation records areas of chronic infection about the teeth, in 57 per cent. of persons aged from 20 to 24, 64 per cent. aged from 25 to 29, 88 per cent. aged from 30 to 39, 90 per cent. aged from 40 to 49 and 98 per cent. aged 50 or more. As previously mentioned, the percentages for persons past 40 are too high because of the fact that a number of those included in the tabulation presented themselves on account of their general physical condition. Attention is also called to the fact that a considerable number of persons past 40 who are edentulous are also free from these infections. None of these were included in this study.

The areas of destroyed bone are given in two groups, under the headings "peridental infections" and "alveolar abscess." The term "peridental infections" is used here to cover all areas of bone destroyed along the sides of the roots of the teeth, from suppurations beginning in the gingivae. The term "alveolar abscess" covers all areas of bone destroyed at the apexes of roots, subsequent to the death of the pulps of the teeth.

The peridental infections are very seldom found in the mouths of persons of less than 20 years. They are to be considered as lesions of adult life only, which are more frequent with advancing years. For the group between the ages of 20 and 24, 13 per cent. had infections of this type; those aged from 25 to 29, 29 per cent.; those aged from 30 to 39, 68 per cent.; those aged from 40 to 49, 77 per cent.; those aged 50 or more, 88 per cent. These percentages alone do not tell the full story, as in addition to the increase in the number of persons with advancing years, there is also an increase in the number of areas per person, from four per person of those affected between the ages of 20 and 24 to ten per person in those aged 50 or more.

Alveolar abscesses are found in the mouths of persons of all ages. It would be expected that the number would increase with age, except for the fact that the number of abscessed teeth extracted serves to maintain a balance. In the present tabulation for persons aged from 20 to 24, there are recorded 52 per cent. who have abscessed teeth; for those aged from 25 to 29, 51 per cent.; for those from 30 to 39, 63 per cent.; for those from 40 to 49, 59 per cent.; for those of 50 or more, 50 per cent. The number of abscesses per person does not vary much with age, the average being 2.6 per mouth for those aged from 20 to 24 having abscesses, and the same for those of 50 or more. The lowest was 2.2 abscesses per person for those between the ages of 30 and 39. It is very interesting to note that last year's tabulation of 300 persons showed 59 per cent. with alveolar abscess, while for the 300 added this year only 41 per cent. had alveolar abscess. It is believed that this difference represents in some measure the better realization of the danger of these infections to health, with the result that a larger number of infected teeth have been extracted. No attempt has as yet been made to determine the percentage of abscesses in the mouths of persons of less than 20 years of age.

RESULTS OF QUESTIONNAIRE

It was not practicable to make thorough physical examinations of these patients, and only a limited number of reports of such examinations were obtainable. The effort was therefore made to secure by a questionnaire the best possible information as to the physical condition. Inquiry was made as to enlarged finger joints, muscles or joints which were occasionally painful, condition of the nose and throat, inflammation of eyes, attacks of appendicitis, etc. It is appreciated that this information is not very reliable, as it does no more than give a general idea of the health of the persons examined. Of the 501 included in the questionnaire, 363 are reported as entirely negative as to secondary systemic disorders, seventy-two complained of occasional muscular or joint symptoms, and sixty-six reported well defined cases of arthritis, nephritis, appendicitis, etc. Forty-two, of the last group of sixty-six, were persons of 40 years or older and a considerable number of these presented themselves because of their physical condition. None were hospital cases. The principal value which these figures on systemic conditions give to the tabulation is in showing that the large majority of those examined were in good health, from which fact we may conclude that the number of areas of infection reported are not likely to be far astray in the establishment of

average figures, with the exception, already noted, of persons past 40.

The average number of teeth per person is an indication that the mouths have probably had average care by both patient and dentist. It is noted that for the 411 persons in the three groups covering ages from 20 to 39, there is an average of twenty-eight teeth. As the third molars are not constant in development, there is an average loss of less than four teeth per person up to 39 years.

ROOT CANAL FILLINGS

A feature of this tabulation of especial interest to dentists is the occurrence of alveolar abscess in relation to good and to poor root canal fillings. For this study the roots of the teeth were divided into two groups: those having large canals and those having small canals. This division was made because of

all teeth having good root fillings, and 63 per cent. abscessed of all teeth having poor root fillings. Doubtless some in both groups were abscessed before the root fillings were made. It seems that no better argument could be found to induce dentists to be more painstaking in their root filling technic, for here is the opportunity to reduce the total of alveolar abscesses to about one fifth of the present number—an effort very well worth while.

It should be stated that we have been very liberal in classifying these root fillings; if we have erred it has been by placing an excessive number in the "good" columns. It is appreciated that it is not always possible to determine the condition of a root filling by examination of a roentgenogram. Fillings were classed as good if the root apex was apparently filled, or, in those cases in which the root filling did not reach to the apex, if no canal was discernible beyond the root

TABULATION FROM 6,000 ROENTGENOGRAPHIC FILMS OF TEETH AND ADJACENT BONE IN MOUTHS OF 600 ADULTS *

Age	Number	Systemic Symptoms				Average number teeth per person	Periodental Infections			Alveolar Abscess			Summary	Root Fillings			Large Canals			Small Canals			Alveolar Abscesses						
		No History	Negative	Complaint of occasional muscular or joint symptoms	Well defined cases, arthritis, nephritis, etc.		Number of persons, some bone destroyed at sides of roots	Percentage having bone involved	Average number of infections per person for entire number	Number of persons, some bone destroyed at apexes of roots	Percentage having bone involved	Average number of abscesses per person for entire number		Number of persons having periodental or apical infections or both	Percentage of persons having infections of maxillary bones	Number of persons having root fillings	Total number teeth with root fillings	Percentage of all teeth having root fillings	Number of root apexes not clearly shown	Number of good root fillings	Number abscessed with good root fillings	Number of poor root fillings	Number abscessed with poor root fillings	Number of good root fillings	Number abscessed with good root fillings	Number of poor root fillings	Number abscessed with poor root fillings	Total abscessed with root fillings	Number abscessed, no root fillings	Total abscessed
20 to 24,...	146	9	120	11	6	29.5	18	13	0.6	77	52	1.4	89	57	103	357	8.6	72	85	10	120	83	42	2	88	71	166	43	209
25 to 29,...	119	9	90	14	6	28.5	34	29	2.0	60	51	1.3	75	64	83	338	9.8	60	54	8	111	66	41	4	60	45	123	49	172
30 to 39,...	146	30	79	25	12	26.5	101	68	5.7	92	63	1.4	119	88	116	504	13.0	89	94	8	168	95	46	4	107	90	197	35	232
40 to 49,...	111	29	51	13	18	24.0	87	77	7.1	65	59	1.5	100	90	80	329	12.0	74	60	2	117	75	28	7	42	41	125	36	161
50 and over	78	22	23	9	24	22.0	69	88	9.0	39	50	1.3	77	98	46	167	8.9	32	50	3	54	40	27	2	28	24	66	42	108
Totals...	600	99	363	72	66	26.5	319	53	5.0	333	55	1.4	469	78	428	1,695	9.8	344	343	31	570	356	184	19	413	271	677	205	803

Large Canals: Upper—central incisor, cuspid, second bicuspid, lingual roots of molars; lower—cuspid, first bicuspid, second bicuspid, distal roots of molars.

Small Canals: Upper—lateral incisor, first bicuspid, buccal roots of molars; lower—incisors, mesial roots of molars.

SUMMARY OF ABSCESSES IN RELATION TO ROOT FILLINGS

	Number Abscessed	
Good root fillings, large canals.....	343	31
Good root fillings, small canals.....	184	19
	527	50
Poor root fillings, large canals.....	570	356
Poor root fillings, small canals.....	413	271
	983	627
	1,510	677

* Percentage of abscesses for all root fillings, 45; for good root fillings, 9; for poor root fillings, 63.
The figures given in this tabulation are believed to be very close to average figures for persons under 40; for older persons they doubtless show a higher percentage of infection than the average.

the differences in technic required. The upper central incisor, cuspid, second bicuspid, and lingual roots of molars, the lower cuspid, the first and second bicuspids, and the distal roots of the molars were classed as having large canals. The upper lateral incisor, first bicuspid and buccal roots of molars, and the lower incisors and mesial roots of molars were classed as having small canals.

The roentgenograms showed 1,695 teeth with root fillings. This is 10 per cent. of all of the teeth in the mouths of the persons examined. Of these teeth, 344 were not included in the special study of root fillings, because the shadows were not sufficiently clear for positive reading. Each root of multirooted teeth was counted separately. There were recorded a total of 343 good root fillings in large canals, of which thirty-one were abscessed, and 570 poor root fillings in large canals, of which 356 were abscessed. For the small canals, there were 184 well filled, of which nineteen were abscessed, 413 poorly filled, of which 271 were abscessed. This gives only 9 per cent. abscessed of

filling. By this plan, all questionable fillings were given the benefit of any doubt.

CHANGES IN DENTAL PRACTICE

The effect of the study of these cases is well shown by the changes that have been noted in the clinic of Northwestern University Dental School. The roentgenographic service has been increased several fold as compared with a few years ago, a total of more than 17,000 films having been made during the past year. In the same period nearly 24,000 teeth were extracted, and the number of artificial crowns and bridges much reduced, while there has been a corresponding increase in the number of artificial dentures made for patients. This is an expression of the changes in dental practice throughout the country. A constantly increasing number of dentists are coming to realize that it is their positive duty to free the mouths of patients from infection, even though this requires the extraction of a number of teeth. But what is of much more importance, there is a deter-

mined effort on the part of many to use every possible means of preventing the occurrence of these chronic mouth infections, and those who have seriously undertaken to do so are meeting with a large measure of success. This is preventive dentistry that is worth while, for it is cutting off at the source much systemic disease.

ABSTRACT OF DISCUSSION

DR. EUGENE S. TALBOT, Chicago: Dr. Black speaks of so many cases of root filling and then so many abscesses. I would like to have him tell how he knows these are abscesses. My researches have shown that we must classify, that we must know exactly what takes place at the roots of the tooth. Many of these cases that are called abscesses are not abscesses. They are simply absorptions. In all these experiments that I have been doing the last three or four years, with the microscope, destroying pulps of teeth and then immediately conducting the different drugs that we use through the ends of the roots of the teeth, this sequence invariably takes place. The irritation produces an absorption of the alveolar process. It depends on the amount of the irritation as to where that absorption stops. If it is a slight irritation, the absorption of bone will take place and fibrous tissue will remain around the end of the root of that tooth. That absorption may or may not be very extensive. If the irritation is more severe than what I have just mentioned, the fibrous tissue will be destroyed around a certain area, and that absorption and destruction of fibrous tissue takes on the appearance of what is called an abscess under the roentgen ray. I have noticed that many cases which presented conditions that were considered abscesses were not abscesses, but simply absorptions of the alveolar processes and roots and destruction of the peridental membrane at the end of the root of the tooth. If the irritation is still greater, with infection, so that even the fibrous tissue is destroyed, an abscess will form. There are three conditions or stages which we must understand and classify by the roentgen ray. I have not been able to classify these with the roentgen ray. We must first examine the case with absorption in order to show the three different conditions that take place. I want Dr. Black to explain these three different conditions, if he can, and why he calls all these cases abscesses. The other condition is where the fibrous tissue will remain after the absorption of bone. The next is where the irritation and infection are so great that an abscess will form. First, there is absorption of bone and root. The peridental membrane still remains because there is not sufficient irritation to produce a destruction of the peridental membrane and fibrous tissue. Second, the peridental membrane and fibrous tissue are destroyed without an abscess forming. Third, the fibrous tissue remains around the root of the tooth and an abscess forms in this fibrous tissue and remains after absorption of bone has taken place. These are the three actual conditions that occur and are seen with the microscope.

DR. THOMAS L. GILMER, Chicago: I am in accord with Dr. Talbot's statement that there is in some instances, indication of absorption of the process when no infection exists. After examining roentgenograms, we are sometimes left in doubt, whether abscesses exist or not. There may be a very limited area of bone destruction followed by a thickening of the pericementum when no infection exists. I am of the opinion, however, that in the majority of these cases the areas are infected. My reason for this belief was strengthened by my study of the bacteriology of alveolar abscess. I extracted a large number of pulpless teeth and secured the *Streptococcus viridans* from almost all cases, when the roentgenogram showed rarified areas. Alveolar abscess, when some of the apical peridental membrane has been destroyed, may be cured temporarily by sterilization of the root canal, but it is for a very limited period, because there will be reinfection sooner or later through the organisms being carried to the dead cementum by the blood stream.

DR. ARTHUR ZENTLER, New York: Whether or not the roentgenogram can be relied on to tell the condition present at the apical end of a root is not established. While some

doubt has been expressed here as to whether there is or is not an abscess when the roentgenogram indicates absorption, there remains to be shown whether when the roentgenogram does not show absorption, that there actually is no pathology. I have been impressed with this unreliability. Experiments which I carried on to establish whether conservative (electrolytic) treatment is sufficient to cure pathologic conditions at the apexes of roots, or whether apicoectomy is necessary to obliterate the infection, have resulted in the following: First, teeth which were treated conservatively and which in the roentgenogram showed no absorption, were apicoectomized several months after treatment and the cultures have yielded streptococci. Second, the same areas were cultured four or six months later under the same condition as for doing a root amputation, and although the roentgenogram indicated absorption (due to repeated surgical interference), cultures made from scrapings yielded no bacterial growth. To my mind this shows that lack of absorption in the roentgenogram does not indicate sterility, nor does the presence of absorption indicate infection at the end or around the root of the tooth.

DR. FREDERICK B. MOOREHEAD, Chicago: The work that Dr. Black has done in his report is reassuring in that it confirms the fundamental things we have believed for some time. I examined 500 cases at the Presbyterian Hospital, Chicago, and reported my results to this section two years ago. My findings were essentially the same as those reported by Dr. Black. Considerable experience and study is required in the interpretation of roentgen films of the jaws, and even to the experienced there will be surprises now and then in the amount of pathology that will be found clinically which did not appear in the film. It must be borne in mind always that the roentgen ray is a relative agent, and while it is the most important factor in diagnosis, it requires experienced interpretation. The fact that one frequently finds more pathology on the removal of a tooth than is indicated by the roentgen ray should make us very careful in concluding from a roentgenogram that a tooth is safe.

As Dr. Gilmer has suggested, there are cases in which it is very difficult to differentiate between a dangerous focus and one that probably is not dangerous. These difficult cases, however, are more or less limited in number and the majority of films indicate conditions about which we may be more or less dogmatic. We found one very striking thing in our patients in the Presbyterian Hospital in noting that there was not a great deal of difference between the ward patient and the private patient in the number of mouth involvements. This is probably due to the fact that the poor people have troublesome teeth extracted while those of means have root canal treatment. We must all become convinced of the danger of chronic infection about the jaws and the necessity for the removal of all types of infection.

DR. CHALMERS J. LYONS, Ann Arbor, Mich.: We must not overlook the mistake that both the dental and medical professions are making today of relying wholly on roentgenograms. I am very much interested in Dr. Talbot's remarks that we should not consider the roentgenographic evidence alone. It is simply one method of making a diagnosis and I am wondering if in the report Dr. Black has made that some distinction might not be made between what he calls an abscess of the roots with poorly filled canals and an abscess of a root with well-filled canals. While the roentgenographic evidence would admit of some error, without a complete history of that particular operation, I do not see how he can classify a tooth with a perfectly or well-filled canal having an area of absorption as an abscess. If that is true, if they can be so classified, then our whole root canal work is in vain.

DR. WILLIAM C. FISHER, New York: I am very glad to hear one part of Dr. Black's report in which he studies the good and bad root fillings in order to differentiate them in reading his roentgenograms. He classifies them as cases with good root filling and those roots in which the filling did not go to the apex. This is the first time that I have seen or heard any one attempt to make that statement and I am very glad that Dr. Black has made it, because in that one point

I consider great advance has been made. Dr. Zentler's work is a step in the right direction, especially the manner in which he has investigated the bacteriologic findings. As Dr. Talbot and Dr. Lyons brought out, can we tell whether these areas that we speak of off-hand from roentgen-ray evidence as abscesses are really abscesses unless we have checked up this evidence with other work? Dr. Moorehead said the more we read roentgenograms the better are we able to interpret these facts. No mention has been made of the particular bacteria found other than what is usually found in these abscessed areas. It is a question in my mind as to just how much the system can stand in the way of the normal presence of *Streptococcus viridans* or, as Dr. Moorehead said, in the safe and dangerous zones of infection.

DR. ARTHUR D. BLACK, Chicago: I endeavored to present certain conditions that were shown by examination of 6,000 roentgenograms, and I believe I qualified that by saying that I presented tabulations of the areas of destruction of bone. Then I stated further that in order to simplify the presentation I called one group peridental destruction, and the other apical destruction. The main point I desire to impress is that over 75 per cent. of the people over 20 have destruction of bone about the roots of teeth.

I would base my judgment in deciding on the treatment of any case showing an area of destruction about the root of the tooth, on the extent of the detachment of the peridental membrane from the surface of the root. If the studies of the histologic function and pathologic changes which take place in these tissues are worth anything to us at all, they certainly tell us that where the peridental membrane has been detached and that detachment has been maintained for a time, there will not be a regrowth of this tissue. If there is a hole in the bone about the end of the root of the tooth, showing that the peridental membrane has been destroyed, then I would not bother to determine whether the area is infected or not, as it would not make a particle of difference in the treatment. If the area is not infected today it may be infected through the circulation tomorrow. I have no doubt that a considerable number of these cases go along for a long time without infection, but they certainly present ideal conditions for reinfection. Granting for the moment that by the use of drugs such an area may be rendered sterile, there could not be more than a very temporary advantage because there is no probability of reattachment of tissues to the root of the tooth. When the roentgenogram shows an area of bone destroyed immediately about the surface of the root, I believe it should be treated as though it were an abscess whether there is any infection or not.

There can be no question that the number of persons having infections of the bones about the teeth is very much larger than it ought to be. It must be less in the future, and the burden of reducing it is on the dental profession. At the same time, we must remind the members of the medical profession that there are many other regions besides the mouth in which original foci of infection occur. When we come to realize that 75 per cent. of adults have some infection of the maxillary bones, it seems that three out of every four persons, who go to the physician complaining of some systemic infection, have one or more of these areas in their mouths. I am afraid that too many physicians are jumping at the conclusion that the teeth are the source of the trouble, without making a thorough investigation of other regions, such as the nose and throat, the sinuses of the head, the mastoid, the gall-bladder, the genito-urinary tract, etc.

Every adult who comes to us should have a complete roentgenographic examination of the mouth. When each dentist takes on himself the responsibility of knowing that the mouths of his patients are free from infection, he will have made real progress in the prevention of systemic disease.

DR. WILLIAM C. FISHER: Do you believe that in any dead tooth perfectly filled or imperfectly filled you have this area whether it has been treated surgically or not?

DR. ARTHUR D. BLACK: It does not necessarily follow that because the pulp of the tooth dies the bone about the apex of the root will be infected. That is the natural thing to

happen, but I feel quite satisfied that it does not always happen, otherwise practically every tooth with a dead pulp should be extracted. We are requiring that a roentgenogram be made of every tooth that has a dead pulp before treatment is undertaken. We are getting many films of cases with dead pulps which show no destruction of tissue about the apex of the root. It is a question of following these up for a number of years by roentgenographic examination. My judgment is that there are many cases in which there is no infection beyond the apex of the root.

MALARIA ENDEMICITY OF THE RICE DISTRICTS OF LOUISIANA AND ARKANSAS

WITH SOME OBSERVATIONS ON TYPES OF MOSQUITOES BREEDING THEREIN

J. C. GEIGER, M.D., W. C. PURDY, M.S.

AND

LOU INA BATES, B.S.

Assistant Epidemiologist, Biologist and Microscopist, Respectively,
United States Public Health Service.

LONOKE, ARK.

The selection of a site for the establishment of an aviation field amid the rice fields of Arkansas offered an unusual opportunity for the study of control methods for malaria and types of mosquitoes found

MALARIA EPIDEMIC INDEX

Ages	Number Examined		Types of Infection									Total Infections, No.	Per Cent.	
			Tertian			Estivo-autumnal			Quartan					
	M.	F.	Total	M.	F.	T.	M.	F.	T.	M.	F.			T.
	Arkansas, January, Lonoke District													
1 to 10....	212	212	424	0	0	0	0	0	0	0	0	0	0	0.0
11 to 15....	216	216	432	0	1	1	1	0	1	0	0	0	2	0.4
15 and over	513	596	1,109	1	3	4	2	2	4	0	0	0	8	0.7
	941	1,024	1,965	1	4	5	3	2	5	0	0	0	10	0.5
Louisiana, April, Gueydan District														
1 to 10....	31	22	53	0	1	1	0	0	0	0	0	0	1	1.8
11 to 15....	33	15	48	2	0	2	0	0	0	0	0	0	2	4.1
15 and over	257	59	316	2	0	2	0	0	0	0	0	0	2	0.6
	321	96	417	4	1	5	0	0	0	0	0	0	5	1.1
Arkansas, May, Lonoke District														
1 to 10....	254	219	473	4	3	7	1	0	1	1	0	1	9	1.9
11 to 15....	77	114	193	3	2	5	0	1	1	0	0	0	6	3.1
15 and over	782	716	1,498	8	3	11	8	1	9	0	0	0	20	1.3
	1,113	1,049	2,162	15	8	23	10	1	11	1	0	1	35	1.6

breeding in this environment. We realized that the control methods must of necessity be of a varied character, but agreed that the control of the human carrier along with the mechanical protection of good screening were most important within the limits of mosquito flight. Therefore the initial step was a sanitary survey to correlate all methods in the 3 mile zone designated as the extracantonment zone. Eberts Field, Lonoke, Ark. This included the town of Lonoke, and work was begun in January, 1918. In addition, absolute control of the breeding of mosquitoes outside of the rice fields was to be sought. The area within which mosquito control measures were taken comprised approximately 12 square miles, the center of which is the aviation field and the town of Lonoke. In the west and south, in this district, rice is grown, the area under cultivation being 2 square miles. From the buildings of the aviation field, the first rice fields are at a distance of 1 mile on one side and three-fourths mile on the other, and just 1,500 feet from the field limits. Rice fields adjoin the town

of Lonoke on three sides, several being within the corporate limits.

MALARIA ENDEMICITY

The history of chills and fever for the previous summer gave a malaria incidence index which affords probable important data for the extracantonment zone, Eberts Field, and offers an interesting parallel to similar observations and the data obtained in the rice fields of Louisiana. The total incidence of malaria from history alone in the combined rural and town population in both the Louisiana and Arkansas districts is, curiously, the same, approximately 29 per cent. A slide endemic index (thick smears) taken in January, April and May gave remarkably low percentage results, as shown in the accompanying table.

Technic of Staining.—1. To 100 c.c. of ethyl alcohol, 1.3 c.c. of hydrochloric acid are added. The slides are placed in this solution for three or four hours, that is, until they become a ground glass color. They are rinsed in running water for five minutes. The time in acid is relatively dependent on the age of the blood smear.

2. (a) To 100 c.c. of distilled water, 3 c.c. of 1 per cent. polychromethylene blue solution are added. The slides are placed in this solution for four minutes and then rinsed in running water for one minute.

(b) To 100 c.c. of distilled water, 2.6 c.c. of 3 per cent. eosin solution are added. The slides are placed in this for one minute, and then rinsed in running water for one minute.

(c) The slides are dipped in the polychromethylene blue solution for one minute, and then rinsed in running water for one minute, dried and examined.

Meyer¹ reports almost a negative endemic index taken in the spring months in California. Kelly and Geiger,² working practically in the same district but in September, report an index of 4.7. When one considers the number of persons in the rice districts under our investigation giving a history of chills and fever for the previous summer and the small number proved positive on microscopic examination (thick

smears), then one can assume that there are several factors to be considered:

1. In an endemic index taken in the spring months, the number of carriers discovered will probably be small. An endemic index varying so much at different seasons is not indicative of true malaria conditions and never should be judged accordingly. Nevertheless, the discovery of carriers, though small, is evidently a potent factor in the malaria rate for the coming summer. This is borne out by the fact that up to Sept. 1, 1918, no new cases of malaria have been reported in the extracantonment zone, Eberts Field. Therefore the value of an endemic index is obviously limited to a human control measure in this investigation.

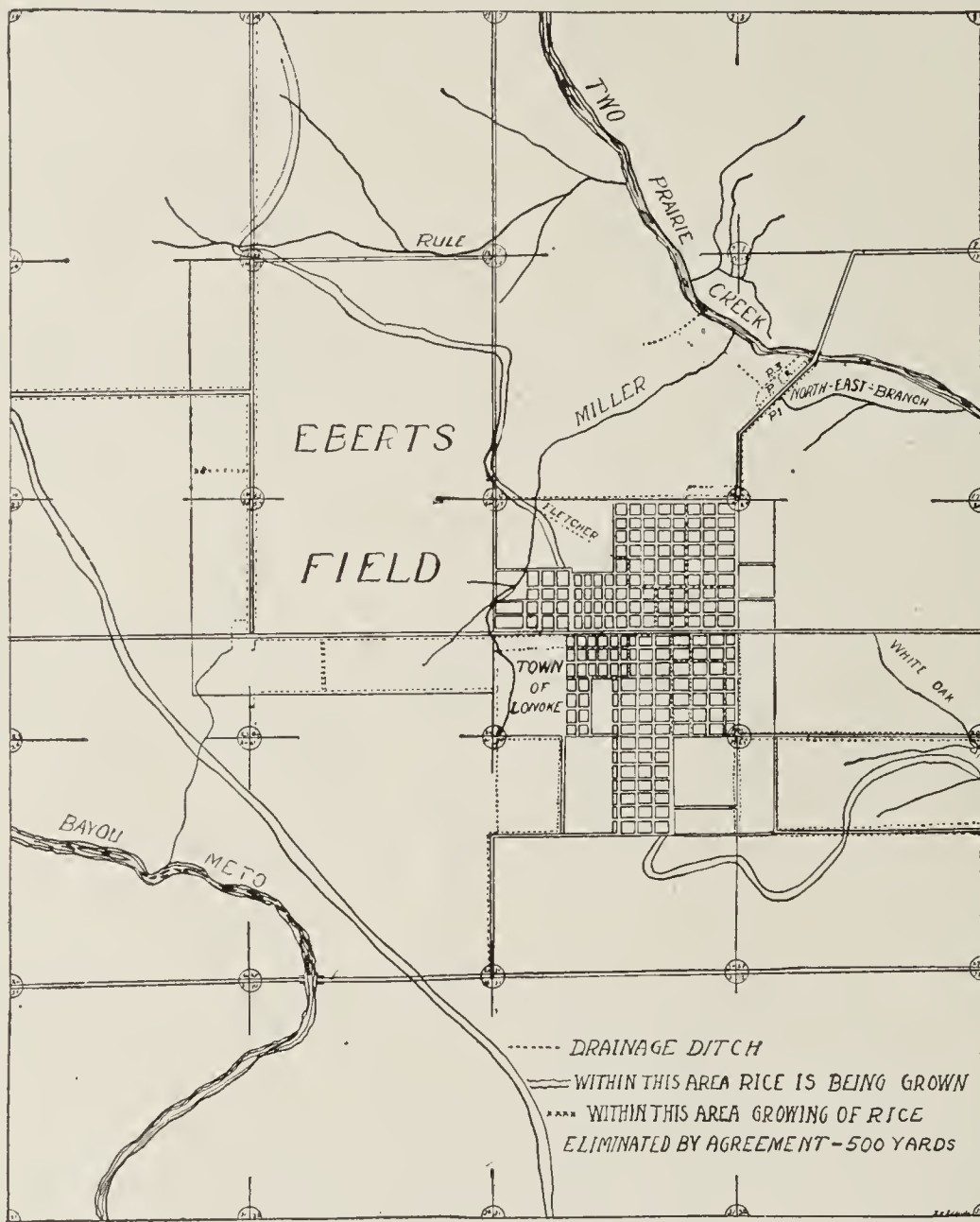
2. A history incidence index for the previous summer is not reliable if the microscopic index (thick smears) is to be taken as indicative of true malaria conditions, though several factors may influence the results, namely, the use of quinin as a preventive for common colds in winter and the constant use of chill tonics through the winter months, which is true of the Lonoke district from daily observations of druggist sales since Jan. 1, 1918.

3. The large number of patients having malaria, as judged by the history incidence index, were completely cured of the disease by attending physicians. We know this not to be true, the diagnosis never

being checked microscopically or the case followed to completion.

4. Temperature and season evidently have an effect on the malaria carrier rate.

The different results in the January and May indexes on the same persons illustrate the intermittence of the malaria carrier along with the seasonal variance even when we consider the possibility of our missing the plasmodia on examination. This point is forcibly brought out by the fact that three school-children whose blood was found negative in both indexes were proved positive carriers after having taken their initial dose of typhoid vaccine, the chill and rise in temperature almost immediately following. Two boys, aged 8 and 10 years, respectively, who



Extracantonment zone, Eberts Field.

1. Meyer, K. F.: Sources of Malaria in California, Tr. Commonwealth Club of California, San Francisco, 1916, 2, 22.

2. Kelly, F. L., and Geiger, J. C.: Endemic Index of Malaria in the Northern Sacramento Valley, California, THE JOURNAL A. M. A., May 5, 1917, p. 1319.

gave a history of chills and fever for three previous summers with a gradual cessation of active symptoms and whose blood smear was negative in the January index, were proved positive in the May index. Their blood examined daily for one month, no quinin being given, gave in one only two additional positive results and three in the other. The plasmodia in both instances could be considered very resistant to the stain.

Since this investigation started, there have been reported by physicians for Lonoke County 642 cases of malaria with one death. No reports are available or reliable for the previous years, and this number is probably indicative of true conditions. For instance, in the same period in the past year seventeen deaths (eighteen for the entire year) were reported as being due to malaria. The mosquito control, though perfect since March, 1918, in three other areas in Lonoke County and partially so in the extracantonment zone because of rice fields, cannot be considered a factor in reducing the number of deaths because of its own obvious limitations to small areas, even though these are centers of population. The immediate and only cause in the reduction of deaths from malaria is probably a better and more complete diagnosis of the patient's illness by the physician, the intensive educational campaign carried on here having its maximum effect.

MOSQUITO OBSERVATIONS

For purpose of comparison, the following observations made in Louisiana in the Gueydan District in 1917 are given:

Observations were begun, June 1. On large rice fields, ten days after irrigation, mosquitoes were breeding in public health quantities.

Successive catches in June showed only *Anopheles crucians* and *A. punctipennis*, the former about twice as abundant as the latter. *A. quadrimaculatus* was first found in the latter part of June, and by July 10 had superseded all others. These observations as to breeding were checked by catches of imago in nearby barns. During the latter part of June and the first of July, salt water entered the Louisiana canals. In a field containing this water, showing from 12 to 23 grains of salt per gallon, *A. crucians* was the only anophelene present.

EXTRACANTONMENT ZONE, ARKANSAS

Ditching and oiling had established practically a perfect control of mosquito breeding early in March. This control was maintained continuously in the extracantonment zone. The observations by months may be thus summarized:

February—*A. punctipennis* was observed biting, February 26, in Lonoke and in the aviation field. Two females and three males were captured. No breeding was found.

March.—No breeding of *Anopheles* was found; no imago were seen.

April.—Two imago of *A. quadrimaculatus* were caught in town, April 17-20. *A. crucians* was breeding in rain barrels outside of town.

May.—There was a small amount of breeding (chiefly *A. quadrimaculatus*) in ditches. One imago was captured in a house. There was breeding of *A. quadrimaculatus* in moderate abundance outside the extracantonment zone.

June.—June 5-8, *A. quadrimaculatus* was breeding in moderate abundance in the rice fields about 1 mile from town. Imago were abundant in nearby barns and were found biting

in town, June 8-12. June 20, *A. quadrimaculatus* was again breeding in the same rice fields, and imago again were numerous in nearby barns and found biting in town a few days later. One *A. punctipennis* was caught in town, June 25.

The early appearance of *A. punctipennis* (February 26) may be due to hibernation (1) of adults, (2) of larvae or pupae, or (3) from eggs laid early. It is worth while to note that temperatures were relatively high in the second week of February, the "mean" temperature varying from 48 to 66 F.; then colder for the third week (means, 26 to 54), and warmer again in the third week, when the mean temperature varied from 40 to 66, the highest single reading being 87 F., February 25.

A. quadrimaculatus has been the only anophelene found in public health quantities. Rice fields situated 1 mile from Lonoke and a greater distance from the aviation field were the only places within and over reasonable flight distance where breeding could be found at certain intervals. Several days following these observations large numbers of imago were caught in nearby barns where none could be found previously, and simultaneous catches were made in houses in town and in the aviation field. Therefore the obvious maximal flight distance judged by these concomitant catches was more than a mile.

It is interesting to note that when water became "dead" on rice fields, through partial draining, or by stopping of pumps, *A. quadrimaculatus* was apparently superseded entirely by culex forms, though only an occasional culex could be found on this field when *A. quadrimaculatus* was abundant. Up to Sept. 1, 1918, no infected mosquitoes were found, though many were dissected.

Samples of wet mud from puddles and rice fields recently drained were examined for surviving larvae and pupae. The results were negative. In drained rice fields and puddles, water was found to remain in deep crayfish holes. These were pumped and examined for larvae. Five such samples were negative, and two contained numerous culex larvae.

CONCLUSIONS

1. The control of the human carrier plus the factor of good screening have, so far, made negligible the malaria incidence in a typical rice district. As it is not yet humanly possible to obtain absolute mosquito control in the rice fields, these measures are indispensable.

2. The persistent breeding of *Anopheles quadrimaculatus* in the rice fields and the repeatedly recorded "obvious flight distance" of this mosquito of more than a mile emphasize the necessity of the foregoing measures. The observation that culex superseded anophelens in "dead" water in the rice fields deserves further study.

3. The positive indications of breeding in crayfish holes, which abound everywhere, is suggestive enough to offer a simple solution to the sudden appearance of large larvae or pupae in puddles after rains, which before were dry.

4. The history incidence index in two widely separated rice districts is the same. The incidence, though less than one would expect, is probably representative. The average incidence in schoolchildren taken as a unit invariably equaled that of the community as a whole, indicating strongly their availability for experimental index work and the obtaining of data.

DISINFECTION OF THE KNEE JOINT*

ROBERT B. COFIELD, M.D.

CINCINNATI

Whether in civil or military practice, it is generally conceded that septic infection of the knee joint is one of the most serious conditions that the surgeon can be called on to treat, endangering, as it does, both the future usefulness of the joint, and at times, the very life of the individual.

In civil experience we have formerly been led to a profound distrust of the ability of this particular articulation to deal with infective processes. In septic arthritis, an arthrotomy was usually advised and drainage tubes or wicks were inserted into the joint cavity, or through and through drainage was established and the tubes allowed to remain for at least a number of days. Besides producing an evil mechanical effect on the synovia and cartilages, the drainage material provided an ideal reservoir for the pabulum in which the organisms could multiply and travel from within outward, spreading infection to the para-articular structures, or from without inward, carrying secondary infection from the skin into the joint cavity.

The anatomic structure of the knee joint is such that when it is severely infected over its whole extent, drainage becomes a serious and difficult matter, and even though skilfully done, it is a most unsatisfactory procedure, often resulting in the tracking of the infection along the muscular and fascial planes, above or below the joint, with the accompanying dangers of septicopyemia and severe damage to the joint structures, resulting in ankylosis.

CONDITIONS NECESSARY FOR FAVORABLE RESULTS

The results achieved in the present war, in treating infected wounds of the knee by disinfection and immediate closure, have been the source of much surprise and satisfaction. Favorable results, however, with restoration of joint function, seem to depend on the observance of certain principles which are doubtless of equal importance in treating septic arthritis of autogenous origin:

1. The operation must be done early, before the spread of infection and the disorganization of the joint structures have had time to occur.

2. Thorough lavage of the infected and contaminated areas, followed by primary closure of the joint capsule, is essential.

3. Foreign bodies must not be allowed to remain within the joint cavity.

4. When drainage is used at all, it should be carried down to the capsule but not into the joint cavity.

5. Immobilization of the joint must be secured by adequate mechanical fixation.

In order for a surgeon to carry out these principles effectually, it is of the utmost importance that a diagnosis of suppurative arthritis be made early in the course of infection. This is not often difficult, since the joint involvement usually accompanies or follows a focal or general infection, originating elsewhere in the body, such as, gonorrhea, tonsillitis, otitis media, scarlet fever, pneumonia, etc.

This form of arthritis may be secondary to a serous synovitis or it may start without any obvious serous

stage. The septic joint is often ushered in with a chill, the temperature is elevated, the capsule becomes distended with fluid, and the joint is inflamed and painful and is held in a semiflexed position by the spasmodically contracted muscles.

Every joint that shows evidence of inflammation and effusion, during the course of a focal or general infection or following it should be aspirated under strictly aseptic precautions for diagnostic purposes. The nature of the aspirated fluid will be a very definite guide as to the proper course to pursue.

The bacteriologic side of the investigation so often fails to reveal the presence of micro-organisms in the joint fluid, either in smears or cultures, that considered by itself, it carries little weight, and negative findings in this regard should not influence the course of our treatment.

The cytologic investigation of the joint fluid, however, is a distinct aid to the diagnosis, and at times will materially influence the prognosis, in joint effusions. A high percentage of polymorphonuclear leukocytes found in a sample of the aspirated fluid will afford positive evidence of a septic condition. The normal synovial fluid from the knee joint is acellular. Pus, which consists of practically 100 per cent. polymorphonuclear leukocytes, is a surgically visible sign that infection of the part has occurred and calls for prompt surgical intervention.

TECHNIC OF DISINFECTION

The technic which I have followed in disinfecting the knee joint is briefly as follows:

The knee is prepared the day previous to operation by being shaved and scrubbed and wrapped in sterile dressings. After the patient is anesthetized, the field of operation is further sterilized with benzin and iodine. An incision $1\frac{1}{2}$ or 2 inches long is made parallel to the inner or outer border of the patella, extending into the joint cavity. If found desirable this incision may be extended to facilitate a more complete exploration of the joint. By means of a gravity syringe, placed high enough to give the stream considerable pressure, the joint cavity is now thoroughly flushed for fifteen or twenty minutes. Instead of using the sterile glass tip, commonly attached to the tubing leading from the container, it is better for the operator to use a soft rubber tip which may be inserted into the various recesses of the joint without the danger of injuring their delicate lining.

Various solutions have been used with success for disinfection of septic joints. Some operators even assert that the results do not depend on the nature of the solution employed, but rather that it is the thorough mechanical cleansing which is the important factor. However, since it has been shown that the synovia and cartilage withstand very well the active disinfecting agents, and since the pathogenic organisms are harbored within the synovia and para-articular tissues, and not in the joint cavity, I prefer to use an active disinfectant which possesses a penetrating as well as a cleansing action. Mercuric chlorid, 1:15,000, in salt solution, as suggested by Dr. Cotton of Boston, maintained at a temperature of about 115 F. and this followed by physiologic sodium chlorid solution, has proved very satisfactory.

Since the capacity of the synovial cavity of the knee joint reaches its maximum when the leg is flexed to an angle of about 25 degrees, and since the contents of some of the bursae communicating with the joint

* Read before the Section on Orthopedic Surgery at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

are most easily emptied when the limb is in a semi-flexed position, it is very important that flexion and extension of the joint should be passively carried out while the cavity is being flushed. This will aid materially in ridding the joint of the necrotic material and pus that have accumulated in these various pouches. It is also advisable repeatedly to press the edges of the wound close about the tip of the syringe in order that the fluid may distend the joint capsule and penetrate and flush out its various recesses.

The objects sought by arthrotomy and irrigation of the joint cavity are:

1. Relief of the intra-articular tension, which doubtless has a deleterious effect on the synovial membrane and cartilages through its interference with the circulation and the normal secretory function of the synovia.

2. The removal of the necrotic material which acts as a culture medium within the joint cavity. The nature of this material precludes its removal by means of the trocar or an aspirating syringe.

3. The cleansing and disinfecting action on the synovia, which aids it materially in regaining a normal function and renewing its fight against infection. The synovial membrane, like other serous membranes, has an enormous capacity for combating infection if it is in a fairly normal condition.

After disinfection, the capsule is closed with catgut sutures, and if a drain is used at all, it is placed outside the synovial membrane for the sole purpose of taking care of the extracapsular infection. The wound is closed in layers and the joint is thoroughly immobilized, preferably by a plaster-of-Paris spica including the foot.

A fenestra may be cut over the knee and if an increase in the inflammation and effusion should occur, aspiration may be repeated, depending on the nature of the fluid as to the future course of procedure. It is not frequent, however, that any further difficulty is encountered. The temperature and pain usually subside within a few days, and the joint gradually resumes a normal condition.

POSTOPERATIVE MEASURES

The limb is maintained in a position of physiologic rest until the wound is entirely healed and all signs of inflammation have disappeared. The patient is then given the privilege of active motion once or twice a day, depending on the sense of pain as a guide to the extent of movement. Later, gentle passive motion, along with heat and massage, will often hasten recovery, but at first the utmost gentleness is necessary in order to minimize the risk of exciting a recrudescence. The absence of signs of inflammation does not always assure the absence of pathogenic organisms, and well meant efforts to establish mobility may set up an active condition within the joint, if passive motion is applied too vigorously or begun too soon.

Should fibrous adhesions form, which we feel reasonably sure are periarticular, they may be broken down by forced manipulations, with the patient under full anesthesia, in order to secure complete muscular relaxation, thus permitting the movements to be carried sufficiently far in all directions.

Intra-articular adhesions are best treated by gradual correction by means of suitable mechanical appliance, since rough handling is followed by further damage to the joint structures and still greater limitation of movement within the articulation.

ABSTRACT OF DISCUSSION

DR. CHARLES A. PARKER, Chicago: The extremely important point of the paper is that immobilization of a joint is the greatest factor in the saving of mobility. In four or five years' experience in the Cook County Hospital I have never opened a knee joint for sepsis, and I think I have never punctured one. The intern sometimes does that for me, before I know it, and gets information, more or less complete. The fluid is usually sterile, as Dr. Cofield stated. During that time we never had a patient die from knee infection or the knee infection get worse. We have had bad knees, of course—tuberculous in type, or otherwise; but that does not mean that a septic knee should not be opened sometimes.

In regard to washing out the joint, I have had no experience with it. Any antiseptic is out of place in a joint. As to any antiseptic entering living membrane and killing bacteria between live cells and getting out again, leaving the bacteria dead and the cells alive, that would be a new and interesting experience.

DR. JOHN P. LORD, Omaha: There are infections and infections of the knee. The milder infections can be treated in various simple ways; but the more extreme and more malignant infections are very grave propositions. Unfortunately, we often see these cases after very destructive changes have taken place. Of course, it is our desire always to see them sooner, before irreparable damage has been done.

I wish to commend this paper. I think it is very safe to follow. Unfortunately, these conditions are too often attacked in a sort of by-guess and by-gosh fashion. Dr. Cofield has made a very valuable contribution to this subject, and dealt with it very rationally. His method of leaving the joint without foreign material in it is very important. I have felt that there is some advantage in a weak antisepsis. Perhaps the mechanical cleansing, the irrigation and relief of tension is the chief factor. It seems to me that we might learn something, also, from the recent technic of delayed primary sutures. I understood him to say that if we leave a vent, but not a drainage tube or gauze, merely leaving it sufficiently patulous for a suture, that will perhaps prevent the necessity of resorting to drainage. I think that this technic is too often neglected. We frequently leave the case with uphill drainage. If we have opened on the front, it is only reasonable that we turn the patient on his face and get the advantage of gravity. In the cases reported by Dr. Cofield, there may have been a large number of rather innocuous types of mild infection, which would go through their course without severe infection in any event. It requires a nicety in discrimination to determine whether more radical procedures may be necessary; but it seems to me that if we adopt the principles laid down by Dr. Cofield, and possibly supplement them, that it may be of advantage and we may save function in cases in which we have hitherto had a considerable number of stiff knees.

DR. ALBERT H. FREIBERG, Cincinnati: Perhaps, because so many knee joint infections are caused by gonorrhea, I am reminded of the opening sentence in Ricord's book on gonorrhea, written many years ago. He started his book in true dramatic French fashion by saying, "A gonorrhea begins; God only knows when it will end!" The same thing is true of joint infections, in a way. So many of them start in a quiet, harmless sort of fashion; but no one knows in the beginning where they are going to end. No one knows how far the vital structures of the joint are going to be damaged, or how serious the infection is going to prove. Of course, the very beginning is the time when surgical intervention can accomplish most for the patient. Over fifty years ago, in the absence of bacteriologic assistance, Volkmann described several types of joint infection, which he classified, according to the knowledge of the day, as catarrhal, suppurative and phlegmonous arthritis. A catarrhal arthritis was one that subsided without any intervention except rest. If the joint fluid were removed it was slightly turbid, but more or less serous in character. There were all gradations, from this to the frankly purulent material, which, of course, constituted the suppurative arthritis. Then there were cases in which not only was there pus in the joint, but which were characterized by the very early destruction of the vital joint structures, particularly the car-

tilage; and these were the ones in which there was definite sepsis and true ankylosis afterward. Now Dr. Cofield's experiences are shared by me. We have both done the same kind of thing, and I think that he agrees with me that not every joint infection can be successfully treated by this method; but we both feel that we have rescued joints from serious and perhaps permanent damage by early intervention of this kind, on the one hand, and, on the other, if a joint by reason of the seriousness of the infection is destined without surgical intervention to be crippled, we feel that the effort to clear the joint of this material does not in any way make the patient's chances for complete recovery worse. Dr. Cotton has shown that joints are more tolerant of infectious processes than we used to believe, and that it is possible for a joint, if given a chance, to overcome grades of infection which we formerly regarded as practically fatal, so far as future usefulness was concerned. But it seems to me that there is a suggestiveness in this effort to save joints in this way which may be of great use in future work; it opens a field for the investigation of the character of the infections, so that if this work is pursued faithfully and with some system, we may before long be able to say, by obtaining fluid, which joints we are going to be able to save by surgical intervention, and in which joints there is no likelihood of this; in which joints it is unnecessary to attack surgically, and in which it is necessary. This is the most important aspect of the work which Dr. Cofield has reported this morning.

DR. ROBERT B. COFIELD, Cincinnati: I did not want to take the time of this section to go into a detailed case report. Our cases have not been numerous. We probably have had only eight or ten knee joint infections in the last two years in which we felt justified in applying this technic. The important factor is to be able to judge which joint justifies this operation and which will get well with immobilization and treatment. I do believe that in practically all joints that show inflammation and effusion we are justified in aspirating the fluid. It can be done with very little pain to the patient. I have never seen an infection or an increase in inflammation resulting from it if it is done under strict aseptic precautions, and, while the fluid rarely shows any bacterial growth, nor are bacteria visible in the smear, we can tell by the nature of the fluid, the cell count, the great number of polynuclear leukocytes, whether it is a septic joint or not. I think that in all of those cases that show a great increase of polynuclear leukocytes we are justified in opening the joint and following the technic the paper describes. I do not think that we should feel that we should not interfere, because the patient is not going to die from his joint infection. What the patient wants, and what we want, is a good, movable joint. If the inflammation is allowed to go on, the synovia soon suffers, the cartilage degenerates and breaks down and we have a joint that may result in more or less complete ankylosis; therefore, we should not wait until the roentgenogram shows positive changes. It is too late then to expect to get a perfect result. The operation must be done early. It is unfortunate that a great many of the cases we see in the public or general hospital come after there has been destruction of joint structures sufficient to make it impossible to get complete mobilization of the joint afterward. In private practice I have been more fortunate. I have had quite a number of cases showing purulent infection that recovered complete motion in the few months following operation.

As to using an antiseptic in a joint, our experience has not shown that a weak antiseptic, such as I described, is deleterious to the joint structure. Whether it is efficacious or not I am not able to say. As I stated, I prefer to use weak bichlorid, followed by saline, because we have obtained good results from it. In one case of prolonged infection in a child I used ether as advocated by some of the surgeons abroad, and in that case I had the joint open up and discharge pus for a short time, and the result was not so good as in the cases in which I used flushing with weak bichlorid solution. Of course, one case does not prove anything, and this case might not have done so well under the other technic.

As to draining these cases extracapsularly, I think that this will depend a good deal on our judgment as to the invasion

of the infection into the periarticular structures. It does not do any harm to put a little silk worm drain or rubber tissue drain in—not into the joint cavity, but into the periarticular structures—and remove it on the third day. This leaves a vent; and if purulent infection is bound to discharge, it will have a free passageway. As Dr. Lord has suggested, in those cases that come to drainage, they should, of course, be placed in the most favorable position.

ORTHOPEDIC OPERATIONS ON THE HAND *

ARTHUR STEINDLER, M.D.

IOWA CITY, IOWA

Unusual as the opportunities are for reconstruction work on the upper extremity, they are counterbalanced by an adequate amount of technical difficulties. To overcome these, investigation into numerous questions of a theoretical as well as a technical nature becomes necessary.

Some detail work has been devoted to the solution of surgical problems; much less attention has been given to the study of the principles of a mechanical or a physiologic nature. Yet it would seem that mechanical and physiologic analysis is as essential for systematic progress in this field as it is in other fields of surgery.

Conditions existing in the wrist and hand compare favorably with those of the foot and ankle for several reasons: The muscle supply is more abundant; there is, as shall be shown presently, a greater possibility of detaching muscles of the hand and forearm for the purpose of transplantation, by virtue of certain anatomic peculiarities of the tendons; there is also the absence of the influence of gravity and weight bearing; and there are unusual possibilities of improving function by way of muscle reeducation.

I have been attracted to reconstruction work on hands in different orthopedic conditions, for the last two years. A point that struck me early in the work was the necessity of ascertaining and recognizing certain mechanical and dynamic conditions governing the function of the hand and the fingers.

PROBLEM 1. THE POSITION OF DORSAL FLEXION OF THE WRIST

Robert Jones considers this position as a surgical axiom and adds that all injuries of the wrist should be treated in dorsal flexion. The grip of the fingers is diminished if the wrist turns into palmar flexion. We find this point thoroughly substantiated by theoretical considerations as well as by experimental studies. With the wrist in hyperextension, the tonus of the flexor muscles is such that the greatest amount of muscle power can be displayed per unit of contraction. As the wrist goes into the flexion position, the gripping power of the fingers gradually decreases, owing to the gradual loss of tension of the flexors. With the wrist in full flexion and the fingers extended, I have found, as reported on another occasion, that fully three fourths of the potential contractile power of the finger flexors has been exhausted.

It is equally essential and necessary that the wrist joint, once brought into hyperextension, should be

* Read before the Section on Orthopedic Surgery at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

* Owing to lack of space, this article is abbreviated in THE JOURNAL by the omission of eight case reports and the illustrations. It will appear in full in the Transactions of the section and in the author's reprints.

held there rigidly so as to provide a firm stabilizing position.

As we turn to the anatomic study of the musculature of the wrist, we recognize the latter to be especially designed for this purpose. There are two flexors of the wrist, the flexor carpi ulnaris and radialis; there are three extensors of the wrist: the two extensors carpi radiales and the extensor carpi ulnaris. In addition to this the extensor pollicis and indicis proprius act as accessory extensors of the wrist by virtue of their connection with the second metacarpal.

According to Frohse and Frankel, the volumetric total strength of the extensors of the wrist bears to that of the flexors of the wrist the ratio of 2:1, there being not only a numerical but also a great dynamic preponderance of the extensors over the flexors.

This fact admits of only one interpretation: There exists, first of all, a very considerable amount of muscle power for the purpose of stabilizing the wrist joint by concerted muscle action before the gripping power of the fingers can be displayed to the best advantage. The muscle being unevenly distributed about the wrist, it is obvious that in concerted action equilibrium is obtained only when the power of contraction in the weaker group—the flexors—is increased by hyperextension, and in the stronger group—the extensors of the wrist—is decreased by contraction, so that in this state of tension the dynamic values of both groups become more equal. And not only is it necessary to carry the wrist into this position of hyperextension, but also one must take care that this position be maintained firmly and with considerable stability, either by muscle action or otherwise.

I have been guided by these considerations when attempting the repair of deformed hands or contracted hands. Clearly the best solution would be if the wrist, after the contraction had been released, could be endowed with sufficient muscle power to be held actively in the desired position. In regard to the transference of power, the muscles of the hand have this decided advantage over some muscles of the foot, that they are not so much bound down by mesotendinous attachments and therefore permit freer exchange and larger displacement. This is true especially of the extensor group, but also of the flexor carpi ulnaris and to some extent of the flexor carpi radialis.

I have no doubt that many cases of flexion contraction or drop hand will lend themselves to the application of tendon transference with favorable result. Such transplantation should be carried out for the benefit of extension power of the wrist in the first place, and the tendons should be anchored accordingly. It is hard to see how a direct transference of muscle power from a flexor muscle to the paralyzed extensors of the fingers can do any practical good unless the extension of the wrist itself is taken care of first.

In many more cases, however, I believe that the muscle power available for transplantation is not sufficient to secure a stabilization of the wrist in the extension position. The situation parallels very much the one in the paralyzed ankle. Here, too, the first mandate of proper function is stabilization, and it is generally found that much better results are obtained by complete stabilization of the ankle than by incomplete and insufficient transference of muscle power. The same principle is applicable to the wrist for the reason that complete stabilization of the wrist in the

desired position, even at the exclusion of any motion, is preferable to incomplete motility.

Following are a number of cases in which incomplete motion of the wrist was sacrificed in order to obtain complete stabilization in correct position (five cases).

CASE 1.—H. W., man, aged 25, admitted, Jan. 3, 1918, had traumatic paralysis of the musculospiral nerve following a compound fracture of the humerus, seven years before. Contracted drop hand with shrinkage of the extensor muscles of the wrist. Owing to the length of time elapsed and the total waste of muscles involved, no nerve repair work was attempted. Correction of the drop hand was carried out by arthrodesis of the wrist in hyperextension. Following this a tendon transplantation was done. The flexor carpi radialis was turned outward around the radius and united to the extensor carpi radialis longior and brevior. The flexor carpi ulnaris was carried through the interosseous membrane between the radius and ulna and united to the tendon of the common extensors of the fingers. Five weeks after operation, the wrist was rigid in hyperextension. The grip of the fingers was good and improving daily under after-treatment. The transplantation of the flexor carpi ulnaris to the extensor of the fingers secured a fair amount of active extension of the fingers, sufficient for the opening of the fingers.

PROBLEM 2. HYPEREXTENSION CONTRACTION OF THE METACARPOPHALANGEAL JOINT

Extreme flexion of the wrist greatly enhances the occurrence of claw hand deformity. It increases the tension in the extensor muscles and, with the wrist and knuckles as fixed points, the full extensor action is brought forth to produce and to maintain hyperextension in the metacarpophalangeal joints. This position is very difficult to overcome for the finger flexors and lumbricales, as can readily be seen in deformities of Volkmann's ischemic contracture (two cases).

The difficulty of overcoming the hyperextension of the metacarpophalangeal joint is demonstrated by the following case:

CASE 7.—F. A., woman, aged 25, admitted, July 27, 1917, had had the forearm severely lacerated up to the elbow by getting it caught in a steam roller, six months previous to admission. At the time of admission the hand was bound down in flexion by tendon contracture. The metacarpal joint was in strong hyperextension. There was flexion of the middle and end phalanges and pronation. July 28, 1917, plastic lengthening of the flexor muscles of the wrist and fingers was performed. Complete extension of the wrist and complete extension of the fingers was obtained after this operation, but the hyperextension in the metacarpophalangeal joint was not improved. For the relief of the latter condition two further operations were performed, both intending to relieve the contraction of the finger extensors over the joint by tendon lengthening. But the extensor muscles of the fingers were found transformed into a mass of scar tissue in which the individual tendon could not be differentiated. Finally, as both attempts failed to release the contracted joint, the plan of Dr. R. Meisenbach for a similar condition in claw foot was adopted. A longitudinal incision was made over the dorsum of the first, second and third metacarpals, and an osteotomy was performed, about one-half inch proximal to the joint. The fingers were then bent down forcibly, allowing the fragments to kink. In this way a better closure of the fingers was obtained, although the metacarpophalangeal joints themselves remain unchanged. The result of this operation has been much more satisfactory.

PROBLEM 3. RECONSTRUCTION WORK OF THE THUMB

Reconstruction work of the thumb was carried out for the relief of (1) inability of opposition of the thumb, and (2) inability of extension of the thumb. In the first instance the gripping power of the hand

is greatly impaired, as the thumb cannot be used to oppose the fingers, while in the second instance the gripping power of the hand is also impaired by the fact that in closing the hand the thumb is thrown under the fingers, preventing the hand from taking hold of any object (six cases).

CORRECTION OF INABILITY TO EXTEND THE THUMB

CASE 10.—A. R., boy, aged 12, admitted, Jan. 18, 1917, had spastic paralysis. The hand was only slightly paralyzed, with the exception of the extensors of the thumb. The thumb was drawn under the fingers each time the patient closed his hand. Feb. 12, 1918, after the technic given by Biesalski and Mayer, an incision was made over the extensor indicis proprius of the right hand. The tendon was split at the metacarpophalangeal joint, brought out through a second incision over the long extensors of the thumb, and then fastened to the tendon of the long extensor of the thumb. After the operation the patient ceased to turn the thumb under in closing the hand, and opposition of the thumb and fingers was thereby secured.

PLASTIC SUBSTITUTION OF RUDIMENTARY THUMB

Plastic substitution of the missing thumb was carried out first by Nicoladoni, who reported two cases in 1900 and 1903. Later Schepelman, Horhammer and others reported on cases of this kind. Nicoladoni's autoplasmic substitution was carried out in two step operations, the second toe of the same side being used for the substitution of the missing thumb.

CASE 14.—R. G., boy admitted, Nov. 14, 1917, with a club hand deformity. According to the statement of the mother, there was an infection of the hand very early in life, followed by almost complete loss of the thumb and destruction of the distal end of the radius. On admission there was found on the radial side of the wrist a scar, to which a very rudimentary thumb, not more than one-half inch long, was drawn laterally and backward. The muscles of the thenar were preserved. The club hand deformity was corrected, Dec. 6, 1917, by resection of a piece of the ulna.

The first step of the plastic substitution of the thumb was carried out, March 5, 1918, as follows (Dr. Charles J. Rowan, assisting): A flap was prepared by a dorsal curved incision, from the dorsal surface of the thenar and the adjacent side of the wrist. Then the stump of the metacarpal bone was dissected, and the end refreshed and anchored by catgut sutures. A U shaped flap was then prepared over the seventh rib of the left side of the chest, with lateral base. Under this flap 1 inch of the rib was resected. As it was impossible to keep the rib in connection with the flap, it was removed and immediately fastened to the stump of the first metacarpal by heavy double catgut sutures. The thumb was then pulled over toward the chest, and the skin under the flap was drawn together and sewed. The flap of the chest was pulled over so as to cover the flap made from the dorsal surface of the thenar, with the implanted piece of the rib between the two flaps.

Twenty-three days later the second step of the operation was performed, by severing the flap from its base on the chest and trimming the tip of the new formed thumb.

The patient is now able to close his thumb against the tip of the fingers and to take hold of light objects.

MUSCLE EDUCATION

From the beginning of the work of reconstruction of the upper extremity, great stress was laid on the mechanical and muscle educational side of the after-treatment. It is of considerable advantage in working on the upper extremity that there is no weight bearing and gravity to reckon with, and that the extremity can be readily protected against any undue influences of mechanical character. In every case the medico-mechanical and later the reeducational treatment was

added to the surgical corrective treatment, the work beginning from one to three weeks after operation.

Following the conclusion of medicomechanical treatment, the patient enters immediately on the muscle educational work. The nurse is instructed in regard to the needs of the individual case. The work is done in groups of five or six and sometimes more, but each patient does individual work and has individual attention. No special attention is paid to the product itself which is turned out by the individual child. The children are to be taught to use their hands in a certain way most favorable to the development of power and coordination of the muscles in question.

The work begins by molding in clay, for which common plasticine is used. This has proved especially useful for those patients who need thumb practice, as the molding requires quite a little muscular strength. I believe this to be by far the most useful part of muscle educational training because the movements required are simple and more or less elementary: kneading, twisting, pressing, etc. Children with more advanced functional ability of the hand are then given instruction in raffia work, which is especially beneficial for the more coordinate movements of the wrist and hand.

Weaving, even if the pattern is very simple, requires more skilful use of the hand, and naturally only a few of the children mentioned here are capable of carrying on this kind of work. Aside from these three essential instructions, the children are given all the encouragement in the use of such playthings as might help to develop the muscles of the hand, such as blocks and puzzle pictures.

All the patients mentioned have taken part in muscle educational work and have derived considerable benefit from it.

ABSTRACT OF DISCUSSION

DR. JOHN L. PORTER, Chicago: Dr. Steindler's work is of inestimable value as illustrating what can be accomplished by a conjunction of correct mechanical principles and good surgery. I believe that we have been deterred from what, in the way of plastic surgery, might be very beneficial, because we have overestimated the anatomic difficulties and have decidedly underestimated the great many mechanical advantages to be secured. In one case I had great difficulty in preventing adhesions of the tendons, especially on the flexor surface of the wrist. I believe that adhesion occurred in this case because so many tendons are massed in so small an area, with very thin layers of tissue separating them. That is but one feature that prevents successful plastic work on flexor tendons. Our knowledge of this kind of surgery, and especially of the arm and wrist, will increase wonderfully from now on because the war is going to bring to our attention a lot more disabilities of the upper extremities from injury of nerves and muscles than we have seen before. Perhaps we have been deterred from doing what we could for paralytic conditions because they were paralytic; but when the cases are traumatic, we think that something must be done to insure return of the use of the hand, arm and wrist.

DR. JOHN P. LORD, Omaha: I believe that Dr. Whitman was entirely right in his conception of the principle of arthrodesis for stabilizing the ankle joint, and thus rendering more efficient any tendon transferences in cases of flail joint. It has seemed to me that this principle applied to the wrist would save us much of the more complicated and difficult part of this reconstruction of the structures about this joint. I have had considerable experience in resections of the wrist joint, and arthrodesis of that joint, done primarily to enable me to get better functional results after work on the tendons. It has also enabled me to lessen the spasms, which are

attended with certain disadvantages. In Volkmann's ischemic paralysis I have on several occasions shortened the radius and ulna. I can testify to the efficiency of that method and its advantage. I can testify to the difficulties of plastic operations on tendons about the wrist, which cases furnish many complications. I think that if we would give more attention to the correct position, by operation on the bones and joints, and secure an arthrodesis in certain of these cases, we could then, by palliative methods, after a long period, secure results that might be superior to those obtained by the more extensive complicated operations on the tendons. It has been my experience that these operations about the thumb for the transference of tendon and muscle function have been very satisfactory. They lend themselves very well to the particular deformities of the thumb resulting from paralysis, more especially as it is sometimes necessary to rotate the bone after osteotomy. I found that I could get much better mechanical position by rotating the bone so that I could get a better application of muscle power.

DR. MELVIN S. HENDERSON, Rochester, Minn.: In wrist drop due to paralysis of the musculo-spiral nerve, nerve regeneration by operation has been attempted. I recently had an opportunity of visiting the Military Orthopaedic Hospital at Toronto, which harbors 750 patients, wounded Canadian soldiers. They told me that operations for severance of the musculo-spiral nerve were generally unsatisfactory. They are inclined to believe that better results will be obtained in these cases if tendon transference of the flexors to the extensors of the wrist is done instead of the nerve anastomosis, especially if there is a defect of any extent in the nerve. Recently I operated on a man with complete wrist drop, transferring the flexor carpi radialis and flexor carpi ulnaris to the extensor tendons of the wrist. The man can now extend the wrist and has good grasping power, whereas before he could not extend the wrist and could grasp objects only in a very awkward manner. I have seen quite a number of anastomoses for division of the musculo-spiral nerve, but have never seen a good result. Therefore, it would seem as though better results would be obtained in wrist drop by transferring the flexor tendons to the extensor tendons than would be obtained by any operation on the nerve.

DR. CHARLES M. JACOBS, Chicago: A man, over 40 years of age, had a Dupuytren contraction involving the ring and little fingers. I made a careful dissection of the palmar fascia, but was unable to straighten out the little finger because of a shortened tendon; so I did a tendon lengthening. Following the operation a plaster cast was applied to hold the little finger in the extended position. The cast extended only up to the wrist. Several weeks later I noticed that the patient's hand dropped and that he was unable to extend it. The cast was taken off and I found that he had a flaccid paralysis, quite different from the ischemic paralysis which sometimes follows the application of a cast. I should like to ask whether Dr. Steindler applies casts following his operations and if he has had an experience similar to mine.

DR. ARTHUR STEINDLER, Iowa City, Iowa: I appreciate Dr. Porter's difficulties regarding adhesion of the flexor tendons. Since I have been doing an arthrodesis I have had much less occasion for flexor transplantation. The flexor tendons are not as suitable for transplantation as the extensors. I have, however, united the tendon of the flexor carpi ulnaris, leading it through the interosseus ligament to the extensors of the fingers after the stability of the wrist has been secured. Otherwise, I should not consider this a good procedure. While I have not had excellent extension, I obtained sufficient extension power in the first case so that the patient could freely open and close the hand. In reply to Dr. Lord, I would say that I have already stated what he did regarding stability of the wrist. I have no experience with rotating the bone; but in those cases in which the apposition of the thumb was missing on account of paralysis of the thenar muscles, I got good results so far with the plasty of the pollicis longus, which I have demonstrated. We had not only the wrist drop, but also the opposite deformity, in infantile paralysis.

VENEREAL DISEASE IN THE THIRTY-NINTH DIVISION *

LOYD THOMPSON, PH.B., M.D.

HOT SPRINGS, ARK.

AND

J. R. BOLASNY, M.D.

DETROIT

Major and Captain, Respectively, M. C., U. S. Army

The problem of venereal disease in the Thirty-Ninth Division is similar to that in any other divisions in training at the various cantonments. The Thirty-Ninth Division is located at Camp Beauregard, which is situated about 5 miles from Alexandria, La., and is made up of the National Guard troops of Louisiana, Mississippi and Arkansas, augmented by draft troops from these states.

At first, as would be expected, by far the greater number of venereal cases were old ones brought in by the men from other cities. Later on, especially after the quarantine which existed between the camp and Alexandria on account of meningitis was lifted, the percentage of new cases began to rise.

PROGRAM OF ATTACK

In the handling of the venereal problem in the Army, a certain program of attack has been prepared in the Surgeon-General's Office and is being carried out. This consists of public as well as personal measures, and is briefly as follows:

Public Measures.—A. Social measures to diminish temptations: 1. The suppression of prostitution and the liquor traffic in the extracantonment zones. 2. The provision of proper social surroundings and recreation.

B. The education of soldiers and civilians: 1. The education of soldiers is accomplished by: (a) lectures, (b) pamphlets and (c) exhibits. 2. The education of civilians is accomplished by the same measures through such organizations as the Young Mens Christian Association, the Young Woman's Christian Association, the Women's Christian Temperance Union, and the General Federation of Women's Clubs.

Personal Measures.—A. Instruction in prophylaxis.

B. Prophylaxis stations: 1. Regimental infirmaries. 2. Civil centers.

C. Medical care.

WORKING OUT OF THE PROGRAM

In the handling of the venereal problem in the Thirty-Ninth Division, nearly all of these measures have been carried out to a greater or lesser extent. An officer of the Sanitary Corps has been detailed by the Surgeon-General's Office for work in the extracantonment zone. A certain amount of cooperation has been given by the city authorities in the matter of the suppression of prostitution. This has consisted mainly in the closing of most of the houses of prostitution in the so-called segregated district. We have been informed by the officer of the Sanitary Corps referred to above that this has been done in a half hearted manner, and that at least one notorious house has remained open. We have also been informed that while many women have been arrested for violation of moral ordinances, there have been no facilities at the city jail for housing them, so they have

* Read before the Section on Genito-Urinary Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

been allowed to go free with the promise that they leave town. We have also been informed that in the matter of regulating the illegal sale of liquor to soldiers there has been a great deal of laxity.

It was hoped that a hospital for the treatment of prostitutes suffering with venereal diseases would be established, and the city authorities offered to furnish a building for this purpose if the parish authorities would maintain it. As yet this has not been done, and we have been informed that it probably will not be.

In the matter of providing proper social surroundings and recreation, the Army Y. M. C. A. has been of the utmost value in the camp itself, while the officer in charge of the work of the commission on Training Camp Activities has furnished more or less healthful recreation for the enlisted men, although the officers have had to shift for themselves to a greater or lesser extent. We wish to go on record in saying that the young unmarried officer needs healthful recreation as much as the enlisted man.

In the matter of the education of soldiers, lectures dealing especially with the methods of instructing men in venereal matters were delivered by the chief of the venereal service to all of the officers in camp. Illustrated lectures were also delivered to all of the men in the camp in regimental units, and these were supplemented by instruction by the company commanders. Small pamphlets dealing with venereal disease were also distributed to all men of the camp.

The education of the civilians in the extracantonment zone in venereal matters has been nil as far as we have been able to learn.

Of the personal measures of prophylaxis, as mentioned above, the soldiers all receive more or less instruction in prophylactic measures, and are warned that while the prophylactic measures protect the individual from venereal disease in the majority of cases, if taken in time, they are not absolute preventives.

Prophylactic stations have been established in all regimental and similar unit infirmaries where the prophylactic treatment can be obtained at any time day or night. The advisability of establishing a prophylactic station in Alexandria under military control has been recommended by us and is to be put into execution in the near future.

Army Regulations provide that a man who exposes himself to the danger of venereal disease, and who fails to take the prescribed prophylaxis, shall be tried by court martial.

MEDICAL TREATMENT

In the medical care of venereal disease, all cases are supposed to be first referred to the venereal service of the base hospital for diagnosis. Orders have been issued by the division surgeon that all men with urethral discharge be sent to the base hospital for microscopic examination of a smear, and all men with genital or other suspicious looking sores be sent without treatment for dark field examination. Before this order was issued, quite a large number of chancres were cauterized in the regimental infirmaries before the men were sent to the base hospital, rendering the finding of spirochetes impossible, and also a considerable number were so treated and syphilis not diagnosed until the secondary rash appeared.

Following the examination, men with acute gonorrhea enter the hospital and are treated there until the discharge diminishes, when they are returned to duty and their treatment continued in the regimental

infirmaries under the direction of the chief of the venereal service. Chronic gonorrheal urethritis and complications of gonorrhea are treated either in the base hospital or the regimental infirmaries as the chief of the venereal service directs.

Cases of chancroid are treated in the base hospital until cured. Uncomplicated cases and complicated ones when the patients are convalescing are sent to the convalescent ward for housing and report to the venereal clinic for treatment at specified times.

All syphilitics are treated at the base hospital throughout the course of their treatment, although they are kept in the hospital only during the actively infective stage, that is, while they have open lesions. At other times they remain on duty and report for treatment at specified times.

One of us¹ has advocated a plan for the handling of venereal disease which we consider will very materially increase the efficiency of the venereal service. Briefly, this plan consists of establishing a venereal dispensary at a convenient location in the camp where all cases of venereal disease which do not need hospitalization can be treated. This plan with certain modifications has been adopted by the Surgeon-General's Office and is to be put into effect at Camp Beauregard.

In the treatment of gonorrhea, we have not departed strikingly from the classical methods. In all acute cases the men are placed in bed on liquid diet for twenty-four hours and then on light diet. The urethra is flushed once or twice daily, depending on the severity of the condition, after urination, the patient being put in a recumbent position, with a warm solution of potassium permanganate, 1:10,000. Then a 5 to 25 per cent. solution of silver "nucleinate" is instilled into the anterior urethra with an all glass syringe having a rubber tip. Rising from the table, the patient holds the solution in the urethra for from three to five minutes, when it is voided into a commode and the patient returned to bed.

In the more virulent infections the urethra is not irrigated at first, the penis being held in hot salt solution several times daily and a hot water bottle applied until the inflammation subsides, when the irrigations and the instillations are begun. Internally, sandalwood oil and large quantities of water are administered, and sedatives when required.

When the purulent discharge begins to disappear, the patient is sent to duty with the recommendation to his regimental surgeon that mild astringent solutions of zinc sulphate and lead subacetate be employed.

Recently we tried in selected cases a 1 to 5 per cent. solution of dichloramin-T in liquid petrolatum. The stronger solution proved too irritating to the urethra, but the 1 per cent. solution is giving rather encouraging results. In most of the acute cases and in some chronic ones the purulent discharge disappeared more promptly than with some other methods.

In acute posterior urethritis and acute prostatitis, the patient is put to bed, and heat is applied to the parts, with hot rectal irrigations and anodynes when needed.

Acute epididymitis is treated by placing patient in bed with the scrotum supported and an ice bag applied. In some cases the scrotum has been incised and the epididymis punctured with gratifying results.

1. Thompson, Loyd: A Plan for the Better Handling of Venereal Disease in the Army, Mil. Surgeon, to be published.

Chronic gonorrheal infections of the urethra and prostate are treated in the usual manner with irrigations, instillations and prostatic massage.

In the treatment of chancroid we have found dichloramin-T in 5 per cent. solution applied as a wet dressing of considerable advantage in cases in which there is marked secondary infection. Other cases have been treated by simply cleaning them thoroughly, touching them with 10 per cent. silver nitrate and applying sterile petrolatum, while still others have been thoroughly cauterized with nitric acid, silver nitrate stick or the electric cautery.

In the treatment of chancroidal bubo, dichloramin-T has also been of distinct advantage.

Two plans for the treatment of syphilis have been used. At first we pursued the method of treating all syphilitics by giving weekly injections of 0.4 gm. of arsphenamin intravenously and 65 mg. of mercuric salicylate intramuscularly for six weeks. If this cleared up the symptoms, a Wassermann test was made one month after the last injection. If this was positive, another course of six injections each of arsphenamin and mercury were given, followed by another Wasserman test in one month.

If the test is negative after either course, a test is taken at monthly intervals, and if it again becomes positive the course is repeated.

Recently we have been treating all so-called primary and early secondary cases by giving five daily injections of 0.4 gm. of arsphenamin and repeating the course in one month with weekly injections of mercuric salicylate until symptoms of ptyalism appear. Of course, the mouth hygiene of all patients is attended to. In all old cases of syphilis, potassium iodid is given in rapidly increasing doses until symptoms of iodism appear.

CASES IN THE THIRTY-NINTH DIVISION

In the venereal service of the base hospital, during the eight months, September to April, inclusive, 605 cases of venereal disease were treated, of which 325 were gonorrhea and its complications, 25 chancroid, and 255 syphilis in all stages. These figures do not include all venereal cases of the division; quite a large number of cases of gonorrhea have been treated in the regimental infirmaries, and we have been unable to secure accurate data on them.

The accompanying table shows by months the number of acute cases of venereal disease which developed in the division, the rate per thousand and the number of venereal prophylactic treatments administered.

It will be noted that the largest number of new cases developed in November, when there were fifty-eight, and the smallest number in February, when there were but two. At first glance it would seem that the small number of cases in February was due to the quarantine between the camp and Alexandria, and probably it was indirectly due to that cause. On the other hand, it will be noted that a comparatively large number (399) of venereal prophylactic treatments were administered in February. In all probability this was due to the fact that while the men were not permitted to go to Alexandria, where they would be easily arrested by the military police, they were able to leave the reservation, and in spite of all that the authorities could do, prostitution flourished in the woods near the camp. Furthermore, it was usually necessary for the men to return to camp as quickly as

possible, and they reported to their regimental infirmaries for prophylaxis much sooner after intercourse than when they went to Alexandria, and therefore the prophylaxis was that much more efficacious.

Of the 325 cases of gonorrhea and its complications treated in the venereal service of the base hospital, 100 were acute urethritis; 151, chronic urethritis; 41, epididymitis, acute and chronic; 5 prostatitis (this does not include the large number of cases of urethritis with more or less prostatic involvement); 22, cases of arthritis; 4, cases of stricture, and 2, cases of peri-urethral abscess. The longest incubation period recorded was nine days, and the shortest, thirty-six hours, with an average of four days.

The average incubation period of the twenty-five chancroid cases was eight days, the longest period recorded being sixteen days, and the shortest, two days. Six cases presented single sores, while nineteen were multiple. Eleven occurred on the prepuce alone, and one on the frenum alone. Three patients had sores on the glans penis and prepuce, and two on the glans penis, prepuce and balanopreputial fold.

In four cases there was no complication, in eight there was a bilateral inguinal adenitis, in four a right inguinal adenitis, and in three a left inguinal adenitis. In four cases there was a phimosis; three cases were complicated with syphilis and nine with gonorrhea.

ACUTE CASES OF VENEREAL DISEASE IN THE THIRTY-NINTH DIVISION

Month	Cases, Number	Rate per Thousand	Prophylactic Treatments, Number
September	30	10.53	247
October	29	4.57	342
November	58	2.90	744
December	31	1.40	350
January	26	1.13	99
February	2	0.088	399
March	19	0.87	866
April	12	0.55	470

Of the 255 cases of syphilis, 32 were primary; 155, secondary; 22, tertiary; 40, latent, and 4, cerebrospinal, including 1 paretic and 1 congenital.

Of the 32 primary cases the chancre was located on the balanopreputial fold eighteen times; the shaft of the penis, eight times; the frenum and the glans penis, twice each, and the scrotum and prepuce once each. In the remaining 233 cases, the location of the chancre, as obtained by noting the scar or from the history, was: balanopreputial fold, 31 per cent.; glans penis, 27 per cent.; shaft of the penis, 14 per cent.; prepuce, 11 per cent.; frenum, 5 per cent., and scrotum, 3 per cent. In two cases, or 0.9 per cent., the chancre occurred at the meatus, and in two more cases there had undoubtedly been a urethral chancre. In two cases of early secondary syphilis, extragenital chancres were seen. One of these was on the lower lip and the other on the cheek. The one on the cheek was seen before the secondary rash had developed, and was diagnosed clinically as syphilis; but as spirochetes could not be demonstrated after repeated trials, and owing to the fact that our Wassermann tests had to be sent to the department laboratory in Atlanta, taking from one to two weeks for an answer, treatment was withheld from this case until the secondary rash developed. The source of infection in this case was possibly an infected razor, as the patient stated he had used a razor belonging to a man he afterward learned had syphilis about two weeks before the development of the sore. Since this case was seen the laboratory of the base

hospital has become equipped to perform the Wassermann test.

It is rather interesting to note the source of infection in all of these cases, that is, where the soldier was when he contracted the disease. Of the 255 patients, 111, or 44 per cent., contracted the disease before entry into the military service; 39, or 16 per cent., contracted it after being mobilized in the smaller towns of their states as follows: 20 in the towns of Mississippi, 10 in the towns of Louisiana, and 9 in the towns of Arkansas; 58 patients, or 20 per cent., became infected in the large camps as follows: 25 each in Jackson, Miss., and Little Rock, and 8 in New Orleans; 12 cases, or 5 per cent., were contracted in Alexandria. In 17 cases, or 7 per cent., the place of infection was unknown, but must have occurred since entry into the service.

The most striking figures, however, are those of eighteen cases, or 8 per cent., which were contracted while the victims were on furlough. The reason for these comparatively large figures is that men on furlough usually are unable to take the venereal prophylaxis.

The reason for the larger figures in the mobilization camps, both in the small towns where the National Guard companies were mobilized, and in the larger camps, is probably to be found in the fact that the prophylaxis rule was less strictly enforced than in Camp Beauregard.

The incubation period of the syphilis cases was unknown in thirty-four. The shortest time recorded was two days and the longest twelve weeks, while the average was twenty-two and one-half days. It is realized that in both the shortest and the longest period recorded the patients' statements are not to be taken as absolute proof of such incubation, but in both cases repeated questioning failed to bring out other evidence.

Of the syphiloderms, the macular, roseolar type was observed 45 times; the papular, lenticular, 49 times; the moist papular or condylomatous, 10 times; pustular lesions, 6 times; palmar and plantar syphiloderms, twice each; the macular, pigmentary lesion, twice; gummas of the skin, twice, and rupia and verruca, once each.

Mucous patches of the mouth were seen fifty-three times; ulcerating gummas of the mouth, three times, and leukoplakia, once.

Marked alopecia was seen three times.

Ten cases of syphilitic arthritis were observed. This condition was diagnosed only on finding definite joint changes with the roentgen ray, or when the subjective symptoms improved under specific therapy.

Only one case of syphilitic periostitis was seen; this was of the frontal bone. Syphilitic retinitis was seen five times, and two cases of syphilis of the stomach were diagnosed.

One case each of gumma of the testicle and gumma of the submaxillary gland was observed.

It is impossible as yet to draw any very definite conclusions from our treatment. However, we have been able in 102 cases to make Wassermann tests one month after the course of six injections of 0.4 gm. of arsphenamin and 65 mg. of mercuric salicylate. Of the 102 cases, fifty-six, which before treatment gave a ++ Wassermann (complete inhibition) gave a negative reaction after treatment, and all but one remained negative for periods of from one to six

months. In one case a ++ was recorded two months after the negative had been obtained. One case of primary syphilis which gave a negative reaction both before and after treatment was ++ four months later.

In ten cases the ++ was reduced to a + by the treatment, and in three of these to a negative reaction by one more course. In fifteen cases a ± was obtained after treatment when a ++ was recorded before, while twenty-one cases still showed a ++ after the first course. Six of these showed a negative reaction after a second course.

A sufficient time has not elapsed to observe the effect on the Wassermann test of the more intensive methods of treatment, that is, five injections of arsphenamin on five successive days and a repetition of the course in one month with mercury to the point of salivation.

Of the 255 syphilis patients, thirty-five have been discharged from the Army on surgeon's certificates of disability. In thirty of these the disability was due to some manifestation of syphilis which did not yield to treatment, the other five patients being discharged for other causes.

SUMMARY AND CONCLUSIONS

The venereal problem in the Thirty-Ninth Division is similar to that in other cantonments.

There has not been the whole-hearted support of the citizens and authorities of Alexandria in minimizing the amount of venereal disease that has been shown in some cantonment cities.

The venereal prophylaxis as administered in the Thirty-Ninth Division has proved quite efficacious in preventing venereal disease.

The venereal prophylactic station in Alexandria under military control is to be established.

The use of dichloramin-T is of advantage in the treatment of certain cases of gonorrhea and chancroid.

The best method of treating early syphilis (primary and early secondary) is probably the daily injection of 0.4 gm. of arsphenamin for five days, repeating the course in one month, with weekly injections of mercuric salicylate to the point of salivation.

ABSTRACT OF DISCUSSION

DR. WILLIAM T. BELFIELD, Chicago: The United States Regular Army has been notorious the world over for its excessive venereal rate. Excluding the Philippines and China, where the rate was much higher, from 1906 to 1911 the home army averaged about 150 men per thousand per year of venereal infection. During that same period the venereal rate in the Japanese and French armies at home ranged about twenty-four, and in the Prussian and Bavarian armies, under twenty. In 1909 a timid attempt was made to introduce the so-called prophylactic treatment. Our medical men have always been regarded by the line officers as poor relations who are useful in the treatment of the sick and the wounded, but not used in their equally important function of preventing preventable disease. In 1909 the prophylactic treatment was really a joke. They used to furnish the soldiers with a packet shaped much like a cigar, and the soldier was instructed to use it after exposure. He was not commanded to use it; he could use it or not, as he pleased; and usually he did not please.

In 1912 the Army authorized the use of the prophylactic treatment not by the soldier himself but after his return to camp; and from that year on the venereal rate dropped in the Regular Army from 150 to 90 per year. According to the bulletins issued by the Surgeon-General's Office it would

seem that the regular troops in this country are still averaging about 90 infections per thousand per year.

Undoubtedly the chief reason for this excessive venereal rate is our inefficient use of the prophylactic treatment. It has been shown that when properly used in the infirmaries within an hour after exposure, that treatment constitutes an almost complete prevention. Thus, of 1,180 men who received the treatment within sixty minutes after exposure, only one showed venereal infection; 1,172 received treatment between one and two hours after exposure; of these seven were infected. Of those who received the treatment between seven and eight hours after exposure, the rate per 1,180 had run up to forty-eight. It would seem that if we cannot bring the man to the treatment within sixty minutes, the treatment ought to go with him; and he should not only be told to use it, as he was in the old days, but court-martialed if he does not use it. He is court-martialed now if he fails to report the exposure and then develops infection. An anilin dye in the ointment would reveal his failure to use it.

DR. F. M. McCALLUM, Kansas City, Mo.: While the teaching propaganda which is prevalent through the country is of great value, in many ways I do not think it would be anything like prophylactic. When I was in Honolulu in 1907-1909, the Preachers' Alliance got an idea that they would close up the resorts where the soldiers congregated, which they succeeded in doing, and venereal disease increased very rapidly. A year after that I was sent with the Fifth Cavalry about twenty or thirty miles from Honolulu, and we still had a great deal of venereal disease. I prevailed on the commanding officer to issue an order, which the major says now is a part of the army regulations, court-martialing men who neglected their duty in this respect. We used a 1:3,000 potassium permanganate solution and a 33 per cent. calomel ointment, and venereal disease diminished by 85 per cent. Prophylaxis, if insisted on by the regimental surgeons and in the regimental infirmaries, will do the most good in stamping out venereal disease among the soldiers.

DR. V. G. VECKI, San Francisco: Formerly the words "syphilis" and "gonorrhea" were tabu in public, and anything in the way of a prophylactic was not considered. Now even cities are going to establish prophylactic stations; at least in California. Colonel Maus, of the United States Army, who really is the pioneer of prophylaxis in the Army, has finally gotten the power to do things. Formerly when the physicians of the country advanced something that would be of benefit to the public there was no power behind their recommendations. The people would not follow; but now when the power of the United States Army stands behind the use of prophylactic measures and behind the enforcement of the rules to prevent the spread of venereal diseases, something is going to be accomplished.

I am, and always have been, a great stickler for personal freedom. I certainly would not approve of certain measures which are being taken in California in ordinary times; but the main thing now is to win the war. All other interests must be put in the background; and as we cannot win the war with a diseased Army, we have to do all we possibly can to keep disease out of the Army. We must not, however, be carried away by any kind of a delusion that we are really diminishing prostitution, because that is not true. We hear all kinds of societies report that there is no more prostitution—because they do not see any more of it, and they do not know anything about it. Prostitution is only taking another form. It seems that there is some kind of an evolution. No man is satisfied to go to a common house of prostitution; he wants to go somewhere to some sort of social gathering, and very frequently prostitution is to be found there at present.

The only hope we have is in this personal prophylaxis, and you cannot expect a man to use it unless he knows that it is absolutely necessary and that it is good for him, so that we must give him instructions at the same time that we furnish him with the prophylactic. Who is going to instruct the man? The medical officer in the regiment ought to take a personal interest in the men and take them into his confidence, explaining to them in a way that they will know that

these measures are taken for their personal benefit. Such instruction is badly needed.

DR. A. L. WOLBARST, New York: A few years ago a man would not have dared to say the things we are saying today about prophylaxis; he would have been accused of "compromising with vice." That was the expression that was used against those who advocated prophylaxis five or ten years ago. Today Dr. Belfield struck the nail on the head when he said if the soldier will not come to the station to get prophylaxis, the thing to do is to bring prophylaxis to him. One of the most important elements of prophylaxis has been overlooked in this discussion. I read somewhere that one of the foreign governments has adopted a prophylactic package which contains not only the ordinary prophylactic but also one or two rubber condoms. That is the most efficient prophylactic, as nearly as we can give it to the men. If we could induce every soldier to use a condom we would thereby have brought prophylaxis to him in the best possible manner. There is nothing better that I know of for prophylaxis than a rubber condom. If we want to protect these men from getting disease, let us go the limit. We ought to drop this prudishness that exists about the condom—this idea of hiding our heads in the sand and saying it does not exist because we are ashamed of it. If prophylaxis is the thing aimed at, give them prophylaxis; protect these men by the best means that we have, even if that involves the use of a condom in addition to the other things. Then when these men come back to the station give them all the prophylactic treatment you can give them.

DR. JOHN R. CAULK, St. Louis: The two great problems in venereal diseases are, first, prophylaxis with which we should all agree, and second, in the Army to institute treatment which will get the men back to duty in the quickest possible time. As to Major Thompson's paper, I have just one suggestion, and that is with reference to acute posterior involvements, particularly acute epididymitis, for which we have for some time been using small injections of horse serum, with the most remarkable effects. In every case improvement has followed. In twenty-four hours the worst cases subside under the influence of this treatment, and in two or three days the patients are up and about; we do not have to keep them off duty. Some of the other cases that we followed show practically no scar in the epididymis. We first started with 10 c.c. of horse serum injected into the muscular tissues of the buttocks; but we found that 1 c.c. or 2 c.c. does just as well. I would suggest to Major Thompson to try it in the Army. I think he will get some very encouraging results.

DR. A. E. GOLDSTEIN, Baltimore: It was stated that the best results were obtained with the prophylactic treatment when used inside of one hour after exposure. Camp Meade, Md., is supposed to be one of the best camps in the country. The length of time that it takes for a train to get from Baltimore or the nearest place in which the soldiers make visits is about an hour and a half; therefore, if a man returns from Baltimore to Camp Meade for his treatment he would necessarily not receive the full benefit of the treatment; so that in Baltimore they are establishing stations where the men can receive treatment, and good results are being obtained. The men on exposure immediately report to one of these stations, and within half an hour or forty-five minutes receive the prophylactic injection.

Regarding Dr. Caulk's mention of horse serum, we have not had any wonderful results with it, but have had good results with antimeningococcic serum. The only reason that these results have not been published is that we did not want to publish them until after trying them out thoroughly.

DR. W. J. WALLACE, Oklahoma City: I have never tried treating acute epididymitis by the use of horse serum. The treatment I have been using for years has been to incise over the most prominent part of the testicle through the layers of the tunica vaginalis and liberating the contents, which is usually a small hydrocele of the epididymis, break up adhesions and push the testicle through the incision of the tunica vaginalis, replacing it and closing the opening.

In this way, I get rid of all fluids and it prevents a recurrence. The patients generally make a rapid recovery. I perform this operation invariably in all of my private cases when I can persuade them to go to a hospital and it is the rule to perform this on all of my clinical cases at our dispensary.

DR. A. E. MOWRY, Chicago: Many men have venereal disease and will not report it because of the fact that they have to make their case public property in order to obtain treatment. If the doctor could treat the patient privately, many more of the men would take the treatment and try their very best to get rid of a disease which in the end gives them a great deal of trouble. I understand that this is being advised in the French army.

I would like to ask Dr. Thompson whether he advocates using the soluble mercurials, in big doses, two or three times a week, for the treatment of syphilis, rather than the insoluble salts. In my own experience the use of soluble mercurials in big doses has proved very much more efficacious in eradicating syphilis permanently and quickly than the insoluble salts.

DR. W. G. SCHULTE, Salt Lake City: In regard to the use of mercury in the treatment of syphilis, I would like to know whether the major has used bichlorid in the salt solution intravenously? It has given good results in those cases where urgent treatment was necessary, using first one-thirtieth of a grain and increasing to one-tenth of a grain daily. In epididymitis we have found vaso puncture with the hypodermic needle good practice. The inflammation has subsided in forty-eight hours, without any horse serum.

DR. WILLIAM C. QUIMBY, Boston: The problem of venereal prophylaxis in the Army is a part only, although a large part, of the problem of venereal prophylaxis in civil life. The ratio of infection in civil communities of large population is infinitely greater than that in the Army. The Army, however, must draw its personnel from civil life in large measure at present; therefore, not only should we as physicians do our utmost to promote all prophylactic measures and instruction in sex hygiene in the Army, but we should also do it in civil life. Following, in a measure, the admirable steps taken by California, the state board of health of Massachusetts has secured legislation making venereal disease reportable. Of course, in the beginning such a measure has to go slowly, because of the fact that the physicians throughout the state have to form the habit of reporting. It will thus take several months, or maybe a year, before the statistics will be reliable. I think venereal disease has been reportable in Massachusetts for about three months; and even in this short time Dr. Kelley of the state board of health says that it already ranks third in the list of diseases; second only to tuberculosis and measles. This shows what an enormous incidence there is in civil life of gonorrhea and syphilis. The Massachusetts Medical Society has formed a committee to study the subject and endeavor in any way possible to aid not only the state board of health but also those members of the Army who have been delegated to work on sex hygiene questions. We have found in Massachusetts, and certainly it must exist in other states as well, that one condition which needs immediate and strenuous correction is the unwillingness of large hospitals, speaking broadly, to admit cases of venereal disease to their wards. This attitude has obtained not only in small private hospitals which are run for personal profit, but in the civic hospitals as well. We hope through the medical profession, in time, to get all the hospitals converted, so that they will be ashamed to show any unwillingness to admit a case of acute venereal disease.

In regard to combating venereal disease in civil life, insist on securing, if possible, from each patient the name of their partner, of whichever sex. In that way a great deal will be accomplished. I think this should be insisted on more especially in regard to syphilis, probably, than in regard to gonorrhea. It is now being done by Dr. Morton Smith in his syphilis clinic at the Massachusetts General Hospital, and with very good results. The donor of the infection is immediately placed under medical supervision.

DR. E. H. MARTIN, Hot Springs, Ark.: In the treatment of syphilis it does not seem reasonable to give every man, no matter what his weight, the same amount of arsphenamin. The object desired in giving arsphenamin is to get the blood to become a solution of a certain strength. A man weighing 240 pounds, without extra fat, will have twice as much blood as one weighing 120 pounds. In the case of the man of 120 pounds, it is evident that he should receive only half the amount given to the larger man. I have found that one decigram of arsphenamin to every 20 pounds, approximately, of the patient's weight is always efficacious in secondary cases. Many heavy patients require eight decigrams and some a gram. I have given as much as twelve decigrams at a dose to a very large patient. I have found no harm to result in the way of increased toxicity in giving larger doses. The danger is in giving many doses rather than in giving large doses. All of the complications which have occurred in my experience followed a series of doses usually, sometimes after the second dose; but the rash and dermatitis that give so much trouble nearly always appear after a number of doses and often after small doses. In giving these large doses I find it entirely unnecessary to use mercury, which under the plan advocated by Dr. Thompson nullifies the value of the subsequent Wassermann, if there is anything in the theory that mercury will sometimes bring about a negative Wassermann before a cure is established. If you bring about a negative Wassermann by adding mercury to the treatment, you do not know whether the arsphenamin has cured the patient or not; but after using large doses only until you have a negative Wassermann you may feel sure of a cure, especially if we accept the theory of the provocative effect of the drug.

DR. CHARLES M. HARPSTER, Toledo, Ohio: In our city we were confronted with the venereal problem by a number of the large corporations. We were able to induce a number of them to permit of making a venereal survey. My office within the past year has examined over 3,000 men working for the large corporations who were sent to us for these examinations. This should be promulgated and put forward as a necessary war measure by every physician. We can then isolate those individuals that are infected, and give them proper venereal treatment.

DR. LAWRENCE T. PRICE, Richmond, Va.: I would like to ask the major what regulations apply to the officers at Camp Beauregard on this subject. I understand that there are no regulations or exactions, and that it is left to them to abstain from sexual relations because they are officers. At Richmond the urologist sees as private patients a great many cases of venereal diseases affecting officers. These men transmit infection in the same proportion as enlisted men. The venereal situation has been very difficult for us to handle until recently. At the session of our legislature during the past winter, at least seven bills were introduced attempting to cover the problem; none of them passed.

The commonwealth's attorney of Newport News discovered an old law that stated that any person suspected of being immoral or venereally infected could be arrested and subjected to examination under the charge of being a "person of ill fame," and the disposal of the individual is being handled according to the facilities of the local health commissioners in the several cities. Since the meeting in Chicago, we have put the above into effect and I have treated over fifty cases without legal complications, and double this number of arrests have been made.

DR. GRANVILLE MACGOWAN, Los Angeles: I am the executive officer of a medical advisory board which I think has more trouble on its hands than any other medical advisory board of the country. We have a million and a quarter of individuals to look after. The regulations in the selective service in regard to syphilis and gonorrhea are rather peculiar. Syphilis is no bar to service in the Army unless that syphilis has affected the nervous system, or unless there is deformity. If you were to attempt to get an army without having men who had gonorrhea you would not have an army. My belief is that not 10 per cent. of the men who reach the

age of 30 have not had gonorrhea. I mean to say that 90 per cent. of the men who have reached the age of 30 either have had it or have it. My experience may be a little different from that of other people, but I believe that one man out of every five sitting in this room is a syphilitic—that is, 20 per cent.

As to the question of the measures which we took in the state of California toward keeping down venereal diseases, it is true enough that all of these measures are impossible of enforcement when this condition exists in society. In this last year I have seen three good men receive gonorrhea for their wedding presents from the women who appeared to be of good social status and against whom nothing wrong was known; but on close investigation these women admitted that they had been infected either by a former husband or by some lover whom they had trusted. I know of two instances in which the daughters of rich men of high standing in church were allowed to marry men who had gonorrhea, because their fathers said: "These men will get over that gonorrhea. We had gonorrhea when we were boys, and it did not amount to anything." "It is not much worse," one of them said, "than a bad cold." These women were married, and they were supposed to have been separated from their husbands on account of that. One of them I know has since lost her ovaries.

The question has to be handled according to the way the majors and the colonels of the cantonments will work it out to the best possible advantage. We cannot send for the men who do not have gonorrhea.

DR. LOYD THOMPSON, Hot Springs, Ark.: Many things could be said in regard to prophylaxis in a camp of soldiers. Very frequently a man will go out and indulge in sexual intercourse, tonight, for instance, and he will not report for his prophylaxis when he comes back. Tomorrow he will get another pass and not indulge, but he will come back and take the prophylaxis thinking that "saves his face," and he will not be tried because he took the prophylaxis finally. We have no way of knowing whether he took it on the night that he indulged or at some subsequent time. That is one great difficulty we have to face.

Another point is this: We have found on questioning a large percentage of the men that we have not got accurate data. We found that they were careless when under the influence of liquor when they indulge in intercourse, and that it was on such occasions that they got infected. I do not pretend to be a prohibitionist, but I am here talking prohibition because it is our duty as physicians to combat disease not only from the venereal standpoint but from the standpoint of inefficiency in every way. A soldier is not a good soldier if he indulges in alcoholics. Eighty-five per cent. of the men who come to the clinics with venereal disease, new cases, have been using alcohol, enough to make them either hilarious or drunk.

Dr. Wolbarst mentioned the use of condoms. There was an article in the *Military Surgeon* last month advocating this same thing; but personally I do not believe it will work. It might help some, but it will not work with certainty in all cases, because many men will not use a condom. They will not use it when they are drunk. We expect to establish prophylactic stations in Alexandria as soon as I return—two perhaps. They will be under military control, and we hope that that is going to help some.

Dr. Mowry talked about the administration of soluble salts of mercury. We only give insoluble salicylate there, because we cannot see our patients every day or even oftener than once a week. Practically all our syphilitics are on duty, and after the acute infectious stage has passed, which does not take very long, they are on duty, and we do not like to ask to have them come for treatment oftener than once a week. I have used an intravenous injection of mercury a great deal, and advocate it in certain cases. I use the benzoate more frequently than the bichlorid, however.

Dr. Price talked about the officers. I am not absolutely certain about the Army regulations in this matter, but I believe that they are the same for the officers as for the men; but they are winked at. In Camp Beauregard I have never

known of an officer being tried for infractions of the rules in regard to venereal diseases. Quite a number of the officers there have come to be treated, the same as the privates do.

Dr. MacGowan said that he considered that 20 per cent. of all the men in this room were syphilitic at one time in their lives, and that 20 per cent. of men in all walks of life were. I can hardly agree with him on that. Certainly, from the number of Wassermann tests I have made I have not gotten such high figures as that, either in the Army or outside of it.

A SUCCESSFUL VENEREAL PREVENTION CAMPAIGN

W. RAY JONES, A.B., M.D.

Medical Inspector, City of Seattle Health Department

SEATTLE

The West recognized venereal diseases as a public health problem and undertook venereal prophylaxis when in the spring of 1913 Seattle established the first free municipal venereal clinic. It had as its chief the genito-urinary surgeon of the City Hospital, and was located in one of the outpatient rooms of the hospital. The object was to treat all indigent venereal patients, the surgeon donating the time and the city furnishing the equipment and medicine. Both male and female patients were treated, and any necessary surgical work was done in the hospital. That clinic is still running today.

In 1917, numerous individuals and various organizations tried to devise some means of decreasing venereal diseases among soldiers and sailors visiting our cities. Little came of this because of no two having the same idea, until the Committee on Venereal Prophylaxis of the state medical association, aided by public spirited persons, established two venereal prophylaxis stations. One was in Seattle and one in Tacoma. Here men exposed to venereal diseases could secure preventive treatment free of charge.

In October, 1917, the military authorities, in conformity with the national program for the prevention of venereal diseases, called the attention of Seattle to existing vice conditions. The result was the formulation of the plan outlined in the following paragraphs:

All persons known to the health department or police as prostitutes are arrested and held for a medical examination. When the police arrest these supposed prostitutes or pimps they put a disorderly person charge against each individual, and immediately turn the person over to the health department for examination as suspected of being infected with a communicable disease. This person is now under the jurisdiction of the health department and not admitted to bail until released as not infected. If on examination he or she is found to have a venereal disease, appropriate treatment is begun.

To be classed as diseased, the person must have a positive Wassermann reaction or a positive gonorrhea slide or clinical chancroids. Clinical evidence has to be confirmed by laboratory findings and weak positive Wassermann reactions by clinical evidence, and all evidence, both laboratory and clinical, whether diseased or not, confirmed by a second person. Physicians' health certificates are ignored, as in thirty cases collected, none were given after a thorough examination. If found not diseased, the person is returned to the police, and goes through the police court in the regular way on a disorderly person charge.

In an examination of 513 prostitutes and their associates by the Seattle Health Department, the findings of which are given in the accompanying table, 78 per cent. of the prostitutes were diseased, 60 per cent. having syphilis, 37 per cent. gonorrhea, and 17 per cent. both syphilis and gonorrhea, and among men associating with or living off prostitutes, 35 per cent. had syphilis, 27.5 per cent. gonorrhea, and 8.5 per cent. both.

All the diseased are regarded as actively or potentially infective. Women with syphilitic histories dating back twenty years were found with vulval mucous patches. One congenital syphilitic had a specific pharyngitis and chancroidal infection; no syphilitic, therefore, could be regarded as not likely to become infectious at any time. The policy is to regard all infected prostitutes and panders as a menace to the public health and treat them accordingly.

During the period between November 9 and July 1, the city treated in its quarantine stations 219 women with syphilis, releasing 120 with negative Wassermann reactions, and 126 women with gonorrhea, releasing 105 as cured. During the same time forty-five men with syphilis and thirty-four with gonorrhea were treated. The average number under treatment was about 150, though at one time 235 were interned. Forty-one women and twenty-one men were broken of the drug habit during treatment.

DISEASE RATING OF FIVE HUNDRED AND THIRTEEN PROSTITUTES AND THEIR ASSOCIATES *

	Women, Per Cent.	Men, Per Cent.
Syphilis	42.6	20.8
Gonorrhea	17.4	19.0
Syphilis and gonorrhea	17.0	8.5
Chancroids uncomplicated	0.2	0.1
No disease	22.0	47.0
Total diseased	78.0	53.0
Total syphilis	60.0	35.0
Total gonorrhea	37.0	26.4

* Findings in an examination of 384 women and 129 men by the Seattle Health Department between October, 1917, and July, 1918.

A syphilitic to be released must have a negative Wassermann reaction as well as no clinical signs, plus sufficient treatment to make a negative reaction of value. This treatment consists usually (according to the case) of weekly arsphenamin injections plus mixed treatment to saturation. Usually it required at least three months to secure a negative reaction. Wassermann tests for release are taken a week after the mercurial treatment has been suspended.

A gonorrheic must have three consecutive negative slides at least forty-eight hours apart, with all treatment suspended for at least forty-eight hours before taking the first. Men are also subjected to prostatic and seminal vesical massage.

The prime object is to prevent disease by removing the sources of infection, and then keep the girls from relaxing into former habits and becoming reinfected. All with homes are sent to their parents, and homes and occupations found for the others. All within a reasonable distance are required to report in person every two weeks after release.

Since the Seattle campaign began, the other cities of the state have taken up the work. The state board of health likewise has made venereal disease reportable. The requirements for release are probably the most stringent in the country, but public health demands the interning of all prostitutes and of men living off them as potential carriers of disease.

964 Empire Building.

DESCRIPTIVE PICTURE OF BERIBERI

NAGIB T. ABDOU, M.D.

Medical Officer, Health Officer's Department, Staten Island, N. Y.

ROSEBANK, N. Y.

In the latter part of April, 1918, a four masted schooner arrived in New York harbor from a port in British West Africa. The cargo consisted of logs, rubber and cocoa. Of the original crew of ten men, eight of whom were from Finland, the skipper and the cook being German-Americans, eight remained, and all except the skipper were suffering from beriberi. The trip consumed eighty-five days, during which hardships of all sorts were experienced. The remaining seven of the schooner's crew, victims of the original Oriental disease, were detected at quarantine by the boarding officer and brought to the Hoffman Island State Hospital for isolation and treatment. These patients landed in a somewhat prostrated condition, and one of them died the following day of acute dilatation and hypertrophy of the right ventricle, his case being an acute pernicious dry form of beriberi. In addition to the heart, the liver and kidneys were also affected.

CLINICAL OBSERVATIONS

Of the six patients, three were suffering from the wet or edematous form of beriberi. They complained of pain in the abdominal, epigastric, thoracic and lumbar regions, and had a general lassitude. The other three patients were suffering from the dry form of beriberi with similar symptoms. They had muscular atrophy; the calves of the legs became thin and flabby and the thigh emaciated with a sharp anterior edge of the tibia; their reflexes were somewhat altered and slow in response. One of these patients had as a complication scorbutus, and another, dermatitis exfoliativa. The patients had an evening temperature between 100 and 101 and a fraction, with an increased morning pulse rate to 105 while the temperature was normal. Now and then the stethoscope reflected an echo of a slight systolic murmur, which disappeared and reappeared until complete cure was effected. The laboratory findings were negative as to blood and feces, but urinalysis revealed albumin in small percentage in two cases and a trace of sugar in one case. Microscopically, epithelial casts of renal origin were detected. I noticed particularly some erythema on the hands and simple conjunctivitis in three patients out of the remaining six. The patients were as hungry as wolves, and food was given to them generously, their diet consisting of fresh fruits and vegetables, milk and fresh meat. They hated the sight of rice, and that Oriental dish was excluded, of course, from their bill of fare. They walked in the hall of the ward in a way that reminded the nurse of people dancing the "hesitation." They were constipated, and laxatives were frequently administered to them for relief.

In the line of drugs, cardiac stimulants, quinin and general tonics seemed favorable, and the careful and systematic administration of these brought the patients to complete recovery within thirty days of their admission into my service. The nurses in charge of the state ward took deep interest in the care of these beriberi patients, as it was their first experience in caring for the Japanese disease, and as they were preparing to join the Red Cross, there was a possibility of their being sent to tropical or semitropical countries for

duty where they might have to deal again with beriberi. The patients, in their turn, were grateful, drew pictures of the schooner with a view of West Africa, and gave these to the nurses and dietitians as souvenirs before leaving Hoffman Island, which they did in the best spirits and physique.

CAUSATION AND INCIDENCE OF BERIBERI

Fraser and Stanton hold that the substance in unpolished rice that prevents beriberi is phosphorus pentoxid present to an extent of about 0.53 per cent., and reduced in polished rice to 0.26 per cent. Okata and Kokubo, Japanese army surgeons, reported the discovery of a diplococcus for beriberi, but inoculation experiments on monkeys have been negative. Hence the bacteriology of beriberi is still in the experimental stage. It is asserted also that feeding chickens and birds with spoiled rice has produced polyneuritis the same as in man. This will strengthen the theory of decomposed food and the pathogenic process of metabolism with the development of bacteria causing the kakke, or beriberi.

Beriberi is not limited to Oriental countries such as China, Japan, India and the Philippine Islands, but cases have been observed in Africa and in South America, especially in Brazil, and in the United States and Canada, England, Ireland and continental Europe. There are 50,000 cases yearly in Japan, and in the Philippine Islands there were 3,334 cases in 1910. The mortality in beriberi averages 33 per cent.

CONDITIONS ON THE TRIP FROM AFRICA

Before leaving the West African coast, the crew took fresh water from that land for drinking and cooking. Also they had provisions consisting of canned goods (meat and fish) and canned vegetables. The skipper shared the same bill of fare with his crew, and in addition he had whisky, pies and puddings, which he selfishly consumed in full view of the crew. Rain water was obtained during the trip, but the skipper kept it all for his own use, forcing the crew to drink only the water taken from the West African coast.

They alternated dishes with corry, rice and salt meat. Their chief mate left Assinie in a serious physical condition and died at sea a few days later. The donkeyman died also. Both sailors died evidently of beriberi. The seven other members of the crew became ill in the middle of their journey to New York with symptoms of swollen legs, pain in the epigastrium and in the chest and sides with a general "tired feeling." None except the captain brushed the teeth. They had for treatment cathartics and quinin, but the disease was slowly developing during the trip. After the swelling disappeared, numbness in the legs, paresthesia and coldness of the limbs ensued for several days preceding death.

CONCLUSION

I can agree with Braddon and Cooper that the continuous consumption of large quantities of carbohydrates, with their vitamin, causes beriberi, and that fresh vegetables and a mixed diet are evidently the best prophylactic measures.

Average Mental Ability.—Go into any court of law and hear a dozen witnesses describe the same event. You will become convinced that the average person cannot see nor hear more than one half straight, and cannot draw a conclusion from what he sees or hears more than 25 per cent. straight.—E. P. Lyon, *Texas State Journal of Medicine*.

Military Medicine and Surgery

IMPORTANCE OF BLOOD CULTURES IN PNEUMONIA

J. E. McCLELLAND, M.D. (CLEVELAND)

Captain, M. C., U. S. Army

CAMP BEAUREGARD, ALEXANDRIA, LA.

That many cases of pneumonia have an associated septicemia has long been known. The relation between the degree of septicemia and the severity of the disease has also been studied and appreciated. In fact, the statement has been made that "in the more severe cases a true septicemia is usually present, and this always occurs in the cases ending fatally." I have had no opportunity to make any review of the literature on this subject. I desire merely to give a brief report on the experience at this base hospital in order that the results may be compared with those obtained at the other camps and to urge the advisability and importance of taking blood cultures as a routine in all cases of pneumonia among the soldiers. The information thus gained is of great value in prognosis and serves as a helpful guide to the specific therapy in the Type I cases.

TABLE 1.—FREQUENCY OF POSITIVE BLOOD CULTURES IN
THE VARIOUS TYPES OF PNEUMONIA

	No. Cases	Posi- tive Blood Cul- tures	Per Cent.	Serum Treated	Empy- ema	Mor- tality	Per Cent.
Type I.....	13	6	46.1	12	1	1	7.7
Type II.....	4	1	25.0	0	0	1	25.0
Type III.....	1	0	0.0	0	0	0	0.0
Type IV.....	24	1	4.2	0	1	1	4.2
Undetermined....	12	0	0.0	0	0	0	0.0
Hemolytic strep- tococcus.....	9	5	55.5	0	9	5	55.5
	63	13	20.6	12	11	8	12.7

During the months of May, June and July, blood cultures were taken as a routine in all cases diagnosed clinically as lobar pneumonia and in a few cases diagnosed as bronchopneumonia. These cultures were made in practically all instances within twenty-four hours after the patient was admitted to the pneumonia ward. If the admission culture proved negative and the condition of the patient continued satisfactory, the cultures were not repeated. On the other hand, if the admission culture was positive or the patient's condition continued to grow worse, the cultures were repeated as often as considered necessary. The greatest number taken in any one case was five.

In all cases the cultures were made by withdrawing from 15 to 20 c.c. of blood into a sterile Luer-type syringe; from 10 to 15 c.c. were added to a flask containing from 100 to 150 c.c. of plain meat infusion broth; the remaining 5 c.c. were divided into 2 and 3 c.c. portions, each thoroughly mixed with 10 c.c. of plain melted agar, and plates were poured in the usual manner. All cultures were kept in the incubator for at least four or five days before being discarded as negative. In all positive cultures the organism was identified by staining and cultural characteristics, by tests for bile solubility, and if bile-soluble, the type of pneumococcus was determined by the reactions with immune serums.

Ninety-three cultures were taken on sixty-three different patients, and of these, eighteen, or 19.3 per cent., were positive. Thirteen of the sixty-three patients, or 20.6 per cent., had one or more positive cultures during the course of the disease. The frequency with which positive cultures were obtained in the various types of pneumococcus pneumonia, in hemolytic streptococcus pneumonia and in those in which the etiologic factor remained undetermined, is shown in Table 1. The increased tendency of the more virulent organisms (hemolytic streptococcus and pneumococcus Types I and II) to invade the blood stream is clearly apparent. Attention is also directed to the high mortality among these patients, with the exception of the Type I patients, who enjoyed the advantage of specific serum therapy. All the patients with hemolytic streptococcus infection developed empyema.

A list of the Type I pneumococcus cases is given in Table 2. These cases, as a rule, require much larger amounts of serum than those with negative cultures, and it is important that the serum treatment should be instituted early and pushed vigorously, especially during the first few days. The treatments should be repeated every six or eight hours, day and night, as long as the rectal temperature is 101 or higher. The

very heavy infection, approximately 100 colonies per cubic centimeter, and died ten hours after the blood culture was obtained.

TABLE 2.—RAPID DISAPPEARANCE OF THE SEPTICEMIA IN TYPE I CASES THAT ARE SERUM TREATED

Name	Day of Disease	Blood Cultures Colonies per C.c.	Amount Type I Serum Used, C.c.	Empyema	Result
C. C.	3	7	500	No	Recovery
L. H.	8	0			
	6	11			
	10	0			
	21	0	1,100	No	Recovery
J. D.	6	1	None	Yes	Recovery
F. N.	2	15			
	4	0	300	No	Recovery
K. L.	2	1			
	4	0	300	No	Recovery
C. M.	4	44			
	5	0			
	6	0			
	11	0	1,500	No	Died

We had only one Type III case during this time. The blood culture on admission was negative, and the disease ran a very mild course.

Of the twenty-four IV cases, a positive blood culture was obtained in only one. Clinically this patient showed consolidation of the entire left lung. He was admitted to the pneumonia ward on the sixth day of the disease, and a blood culture was made the same day. It showed thirty-one colonies per cubic centimeter. A second culture was made two days later, July 12, and showed a slight increase to thirty-four colonies per cubic centimeter. July 13, a third culture was made and showed a reduction to eleven colonies per cubic centimeter; July 14, there were only four colonies per cubic centimeter, and, July 15, the septicemia had entirely disappeared. The clinical course paralleled the septicemia, but even during the height of the disease

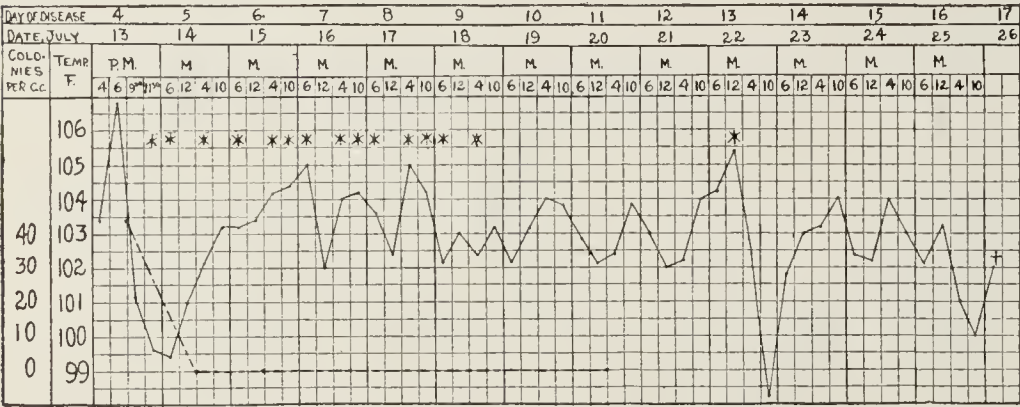


Chart 1.—Temperature and septicemia curves in a fatal case of Type I pneumonia. Note the critical fall in the septicemia curve after the first two injections of specific serum. Solid line, temperature; broken line, septicemia; *, injection of 100 c.c. of serum; †, death of patient.

rapid subsidence of the septicemia after one or two injections of serum is very striking. Even in the case of C. M., who died on the seventeenth day of the disease, the septicemia disappeared entirely after the second injection. The temperature, however, remained high, and he developed a double otitis media and finally died. The pneumonic process remained confined to the original involvement, namely, the left lower lobe, and the presence of empyema could never be demonstrated either by roentgen ray or needle, though the patient was explored repeatedly. A necropsy was not allowed. Death seemed to be due to the toxemia, which the serum, though administered generously (1,500 c.c.), did not seem to alleviate. It does seem, however, in this case, that the serum prolonged life. The temperature and septicemia curves of this case are shown in Chart 1. This case is very similar to one described by Cole,¹ in which a "persistent concentration of immune bodies could not be maintained in the patient's blood by the administration of immune serum." Of the six Type I cases with positive blood cultures, only one was fatal.

In Type II cases a septicemia is always of grave import. In the four cases listed in Table 2 septicemia was demonstrated in only one. This patient had a

TABLE 3.—HIGH MORTALITY IN HEMOLYTIC STREPTOCOCCUS SEPTICEMIA

Name	Day of Disease	Blood Cultures Colonies per C.c.	Empyema	Result	Remarks
A. M.	4	0			
	14	0			
	23	0			
	29	0			
	30	1	Yes	Died	Bl. Cult. positive in broth
F. S.	10	0			
	15	0			
	16	..	Yes	Died	Postmortem blood culture positive in broth
T. S.	7	7	Yes	Died	
C. S.	7	50	Yes	Died	Death occurred 10 hours after blood culture was taken
A. Y.	2	0			
	3	0	....	....	1 hour before operation
	4	0	....	....	14 hours after operation
					blood culture in broth positive
	5	0	Yes	Recovered	Blood culture in broth negative

the patient appeared quite comfortable, and at no time was his condition considered critical. As soon as the blood became sterile, the patient entered on a rapid and uninterrupted convalescence. This case

1. Cole, Rufus: Jour. Exper. Med., 1917, 26, 465.

demonstrates that a patient may have a relatively severe septicemia with an organism of low virulence and still not be very sick. The proof that we were dealing with a Type IV pneumococcus was established by injecting several cubic centimeters of one of the blood cultures in broth intraperitoneally into a white rat. The rat died in less than sixteen hours, and at necropsy showed a severe peritonitis, the exudate containing large numbers of gram-positive encapsulated diplococci which were bile soluble but did not react specifically with Type I, II or III serum. A second rat was injected intraperitoneally with 2 c.c. of sputum emulsion from the same patient. This rat also died over night. At necropsy an identical organism was recovered from both peritoneal exudate and heart's blood. The temperature and blood culture curves in this case are shown in Chart 2.

There were twelve cases in which the etiologic factor was undetermined. None of these patients had a positive blood culture, and all recovered.

A list of the hemolytic streptococcus cases with positive blood cultures is given in Table 3. There were five of these cases; all were complicated by empyema, and four of the patients died. This shows the gravity of septicemia in these cases. A. Y., who recovered, had a negative culture one hour before his opera-

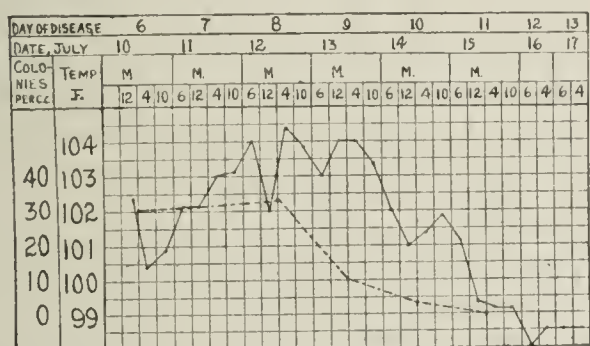


Chart 2.—Temperature and septicemia curves in a case of Type IV pneumonia in which the patient recovered. Note the initial rise followed by the gradual fall in the septicemia curve, and the parallelism of the curves.

tion for empyema. Another culture taken the following morning was negative in the plates but positive in the broth. Cultures were repeated twenty-four hours later and were entirely negative. This case illustrates that a patient may have a slight hemolytic streptococcus septicemia and still recover. The supposition that a relatively small number of organisms gained access to the blood stream through the operative wounds seems reasonable. The patient apparently developed a rapid immunity and overcame the septicemia before it gained much headway.

In direct contrast to the foregoing case is that of M. A. This patient had a negative blood culture antemortem, and a second blood culture taken eight hours postmortem was negative both in the broth and in the plates. The necropsy disclosed a very extensive bronchopneumonia involving most of the right lung and part of the lower left lobe. In addition there was an empyema on the right side which had been diagnosed antemortem. This patient evidently died from a severe toxemia rather than from a septicemia. All the other hemolytic streptococcus patients with negative blood cultures recovered.

SUMMARY AND CONCLUSIONS

1. Blood cultures in pneumonia are valuable from the standpoint of prognosis and as a guide in the serum therapy of the Type I cases.

2. Septicemia is more common with the more virulent strains of pneumococcus and with *Streptococcus hemolyticus*.

3. Type I pneumococcus septicemia responds very promptly to immune serum treatment.

4. A moderately severe Type IV pneumococcus septicemia may be quickly recovered from.

5. The mortality in hemolytic streptococcus septicemia is very high, but one case is reported in which the patient had a slight transient septicemia and recovered.

SELECTIVE ACTION OF DILUTE SODIUM HYDROXID ON CERTAIN RACES OF THE PNEUMOCOCCUS*

ANDREW WATSON SELLARDS, M.D. (BOSTON)

Major, M. C., U. S. Army

CAMP DEVENS, AYER, MASS.

It was demonstrated by Neufeld in 1900 that pneumococci, in contrast to many species of bacteria, are readily soluble in bile. Neufeld¹ stated, on incomplete evidence, that the bile salt is the constituent of bile which is responsible for the lytic action on the pneumococcus. This statement found ready acceptance, very possibly because of the well-known action of bile salts in dissolving red corpuscles.² However, in the routine tests for the differentiation of pneumococci and streptococci, a solution of bile salts dissolves the pneumococcus so feebly and so irregularly that whole bile is used in preference to the purified salts. The concentration of bile salts in bile varies widely, but as a rule it is less than 1 per cent.; a 10 per cent. solution of bile salt, however, is recommended if these salts are substituted for bile in the solubility tests.³ One part of this 10 per cent. solution is added to nine parts of a broth culture of the organisms to be tested. Rosenow⁴ mentions the solution of pneumococci in 0.5 per cent. bile salt. Such behavior is exceptional; with a 2 per cent. solution of sodium cholate, Cole⁵ found that many typical strains dissolved incompletely or not at all.

It seems probable that other constituents of bile play an important rôle in the solution of the pneumococci. The pigments merit consideration because of their cytolytic action in the presence of light (photodynamic action). Some bactericidal but no appreciable bacteriolytic action could be demonstrated with pneumococci under the following conditions:

One per cent. of bilirubin was dissolved in salt solution with the aid of a little alkali. One part of this was mixed with nine parts of a suspension of pneumococci in salt solution. Strains belonging both to Group 1 and Group 2 were tested. The mixture was exposed in thin walled test tubes of ordinary glass, 1 cm. in diameter, to direct sunlight for five hours. The bile pigment became much lighter in color but this mixture remained turbid and stained preparations showed numerous pneumococci. Therefore it does not seem

* The observations reported in this paper were carried out at the Base Hospital, Camp Dodge, Iowa, and at the Pathological Laboratory of the Johns Hopkins Medical School, Baltimore.

1. Neufeld: Ztschr. f. Hyg., 1900, **34**, 454.

2. The term "bile salt" ordinarily indicates the salt of cholic acid conjugated either with glychocholate or taurocholate. Since the cholate radical is the active portion of the molecule, sodium cholate is sometimes employed instead of the conjugated products.

3. Hiss and Zinsser: A Textbook of Bacteriology, Ed. **3**, New York, D. Appleton & Co., 1916, p. 370. Avery, Chickering, Cole, and Dochez: Monographs of the Rockefeller Institute, 1917, No. 7, p. 13.

4. Rosenow: Jour. Infect. Dis., 1910, **12**, 124.

5. Cole: Jour. Exper. Med., 1912, **16**, 644.

that the bile pigments alone could play any important part in the solution of pneumococci by bile under ordinary routine conditions.

The alkaline reaction of bile deserves attention since neither the pigments nor the bile salts can remain in solution in a distinctly acid medium. A specimen of calf's bile after autoclaving and filtration

TABLE 1.—SOLUBILITY OF SUSPENSIONS OF PNEUMOCOCCI *

Strain	Whole Bile	Bile Salt 2%	Sodium Hydroxid	
			N/5	Effect of Higher Dilutions
Group I				
1.....	C	C	C	N/50 C
2.....	C	0	AC	
3.....	C	AC	C	N/25 C
4.....	C	0	C	N/100 C
Group II—typical				
5.....	C	0	C	N/100 C
Group II—atypical forms				
6.....	C	C	0	
7.....	C	C	0	
8.....	C	C	0	
9.....	C	C	0	
10.....	C	C	AC	
11.....	C	C	AC	
12.....	C	0	C	N/50 AC
13.....	C	0	P	
14.....	C	C	C	N/50 C
15.....	C	C	0	
16.....	C	C	C	N/100 C
17.....	C	AC	C	N/50 P
Group III				
18.....	C	0	C	N/10 AC
Group IV				
19.....	C	0	AC	N/5 AC
20.....	C	AC	0	
21.....	C	AC	C	N/100 C
Borderline group between pneumococci and streptococci				
22.....	P	0	P	
23.....	0	0	0	
24.....	AC	0	0	
25.....	AC	0	0	
26.....	AC	0	0	
27.....	AC	0	0	

* C, complete solution; AC, almost complete solution; P, partial solution; 0, no solution.

was titrated roughly against litmus paper; its alkali content corresponded roughly to a hundredth normal solution. The importance of avoiding an acid reaction in carrying out the bile solubility test was noted by Cole,⁵ who advises a slightly alkaline medium composed of primary and secondary phosphates. On using a stronger alkali, however, it will be seen from the following data that certain strains of pneumococci dissolve rather readily in dilute sodium hydroxid alone without the aid of bile. For example, one strain (Group 2) dissolved readily in twenty-fifth normal hydroxid. Another culture of the same strain after incubation for twenty-four hours at 37 C. was allowed to stand for one week at room temperature. The washed sediment of bacteria then dissolved in remarkably high dilutions of sodium hydroxid. One part of a very cloudy suspension of the washed bacteria cleared immediately when mixed with an equal part of a five hundredth normal solution. Almost complete solution took place with thousandth normal sodium hydroxid, a dilution that failed to react with litmus paper. This high degree of solubility was not found frequently, however, and it occurred only in the older cultures. Fresh cultures of several strains were tested for their solubility (1) in bile, (2) in sodium taurocholate and (3) in sodium hydroxid.

In order to secure a good suspension of pneumococci, inoculations were made from blood agar slants to glucose meat infusion broth. After eighteen hours' growth the broth cultures were centrifugalized, the sediment washed once with

physiological sodium chlorid solution, and then suspended in saline. This suspension was neutral to litmus.

Bile of young calves was autoclaved. Before use the clear supernatant fluid was filtered off from the resulting precipitate. Sodium taurocholate was used in 2 per cent. solution in physiological sodium chlorid solution. This solution was slightly turbid and distinctly acid, but it cleared promptly on neutralization to litmus with sodium hydroxid. For the tests with sodium hydroxid, a fifth normal solution was used, and strains readily soluble in this were tested in more dilute solution. One part of the suspension of pneumococci was mixed with one part of each of the preceding solutions, giving, therefore, in the final preparations, a concentration of 1 per cent. sodium taurocholate and tenth normal sodium hydroxid. Solution often occurred immediately, though to secure constant results the mixtures were incubated for one hour at 37 C. before the final readings were taken. The results⁶ are given in Table 1.

From the data in Table 1 it is seen that bile is a much better solvent for pneumococci than either sodium hydroxid (fifth normal) or sodium taurocholate (2 per cent.). In the cultivation of the pneumococci it has long been recognized that the development of acid in the medium inhibits growth; it was not evident, however, that some races are also very susceptible to alkali. The solubility in sodium hydroxid varies considerably even in the same immunologic group. It is unfortunate that a larger number of typical races were not available for study. The testing of a large number of strains of pneumococci might reveal some correlation between solubility in alkali and other characteristics, such as pathogenesis and virulence. In Table 1 it will be noted that a conspicuously large proportion of the atypical Group II strains are soluble in bile salt but not in sodium hydroxid. Of the strains in the borderline group between pneumococci and streptococci, it is noteworthy that none of these dissolve readily in either bile salt or sodium hydroxid. It would be impossible, however, to attempt any generalizations from a small number of strains.

In contrast to this ready solubility of some of the strains of pneumococci, it was found that ten strains of hemolytic streptococci isolated at Camp Dodge,

TABLE 2.—EFFECT OF AGE OF CULTURE ON SOLUBILITY OF PNEUMOCOCCI *

Culture	Strength of Sodium Hydroxid			
	N/5	N/10	N/50	N/100
Strain 1, 18 hours' growth....	C	C	C	P
Strain 1, 12 days' growth....	C	C	C	AC
Strain 18, 18 hours' growth...	C	AC	0	0
Strain 18, 12 days' growth....	C	C	C	AC
Strain 23, 18 hours' growth...	0	0	0	0
Strain 23, 12 days' growth....	0	0	0	0
Strain 24, 18 hours' growth...	0	0	0	0
Strain 24, 12 days' growth....	C	C	C	C

* C, complete solution; AC, almost complete solution; P, partial solution; 0, no solution.

Iowa, showed no evidence of any solubility with fifth normal sodium hydroxid.

Some evidence was obtained in regard to the effect of the age of cultures on solubility of pneumococci in alkali. Four of the strains recorded in Table 1 were grown in glucose broth for twelve days and then tested according to the preceding technic. The results are given in Table 2.

6. These strains were collected and studied by Dr. Mildred Clough. I am much indebted to her for the use of this material and for her kind cooperation.

In Table 2 it is seen that, in the case of Strains 18 and 24, the older cultures were markedly more soluble than fresh ones. Strain 23 is of especial interest since neither the old nor the young cultures were soluble. Dr. Clough considers that this strain should probably be classed with the streptococci rather than with the pneumococci.

From the preceding data it is evident that, in testing the solution of pneumococci in bile, certain factors must be controlled in order to secure constant results; special attention should be given to the age of the culture and to the reaction of the medium.

Neufeld considers that the bile salts act specifically on pneumococci and thus resemble the immune bodies, in contrast to the chemical disinfectants, which act more or less alike on all bacteria. The solubility of certain strains of pneumococci in sodium hydroxid furnishes an example of a relatively high degree of specificity in a simple chemical substance.

In conclusion, it should be noted that the solvent action of bile on pneumococci is not easily explained. Moreover, the process may vary with the individual strains of pneumococci; this is indicated by the rather wide variation that different strains show in their solubility in bile salts and in alkali. The various constituents of bile, when isolated and tested separately, are less effective than the whole bile. An analogous situation exists in the effect of bile on certain ferments. A thorough explanation of the action of bile on pneumococci would be of service in any attempt at the therapeutic application of bile products in pneumococcal infections.

SUMMARY

The effect of bile salts does not adequately explain the solvent action of whole bile on pneumococci; in searching for other active constituents, no evidence was obtained of bacteriolytic action by bile pigments on pneumococci. Alkali in dilute solution (hundredth normal) was found to dissolve certain strains of typical pneumococci. A sufficient number of strains have not yet been tested for determining the exact relationship between solubility in dilute alkali and other characteristics of the pneumococcus, such as virulence and the immunologic groupings. Ten strains of hemolytic streptococci were tested and none were soluble in sodium hydroxid (fifth normal). In testing the solubility of pneumococci in bile, the age of the culture and the reaction of the medium are important factors. The explanation of this solvent action is by no means complete. It is quite possible that the process varies with the different strains of pneumococci; more complete data would be of value in any attempt at the therapeutic utilization of bile products in pneumococcal infections.

Utilizing Birth Records.—In the year 1916 over 172,000 searches were made of the records of births, deaths and marriages on file in the department of health in the city of New York, almost 100,000 being free searches of birth records for admission into school, obtainment of employment certificates and for granting of money to widowed mothers. Almost 20,000 paid searches were made of the records of births for various purposes. The uses to which the transcripts of the records of births were put were many, such as to obtain passports, to prove kinship in litigation of wills, etc., to obtain a license to marry in those cases in which the city clerk refuses to grant marriage licenses unless age is proved, to establish exact date of birth for use in criminal court, to obtain deposits in savings banks, etc.—W. H. Gylfof, M.D., Registrar.

CONVOYS AND THEIR CARE

THE ADMITTING SECTION OF AN EVACUATION HOSPITAL DURING COMBAT

GEORGE DE TARNOWSKY, M.D. (CHICAGO)

Major, M. C., U. S. Army

A. E. F., FRANCE

While the admission of patients is normally included among the duties of the officer of the day, in actual warfare it has been found necessary to appoint a special admitting officer for this extremely important and difficult task. The term "difficult" must be qualified, in order to make its meaning clear. If, by admission, we merely understand the "taking up" of the wounded by means of their field medical cards, the filling out of data on their clinical records—Form 55 A—and assigning them by rotation to their respective wards, it stands to reason that a squad of orderlies whose handwriting is legible, under charge of a junior officer, will meet such demands satisfactorily. If, on the contrary, and as should be the case, the admitting officer must, in addition to supervision of paper work, personally act as sorting officer (*triage* of the French), then his duties immediately assume great importance. Not only should he be a surgeon of quick and mature judgment, but he must also constantly have in mind, or on paper: (a) the relative technical value of the different surgical teams in the hospital; (b) the special surgical teams on duty (thoracic, neurosurgical, etc.); (c) the hours of the different surgical shifts, and (d) the available beds in each surgical service.

PERSONNEL AND DUTIES OF THE ADMITTING SQUAD

One sergeant and from four to six privates of the Hospital Corps, selected for their clerical qualifications, will suffice for ordinary convoys; this number may have to be doubled or trebled if the casualties are pouring in by the hundred. Rapidity and accuracy are both essential; ambulances must be promptly discharged and blankets, pillows and stretchers returned in order not to hinder transportation problems. A varying number of stretcher bearers must also be assigned for duty during the emergency, as well as a squad of orderlies to wrap up and make out receipts for clothing.

The hospital organization must be made elastic enough to meet all contingencies, rigidity must give way to flexibility, if one does not wish to see the evacuation hospital grounds littered up with a tangled mass of ambulances, stretchers and walking wounded—precious hours wasted because sudden shiftings of duties and details have not been foreseen and worked out.

Each admitting clerk should possess a quick, legible handwriting, together with a general knowledge of wound nomenclature and accepted abbreviations.

The patients classed as walking cases line up in front of the clerks' table; give up their field medical cards, receive a ward ticket and pass on rapidly to the buffet.

Stretchers are laid in rows in the admitting tent and the clerks pass rapidly from one to the other, recording all necessary data in duplicate, for all urgent cases. As fast as the duplicate clinical record is filled out, with the ward number recorded on it, the stretcher

bearers carry each patient to the receiving ward, returning litter, pillow and blankets to the ambulance waiting outside.

The admitting officer, from an examination of the general appearance of a given patient, the pulse rate and written indications on the field medical card, decides as to his disposal. When in doubt, he should wait until the patient is in bed in the receiving ward, in order to make a thorough examination before coming to any conclusion.

In order to have at all times an accurate list of available beds, a register book is kept by the admitting sergeant. Based on the ward roster, taken after an evacuation has occurred, if any, a daily sheet is made out on which are recorded: (a) ward number, and (b) vacant beds in each ward, each vacancy being indicated by a vertical line opposite the ward number, for example: Aug. 20, W. I., 9 | | | | | | | | | |

Whenever a patient is assigned to a ward, one of the vertical lines is crossed, so that the clerk—subject to orders—maintains an equable balance among the different services. At the bottom of the daily sheet are

returns thereto from the operating room—this number can ordinarily be thus subdivided:

Undressing and cleansing of patient.....	30
Preparation of operative field in ward.....	10
Waiting for turn in roentgen-ray room and fluoroscopy.	10
Anesthetizing patient and placing him on table.....	10
Operation	20
Dressing, bandaging, immobilization and removal of patient from operating room.....	20
Total	100

A properly organized admitting tent and competent director of surgical material will easily quadruple the operative output of a surgical team—an all important item during a heavy battle.

SORTING (TRIAGE) OF THE WOUNDED

The rough-and-ready division of wounded from the regimental aid post or field hospital into walking and stretcher cases has only a relative bearing on the severity of the wounds or the urgency of their radical treatment. Many patients classed as "walking" cases have collapsed from internal hemorrhage or gas gan-



Fig. 1.—American Red Cross Military Hospital No. 5: panorama of hospital tents, all belonging to the same unit.

recorded the total number of vacant beds in the hospital, total number of patients in the hospital, and total number of admissions since the opening of the hospital.

A weekly list of convoys is also made up, with the total number received each day from 7 a. m. to 7 p. m. and from 7 p. m. to 7 a. m. At the end of each month, the total number of admissions during that period is also recorded. The details of this system were all worked out by Capt. J. D. Bruce, M. C., admitting officer and director of surgical material at the American Red Cross Military Hospital No. 5; the entire system has been so generally successful and has proved to be such an invaluable time saver that it has seemed worth while to describe all of its minutiae. The great problem in an evacuation hospital is to operate properly and rapidly on a large number of patients in a short space of time—the shorter, the better for each patient. I am sure that every surgeon will agree with me that much time is needlessly wasted in the operating room, waiting for patients. If one represents as 100 the total expenditure of time in a given surgical case—from the time the patient arrives in the ward until he

grene on admission or shortly afterward; many classed as "stretcher" cases have turned out to have only a superficial flesh wound or extra-articular contusion. This is not intended as a criticism of the dressing station or field hospital; to make more than a snap shot diagnosis, when a steady stream of wounded men is pouring into a dugout or tent, is out of the question. The first complete diagnosis must be made in the evacuation hospital, and on the admitting officer falls this heavy burden. With a sudden convoy of three or four hundred casualties arriving within a few hours, and from five to ten surgical teams in the operating rooms, it stands to reason that some of the wounded will have to wait several hours before their turn comes. The admitting officer must decide on the order of precedence. When a big battle is on there can never be enough surgical teams in an evacuation hospital to operate on all patients within twelve hours after admission. Fortunately for our wounded, the percentage requiring immediate limb or life-saving intervention is relatively small—probably not more than 20 per cent. These are the wounded that must reach the operating room immediately, regardless of the order of

their admission or of the surgical service to which they are assigned.

Theoretically, and during relatively calm periods, each surgical team should examine its patients before they are admitted to the operating room; practically, this is not possible during an active "show." Each team is operating, dressing patients and snatching a few hours out of the twenty-four for meals and sleep. On the admitting officer must devolve a diagnosis of the relative urgency of each case, its confirmation by the fluoroscope (localization of foreign bodies, fractures) and the surgical preparation of the wound area by the ward orderlies and nurses. When in doubt as to the severity of a given case, etc., he can and should call in the aid of the consulting surgeon or chief of surgical services. While convoy follows convoy, and the operating teams are straining every ounce of strength in order to meet the demands placed on them, all surgical cases must be pooled, the only exception to this rule being those wounds demanding special technic in their treatment; the latter alone should be reserved for operation by teams previously trained and selected for that purpose. Such teams must be ready at all hours to operate when called on to do so.

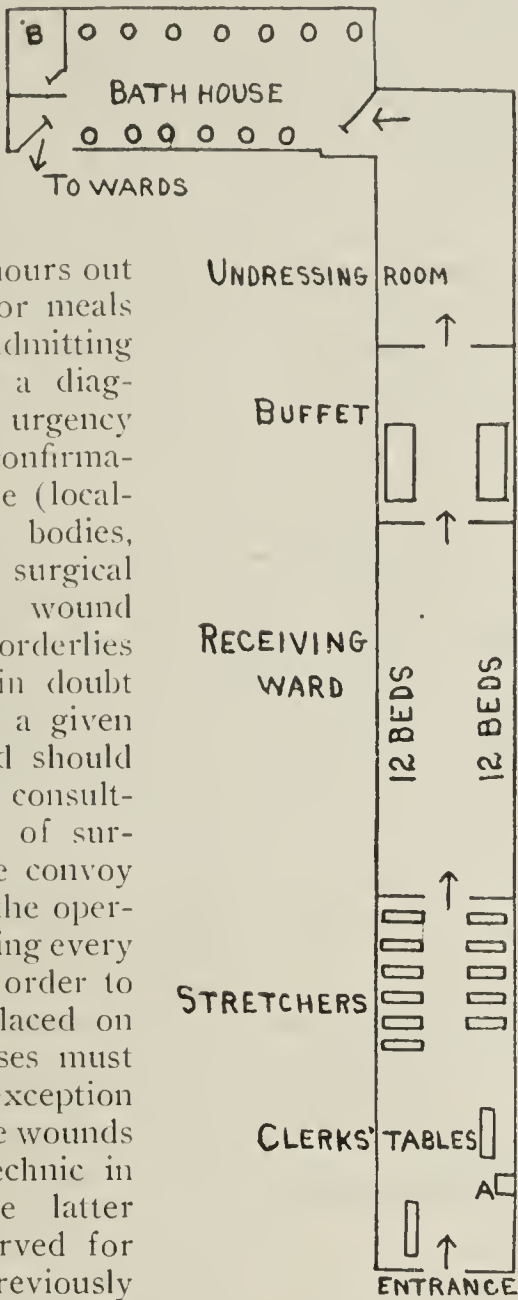


Fig. 2.—General plan of admitting section: A, table at which money, etc., may be deposited; B, clothing, pajamas, etc.

ADMITTING OFFICER AND DIRECTOR OF SURGICAL MATERIAL

Having supervised the admission of a convoy, and divided the cases into medical, slightly wounded and severely wounded, the admitting officer should devote his attention to the latter cases.

From the admitting tent all severely wounded pass directly into the receiving ward, where they are placed on specially prepared beds, undressed, deloused and washed by orderlies and nurses. In order to avoid contamination by lice, etc., the bed is first made up in the ordinary manner, and a sheet placed over the blanket. The patient is laid on the sheet covered by an extra blanket or two, undressed and cleansed without exposure of more of his body than is absolutely necessary. When he is ready for his pajamas, the extra top sheet and blankets are rolled away from under him and he is slipped under the regular coverings. The extra top sheet and blankets are taken to the delousing station and sterilized. Light diet is furnished from the buffet and given to all patients excepting those presenting intra-abdominal lesions or suffering from concussion or coma.

In shock cases, if very severe, the patients are not undressed at all, but heat is applied around their bodies, hot drinks are given them or they are transfused, either in the same ward or in a special room containing separate heat chambers (*cellules chauffantes*).

Having sorted the severely wounded into urgent surgical, observation and borderline cases, the admitting officer directs the former, in proper order, to the roentgen-ray room, where they are fluoroscoped, all fractures recorded and foreign bodies localized. All severe observation and borderline cases are assigned and transferred to the different surgical wards, special or general, where they are examined a second time by the chief of the surgical team and booked for operation during that team's shift. Should an operative emergency develop among these cases, the patient is immediately ordered to the operating room and operated on by one of the teams on shift at the time.

In order that all available data may reach the operating surgeon before or while the patient is being anesthetized, a duplicate clinical record of all severe cases is made out in the admitting tent. One copy goes to the registrar's office, in order not to delay the daily sick and wounded report, and the other, with the field card and roentgen findings, accompanies the patient to the operating room. The clinical records and field cards of the slightly wounded and medical cases are not made out in duplicate, both documents going from the admitting tent to the registrar's office, whence they are returned to the proper wards. Should another convoy arrive, as sometimes happens, before the first lot of wounded have been disposed of, the admitting officer has an assistant who replaces him in the admitting tent.

As soon as the disposal of the convoy has been determined, the admitting officer—now become director of surgical material—takes position near the operating barrack or tent, in order to keep in constant touch with the stretcher bearers, roentgen-ray and anesthetizing rooms, thus insuring a constant stream of wounded toward the operating rooms and preventing undue congestion at any point. Each squad of stretcher bearers is given its share of the list of operable cases, with their order of precedence; as each wounded man enters the operating barrack, the director verifies the name, diagnosis, etc., and checks them off his list. On completion of an operation, the name and ward number are checked off. As far as possible, a patient who has been operated on should be placed in the service of the operating team; practically this is not always possible while the pooling of cases is in force. Since, however, the operating sheet accompanies the patient, with the name of the surgeon written on it, it is a simple matter to follow the case up and make the proper transfer as soon as the intensity of the battle has abated.

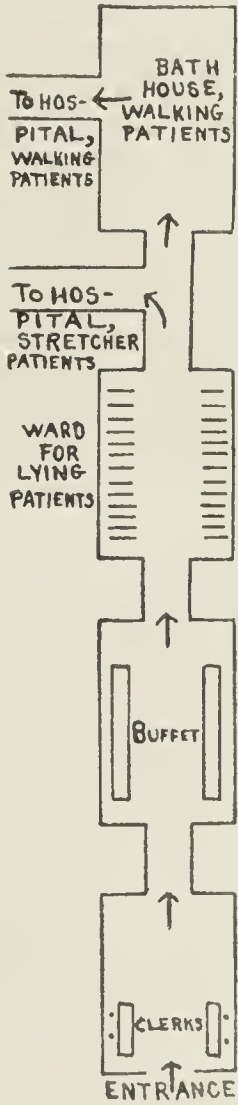


Fig. 3.—Another plan of an admitting section of an evacuation hospital.

In order to assure a better postoperative treatment of critical cases, a recovery ward is necessary; in it all of the surgical teams can follow their cases from day to day. A ward surgeon does all of the dressings in the recovery ward, subject to the orders or suggestions of the operating surgeon, who is required to be present during ward walk, in order not to disturb routine work.

SURGICAL DISPENSARY FOR WALKING WOUNDED

During a big "show," valuable saving of time is obtained by appointing a junior officer as dresser for all walking wounded. A section of tent is set aside for this purpose and equipped with sterilizer, instruments and dressings. The dispensary dresser is furnished with a daily list of walking wounded; the latter are sent for, ward by ward, an orderly being detailed for that purpose.

THE ADMITTING TENT BUFFET

Curiously enough, almost the first point to impress on a raw M. C. recruit—surgeon, nurse or orderly—is the all important fact that a wounded soldier is a disabled athlete and not a sick man. With few exceptions this is axiomatic. Casualties arrive at the evacuation hospital after having received a cursory dressing and immobilization, if necessary, in a regimental aid station or field hospital; they may have been fighting for hours or days with little or no time for regular meals; and a tiring meal-less trip of several hours in an ambulance precedes their arrival at the evacuation hospital, the first stopping place where they can get food, rest and radical treatment. I myself am convinced that a goodly percentage of the exhaustion from which they suffer is due to starvation. During the critical battles of this spring, it was no unusual event to receive wounded British and French soldiers who had fought and retreated for five or six days, living on stale bread or hard tack which they happened to have in their knapsacks or pockets. Regardless of the severity of their wounds, nine out of ten soldiers clamor for food before they are discharged from the ambulances. Both the French and British armies have long since recognized this condition and provided for it. The British buffet is always supplied with hot tea, well sweetened, bread, butter and jam. The French serve soup or "rata"—a composite stew of meat and vegetables with Pinard (wine). Soldiers with intra-abdominal lesions should, of course, be excluded from the buffet; practically they are the very ones who manifest no desire for food. While admitting the fact that the giving of nourishment to a patient who may shortly afterward require anesthetizing presents certain esthetic disadvantages, I have yet to see any harm caused by this war custom. Military surgery has given some of our most deeply ingrained surgical notions a rude jolt. The giving of food and omission of the sacramental preoperative purge are two of the least important. When one has seen hundreds of wounded men eating their fill at the buffet and then, deloused, washed up and clothed in clean pajamas, fall into their beds and into profound slumber, from which they awaken a few hours later strengthened and refreshed for their operative ordeal, there can be no further doubt as to the best procedure to follow. Food they

must have, prewar notions to the contrary notwithstanding.

The buffet should consist of a section of tent or barrack with tables on each side of its long axis. One table holds tea, cocoa or chocolate, kept hot by means of a Primus lamp, and a sufficient quantity of cups and hot water to wash them in; the opposite table should have bread and butter, sandwiches, hash or some other hot dish. Two orderlies, under charge of a nurse, will suffice, one of the orderlies carrying trays to the stretcher patients.

All walking patients, after being taken up by the admitting clerk, pass directly to the buffet, receive their ration of food, and eat it sitting on rows of benches provided for the purpose. Cigarets are supplied at the same time. A wounded soldier who is not allowed to smoke, when so inclined, becomes an insurrecto on the spot.

THE DELOUSING AND BATHING BARRACK OR TENT

All walking wounded, having eaten and smoked, retire to a screened off portion of the buffet tent where they disrobe from head to foot and roll their clothing into individual bundles which are tied and tagged by orderlies, a duplicate number being kept by the patient. Each soldier is also given a small cotton "treasure" bag in which he places his small personal belongings; he carries this with him to the bath house and ward. If he desires to leave money or jewelry with the registrar, a receipt for it is given him before he leaves the admitting tent.

The equipment of the bathing tent or barrack will necessarily vary with the terrain and available sanitary resources. A pitcher of water, a basin and a cup of kerosene, with soap and towel, represent the essentials; shower baths with hot water are desiderata whenever obtainable.

Each man scrubs the hairy parts of his body thoroughly with the kerosene oil, and then uses soap and water. When dried, a suit of pajamas, pair of socks and slippers are donned and he is directed to his ward.

DIMENSIONS AND PLANS OF ADMITTING SECTIONS

For a 2,000 bed evacuation hospital, five tents or barracks, approximately 6 by 18 yards, will be required. Of these, one is used for admission, one for a buffet and undressing room, two for stretcher cases and one for a bathing room.

By the method of having all the wounded reach their respective wards or operating barrack deloused, cleansed and clothed in pajamas, an immense amount of time is saved and the routine work of orderlies and nurses is not hampered. Though not strictly necessary, a junior officer can be detailed to change all old or foul-smelling dressings in the admitting ward; walking patients should be dressed in the surgical dispensary.

The general plan of the admitting section will necessarily vary with the terrain and available resources of the evacuation hospital. The three herewith submitted have all been successfully used in British, French or American evacuation hospitals.

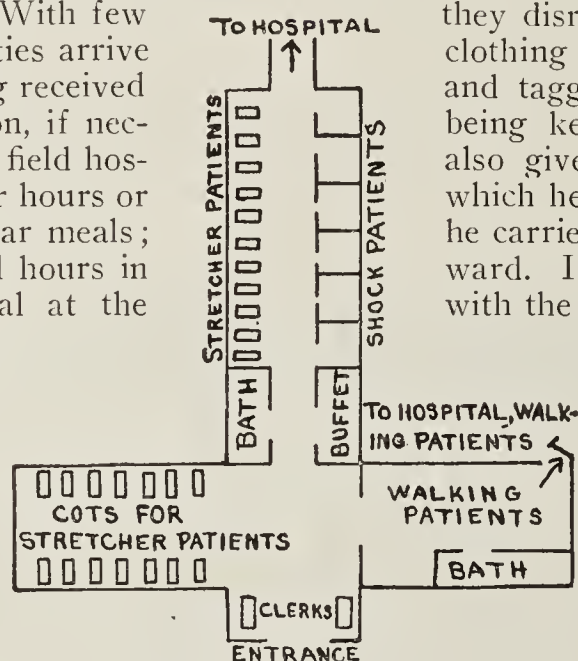


Fig. 4.—A third plan.

CONCLUSIONS

1. The general plan of admission is the result of observations made along the Franco-British front in 1917-1918; the details, as carried out in our hospital, and many original ideas embodied therein, should be credited entirely to Capt. J. D. Bruce, M. C.

2. If carried out, with omissions or additions suggested by divergent conditions of the battle front, the scheme will be found to be both time and life saving.

PNEUMONIA AT CAMP MEADE, MARYLAND

HENRY M. THOMAS, M.D. (BALTIMORE)

First Lieutenant, M. C., U. S. Army; Supervisor of Pneumonia
Wards, Base Hospital

CAMP MEADE, ADMIRAL, MD.

From the opening of the base hospital, Nov. 1, 1917, to May 31, 1918, 421 cases of pneumonia have been diagnosed in the wards. Of these, 361 were diagnosed as lobar pneumonia and sixty as bronchopneumonia. We are doubtful as to the accuracy of this differential diagnosis, and in some cases such a differentiation was impossible. Cases with sudden onset, usually with a chill, rusty sputum, continuous high fever, and defervescence by crises between the fourth and tenth day were called lobar pneumonia without consideration of the distribution of pulmonary signs. In a few borderline cases the roentgen ray was of considerable help. There were undoubtedly a number of cases of bronchopneumonia or interstitial bronchopneumonia diagnosed as lobar pneumonia, and we were unable to correct this diagnosis except when the cases terminated fatally. The bacteriology was no help in making the diagnosis, for in two cases of bronchopneumonia and five cases of bronchitis, the Type II pneumococcus was isolated from the sputum. Of the sixty cases diagnosed as bronchopneumonia, only twelve followed measles (the other six measles pneumonias being entered in the record office as lobar pneumonia), and two followed scarlet fever.

Our typical and usual picture of bronchopneumonia was: gradual onset with cough and general malaise often following a bad cold; temperature running an irregular course, usually from 1 to 3 degrees higher at night than in the morning; fever lasting from one to four weeks and ending by lysis; indefinite and variable signs of consolidation in the lungs, often rapidly migratory, and purulent sputum. Most of our forty-six cases were of this description, although there were a few "abortive" cases in which there were only a few days of fever but in which, when examined, definite signs in the lungs were found both clinically and by roentgenoscopy. Such cases, if neglected, might readily have progressed to the more severe type described above. The postmeasles cases were similar except for the extraordinary degree of cyanosis and highly purulent, sometimes salmon colored sputum.

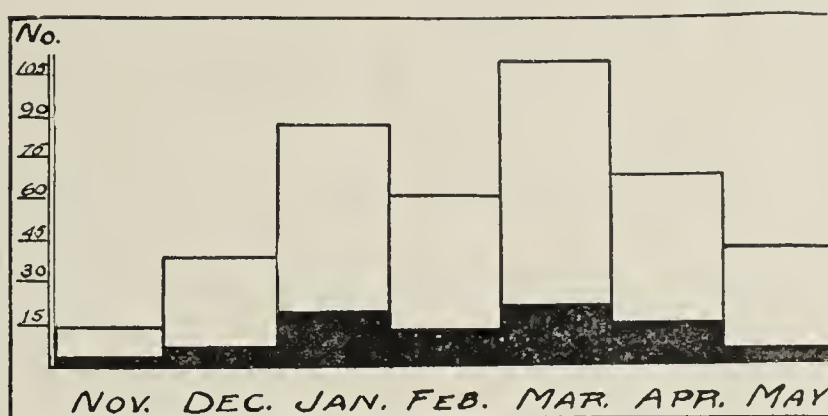
Our figures, then, are only roughly correct from this point of view, but we strongly believe that these two diseases should be considered separately.

TABLE 1.—MORTALITY AMONG WHITE AND COLORED
PATIENTS WITH LOBAR PNEUMONIA AND
BRONCHOPNEUMONIA

	Number		Died		Mortality	
	White	Colored	White	Colored	White	Colored
Lobar pneumonia.....	127	234	28	36	22.0%	11.1%
Bronchopneumonia.....	37	23	10	5	27.0%	21.7%
Total.....	164	257	38	41	23.2%	15.9%
	421		79		18.7%	

The incidence of pneumonia among the colored troops was roughly eight times as great as among the white troops, there being only about 7,000 colored troops to 35,000 white troops in camp.

In the middle of February a different clinical and bacteriologic picture made its appearance, comprising about ten cases in all. These patients showed marked prostration early in the course, were apprehensive, and were very ill. The physical signs were those of consolidation of one or the other of the lower lobes. As the disease progressed, the percussion note was observed to become flat, and on performing thoracentesis, fluid in quantities varying from a few cubic centimeters to 1 or 2 liters was obtained. This fluid was thin, slightly cloudy, dirty orange colored and usually contained relatively few cells and organisms. The organisms were always found to be *Streptococcus hemolyticus*. Early operation yielded unsatisfactory results, and repeated aspiration succeeded in curing only one case. The procedure finally adopted was aspiration, followed in one or two days by rib resection low in the chest wall under local anesthesia, and the substitution of neutral solution of chlorinated soda for the pleural exudate slowly and only after any shock incident to the operation was recovered from. Four of these cases coming to necropsy showed interstitial bronchopneumonia as described perfectly by Kaufman and noted first in this country by Mathers¹ in his study of a series of cases of pneumonia of atypical cases occurring during and following attacks of grip in 1915-1916. He showed the presence of *Streptococcus hemolyticus* in the sputum and lungs of practically all these cases. Cole and MacCallum² have described these cases following measles in the soldiers at Fort Sam Houston, Texas. It is interesting to note that measles was not recognized in any of our cases. The sputum studied in five such cases yielded the Type IV pneumococcus in one and the streptococcus in four (hemolysis was not tested). There were other cases of atypical pneumonia in which the sputum yielded the streptococcus; but without mouse inoculation we are not prepared to say what importance this organism should be given.



Occurrence of pneumonia by months: totals in outline, deaths in black.

1. Mathers: Tr. Chicago Path. Soc., April 1, 1916.
2. Cole, Rufus, and MacCallum, W. G.: Pneumonia at a Base Hospital, THE JOURNAL A. M. A., April 20, 1918, p. 1146.

During December the sputum of fifteen cases of lobar pneumonia was studied, after which time no more mice were available. These cases all yielded the pneumococcus and none the *Streptococcus hemolyticus*, indicating that at that time the *Streptococcus hemolyticus* was not playing an important rôle in the etiology of pneumonia.

Beginning Feb. 15, 1918, every available sputum was studied by the Avery technic. It is interesting to note that there were certain cases in which no sputum suitable for examination could be obtained, although every effort was made to procure it. We are inclined to believe that they belong to the streptococcus group. In cases in which good sputum was to be had, the Avery technic was altogether satisfactory for the determination of pneumococci when present, and in conjunction with cultures of the sputum directly on blood agar plates made fairly reliable substitute for mouse inoculation. However, mouse inoculation has proved most desirable in the study of sputum in cases in which pneumococci were not present in abundance or when other organisms were to be designated as the causative agent.

TABLE 2.—SPUTUM BACTERIOLOGY, FEB. 15 TO MAY 31, 1918

Type.....	Lobar Pneumonia					Strepto- Undeter-		Total
	I	II	II+	III	IV	coccus*	mined†	
Number.....	57	26	11	0	27	25	13	159
Per cent.	36.2	16.3	6.8	0.0	16.7	15.7	8.1	100
Died.....	3	5	2	0	6	2	2	20
Mortality.....	5.3	19.2	18.2	0.0	22.2	8.0	15.4	12.5
Bronchopneumonia								
Number.....	0	0	2	0	9	14	3	29
Bronchitis								
Number.....	0	3	2	0	4	10	0	19

* Cases in which the streptococcus was the prevailing organism in the Avery tube after five hours' incubation. Hemolysis was not determined. Many of these sputum specimens were of very poor quality and probably did not yield the etiologic organism.
† For a short period, bile tests were not used, and therefore some of these cases were probably Type IV pneumococcus.

In only one case of pneumonia from which a type pneumococcus (Type I) was isolated from the sputum did streptococcus empyema develop. We take this to indicate that the coexistence of these two organisms was rare in our series.

We are unable to say in what proportion of cases *B. influenzae* occurred. It was seen several times in lobar pneumonia and bronchopneumonia, and doubtless occurred frequently; but during that time our attention was turned toward discovering and treating with serum the Type I pneumococcus cases, and our laboratory staff was not large enough to permit of extensive studies. We did not find *B. influenzae* alone in any case, and doubt its significance in the instances in which it was noted.

PNEUMONIA FOLLOWING MEASLES AND
SCARLET FEVER

During the period covered by this report there occurred 316 cases of measles, in eighteen, or 5.7 per cent., of which, pneumonia developed. From the pleural fluid of five empyemas occurring in these cases the hemolytic streptococcus was isolated in four, and the organism was undetermined in the fifth. Of the twelve cases of measles terminating fatally, all were complicated by pneumonia and four also by empyema. In none of these cases was necropsy performed. The sputum from four postmeasles cases was studied for the pneumococcus. A Type IV pneumococcus was found in three of them and no pneumococcus in the other one. This organism may possibly have a place in the etiology of the pneumonia, but the

hemolytic streptococcus found in the pleural exudate is much more reliable evidence. Weichselbaum³ called attention to the fact that the streptococcus may be present in the lung of a patient dying from pneumonia. The thought occurred to us that very possibly a streptococcus entering the lung as a secondary invader might outgrow the pneumococcus, especially in pleural exudates, and give rise to confusion.

TABLE 3.—MORTALITY IN MEASLES AND POSTMEASLES
PNEUMONIA OCCURRING DURING THE SEVEN
MONTHS COVERED BY THIS REPORT

	Number		Died		Mortality	
	White	Colored	White	Colored	White	Colored
Measles.....	243	73	10	2	4.1%	2.7%
Postmeasles pneumonia.....	15	3	10	2	66.6%	66.6%

From 147 cases of scarlet fever, three cases of pneumonia developed, all of which were complicated by streptococcus empyema. The one specimen of sputum examined yielded a Type IV pneumococcus.

Four patients developed scarlet fever while convalescing from pneumonia, one of whom suffered from streptococcus empyema.

TABLE 4.—MORTALITY IN SCARLET FEVER AND PNEUMONIA
FOLLOWING SCARLET FEVER

	Number		Died		Mortality	
	White	Colored	White	Colored	White	Colored
Scarlet fever.....	147		4		2.7%	
Pneumonia following scarlet fever.....	3	0	2	0	66.3%	

The incidence of pneumonia following measles and scarlet fever is of peculiar interest at the present time. Scarlet fever is characterized above all other features by its complications, which are almost invariably streptococcal infections; this organism can usually be found in the throat. Pneumonia followed scarlet fever in 2 per cent. of the cases and measles in 5.7 per cent. This would seem to throw some doubt on the importance of the presence of streptococci in the throat flora of measles-pneumonia.

COMPLICATIONS

Of the complications, empyema was by far the most frequently observed.

TABLE 5.—INCIDENCE AND BACTERIOLOGY OF EMPYEMA
FOLLOWING LOBAR PNEUMONIA AND BRONCHO-
PNEUMONIA

	Number	Empyema	Pneumo- coccus	Strepto- coccus	Unknown
Lobar pneumonia.....	361	22	14	5	2*
Bronchopneumonia.....	60	18	1	13	4
Unknown lung condition....	11	11	0	11	0
Total.....	432	51	15	29	6

* The staphylococcus was obtained from one case of empyema following lobar pneumonia.

The cases classed as of an unknown lung condition include cases in which empyema was the first chest condition noted. Two followed measles, two scarlet fever, two tonsillitis, one peritonsillar and one inguinal abscess, probably all having some changes in the lung, either bronchopneumonia or interstitial bronchopneumonia. The remarkably high percentage of empyemas following bronchopneumonia is probably due to the fact that the streptococcus was the organism causing, or at least playing a large part in, the infection.

3. Weichselbaum: Med. Jahrb., 1886, p. 550.

The mortality of the pneumococcus empyemas was 40 per cent.; that of the streptococcus empyemas 41.3 per cent.

Two cases of lung abscess were seen following pneumonia, in one of which the patient recovered after operation.

Meningitis complicating pneumonia occurred four times, and was in all cases due to the pneumococcus and always followed lobar pneumonia. These four patients died.

Otitis media was reported in only three cases.

Purulent pericarditis developed in five cases, all of which terminated fatally. The streptococcus was grown from one of the exudates.

Acute nephritis was seen in postmortem examinations in one case, but albuminuria associated with casts occurred quite frequently, clearing up quickly during convalescence.

Pulmonary tuberculosis in patients suffering with pneumonia was diagnosed five times, three of the patients recovering from their pneumonia and returning temporarily to their commands.

Sixteen cases of pneumonia came to necropsy. Four were cases of lobar pneumonia, two of which were complicated by meningitis and one by pulmonary tuberculosis. Eight were of the type of bronchopneumonia usually seen, and four of these patients also had empyema. Four were of interstitial bronchopneumonia complicated by empyema from which the *Streptococcus hemolyticus* was isolated. One of these patients had scarlet fever; the other three cases were apparently preceded only by bronchitis.

TREATMENT

The treatment of all pneumonias was systematized to a certain extent, each patient receiving a course of digitalis and other ordinary routine measures.

All the Type I pneumococcus cases were treated with serum as soon as the organism was ascertained. The Rockefeller hospital technic was followed as closely as Army hospital conditions permitted. In fifty cases treated we have seen nothing which could be construed as harmful effects from serum. Mild anaphylactic reactions were not uncommon but never dangerous, and no lasting complications resulted.

TABLE 6.—TYPE I LOBAR PNEUMONIA

	Number	Died	Mortality
Treated.....	50	3	6%
Untreated.....	7	0	0%
Total.....	57	3	5.3%

The seven untreated patients had their crisis before the type pneumococcus could be determined, either from technical difficulties in the laboratory, or because the patients were seen late in the course, or because the crisis occurred early in the disease.

The three cases that terminated fatally were of the most unfavorable kind, and it seems to us unfair to ascribe these deaths to failure of the serum. One patient had a history of active pulmonary tuberculosis for two years, during which time he had been unable to do any work. At necropsy an advanced pulmonary tuberculosis with cavity formation was found; this condition, while suspected, had been demonstrated only a few days before death. Another patient had been ill five days before entering the hospital, and before treatment could be started had had pulmonary edema for thirty-six hours. The third patient was operated on for empyema on the second day of his

pneumonia, shortly after which procedure treatment was instituted. After several days of treatment his temperature remained low and he was apparently recovering. Ten days after the operation, however, he suddenly developed meningitis and died within twenty-four hours. Gram-positive cocci were seen in smears from the spinal fluid, but cultures failed to grow.

We are much impressed by the fact that the earlier in the disease serum treatment was begun the more reliable and prompt was the effect. Cases treated on the second or third day practically never required more than three doses of serum, while our most obsti-

TABLE 7.—DISTRIBUTION OF LOBAR PNEUMONIAS AMONG THE COMPANIES OF THE THREE HUNDRED AND SIXTY-EIGHTH INFANTRY

Company	B	C	D	E	F	G	H	I	K	L	M	Hdqs.	Maeh.	Gun
	IV	S	S	S	II+	IV	IV	IV	S	I	I	I	S	S
	II	II+	I				S	S		S	I	I	I	II
			IV				I	I		I	I	S		I
							I	I		II	II+			
							I	I		I	II+			
							I	I		IV	S			
							S	I		I	I			
							II+	II+		II+	I			
										I	II+			
Total	2	2	4	1	1	1	9	1	10	10	3		3	

nate cases were treated first on the sixth or seventh day and required more than ten treatments apiece. Crisis on the second, third and fourth day was very frequent among our treated cases of Type I pneumonia and infrequent among the other cases. In the untreated cases of Type I pneumonia, however, there were one or two which showed early crisis—enough, in fact, to prevent our drawing any definite conclusions from this one fact alone.

The patient mentioned above as dying of meningitis and one other patient who developed streptococcus empyema are the only instances of complications arising in our serum-treated cases.

It seems clear that the general mortality of lobar pneumonias during the period of typing (from February 15 to May 31) was kept as low as 12.5 per cent. by the low mortality in the Type I cases, which comprised 36 per cent. of this total. The part played by the serum is questionable; but the least we can say is that the results are very suggestive.

From the epidemiologic point of view only one regiment yields anything worthy of study. There occurred in the Three Hundred and Sixty-Eighth Infantry, composed of colored troops from Tennessee, forty-seven of the 157 typed lobar pneumonias. The remaining cases were nearly equally distributed among the other regiments of the camp and Laurel Encampment. Table 7 shows the distribution of these forty-seven cases in the regiment.

SUMMARY

The large majority of cases of pneumonia seen at Camp Meade during the past year were typical cases of lobar pneumonia.

The colored troops were much more liable to pneumonia than the white troops, but their mortality was only two-thirds as great as the white troops. The morbidity may be partially explained by the fact that most of the colored troops were from Tennessee, while the white troops came from Maryland and Pennsylvania.

Primary bronchopneumonia or pneumonia following bronchitis is considered a very rare disease in adults. We saw forty-six cases of bronchopneumo-

nia which did not follow measles or scarlet fever or general anesthesia. They presented a fairly distinctive clinical picture. Empyema was a very frequent complication, and from all but two of the pleural exudates a hemolytic streptococcus was isolated.

I wish to emphasize the importance of early recognition of mild cases of bronchopneumonia so frequently passed over as bronchitis. These patients, if not put to bed, may go on to a severe illness.

The cases of interstitial bronchopneumonia seen by us were not in measles patients. One patient had scarlet fever for six days before fluid was detected. They presented a somewhat different picture of sudden onset, generally with a chill, great prostration, nervousness and apprehension. Early and rapid accumulation of fluid which had a typical, thin, cloudy appearance was the rule. The hemolytic streptococcus was recovered from these cases.

The percentage of postmeasles pneumonia, while relatively small (5.7 per cent.), was nearly three times as large as pneumonia following scarlet fever (2 per cent.). I feel that this point is not one to be overlooked in the study of the rôle of the streptococcus in pneumonia.

Serum treatment of Type I cases apparently yielded excellent results. I believe that the mortality was lessened, the febrile period shortened and the number of complications reduced by its use.

Type II pneumococci were recovered from the sputum of several patients suffering from bronchopneumonia and bronchitis. As far as I know, these patients had not come in contact with Type II pneumococcus pneumonia cases.

SERUM TREATMENT OF TYPE I PNEUMONIA

OCCURRING IN ASSOCIATION WITH AN EPIDEMIC
OF INFLUENZA

LESLEY H. SPOONER, M.D. (BOSTON)
Major, M. C., U. S. Army

ANDREW WATSON SELLARDS, M.D. (BOSTON)
Major, M. C., U. S. Army

AND

JOHN H. WYMAN, M.D. (MEDWAY, MASS.)
Captain, M. C., U. S. Army

CAMP DEVENS, AYER, MASS.

The epidemic of influenza that has passed through Camp Devens has led to a large amount of laboratory investigation, which will be the subject of a future report. It is sufficient to state that *Bacillus influenzae* of Pfeiffer has been established as the etiologic factor in this epidemic. Incident with the rise in the number of cases of the disease, pneumonia, clinically atypical from the classical acute lobar pneumonia, became very prevalent.

A small number of these were demonstrated to be due to *B. influenzae* alone. That many of them were not purely an influenzal process was shown by bacteriologic study of necropsies. Of the patients showing clinical signs of pneumonia, the usual percentage of Type I pneumococci was demonstrated in the sputum (approximately 20 per cent). Blood cultures during life revealed the same type in eight cases.

Since both the influenza bacillus and the pneumococcus were demonstrated so frequently in the sputum

of these cases, some doubt arose as to the advisability of treating this mixed infection with an anti-pneumococcus serum. It is the purpose of this report to state briefly the effect of Type I serum in these cases.

Before the epidemic, serum of low titer (Squibb's) was used in the treatment of typical Type I lobar pneumonias. In this group nineteen recovered and five died—a mortality of 20 per cent. During the epidemic, with essentially the same treatment, thirty-one recovered and twenty-three died, a mortality of 43 per cent. In the height of the epidemic, the laboratory received a supply of high titer serum (Rockefeller). Under careful administration, fourteen patients recovered or are well on the way to convalescence, and one has died—a mortality of 7 per cent. The mortality of Type II was 50 per cent. (two of four patients) before, and 62 per cent. during the epidemic (thirteen of twenty-one patients).

The accompanying table is self-explanatory:

TREATMENT AND RESULTS IN TYPE I PNEUMONIA			
Before epidemic:	Recovered, No.	Died, No.	Mortality, Per Cent.
Treated with low titer serum.....	11	4	27
Complicated by influenza epidemic:			
Treated with low titer serum	12	13	..
Treated first with low titer serum, high titer serum being substituted late in the disease	5	6	..
	17	19	53
Treated with high titer serum.....	14	1	7

It is not to be assumed that the figure of 53 per cent. represents in any sense the mortality of the pneumonia patients in this epidemic; it applies only to the more seriously ill who were selected for typing, since it was not feasible to type all the patients.

The one patient dying after treatment with high titer serum was admitted to the hospital after an illness of two weeks, in an extremely critical condition.

Not infrequently a moderate elevation of temperature (102 F.) persisted after the administration of liberal quantities of high titer serum (500 c.c.); under these circumstances the injections were usually discontinued, it being assumed that the temperature was probably due to *B. influenzae* or to some other organism than the Type I pneumococcus. A few of the patients improved promptly and definitely soon after the administration of serum; in the majority the improvement was gradual; some remained seriously ill for several days before convalescence began.

It seems inevitable that a certain number of patients must react more or less severely shortly after the injection of serum, especially if it is not carefully prepared. These reactions apparently produce more exhaustion of the patient than might conceivably be caused by moderate exercise. Such reactions can be justified only by the use of high grade serum producing definite and specific benefit to the patient.

SUMMARY OF RESULTS

1. A normal number of Type I pneumococcus pneumonias were found complicating or following influenza.
2. The mortality in this group, when treated with serum of low titer during their entire course, or only in the last stages with high titer serum, was approximately double that similarly treated before the epidemic.

3. An unusually high mortality in Type II cases of pneumonia was found during the epidemic of influenza.

4. Patients treated with high titer serum during the entire disease showed a mortality of only 7 per cent.

5. It is considered inadvisable to inject pneumonia patients with large quantities of low grade serum.

TREATMENT OF INFLUENZA PNEUMONIA BY THE USE OF CONVALESCENT HUMAN SERUM

PRELIMINARY REPORT

L. W. McGUIRE, M.D.

Lieutenant-Commander, M. C., U. S. Navy

AND

W. R. REDDEN, M.D. (BOSTON)

Lieutenant, Junior Grade, M. C., U. S. Navy

CHELSEA, MASS.

We are all aware of the high degree of fatality resulting from the pneumonia following the influenza of the present epidemic. All of our deaths have been due to the pneumonia complication and none to the influenza as such. Here at the Naval Hospital, the percentage in the first groups reached as high as 50 or 60, and more recently the mortality has dropped to 30 per cent. No doubt this complication will continue to give a high mortality rate, especially when the disease invades new territory. For this reason, we have decided to publish our results in the treatment of a small group of cases, by the use of serum from patients convalescing from pneumonia, following an attack of influenza. It will be readily seen that a complete report at this time is out of the question, but we hope to present sufficient data to indicate the possibility in the use of convalescent serum so that further work can be carried on in territory where the disease is now active, and where proper equipment is at hand to carry out the necessary laboratory details.

Our observation and treatment of more than 400 cases of influenza pneumonia in this hospital has afforded opportunity to compare the various methods of treatment with a fair degree of accuracy.

The use of serum from convalescent influenza pneumonia patients was suggested by the junior writer as possibly having curative value, because of probable antibody content. The reason for this was the experimental evidence presented by Flexner and Lewis¹ with convalescent serum from poliomyelitis patients, and later the clinical evidence presented by Amoss and Chesney² during the poliomyelitis epidemic in 1916.

The serum was first tried on two patients, an officer and a nurse, with a very severe and extensive bronchopneumonia.

CASE 1.—The officer developed influenza, September 23. On the 26th, he had some evidence of a beginning bronchopneumonia. The temperature was 103; there was some elevation of pulse and respiration. On the 28th, he was desperately ill; the temperature was 104.4, respiration, 36, and pulse 104. He had considerable nausea and vomiting, looked toxic and had beginning cyanosis and vasomotor disturbances; also a profuse sanguinopurulent expectoration. One hundred c.c. of

serum were given at 1:30 p. m., and another 100 c.c. at 8 p. m. The next morning, the 29th, the patient was distinctly improved; there were less nausea, cough and expectoration; the temperature was 102, respiration 40, and pulse 104. Seventy-five c.c. of serum were given at 11:30 a. m. On the 30th, a decided improvement was noted. At 8 a. m. the temperature was 100.8, respiration 30, and pulse 88. Seventy-five c.c. of serum were given; the temperature was normal at 4 p. m. The patient was in excellent condition, stating that he felt well. He made an uneventful recovery. The laboratory report of sputum injected into the peritoneum of a mouse showed influenza bacilli and Type IV pneumococcus.

CASE 2.—The nurse took sick with influenza, September 24. On the 27th, she had a continuous temperature of 103, respiration 36, and pulse 104. On the 29th, the temperature reached 104, respiration and pulse were the same. Areas of bronchopneumonia were present, especially in the right middle lobe. The patient was very toxic; she was unable to keep anything on her stomach for three days. Water was given by rectum. Marked cough and mucopurulent expectoration were present. At 11 a. m., the 29th, 100 c.c. of serum were given. On the morning of the 30th, the patient ate some breakfast and was much improved, although very ill; the vomiting had practically stopped. The temperature was 103, pulse 114, and respiration 22. Seventy-five c.c. of serum were given. October 1, the temperature was normal; all symptoms subsided and she made an uneventful recovery.

Up to the present time, thirty-seven cases in all have been treated with serum. This represents all the pneumonia patients who have been admitted since October 1, except the officer and nurse previously mentioned. Of this group, thirty are convalescent; six are under treatment; one is dead. Of the six under treatment, two are much improved; two have received only one injection of serum; two patients are not improved, one of whom is critically ill. Of the thirty convalescents, eight received treatment on the second day of the pneumonia; fifteen on the third day; four on the fourth day, and three on the sixth day. Of the six under treatment, three received serum on the second day; two on the third day, and one on the fourth day. The patient who died received the first serum on the fifth day.

SERUM TREATMENT

Convalescent patients were bled as soon as convalescence was well established, the majority within a week or ten days of a drop to normal temperature. The serum was given as early as the diagnosis of the pneumonia complication could be made, so there has been no doubt about the lung involvement. The dose of serum has varied from 75 to 125 c.c. intravenously, and the interval between doses has varied from eight to sixteen hours.

Treatment was continued until there was no doubt about the recovery of the patient. The majority received about 300 c.c. Three received only 100 c.c., and two received from 600 to 700 c.c. It was found, as we anticipated, that there was a marked difference in the potency of the convalescent serum. At least ten out of seventy serums had no effect on patients. Under these conditions, the succeeding doses of serum were from other patients. Results from this serum are usually obtained in the first twenty-four hours after its use. If no results are obtained by this time, the serum from another donor should be used. An attempt was made to judge the potency of the serum by the amount of the lung involvement. This was done by obtaining a careful statement of the physical findings and the clinical course of the disease in the donors.

1. Flexner, Simon, and Lewis, P. A.: Experimental Poliomyelitis in Monkeys, *THE JOURNAL A. M. A.*, May 28, 1910, p. 1780.

2. Amoss, H. L., and Chesney, A. M.: *Jour. Exper. Med.*, 1917, 25, 581.

PROCEDURE

Wassermann tests were made on all donors as soon as possible in order not to waste time on bleeding those who showed a positive reaction.

Compatibility tests of donors' serum, with recipients' corpuscles, was made as soon as new cases appeared in the ward. Then usually from ten to fifteen serums were tested against the corpuscles of each recipient in order to have plenty of available serum for complete treatment.

Blood to the amount of about 800 c.c. was taken from each donor, under sterile precautions, 400 c.c. at a time on two successive days. Thus each donor yielded about 300 c.c. of serum. The blood was allowed to clot at room temperature for about an hour; then plate cultures were made, and the containers placed on ice over night. The separated serum was cleared by centrifugalizing at high speed, then bottled, and in most cases given the same day. Tricresol (0.3 per cent.) was used only in serum kept over twenty-four hours. It is interesting to note that only four patients had chills after the serum injections. All of these received serum containing tricresol, while three others receiving tricresolized serum gave no such reaction. At no time has a donor been inconvenienced by the withdrawal of the foregoing amount of blood. In fact, the majority wanted to give more.

An attempt has been persistently made to test the potency of the serum of the donors by complement fixation and by gross agglutination, using the recently isolated influenza bacillus as an antigen; but as yet we have found no method of testing the antibody content of serum except by its clinical action on recipients.

SUMMARY AND CONCLUSIONS

Treatment of influenza patients with the pneumonia complication by the use of convalescent serum was started at this hospital, Sept. 28, 1918.

Up to the time of writing, thirty-seven pneumonia patients have been treated. Of this group, thirty are convalescent; six are under treatment; one has died; all but one of these have a favorable outlook.

At present, the potency of the convalescent serum can be tested only by its clinical effect. Further attempts are being made to titer the serum.

Experience shows that the most beneficial results will be obtained by giving the proper serum within the first forty-eight hours of the pneumonia complication.

It has been our observation that the virulence of the organism has decreased in this hospital as the epidemic progressed; but making allowance for this diminution in severity of the pneumonia cases, it is believed that the serum from convalescent influenza pneumonia patients has a decided influence in shortening the course of the disease and in lowering the mortality.

This treatment requires the cooperation of a well equipped laboratory, where the proper laboratory procedure, as previously noted, can be performed, and should be used only by those who are prepared to have this necessary laboratory work carried out.

U. S. Naval Hospital.

Keep Wounded Quiet.—Since any sort of activity increases the demands of the tissues for extra oxygen, every care should be exercised to keep wounded men quiet. The tissue or cellular acidosis will thus be reduced to a minimum.—*Review of War Surgery and Medicine.*

DERMATOLOGY IN A BRITISH GENERAL HOSPITAL IN FRANCE *

INCLUDING THE DIFFERENTIATION OF "I. C. T."
(INFLAMMATION CONNECTIVE TISSUE)

FRANK CROZER KNOWLES, M.D. (PHILADELPHIA)
Captain, M. R. C., U. S. Army; Dermatologist, U. S. Army
Base Hospital No. 10

FRANCE

A year has now elapsed since this unit of the American Army took charge of this large British Hospital in France, and it will prove interesting to give in some detail the dermatologic phase of the work.

The dermatologic department consists of a hut containing forty-eight cots, and three tents, the largest holding forty and each of the others twenty; the four wards have a capacity of 128 patients. The bathing arrangements consist of four baths, two for scabies in a separate building, and one each for the transient venereal patients and the other skin cases, each in a separate room. Adequate sterilization is carried out for these patients' clothes. The staff consists of the officer in charge, a noncommissioned officer and two, occasionally three, enlisted men.

TABLE 1

Condition	No.	Condition	No.
Abscess	50	Lupus erythematosus	1
Angioneurotic edema	3	Lupus vulgaris	1
Acne	5	Molluscum contagiosum	1
Acne varioliformis	2	Pityriasis rosea	10
Alopecia areata	3	Psoriasis	26
Boils	381	Pompholyx	2
Callositas	8	Papilloma	2
Carbuncle	7	Purpura	5
Dermatitis herpetiformis	1	Pediculosis corporis	10
Dermatitis	35	Pediculosis pubis	8
Epithelioma	2	Pernio (frost bite)	50
Erythema multiforme	4	Paronychia	3
Erythema nodosum	1	Seborrhea	5
Erythema (toxic)	7	Sycosis vulgaris	4
Eczema	51	Scabies	510
Eczema seborrhoicum	6	Septic ulcer	210
Ecthyma	209	Schoenlein's disease	1
Erysipeloid	1	Syphilis (secondary)	37
Folliculitis	5	Syphilis (late)	15
Herpes simplex	1	Tinea circinata	2
Herpes zoster	18	Tinea cruris	6
Hyperhidrosis	56	Tinea versicolor	3
Ichthyosis	4	Tinea sycosis	5
Impetigo	122	Urticaria	7
Keratosis palmaris et plantaris	1	Vitiligo	2
Keloid	1	Von Recklinghausen's disease	1

There have been 1,913 skin cases treated during the twelve months period. This number does not include the 462 patients who remained here one or two days en route to venereal hospitals. This total also does not take count of many cases of urticaria and toxic erythema that developed in patients admitted to the hospital with other conditions; the toxic erythema has been chiefly observed following the injection of anti-tetanic serum. The very large number of patients admitted as battle casualties only a few hours from the battle line showing pediculi in their clothing or "nits" on the pubic and axillary hairs are also not included in the total just mentioned. As an example of the prevalence of "nits" on the hairs (pediculosis pubis), a few days following the admission of a large number of battle casualties, I examined 200 patients, of which number 190 showed ova.

Table 1 gives the variety and number of cases of each skin condition treated.

In a war in which millions of men are involved and in which there are of necessity thousands of wounded

*From the Skin Department of No. 16 (Philadelphia, U. S. Army) General Hospital, B. E. F.

and sick, certain class names have been given to various diseases, and their correct differentiation remains for elucidation to the specialist in the line to which the name is applicable. This differentiation frequently, because of the haste required in evacuation nearer the line, remains to be carried out in a base hospital or in some special center.

To an American dermatologist one of the most interesting class terms used in the present war is "I. C. T." (inflammation connective tissue), the synonym of the American Army term "pyoderma." These so-called I. C. T. cases are eventually weeded out into their proper nomenclature, in the event that a trained dermatologist is present at their final destination. Like so many class terms, however, I. C. T. is frequently used to cover a diagnosis so diametrically opposite from the original intention that a dermatologist's opinion is absolutely necessary.

Out of the 1,913 skin cases admitted to this hospital during the last twelve months, 995 have borne the diagnosis of I. C. T.

Table 2 shows these I. C. T. cases differentiated into their proper nomenclature.

TABLE 2.—DIFFERENTIATION OF I. C. T. CASES

Condition	No.	Condition	No.
Abscess	50	Folliculitis	10
Ecthyma	170	Hyperhidrosis	50
Septic ulcer	210	Pernio (frost bite)	25
Boils	211	Callositas	12
Scabies	86	Herpes zoster	2
Carbuncle	5	Pityriasis rosea	1
Dermatitis	17	Tinea versicolor	1
Impetigo	139	Syphilis (late)	6

Several hundred other cases diagnosed as I. C. T. on the "field card" have been excluded from this review as they comprised purely surgical conditions, such as gangrene of the feet, advanced stages of so-called trench foot, bone felon, necrosis of the bone, deep seated carbuncles, abscesses, and flesh wounds of various types.

Several points should be particularly emphasized in our review. First, many skin conditions may be treated over a considerable period without avail, either because of improper medication or because of an incorrect diagnosis. The latter point is well exemplified, as twenty cases of syphilis, eight in the second stage and twelve showing late skin lesions, were admitted to the hospitals improperly diagnosed.

Scabies also under war conditions is very different from that seen in civil practice, as the hands, and not infrequently the wrists, show little or no eruption, and pus complications are extremely frequent. Ecthyma, which occurs very rarely in private dermatologic practice and which is seen only in the poorest and most unkempt type of dispensary patient, is here very prevalent. Septic ulcer is another war complication that is of frequent occurrence and starts primarily with a mild trauma and is not infrequently observed on the feet, often over the Achilles tendon.

Emphasis should be laid on the fact that greater care is required in diagnosing between active and non-active lesions of the skin. In numerous instances, patients have been sent to the hospital showing only pigmented marks (stains) on the skin, those areas signifying merely that inflammatory lesions had been present but that the active quality (redness) had entirely disappeared; following severe inflammations it may require many weeks for the stain entirely to disappear.

War dermatology, as consulting these tables plainly shows, consists chiefly of animal parasitic diseases and their complications. Exposure, skin trauma, and vegetable organisms are responsible for a large toll.

CONCLUSIONS

All diseases of the skin, exclusive of uncomplicated cases of scabies, and pediculosis, should be treated in areas where dermatologic advice is available.

All patients with skin diseases requiring prolonged treatment should be sent to special hospitals or to special wards in designated hospitals where they will be under the care of a dermatologist.

Many wounded and sick patients have skin diseases which may be of unusual types, such as late manifestations of syphilis, or rare conditions. A dermatologist subject to call under such conditions is indispensable.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, SECRETARY.

BENZYL ALCOHOL.—Phenmethylo. —Methylhydroxy Benzene.— $C_6H_5CH_2OH$.—An aromatic alcohol occurring as an ester in tolu and other balsams, and also produced synthetically by various processes.

Actions and Uses.—Benzyl alcohol is now being used as a local anesthetic by injection and on mucous membranes. It is said to be practically nonirritant and nontoxic in the ordinary concentrations and doses.

Dosage.—Benzyl alcohol is usually used in the form of a 1 to 4 per cent. solution in water or physiological sodium chloride solution. Such solutions may be sterilized by boiling, without danger of decomposition. Pure benzyl alcohol is markedly antiseptic. The technic of injection is the same as for other local anesthetics.

Benzyl alcohol is a colorless liquid with a faint aromatic odor, and a sharp burning taste. When placed on the tongue it produces numbness, even in very small quantities. It is soluble, 1 Cc. in 25 Cc. water, and miscible in all proportions with alcohol, ether, and chloroform.

Benzyl alcohol boils without decomposition between 200 and 206 C. When ignited it burns with a smoky flame.

It has a specific gravity of from 1.040 to 1.050 at 15 C., and 1.032 to 1.042 at 25 C.

Benzyl alcohol is neutral to litmus. If 2 or 3 drops are added to a strong solution of potassium permanganate acidulated with sulphuric acid, rapid oxidation takes place and the odor of benzaldehyde is plainly evident. On heating the mixture further oxidation takes place and then by adding dilute sulphuric acid and decolorizing the mixture with hydrogen dioxide, benzoic acid may be obtained by extracting with ether.

When volatilized in a Bunsen flame from an oxidized copper wire, no green color should be imparted to the flame (*chlorinated products*).

If 5 Cc. are shaken with 5 Cc. sodium hydroxide solution (5 per cent.) and allowed to stand one hour, no yellow color should appear in the aqueous layer (*aldehyde*).

Ten Cc. benzyl alcohol should leave no weighable residue on evaporation and heating until all carbon is burned away.

Phenmethylo-H. W. & D.—A nonproprietary brand of benzyl alcohol complying with the tests and standards for benzyl alcohol.

Manufactured by Hynson, Westcott & Dunning, Baltimore, Md.

Phenmethylo Ampules, 1 per cent.-H. W. & D.—Ampules containing 5 Cc. of a sterile solution of benzyl alcohol 1 Gm., in physiological sodium chloride solution 99 Gm.

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THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, OCTOBER 19, 1918

THE BACTERIOLOGY OF MEASLES

In view of the deep concern felt in regard to measles since the recent experiences in our military camps, the summary in *THE JOURNAL* last week¹ of the literature on the bacteriology of this disease and its complications is of timely interest. It is evident that much of the work, especially the earlier, now has no value except possibly in a historical sense and as illustrative of the by-products of the development of bacteriologic science. The three bacteria that stand out as of most importance in connection with measles and its complications at this time appear to be the streptococcus, the influenza bacillus (using these names in a general sense) and the coccus recently discovered by Tunnicliff in the blood in the very early stages of measles and in the throat and nose. Of course, the pneumococcus, the diphtheria bacillus, the staphylococcus, etc., may cause complicating infections occasionally in measles, but so far as we know now not much oftener than in other acute infectious diseases.

The Tunnicliff coccus is a new factor, the exact significance of which is to be determined. At present it represents "the mysterious stranger" in the bacterial groups associated with measles. It may be the cause of the disease itself—it occurs in the blood even before the rash, and the patient responds to its presence by producing specific antibodies. Or it may be an early secondary invader coming in closely on the heels of the measles virus proper. The situation may seem to some, especially those who are prepossessed in favor of the view that measles is caused by a filtrable virus, as in certain ways similar to that which has developed in case of epidemic poliomyelitis by the demonstration by Mathers, Rosenow, Nuzum and Herzog and others, that a coccus, which may be classed as a nonhemolytic streptococcus and which in some ways resembles the Tunnicliff coccus, apparently occurs regularly in the central nervous system in poliomyelitis. So long as experimental poliomyelitis has not been produced by means of pure cultures of this coccus but can be produced by emulsions of poliomyelitic nervous tissue,

we are practically driven to conclude that the coccus is a secondary invader and that the reported benefits of the serum of horses injected with the coccus may be due to its action on the coccus rather than on the primary cause. In both measles and epidemic poliomyelitis the infection is believed to enter the body by way of the throat and nose, and in so doing perhaps it opens the door for cocci normally present in the nasopharynx in small numbers. But enough of speculation! It is evident that further observations and experiments of a crucial character are needed to settle the questions raised in regard to the Tunnicliff coccus.

The part played by the influenza bacillus in measles is not clearly established. There seems to be no doubt, however, that it occurs more frequently by far in the throat and nose and in the lungs in measles than in health. This bacillus seems to have a somewhat similar relation to whooping cough and scarlet fever as to measles, and the reasons for this association as well as its possible dangers to the patient are difficult problems that should not be neglected.

It is interesting that the presence of streptococci in measles bronchopneumonia was recognized in practically the first bacteriologic investigation of measles, namely, by Babes, and by Cornil and Babes, as long ago as the early eighties of the last century. In spite of these early observations and of the later observations by Craig, Lorey and others, this bronchopneumonia and other complicating infectious lesions did not receive due consideration, especially from the point of view of spread and prevention, until the recent and highly valuable work in our American Army camps. Here it has been shown that hemolytic streptococci may spread rapidly among persons closely associated, and especially among measles patients when cared for in wards in the old way without individual isolation, and cause extensive outbreaks of bronchopneumonia; further, that when the patients are isolated under conditions that prevent contact with persons, including fellow patients, that may harbor streptococci, streptococcus bronchopneumonia and other serious infectious complications may be avoided. It is evident, of course, that this new and more complete individual and selective isolation, including protection by means of face masks and other measures² against transfer by mouth, throat and nose bacteria, tends to avoid not only streptococcus but also other infections.

It has not been determined whether the streptococci concerned in the bronchopneumonia in measles and other allied conditions are of the same strain or belong to different groups. Only hemolytic streptococci have been encountered thus far in the bronchopneumonia

1. Hektoen, Ludvig: The Bacteriology of Measles, *THE JOURNAL A. M. A.*, Oct. 12, 1918, p. 1201.

2. Weaver, G. H.: The Value of the Face Mask and Other Measures in the Prevention of Diphtheria, Meningitis, Pneumonia, etc., *THE JOURNAL A. M. A.*, Jan. 12, 1918, p. 76. Capps, J. A.: A New Adaptation of the Face Mask in Control of Contagious Disease, March 30, 1918, p. 910; Measures for the Prevention and Control of Respiratory Infections in Military Camps, Aug. 10, 1918, p. 448. Haller, D. A., and Colwell, R. C.: The Protective Qualities of the Gauze Face Mask, Oct. 12, 1918, p. 1213. Doust, B. C., and Lyon, A. B.: Face Masks in Infections of the Respiratory Tract, p. 1216.

in our camps. It is altogether probable that not much can be done by way of protective inoculation before we learn more about the unity or plurality of streptococci and their immune reactions. Lathrope³ reports a remarkable outbreak of acute mastoiditis after measles and other infectious diseases, and here streptococci of the *S. viridans* type appeared to predominate. Further observations are required to establish definitely the part taken in such processes by nonhemolytic streptococci. Advocates of the view that localization of streptococci may depend on more or less newly acquired special "affinities" naturally will find strong support for this view in the report by Lathrope.

Still another perplexing question is this: Why in the assembling and training of new armies in other countries, like England and France, did not similar outbreaks of serious streptococcus complications arise after measles? We cannot say whether the decisive factor has been a definite racial susceptibility on our part or the evolution here for some reason of especially virulent streptococci. It is true that our Southern troops appear to be more susceptible to infections than Northern troops, but the study so far given to this problem leaves us still in the dark.

The many problems that remain unsolved must not lead us to belittle in any way the recent advances. The nature, dangers, mode of spreading, and means of prevention of bronchopneumonia in connection with measles and other diseases are now better understood than ever before. In 1847, in his classical study of measles in the Faroe Islands, Panum wrote that isolation is the way to prevent its spread. Today we can say that the way to prevent the complication that more than anything else makes measles a dangerous disease, namely, streptococcus bronchopneumonia, as well as other secondary infections, is also isolation—prompt, selective and protective. This new principle must now be applied in private practice and in civil hospitals, because undoubtedly even here many deaths

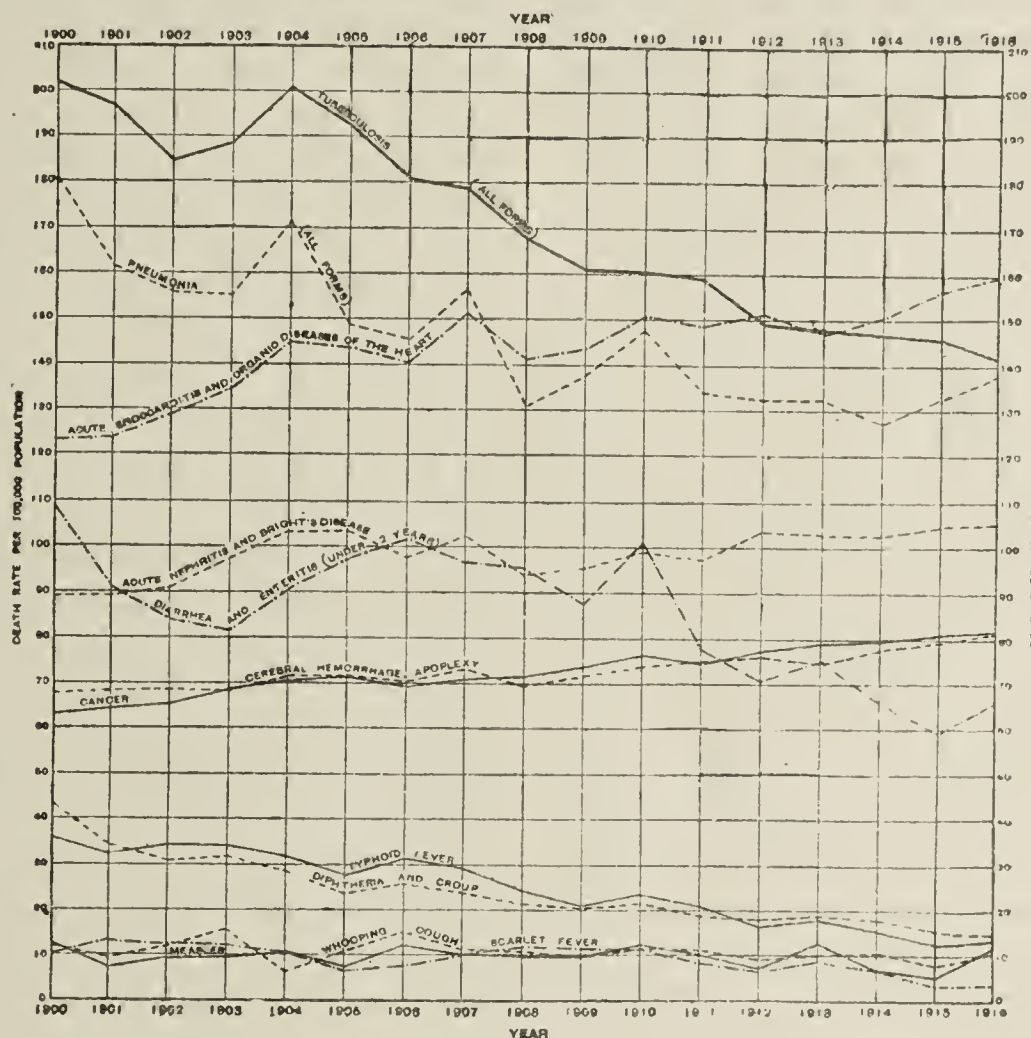
from bronchopneumonia and secondary infections generally in measles and other acute diseases are preventable.

MORTALITY STATISTICS FOR 1916

The report of the Bureau of the Census on the mortality statistics covering the registration area for 1916 has just appeared. The death rate was 14 per thousand population, slightly exceeding the rates for 1914 and 1915, which were 13.6 and 13.5, respectively, but slightly lower than that for 1913, which was 14.1. Of the 1,001,921 deaths that occurred in the registration area, 54.7 per cent. were males and 45.3 per cent. females. Infants under one year of age constituted 16.4 per cent. of all deaths, continuing the gradual decrease that has taken place since 1900 in deaths of

infants under 1 year. In 1900 this rate was 20.7 per cent. of the total. The deaths of infants under 5 years have gradually decreased from 30.4 per cent. of all deaths in 1900 to 23.4 per cent. in 1916. The highest death rates in 1916 occurred in Maryland with 16.5; Connecticut, 16.3, and New Hampshire, 16.1; the lowest rates in Washington, 7.7; Colorado, 10.3; Utah, 10.4; Minnesota, 10.7, and Kansas, 10.9.

The accompanying chart indicates the changes in the death rate from cer-



Changes in death rate, 1900-1916.

tain important causes of death from the years 1900 to 1916. The death rate from tuberculosis continues gradually to decrease; the rate for pneumonia, though gradually decreasing, showed a slight rise in 1916; the death rate from diseases of the heart continues to rise gradually. The death rate from intestinal diseases of infants under 2 years continues gradually to decrease; the rate from cancer and from nephritis and Bright's disease continues at a very gradually increasing level. Typhoid fever and diphtheria likewise continue at a low rate without marked decrease or increase, and in the same way measles, whooping cough and scarlet fever change but little during this period.

Throughout the mortality statistics the one outstanding feature is the much higher death rate that persists

3. Lathrope, G. H.: Acute Mastoiditis as a Complication of Infectious Diseases, THE JOURNAL A. M. A., Aug. 10, 1918, p. 451.

among the colored as compared with the white population. This can, of course, be accounted for by many well-known factors.

At this time it is interesting to note the mortality from influenza in 1916. In that year influenza developed in epidemic form and caused 18,886 deaths, equivalent to a rate of 16.4 per hundred thousand population, representing an increase of 65 per cent. over the rate for 1915, which was 75 per cent. higher than that for 1914. The rate for this disease will undoubtedly be higher for 1918 than for 1916.

The death rate for suicide in the registration area for 1916 was the lowest recorded for the past ten years. The five states that showed the highest rates were California, Montana, Indiana, Vermont and Missouri. The five states with the lowest rates were North Carolina, South Carolina, Kentucky, Virginia and Kansas. The five cities with the highest rates were San Francisco, Bridgeport, Conn., Omaha, Los Angeles and Indianapolis. Those cities with the lowest rates were Scranton, Pa.; Lowell, Mass.; Birmingham, Ala.; Richmond, Va.; Cambridge, Mass., and Buffalo. The most notable increase that occurred in any city occurred in Indianapolis, an increase of 27.9 against 16.9.

Excluding suicides, various forms of violence caused 65,121 deaths in 1916. This heading includes death from accidental and undefined causes, as well as those from homicide. There were 5,050 murders in 1916. The greatest number of violent deaths represent human carelessness and instability, since 10,775 deaths followed traumatism from falling; railroad accidents and injuries accounted for 8,127; accidental burning, 6,185; burns, 5,726; automobile accidents, 5,193, and gas poisoning, 2,927, all representing increases from 1915, except accidental burning. The rate of death from automobile accidents has advanced steadily since 1906, when it stood at 0.4 per hundred thousand, to 1916, when it stood at 7.3. Twenty-seven and nine-tenths per cent. of the total number of deaths from automobile accidents were of children under 15 years of age. The five cities showing the highest rate for automobile accidents are, in order, Detroit, Bridgeport, Conn., Los Angeles, New Haven, Conn., and Cleveland; the five cities showing the lowest rates are Spokane, Louisville, Ky.; Fall River, Mass.; Portland, Ore., and Lowell, Mass. The rates for three large cities are: Chicago, 9.7; Philadelphia, 8.9, and New York, 7.7.

Of course, one of the greatest factors affecting statistics of the causes of death is the accuracy of physicians' reports. The Census Bureau has made a continuous endeavor to increase accuracy, and results show a gradual improvement. The bureau has sent to physicians two pamphlets bearing on this subject, namely, "The Relation of Physicians to Mortality Statistics," and "The Physician's Pocket Reference to the International List of Causes of Death." Physicians should study these carefully and endeavor to use definite terms in reporting causes of death. The value of

mortality statistics in determining lines of endeavor for prophylaxis against disease cannot be overestimated. Every physician should do his utmost to aid in securing accuracy.

It is to be regretted that the publication of these annual reports is still sadly delayed. There certainly can be no good reason for a delay of more than a year and a half.

OXIDATION IN THE BODY

The French scientist, Lavoisier, who first discovered the true importance of oxygen and gave it its present name, early declared that life processes are those of oxidation with the elimination of heat. In his classic researches which opened the modern era in the science of nutrition before the close of the eighteenth century, he established the fundamental fact that the quantity of oxygen absorbed and of carbon dioxid excreted depends primarily on food, work and temperature. Although many years subsequently it was not uncommon to hear that oxygen determines metabolism, the reverse has become firmly established today, namely, that the extent of metabolism determines the amount of oxygen to be absorbed.

The problem of how the physiologic oxidations are initiated and carried out has been a perplexing one to a generation or more of chemically trained investigators. It seems remarkable, of course, that our food-stuffs and their simpler derivatives should be oxidized to their end-products under conditions in which oxidation reactions cannot readily be carried out in the laboratory. Fats and sugar, for example, are not easily converted into carbon dioxid and water by mere contact with oxygen at body temperature. It seems reasonable to postulate some intermediating agency like an enzyme in the physiologic execution of the oxidative change. Burge of the University of Illinois has championed such a view. He has found that many performances which increase oxidation in the body also stimulate the liver to an increased output of catalase, an enzyme in the tissues having the property of liberating oxygen from peroxids. The conclusion is reached by this physiologist that catalase is the enzyme principally responsible for oxidation in the body. In the latest experiment in relation to this topic,¹ a comparison has been made of the catalase content of the blood before and after introduction of food materials into the body. Thus it was found that simple sugars rapidly led to an increase in the oxygen-liberating enzyme—in some cases as much as 40 per cent. above normal; with fats there was also a pronounced gain, the rapidity of its occurrence depending on their rate of alimentary absorption. Meat, as a specimen of protein food, provoked an increase in proportion to the liberation of its digestion derivatives

¹ Burge, W. E.: How Food and Exercise Increase Oxidation in the Body, *Science*, Aug. 16, 1918, p. 174.

ready for transport in the circulation. Moderate exercise also had an augmentative effect on the enzyme concentration in the blood; although work up to the stage of extreme fatigue had an effect quite different.

From observations of the sort hastily reviewed, the conclusion is drawn by Burge that food and exercise produce an augmentation in catalase with resulting increase in oxidation by stimulating the liver to a larger output of this enzyme. There is a tendency to quote such statements without a due recognition of the limitations to our knowledge contained in them. It is one thing to observe the liberation of oxygen from peroxid in a test tube under the influence of a tissue extract or fluid; quite another problem is concerned in connecting such experimental facts with the complexities of reaction demanded by the known conditions of tissue oxidation. The mechanism of the latter remains, now as before, obscure and a subject for explanation.

Current Comment

VACCINES IN INFLUENZA

With the appearance of the epidemic of influenza, reports began to appear, chiefly in newspapers, as to new serums, vaccines, drugs and other methods for checking and even for curing the disease. A few samples of such as have come to THE JOURNAL appear in our Tonics and Sedatives Department this week. In Massachusetts, Commissioner E. R. Kelly appointed two committees to investigate the value of influenza vaccines as a preventive agent and as a treatment of the disease. The first committee, a special board for scientific investigation, consisting of Dr. M. J. Rosenau, chairman, and Frederick P. Gay and George W. McCoy, was appointed to consider the evidence available on the prophylactic and therapeutic use of vaccines against influenza. This committee presented the following conclusions:

1. The evidence at hand affords no trustworthy basis for regarding prophylactic vaccination against influenza as of value in preventing the spread of the disease, or of reducing its severity. The evidence from the present epidemic, though meager, suggests that the incidence of the disease among the vaccinated is smaller than among the nonvaccinated. The board, therefore, concludes that further experimental evidence should be collected.

2. The evidence at hand convinces the board that the vaccines we have considered have no specific value in the treatment of influenza.

3. There is evidence that no unfavorable results have followed the use of the vaccines.

The second committee, known as the Special Board of Statistical Investigation, consisted of Dr. George C. Whipple, chairman, William H. Davis and F. C. Crum. This committee reported:

1. The weight of such statistical evidence as we have been able to accumulate indicates that the use of the influenza vaccine which we have investigated is without therapeutic benefit. Exceptional cases where apparent benefit has resulted from the use of the vaccine can be matched by other cases where similar recoveries have been made without vaccination.

2. The statistical evidence, as far as it goes, indicates a probability that the use of this influenza vaccine has some prophylactic value.

3. There is also some evidence to the effect that other methods of protection, such as open-air treatment and the use of proper masks, are effective in protecting exposed attendants, and the use of vaccine should not be taken as an excuse for omitting such safeguards.

As a result, the following recommendations were made:

That the state encourage the distribution of influenza vaccine intended for prophylactic use, but in such manner as will secure scientific evidence of the possible value of the agent. The use of such vaccine is to be regarded as experimental.

That the state shall neither furnish nor endorse any vaccine at present in use for the treatment of influenza.

These reports are conservative, and offer to other health commissioners and their communities a reliable guide as to procedures that should be adopted before subjecting or trying out on the public any method of prevention or treatment that may be offered. These matters are the domain of medical science, and medical scientists of recognized ability should be called on to make the decision.

SCHEDULE OF STUDIES FOR PRE-MEDICAL STUDENTS

On another page¹ is published a special circular from the Committee on Education and Special Training of the War Department, which gives the program of studies for premedical students in the Students' Army Training Corps. The course is arranged only for the first three months of the college year and consists of inorganic chemistry, 21 hours per week; biology, 12 hours per week, and war issues, 9 hours per week; or a total of 42 hours of professional instruction, to which are added 11 hours per week of military instruction consisting largely of drill and physical training. As we intimated recently,² this course was previously outlined for students in the Divisions of Chemistry and Chemical Engineering, the only change being the substitution of twelve hours of biology for the twelve hours of mathematics. As suggested in the special circular, premedical students may profitably be taught their chemistry in the same classes with students in the Division of Chemistry and Chemical Engineering. Special classes in physics, chemistry and biology will be provided for students who have already completed their first year of premedical work, so that in the shortest time possible they may complete the balance of the work in those subjects at present required for admission to medical schools. The schedule of work for the balance of the premedical course is to be submitted later. The entire premedical course is to be condensed so that it may be completed in four quarters (instead of six) of twelve weeks each. The eleven hours per week of required military instruction will provide the physical training highly desirable for students who are expected to master the work laid down in this condensed schedule. In the past, it has been claimed that the curricula of our colleges of liberal arts have been so easy that they fail to develop the

1. This issue, p. 1319.

2. Uncertainty Regarding Premedical Students, Current Comment, THE JOURNAL A. M. A., Oct. 5, 1918, p. 1141.

students' powers of industry and application. Permanent changes in their curricula may result, therefore, if the present plan of instruction for premedical students works out as well as it is hoped by those who prepared it.

EFFECT OF QUININ ON PROTEIN METABOLISM

There are numerous drugs known to stimulate metabolism and facilitate the destructive disintegration of protein in the body. Few, on the other hand, are the instances of decreased nitrogenous metabolism attributable to the action of chemical compounds introduced into the organism in pharmacologic doses. Quinin is an illustration of the latter type; it is known to affect the nitrogen balance in a favorable way, so that the use of the drug in fevers attended with considerable tissue destruction has even been defended on the basis of its conserving effects. Riddle and Anderson¹ of the Station for Experimental Evolution at Cold Spring Harbor, Long Island, have demonstrated the comparable behavior of quinin on structures specifically concerned with the production or secretion of protein. Thus the drug was found to have a conserving action in birds on functions of the oviduct, the essential output of which is the egg albumin. The amount of this was abnormally decreased under quinin fed to laying ring-doves; there was also a reduced size of the yolks. The investigators believe the reductions and fluctuations in size of the ova are consonant with the view that, in these cases, the size attained is governed by restrictions placed on the protein metabolism rather than on the general metabolism.

VOLUNTARY ACCELERATION OF THE HEART BEAT

Ability to bring about voluntary acceleration of the heart beat in man is a rare and interesting accomplishment. West and Savage² of the Peter Bent Brigham Hospital, Boston, have just recorded the fifteenth authentic case in medical literature. The subject was a healthy medical student who had no cardiovascular symptoms and had never experienced attacks of tachycardia. He discovered the ability to increase his heart rate voluntarily during the course of his studies in physiology. During the period of acceleration there is a slight increase in the rate and the depth of respiration, and the pupils dilate moderately as recorded by other observers. No definite physical effort is made, but constant mental concentration must be maintained, which, after several closely repeated trials, becomes quite fatiguing. The current belief as to the mechanism of this acceleration assigns the chief participation to the action of the accelerator nerves.³ The further possibility that the speeding up of the heart may be due to release from vagus inhibition has usually been rejected. In the new case, atropin, which paralyzes the vagus endings in the heart, had an undeniable effect

in decreasing the ability voluntarily to change the heart rate. Therefore West and Savage believe that in this person their observations "point more to vagus than to accelerator domination during periods of acceleration." It is doubtless the same mechanism that accounts for the acceleration accompanying exercise. At present, however, it cannot be denied that both vagus and accelerator nerves may share in the speeding up of the heart, or that the effect of each may, if necessary, augment that of the other.

Medical Mobilization and the War

THE AMERICAN DOCTOR IN ENGLAND

Sir William Osler sends the following poem from the *Westminster Gazette* of September 18, in which it was published under the caption "The Doctor." He says that it "expresses well what the patients think of the American boys in the English hospitals. They have done splendidly. We have a dozen fine fellows in the orthopedic department here. The enthusiasm for the U. S. is intense—and how well deserved!"

*Oh, it's grand of a man who comes five mile
For the sake of your pain-racked form;
Who will leave his rest with a cheery smile,
And the darkness dare or the storm.
Who has ne'er a sigh though his door-bell ring
When the hour of the morn is small,
But hurries along, though the shrill winds sting,
At the haste of a patient's call.*

*Oh, it's grand, is it not?—and just as true
That he prides himself not a whit,
But is glad if his skilled hand bring to you
Some ease in the soothing of it.
His duty?—just so! but it's grand no less,
No matter the time or the task,
That he readily gives in hours of stress
Of his gifts—and to all who ask.*

*But what shall you say of the man I know,
Who, to ease our aching and pain,
Has come not five but five thousand miles so
In darkness, in blast, and in rain?
Oh, it's grand when I think—you'd think so too!—
(Though you honor your own no less)
To lie in a ward with the men in blue,
Where your doctor's khaki's "U. S."*

JAMES T. SKINNER.

Hospitals for Reconstruction

The Surgeon-General of the Army has taken over Fort Snelling, Minn., Fort Sheridan, Ill., and Fort Benjamin Harrison, Ind., and will convert them into additional general hospitals for the reception of sick and wounded soldiers returned from abroad. They are to be reconstruction hospitals and to fit the wounded for vocational instruction. Each hospital unit will accommodate 1,000 patients.

Examination for Navy Medical Corps

An examination will be held, October 30 and 31, to fill 326 vacancies in the regular Medical Corps of the Navy. The examination will be open only to present members of the Medical Corps, N. R. F., who are between 21 and 32 years of age.

Colonel McCulloch to Prepare Medical History of the War

Col. Champe C. McCulloch, Jr., M. C., U. S. Army, executive officer of the Board for Collecting and Preparing Material for a Medical and Surgical History of American Participation in the European War, has arrived in France, to establish his administration for this purpose. During his absence Lieut.-Col. Casey A. Wood, M. C., U. S. Army, will be in charge of this work in the Surgeon-General's Office.

1. Riddle, O., and Anderson, C. E.: Studies on the Physiology of Reproduction in Birds, VIII, The Effects of Quinin on the Production of Egg Yolk and Egg Albumin, *Am. Jour. Physiol.*, 1918, **47**, 92.

2. West, H. F., and Savage, W. E.: Voluntary Acceleration of the Heart Beat, *Arch. Int. Med.*, September, 1918, p. 290.

3. Favill, J., and White, P. D.: *Heart*, 1917, **6**, 175.

Promotion of Retired Medical Officers

Senator Shepherd, on September 26, introduced a bill authorizing the President to promote to brigadier-general, retired, those officers of the Medical Department who entered the service of the United States over thirty-five years ago, and who at this time, though retired, are in active duty in war work.

Naval Base Hospital in Scotland

Naval Base Hospital No. 3, commanded by Capt. Charles M. De Valin, M. C., U. S. Navy, which was organized with personnel mostly from Los Angeles, is now located in Scotland, where it occupies a building formerly utilized by the Royal Army Hospital Service. It has accommodation for 625 patients with possibilities of expansion to accommodate 825, and will care for patients in the naval dressing, and the personnel of the British and American Expeditionary Forces.

Physical Qualifications for Medical Service with the Red Cross

We are informed by Dr. Alfred E. Shipley, secretary of the medical advisory committee of the American Red Cross, Washington, D. C., that every individual going abroad, in whatever capacity, in Red Cross work is required to pass a satisfactory physical examination. In the medical division physicians are sometimes accepted for Red Cross work who, because of physical disqualification, are unable to secure commissions in the Medical Department of the Army. It is appreciated by the Red Cross that such physicians may be used in the medical work among the civilian population abroad as they are not placed under the strain incidental to work in the war areas.

Promotions

The following officers have been promoted from major to lieutenant-colonel: Edward J. G. Beardsley, Philadelphia; Thomas P. Lloyd, Shreveport, La.; James A. Mattison, Hot Springs, S. D.; Joseph Sailer, Philadelphia; Oliver H. Campbell, St. Louis; Bertram F. Alden, San Francisco; Walter W. Crawford, Hattiesburg, Miss.; Jonathan E. Burns, Baltimore; Charles N. B. Camac, New York; William C. LeCompte, Bristol, Pa.; Harry T. Summersgill, San Francisco; Charles H. Schlichter, Elizabeth, N. J.; Edward W. Pinkham, New York; William J. Bell, Washington, D. C.; Warren A. Dennis, St. Paul; Joshua C. Hubbard, Boston; Wiley E. Woodbury, New York; Edmund J. Doering, Chicago; John E. Jennings, Brooklyn; William W. Percy, Rochester, N. Y.; John H. Blackburn, Bowling Green, Ky.; Edmund Moss, New Orleans; Henry R. Brown, Albuquerque, N. M.; Robert Smart, Coronado, Calif.; Herbert H. Smith, Highland, Kan.

Revision Standards of Physical Examination

The office of the Provost Marshal-General has just issued to the draft executives of all states, a revision of Form 75, the Standards of Physical Examination. The changes are few, and are mainly with a view to making available the greater number of registrants having remediable defects (Group B), by transferring them to Group C, for special or limited service. Thus, when inducted and accepted at camps, the defects may be corrected when convenient; meanwhile, the Army will have the benefit of the service of these men.

Registrants who have heretofore, on examination, fallen into Group B (the deferred remediable group) and now, under the revised Form 75, have physical defects placing them in Group C (as physically qualified for special or limited military service), are at once to be reviewed, reexamined if necessary, and recorded in Group C, *subject to call for special or limited military service*.

The next most important change is that which cites certain variations from Army physical standards in the assignment of inducted men to the Navy and the Marine Corps. This states:

5. Navy standards of physical requirements conform in the main to those of the Army included under Group A. But registrants who, on examination, present the following defects, shall not be accepted for service in the Navy or Marine Corps:

Eyes: (A) Vision less than three quarters of the normal in either eye. (B) Color blindness.

Skin: (A) Parasiting affections, including pediculosis, ringworm and scabies. (B) Eczema. (C) Psoriasis.

Genito-urinary organs and venereal diseases: (A) Absence, atrophy or nondescent of both testicles. (B) Venereal disease, any type or stage.

Height: Over 74 inches.

ARMY TO HAVE SPECIAL REGULATIONS

Form 75 pertains only to the Selective Service and will not be issued to the Army. In its stead, the Adjutant-General will distribute to all mobilization points a pamphlet known as Special Regulations No. 65, War Department, which is identical with Form 75 as to physical standards.

DESTRUCTION OF PREVIOUS EDITION

On receipt of the Second Edition of Form 75, old copies of the former edition should be at once destroyed, with the exception of such as are needed to complete permanent reference files.

From a Rookie at Fort Oglethorpe

The following is from a personal letter, and not intended for publication. As Fort Oglethorpe is the first assignment to the great majority of physicians who enter the Medical Corps, a record of the experience of "one of us" will be read with satisfaction.

Got here eight days ago, or perhaps nine—all days are alike now—and am in a good bunch of fellows, from 40 to 54 years old and growing younger visibly day by day. If you ever desire to lose some of your sylphlike rotundity I would prescribe this Greenleaf process of reduction and guarantee results. Everything undergoes reduction here—at once you become a private, reduced from lieutenant, captain, or what not—and down goes all your fancied military glory at one crack. I have learned with due humility to my soul's salvation that there are certain ways inviolate in which to fold blankets, scrub cots, oil floors, fill water buckets, and hang up clothes. Also that to do your own laundry work may be advisable. It's the greatest institution of applied learning in the world and you could not begin to pay me for the experience. I enjoy everything from soup to nuts, including rolling in the clay dirt at 6:15 every morning. By evening that tired feeling assumes enormous proportions and at 9:30 you go to sleep with a bang and are only roused at 4 a. m. or so by the procession of prosthetics on their parade to the latrine. This is a community existence applied to every detail of one's daily functions; the monastic soul receives a rude shock at every turn. It's the biggest game that any fellow ever was privileged to join in with, and I am really sorry for those who have missed the chance to go to Camp Greenleaf. Everyone is enthusiastic and full of "pep," and the older men have my unbounded admiration for their gameness. We are kept on the jump from early morning till 9:30 p. m., and have to make use of every interval, for at any moment you may be (and usually are) called out for something or other, usually extra drill, or policing the grounds, or other equally fascinating pursuits.

Because we started a new company and I was one of the first two arrivals, the honorable assignment of Barracks Sergeant fell to my lot, and that means responsibility for the condition of the barracks. It's a sort of masculinized housekeeper's job and with my staff of highly trained assistants (trained in every respect but housekeeping) the setting sun each day finds our work well done, but the inspector takes a different view of the matter and isn't a good inspector unless he can find something to criticize, which he always does.

INFORMATION FOR MEDICAL SCHOOLS AND PROGRAM FOR PREMEDICAL STUDENTS

The War Department, Committee on Education and Special Training, has issued a special bulletin relating to the courses to be followed by premedical students:

1. Beginning October 1, terms should be granted in all schools on a quarterly basis, in each term twelve weeks being devoted to instruction and examinations.

2. Members of the Students' Army Training Corps will be under military discipline continuously, and, as soon as proper arrangements can be completed, they will live in barracks as prescribed by the military authorities. A definite schedule of work must be arranged, eleven hours per week being devoted by medical students to practical military instruction (drill, etc.), theoretical military instruction and physical training, and forty-two hours per week to professional instruction, this time including lectures, recitations and supervised study. In the case of students who have pursued for at least one year at an approved institution such studies as form part of the program of preparation for the Medical Corps, the Committee on Education and Special Training may authorize a reduction in the hours of military instruction to not less than six hours provided the reduction is made good by the substitution of a corresponding number of hours in approved medical subjects. (For the schedule for premedical students see 6 and 7, below.) Seniors should enter the Students' Army Training Corps; but it is expected that special

arrangements will be made for those who are serving as interns in hospitals, and possibly for other advanced students—probably by means of furlough.

3. Medical schools are classified as professional schools under the Special Regulations for the Students Army Training Corps (Aa.1, par. 26). The program of studies for these schools is not yet prescribed, but a program approved by the Committee on Education and Special Training will be sent to the schools in the near future. In the meantime the schools should continue their existing programs except for such modifications as may be necessary to introduce military training, and the course in war issues.

4. Students intending to prepare for the study of medicine should register as premedical students.

5. Premedical students must pursue a course that is approved as a premedical course by the Committee on Education and Special Training.

6. A special war issues course is prescribed for all students who are not excused under the following provisions of par. 26, Special Regulations:

"The District Educational Director (Section A—Collegiate Section) may empower colleges to excuse from this course:

"(1) Members of the S. A. T. C. who have had a similar course even though not identical in every detail, or

"(2) Members of the S. A. T. C. who have had at least two years of work of collegiate grade in an approved institution and who should be required to concentrate the whole of their time on advanced studies."

The war issues course is described in Special Descriptive Circulars C.c. 12 and C.c. 13.

7. For the first quarter of the premedical course the following program is prescribed: Inorganic chemistry, twenty-one hours per week; biology, twelve hours per week; war issues, nine hours per week, and military instruction, eleven hours per week. This course corresponds to the course approved for students of chemistry and chemical engineering with the substitution of biology for mathematics. Students in the premedical group may profitably be taught in chemistry in classes together with students taking the chemistry program. The program for the remaining terms of the premedical course will be submitted later. The premedical course will be condensed to cover four terms of twelve weeks each and eleven hours of military instruction will be required.

8. Students who have already pursued the premedical course for one school year should concentrate on chemistry, physics and biology. In each case they should take work in these subjects to the extent needed to meet the present requirements for admission to medical schools in order that they may be prepared to enter on their professional study of medicine as soon as practicable. Second-year premedical students will have eleven hours of military instruction.

9. Those who pursue a course not approved as a premedical course (see sections 4 and 5) will not be regarded as premedical students, and their attention should be directed to General Circular C.a.4.

COMMITTEE ON EDUCATION AND SPECIAL TRAINING,
By R. C. Maclaurin,

Oct. 3, 1918. Educational Director, Collegiate Section.

BRIGADIER-GENERAL MUNSON ASSIGNED TO THE GENERAL STAFF

Col. Edward L. Munson, for twenty-five years an officer of the Medical Corps of the Army, has just been promoted to the rank of brigadier-general, and with the promotion selected for duty on the general staff. The new commission is in the line of the Army. General Munson is the third medical officer of the Army to be given general officer's rank for duty outside the Medical Department of the Army, the previous appointees being Generals Ainsworth and Leonard Wood. General Munson has had extensive experience in administrative work, having organized and administered the training system in training camps of the Medical Department, later being placed in command of Camp Greenleaf. Under his direction the medical officers' training camp at

Fort Riley was merged with Camp Greenleaf into the greatest training camp for medical men ever organized. General Munson is also known for his textbooks on military hygiene and the work of the medical department in war used as official textbooks by the War Department. As editor of the *Military Surgeon* and secretary of the Association of Military Surgeons he is personally known to many of the officers in the service. He has also devised several articles of equipment adopted by the War Department, notably the tropical service tent, and as president of a board, the present widely known army shoe. He has been twice gold medallist of the Military Service Institution and was twice appointed by the Philippine government as health officer for the Philippine Islands. Recently he submitted a plan to the War Department for the psychologic stimulation of troops in the promotion of fighting efficiency. This method was demonstrated while Colonel Munson was in charge at Camp Greenleaf and caused his selection as an officer of the general staff to carry out the extension of this system throughout the entire Army. General Munson is a native of New Haven, Conn., and a graduate of Yale University, from which he received the degrees of A.B., A.M. and M.D.



BRIGADIER-GENERAL EDWARD L. MUNSON

COMMISSIONS ACCEPTED, MEDICAL CORPS, U. S. ARMY

Previous lists published in THE JOURNAL, June 1, 22 and 29, July 13, 20 and 27, August 3, 10, 17, 24 and 31, September 7, 14, 21 and 28, October 5 and 12.

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INDIANA

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Fennimore—Bailey, M. A.

WYOMING

Lusk—Hassed, W. H.

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To Camp Joseph E. Johnston, Fla., Lieuts. E. P. GREEN, Birmingham; W. T. STOKES, Ethelsville.
To Camp McClellan, Ala., base hospital, Lieut. G. LOTTERHOS, Birmingham.
To Fort McPherson, Ga., Capt. C. M. RUDOLPH, Birmingham.
To Fort Oglethorpe for instruction, Capt. J. L. WOODSON, Oakman; Lieuts. A. C. GREEN, Birmingham; W. L. SHACKLEFORD, Gordo.

Arkansas

To Camp Beauregard, La., base hospital, for instruction, Capt. A. H. TRIBBLE, Hot Springs; Lieut. B. D. LUCK, Pine Bluff.
To Camp Logan, Texas, Lieut. J. C. GRAVES, Lockesburg.
To Fort Oglethorpe for instruction, Capt. E. L. WATSON, Newport; Lieut. A. G. HARRISON, Searcy.
To Fort Riley for instruction, Lieuts. M. V. RUSSELL, Hope; N. C. McCOWN, Palestine; C. M. BROOKS, Roland; R. B. CORNEY, Tucker.

California

To Camp Cody, N. M., Lieut. J. Y. BARTHOLOMEW, San Francisco.
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To Camp Fremont, Calif., base hospital, for instruction, Capt. T. M. CARTMELL, C. E. ZERFING, Los Angeles; Lieut. J. L. MUDD, Merced.
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To Camp Pike, Ark., base hospital, Capt. R. R. REA, E. B. SWEET, Los Angeles.
To Camp Travis, Texas, Capt. W. H. BENNETT, Los Angeles.
To Fort Oglethorpe for instruction, Capt. L. R. WILLSON, Fresno; Lieuts. J. F. SLAVICH, Oakland; A. O. HOLMES, Redlands.
To Fort Riley for instruction, Capt. U. S. ABBOTT, Richmond; Lieut. W. F. EDMONDS, Lemoore.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Capt. R. J. PICKARD, San Diego; Lieut. D. C. RAGLAND, Los Angeles.
To report to the commanding general, Western Department, Capt. J. A. RENE, Los Angeles.
To San Francisco, Calif., Letterman General Hospital, Lieut. F. C. BISHOP, Los Angeles. Letterman General Hospital, for instruction, Lieut. F. H. COOKINGHAM, San Francisco.

Colorado

To Camp Pike, Ark., base hospital, Capt. R. W. MENDELSON, La Junta. Base hospital, for instruction, Lieut. R. R. TAYLOR, Pueblo.
To Denver, Colo., Capt. E. L. TIMMONS, Colorado Springs.
To Fort Riley for instruction, Lieut. A. J. BENDER, Salida.

Connecticut

To Camp Greene, N. C., Capt. R. W. LOWE, Ridgefield.
To Camp Holabird, Md., Major E. T. SMITH, Hartford.
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To Fort Oglethorpe for instruction, Capt. A. SCRIMGEOUR, Bridgeport.
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To New Haven, Conn., Yale Army Laboratory School, Capt. D. M. LEWIS, New Haven.
To Washington, D. C., St. Elizabeth's Hospital, Lieut. T. F. ERDMAN, Norwich.

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To Camp Sevier, S. C., Capt. H. H. STROMBERGER, Washington.
To Fort Oglethorpe for instruction, Lieut. R. COHEN, Washington.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Capt. G. F. WHITE, Washington.
To Walter Reed General Hospital, D. C., Capt. L. B. T. JOHNSON, Washington.

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To Camp Joseph E. Johnston, Fla., Lieut. N. C. BERRY, Jacksonville.
To Camp Lee, Va., base hospital, Capt. H. M. TAYLOR, Jacksonville.
To Camp Pike, Ark., base hospital, for instruction, Lieut. W. T. LANIER, Homestead.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. W. W. FARNELL, Springdale.

Georgia

To Camp Greene, N. C., Lieut. H. L. JOHNSTON, Argyle.
To Camp Jackson, S. C., base hospital, for instruction, Lieut. N. R. THOMAS, Milledgeville.
To Camp Sevier, S. C., base hospital, Lieut. A. G. DELOACH, Atlanta.
To Fort Oglethorpe for instruction, Capt. J. DAVIS, Toccoa; Lieuts. J. B. CAROTHERS, K. B. DOWD, Atlanta; R. J. PEARSON, Albany; W. H. CABANISS, Athens; W. CONN, Pomona.

Idaho

To Camp Fremont, Calif., base hospital, for instruction, Capt. S. B. DUDLEY, Weiser.
To Fort Riley for instruction, Lieut. M. S. FINK, Kuna.

Illinois

To Ann Arbor, Mich., State Psychopathic Hospital, Lieut. B. SMITH, Jacksonville.
To Camp Custer, Mich., base hospital, for instruction, Lieut. F. P. THOMETZ, Chicago.
To Camp Dodge, Iowa, base hospital, for instruction, Lieut. J. A. BRAHAM, Chicago.
To Camp Grant, Ill., base hospital, for instruction, Capt. L. G. VOIGT, Freeport; J. H. BRYANT, Galesburg; Lieut. H. W. VERNON, Chicago.
To Camp MacArthur, Texas, base hospital, for instruction, Lieut. J. RODGE, Apple River.
To Camp McClellan, Ala., Lieut. C. C. HOLMAN, Effingham.
To Camp Pike, Ark., base hospital, Lieut. G. R. McAULIFF, Chicago; base hospital, for instruction, Lieut. R. P. WILSON, Chicago.
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To Mineola, N. Y., Hazelhurst Field, for instruction, Capt. F. E. BRAWLEY, Chicago.
To New Haven, Conn., Lieut. J. K. MEYERS, Chicago.
To San Antonio, Texas, Major J. C. BECK, Chicago.

Indiana

To Camp Grant, Ill., Lieut. B. M. GUNDELFINGER, Indianapolis.
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To Camp Sherman, Ohio, base hospital, Capt. W. D. ASBURY, Terre Haute.
To Camp Wadsworth, S. C., Lieut. H. W. MACDONALD, New Castle.
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To Camp Shelby, Miss., base hospital, Lieut. C. WATKIN, Sioux City.
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To Fort Oglethorpe for instruction, Capt. W. H. SEYMOUR, Charles City; J. L. SCRIPTURE, Clarksville; H. E. MEYER, Hampton; Lieut. C. J. O'KEEFE, Marble Rock.
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To Camp Pike, Ark., base hospital, for instruction, Lieut. C. D. MILLS, Freeport.
To Fort Oglethorpe for instruction Capt. J. T. REID, Iola; Lieuts. P. A. LOYD, Culver; D. L. MORGAN, Emporia; A. R. HATCHER, Wellington.

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To Camp Beauregard, La., Lieut. T. C. PIERSON, Fort Thomas.
To Camp Dodge, Iowa, Lieut. W. T. BRIGGS, Lexington.
To Camp Greene, N. C., Lieut. J. H. JEFFRIES, Union City.
To Camp Hancock, Ga., base hospital, for instruction, Lieut. J. W. YORK, Lucas.
To Camp Meade, Md., Lieuts. E. D. BURNETT, Anchorage; F. EDWARDS, Horse Cave.
To Camp Pike, Ark., base hospital, for instruction, Lieut. A. H. FALCONER, Louisville.
To Camp Sevier, S. C., Capt. P. G. KEENEY, Bellevue; Lieuts. L. J. SPICKARD, Fredonia; L. RUDOLPH, Kevil; J. B. LUKINS, Louisville; O. F. SHEWMAKER, Waddy.
To Camp Zachary Taylor, Ky., Lieuts. F. H. BUSSEY, H. M. LIMBACH, Louisville.
To Fort Oglethorpe for instruction, Capt. F. M. GAINES, Carrollton; R. T. ANDERSON, R. G. E. HAYMOND, I. T. HOUCK, Louisville; F. P. STROTHER, Madisonville; C. D. O'HARA, Williamstown; Lieuts. S. B. NUNNELLEY, Bullettsville; T. E. CRAIG, Colesburg; C. J. HARRIS, Covington; J. F. PENNINGTON, Ford; B. I. PAUL, Fort Thomas; W. J. SHELTON, Hickory; A. C. WILLMOTT, Hutchison; J. E. H. WILLIS, Lexington; H. G. PETRIE, E. C. REDMON, Louisville; E. SWETNAM, Paris; V. R. COMBS, Parvin; R. M. PHELPS, Red House; J. F. GLASSCOCK, Sonora; R. M. FILIATREAU, Sorgho; S. MULLINS, Wingo.
To Fort Riley for instruction, Major G. C. LEACHMAN, Louisville; Capt. C. O. NEFF, Louisville; Lieuts. H. D. NEWMAN, Drakesboro; R. P. CRAWFORD, Hazel; W. H. ROSENFELD, Louisville; O. F. HUME, Mackville; O. C. HENRY, Minerva.
To report to the commanding general, Southeastern Department, Capt. M. McDOWELL, Cynthiana.

Louisiana

To Camp Beauregard, La., Lieut. B. A. NORMAN, Minden.
To Camp Shelby, Miss., base hospital, for instruction, Capt. A. B. NELSON, Shreveport.
To Fort Oglethorpe for instruction, Capt. W. H. AIKEN, New Orleans; Lieuts. J. M. OGLESBY, Alexandria; E. F. SALERNO, New Orleans; W. F. BROOKS, Vinton.

Maine

To Camp Devens, Mass., base hospital, Capt. M. C. WEBBER, Portland.
To Camp Dix, N. J., base hospital, Capt. J. E. GRAY, Portland.
To Fort Oglethorpe for instruction, Capt. L. L. HILLS, Westbrook; Lieut. L. J. DUMONT, Lewiston.
To Fort Riley for instruction, Capt. I. E. MABRY, Bridgeton.

Maryland

To Camp Jackson, S. C., Lieut. R. R. DILLER, Detour.
To Camp Meade, Md., base hospital, for instruction, Capt. C. W. VEST, Baltimore.
To Camp Sevier, S. C., base hospital, for instruction, Capt. E. H. TEETER, Baltimore.
To Camp Shelby, Miss., base hospital, Lieut. E. V. COOLAHAN, Baltimore.
To Camp Wadsworth, S. C., base hospital, Lieut. M. L. DILLON, Baltimore.
To Fort Oglethorpe for instruction, Lieuts. O. S. LLOYD, W. D. WISE, Baltimore; H. B. McDONNELL, College Park.

Massachusetts

To Camp Devens, Mass., Capt. A. E. JOSLYN, Lynn; C. J. HUYCK, West Brookfield; Lieuts. E. J. MONAHAN, Boston; J. F. KRASNYE, Lowell. Base hospital, Capt. W. J. LEONARD, Springfield.
To Camp Gordon, Ga., base hospital, Capt. G. DALTON, Springfield.
To Camp Meade, Md., base hospital, Lieut. L. LAZARUS, Worcester.
To Camp Sevier, S. C., Lieut. R. O. DODGE, Hyde Park.
To Camp Sheridan, Ala., base hospital, for instruction, Capt. T. E. CAULFIELD, Woburn.
To Fort Oglethorpe for instruction, Capt. J. L. BACON, Southboro; W. A. HOSLEY, R. H. PECK, Springfield; Lieuts. L. O. WHITMAN, Amherst; J. R. AGNEW, Chicopee; T. R. DONOVAN, Fitchburg; I. H. FARR, Holyoke; J. E. TELLIER, North Attleboro; T. F. HENRY, Salem; R. W. SHEEHY, Winchester; L. H. POTE, Winter Hill.
To Mineola, N. Y., for instruction, Lieut. P. J. D. HALEY, Medford.
To New Haven, Conn., Capt. J. M. KELLY, Boston.
To Newport News, Va., Lieut. A. GRASSO, Springfield.

Michigan

To Ann Arbor, Mich., State Psychopathic Hospital, Capt. F. S. BACHELDER, Pontiac.
To Camp Cody, N. M., base hospital, for instruction, Lieut. C. E. VREELAND, Detroit.
To Camp Custer, Mich., Capt. S. A. BUTLER, Pontiac.
To Camp Grant, Ill., Lieut. G. C. HARDY, Detroit.
To Camp McClellan, Ala., base hospital, Lieut. R. G. JAMES, Detroit.
To Fort Oglethorpe for instruction, Capt. B. D. PARKER, Detroit; A. J. REYNOLDS, Flint; A. LEENHOUTS, Holland; G. M. JOHNSON, Traverse City; Lieuts. A. H. PEARSON, Ann Arbor; J. W. HOVERTER, Evart; H. S. CARR, Niles.
To Fort Riley for instruction, Capt. H. A. SHAFOR, Detroit; Lieuts. S. STAMPA, Flint; C. W. ELLIS, Lansing; W. M. TAYLOR, Ovid.
To New Haven, Conn., Capt. A. M. WEHENKEL, Detroit.

Minnesota

To Camp Grant, Ill., base hospital, for instruction, Lieuts. L. A. BARNEY, Duluth; F. E. HUFNAIL, Minneapolis; C. H. ZANDER, St. Paul.
To Camp Meade, Md., Capt. H. O. HAGEN, New Richland.
To Camp Wheeler, Ga., base hospital, Lieut. G. C. DITTMAN, St. Paul.
To Denver, Colo., Capt. E. B. DAUGHERTY, St. Paul.
To Fort Des Moines, Iowa, Lieut. H. W. COVEY, St. Peter.

To Fort Oglethorpe for instruction, Capts. C. L. HANEY, Duluth; O. F. URSTAD, Kiester; B. W. PARROTT, Long Prairie; E. A. KING, F. F. WINSELL, Minneapolis; G. L. GOSSLEE, Moorhead; Lieuts. C. R. SANBORN, Benridge; D. F. NOONAN, Minneapolis; J. P. McDOWELL, St. Cloud; C. G. PERRY, St. Paul; H. G. BLANCHARD, Waseca.

To Fort Riley for instruction, Capts. L. M. BOYD, Alexandria; H. L. ARZT, Jackson; Lieuts. L. M. LOWE, Glyndon; C. S. RAADQUIST, Hibbing; N. E. ATKINSON, Jordan; W. A. PIPER, Mountain Lake; B. A. DOGGETT, Rochester; R. A. BOCK, St. Paul; W. HUMPHREY, Stillwater.

To Mineola, N. Y., Hazelhurst Field, for instruction, Lieut. A. L. KUSSKE, Minneapolis.

Mississippi

To Camp Beauregard, La., Lieut. R. A. HAGGARD, Merigold.

To Camp Joseph E. Johnston, Fla., Lieut. J. C. WALKER, Houka.

To Camp Logan, Texas, Lieut. J. J. DANNER, Pace.

To Fort Oglethorpe for instruction, Capt. C. M. DAVIS, Laurel; Lieuts. C. C. HIGHTOWER, Hattiesburg; J. C. WHITE, JR., Hazelhurst; T. E. ROYALS, Meridian.

Missouri

To Camp Dodge, Iowa, Capts. J. M. BRADLEY, L. S. LUTON, St. Louis. Base hospital, Capt. H. D. HAMILTON, Kansas City. Base hospital, for instruction, Lieuts. T. E. LILLY, Kansas City.

To Camp Gordon, Ga., base hospital, for instruction, Lieut. C. A. POTTER, St. Joseph.

To Camp Logan, Texas, base hospital, for instruction, Lieut. W. W. FORD, Gordonville.

To Camp Pike, Ark., base hospital, Lieut. W. L. ALLEE, Eldon. Base hospital, for instruction, Lieut. C. L. CONRAD, Pleasant Hill.

To Fort Oglethorpe for instruction, Capts. E. P. HAMILTON, Kansas City; E. M. ROSEBERRY, Neosho; J. D. JAMES, Springfield; R. KRING, B. F. TATE, St. Louis; Lieuts. S. A. RUSSELL, Fairview; C. P. CARTWRIGHT, Hughesville; W. M. SAMS, Kansas City; O. M. KOENIG, St. Louis.

To Fort Riley for instruction, Capts. S. T. BROWNFIELD, Brookfield; F. L. DOD, J. M. WALKER, Kansas City; A. J. CHALKLEY, Lexington; G. C. TRAWICK, St. Louis; Lieuts. S. E. MELUNEY, Agency; J. B. BIRD, D. R. RUSSELL, Kansas City; G. H. KOENIG, St. Louis; J. L. EDMONDSON, Stella; W. S. CLARENBACH, Wright City.

To Mineola, N. Y., for instruction, Lieut. O. E. MEGEE, Moberly.

Montana

To Fort Riley for instruction, Lieuts. J. H. GRAHAM, Billings; J. B. SULLIVAN, Butte.

Nebraska

To Camp Jackson, S. C., base hospital, for instruction, Capt. C. H. NEWELL, Omaha.

To Camp Pike, Ark., base hospital, for instruction, Lieut. C. EMERSON, Lincoln.

To Camp Travis, Texas, base hospital, for instruction, Capt. F. E. NAIL, Riverton.

To Fort Riley, Capt. L. D. PILLSBURY, Lincoln; Lieut. A. N. B. LEMOINE, Nelson. For instruction, Capts. H. A. COPSEY, Alliance; R. G. RICH, David City; T. J. KERR, North Platte; Lieuts. G. C. WINTERSON, Omaha; J. C. NEWMAN, Wallace.

To San Antonio, Texas, Lieut. S. O. PITTS, Alda.

New Hampshire

To Camp Devens, Mass., base hospital, for instruction, Lieut. E. L. CHAPMAN, Dover.

To Camp Hancock, Ga., base hospital, Capt. N. B. WEBBER, Manchester.

To Fort Oglethorpe for instruction, Capts. D. M. SHEA, Nashua; B. W. CARR, Pittsfield.

New Jersey

To Camp Devens, Mass., base hospital, Capt. W. J. DUCKETT, Jersey City. Base hospital, for instruction, Capt. E. L. WEST, Trenton.

To Camp Dix, N. J., base hospital, Capt. J. COOK, Bayonne.

To Camp Gordon, Ga., to examine the command for nervous and mental diseases, Capt. E. M. FISHER, Greystone Park.

To Camp Lee, Va., Lieuts. G. W. DISBROW, Newark; A. E. OLPP, West Hoboken. Base hospital, for instruction, Capt. J. H. ORAM, Paterson. For instruction, Capt. W. D. MININGHAM, Newark.

To Camp Meade, Md., Capt. E. B. CLEMENT, Atlantic City; Lieut. W. A. TAYLOR, Trenton. Base hospital, for instruction, Capt. C. A. KEATING, JR., Paterson.

To Camp Zachary Taylor, Ky., base hospital, Lieut. P. LIVINGSTON, East Orange.

To Fort Oglethorpe for instruction, Lieuts. R. J. McDONALD, Butler; G. T. LONBOTHUM, Dunellen; C. F. MERRILL, Highland Park; D. L. RUSSELL, Jersey City; R. STINSON, Paterson; C. S. MILLS, Riverton; R. D. CLIPPINGER, Vineland; I. L. ALLEN, J. M. STEIN, West Hoboken.

To New York, Cornell Medical College, for instruction in roentgenology, Capt. L. A. DENIS, West Hoboken.

To report to the commanding general, Southeastern Department, Capt. E. W. LANDES, Stillwater.

To Washington, D. C., St. Elizabeth's Hospital, Capts. G. PAYNE, Cedar Grove; F. C. HORSFORD, Newark.

New Mexico

To Camp Cody, N. M., base hospital, for instruction, Lieut. A. A. DEARDUFF, Lovington.

New York

To Camp A. A. Humphreys, Capt. H. B. REECE, New York; Lieuts. F. A. M. BRYANT, Mount Vernon; G. M. BRANDT, Seneca Falls.

To Camp Beauregard, La., base hospital, Capt. R. W. GROVER, New York.

To Camp Bowie, Texas, base hospital, Lieut. L. GREENBERG, Brooklyn.

To Camp Devens, Mass., base hospital, for instruction, Capts. F. A. MENDLEIN, Buffalo; C. R. MARSH, Oneonta.

To Camp Dix, N. J., Lieut. S. MALISOFF, New York. Base hospital, Capt. B. W. BIERBAUER, Lieut. T. F. TRUMPP, Brooklyn.

To Camp Gordon, Ga., base hospital, Capt. S. S. HAM, Schenectady.

To Camp Holabird, Md., Lieut. F. BARBER, Rochester.

To Camp Jackson, S. C., base hospital, Major F. H. BARTLETT, New York.

To Camp Joseph E. Johnston, Fla., Lieut. T. A. BRADY, Central Islip.

To Camp Lee, Va., Lieuts. A. S. DEDERICK, Brooklyn; A. REGAN, Buffalo; F. M. CARPENTER, Rochester.

To Camp Meade, Md., Lieut. N. A. GOLDSTEIN, Brooklyn; R. E. KNAPP, New York; A. M. BREAU, Schenectady. Base hospital, Capts. L. P. BERNSTEIN, New York. Base hospital, for instruction, Capt. W. H. MANSPERGER, Buffalo; Lieut. J. F. BEIERMEISTER, Rochester.

To Camp Sevier, S. C., Lieuts. F. G. CAROW, Brooklyn; H. C. SCHUIR, Buffalo; E. A. JENNINGS, New York; R. V. LAURENCE, Rochester. Base hospital, Lieut. E. N. ANDRES, New York.

To Camp Sherman, O., base hospital, Lieut. J. C. G. REGAN, Jamaica.

To Camp Upton, N. Y., base hospital, for instruction, Capt. W. J. BOTT, Buffalo.

To Camp Wheeler, Ga., base hospital, for instruction, Capt. C. M. NIESLEY, Manhasset.

To Camp Zachary Taylor, Ky., base hospital, for instruction, Lieut. E. J. WENDEL, Rochester.

To Colonia, N. J., Lieut. C. S. BOYD, New York.

To Fort Oglethorpe, for instruction, Capts. H. VAN RENSSELAER, Albany; L. C. AGER, Brooklyn; E. H. VAIL, Churchville; J. R. GRANT, Cincinnati; E. J. PHILLIPS, Corfu; A. H. RODGERS, Corning; J. J. KLEIN, East Aurora; H. C. POTTER, East Rochester; J. J. COLLIE, Geneva; E. C. CHAMBERLIN, I. S. HIRSCH, J. O'DWYER, New York; A. M. JOHNSON, G. C. WHITNEY, Rochester; G. P. PAUL, Round Lake; C. G. RANSON, Schenectady; Lieuts. O. E. WHITE, Akron; J. A. KNELLER, Attica; W. LEHRICH, J. O'LOUGHLIN, E. C. PLACE, Brooklyn; R. N. De DOMINICIS, J. HELLER, A. W. PALMER, Buffalo; M. A. LOSEE, Livingstonville; H. A. BASSETT, Lowville; B. CLERY, A. FINE, L. HAUSMAN, B. QUEL, L. SASOVER, W. A. WOVSCHIN, New York; L. S. LANG, Oneonta; J. C. FLYNN, A. R. HURLEY, R. B. PARTRIDGE, W. D. WOLFF, Rochester; C. GARDINIER, Schenectady; C. G. LENHART, Spencerport; D. P. MacGUIRE, Staten Island; J. O. SIBBALD, Troy; R. A. ADAMS, Whitestone.

To Greenville, S. C., base hospital, for instruction, Capt. C. C. SICHEL, New York.

To Mineola, N. Y., Hazelhurst Field, for instruction, Capt. J. M. WHEELER, New York.

To New Haven, Conn., Capts. J. GOLDEY, L. KARMIOHL, New York; Lieuts. M. P. FORSTLER, Brooklyn. Yale Army Laboratory School, Lieut. F. GUSMAN, Brooklyn.

To Newport News, Va., Capt. B. G. McKILLOP, Gloversville.

To New York, Manhattan Eye and Ear Hospital, Capt. J. D. RICHARDS, New York. Neurological Institute, for instruction, M. R. WATERMAN, Brockport.

To Plattsburg Barracks, N. Y., Capt. C. A. ROSEWATER; Lieut. H. L. DAY, New York.

To Richmond, Va., Capt. H. R. LOHNES, Buffalo.

To Rockefeller Institute, Capt. A. L. MEYER, New York.

To Washington, D. C., St. Elizabeth's Hospital, Lieut. E. A. EVERETT, Middleton.

North Carolina

To Camp Greene, N. C., base hospital, for instruction, Lieut. L. O. GIBSON, Statesville.

To Camp Sevier, S. C., Lieuts. N. S. STIREWALT, Greensboro; H. B. BEST, Wilson.

North Dakota

To Camp Beauregard, La., base hospital, for instruction, Capt. M. W. ROAN, Bismarck.

To Fort Oglethorpe for instruction, Capt. F. W. MacMANUS, Williston.

To Fort Riley for instruction, Capt. W. H. MOORE, Harvey; Lieut. L. R. CRITCHFIELD, Kenmare.

Ohio

To Ann Arbor, Mich., State Psychopathic Hospital, Capt. W. F. MAXWELL; Lieut. P. G. TAIT, Toledo.

To Camp Abraham Eustis, Va., Lieut. V. I. ALLEN, Creston.

To Camp Custer, Mich., Capt. S. S. TUTTLE, Van Wert.

To Camp Grant, Ill., Lieut. J. H. WILMS, Cincinnati. Base hospital, Capt. W. A. MEDLIN, Cleveland.

To Camp Greene, N. C., Lieut. J. A. HUNTER, Cleveland.

To Camp Holabird, Md., Capt. L. A. BUCHMAN, Canton; Lieuts. B. E. MILLER, Akron; R. A. ELLIOT, Aler.

To Camp Jackson, S. C., Capt. J. PHILLIPS, Cleveland.

To Camp Meade, Md., Capt. F. P. KREIDER, Van Wert; Lieut. W. F. JAMISON, Cleveland.

To Camp Pike, Ark., base hospital, Capts. W. D. WISE, Akron; A. F. FURRER, Cleveland. Base hospital, for instruction, Lieuts. R. L. KUNKLE, Piqua; O. R. KACKLEY, Pleasant City.

To Camp Sevier, S. C., base hospital, for instruction, Lieut. T. A. COSTELLO, Cleveland.

To Camp Shelby, Miss., base hospital, Capt. J. J. LASALLE, Toledo; Lieut. J. T. KENNEDY, Cincinnati.

To Camp Sherman, Ohio, Capt. R. K. UPDEGRAFF, Cleveland; Lieut. J. R. HULBERT, Dayton. Base hospital, Capts. A. L. STEINFELD, Toledo. Base hospital, for instruction, Capts. J. K. TRESSEL, Alliance; C. D. HAUSER, Youngstown.

To Camp Wadsworth, S. C., base hospital, for instruction, Capt. H. C. CRUMRINE, Cleveland.

To Camp Zachary Taylor, Ky., Major J. PRICE, Columbus; Capt. D. O. SHEPPARD, Barnesville; Lieuts. C. S. ANDREWS, Cleveland; J. O. WELCH, Columbus; J. S. ATCHISON, East Palestine. Base hospital, Capts. E. W. GURLEY, Cleveland; L. A. WILLOUGHBY, Toledo; Lieut. F. C. TITUS, Toledo. Base hospital, for instruction, Capts. P. F. KING, Alliance; E. KLAUS, Cleveland; Lieut. P. L. RING, Bellaire.

To Fort Oglethorpe, for instruction, Capts. O. W. LOFFER, Degraff; G. D. NICHOLAS, JR., Elyria; H. L. BURDSALL, A. L. SMEDLEY, Hamilton; W. D. HICKEY, Leipsic; J. W. McMURRAY, Marion; S. A. EDWARDS, Middlepoint; C. S. CAMPBELL, Wauseon; Lieuts. J. C. JOHNSON, Ashley; W. E. STEPHENS, Barnesville; W. G. JACOBS, F. F. KRAMER, A. PFEIFFER, Cincinnati; W. E. ALLYN, E. C. GARVIN, C. H. KOCINSKI, F. B. ROSINOKI, Cleveland; J. W. BROBST, Columbus; E. T. HURLEY, Conneaut; G. T. BROWN,

W. ROEHM, Dayton; E. J. BURNETT, Fostoria; E. G. HOLLIDAY, Lore City; L. T. ARTHUR, Montazuma; H. A. CROSSETT, Rossford; U. A. COOKE, Sylvania; L. D. NELSON, The Plains; S. B. ANDREWS, J. B. METZGER, E. F. WARD, Toledo; W. L. JONES, J. M. RANZ, Youngstown.

To Fort Riley for instruction, Lieut. J. K. LARKIN, Dayton.
To New Haven, Conn., Lieut. R. R. RICHISON, Springfield. Yale Army Laboratory School for instruction, Lieut. C. SATER, Cincinnati.
To Newport News, Va., Lieut. N. V. NOBLE, St. Marys.
To Walter Reed General Hospital, D. C., Capt. C. L. IRELAND, Columbus.

Oklahoma

To Camp John Wise, Texas, Lieut. W. B. SMITH, Fairland.
To Camp Kelly, Texas, Capt. C. E. DeGROOT, Muskogee.
To Camp Logan, Texas, Capt. J. P. COWMAN, Comanche; H. W. B. McKINNEY, Durant; G. S. WEEVER, Enid; G. R. ECKLES, Holdenville; Lieuts. W. H. VANN, Cement; E. A. LEISURE, Fairland; V. V. GRANT, Miami; R. A. FELT, Tulsa. Base hospital, Lieut. G. M. HOLCOMBE, Edmond.
To Camp Travis, Texas, base hospital, Capt. R. O. EARLY, Ardmore.
To Camp Zachary Taylor, Ky., base hospital, Lieut. H. H. WHITE, Hugo.
To Fort Logan H. Roots, Ark., base hospital, Lieut. R. V. Von CANNON, Miami.
To Fort Oglethorpe for instruction, Capt. K. R. RONE, Elk City; D. A. MYERS, Lawton; J. C. JACOBS, Miami; Lieut. L. HUGHES, Collinsville.
To Fort Riley for instruction, Lieut. T. F. LAIDIG, Drumright.

Oregon

To Camp Lewis, Wash., base hospital, Capt. R. J. CONROY, Medford; Lieut. L. O. CLEMENT, Grante Pass. Base hospital for instruction, Lieut. R. C. McDANIEL, Portland.
To Fort Oglethorpe for instruction, Capt. C. E. HILL, Portland.

Pennsylvania

To Baltimore, Md., Johns Hopkins Medical School, Capt. C. E. ESSICK, Reading.
To Camp A. A. Humphreys, Va., Lieuts. H. C. BROWN, Lancaster; J. A. BUCKWALTER, Royersford.
To Camp Devens, Mass., base hospital, Capt. H. WHITE, Sharon.
To Camp Dix, N. J., Lieut. B. F. BISCOE, Philadelphia.
To Camp Greene, N. C., Capt. C. E. PRICE, Philadelphia; Lieut. B. L. STOLLAR, Fayette City. Base hospital, for instruction, Capt. W. B. McKENNA, Pittsburgh.
To Camp Holabird, Md., Capt. C. M. WOODBURN, Towanda.
To Camp Jackson, S. C., Lieut. W. A. CAVE, Pittsburgh. Base hospital, Capt. G. C. KNEEDLER, Pittsburgh. Base hospital, for instruction, Capt. W. ANDERSON, Pittsburgh.
To Camp Kearney, Calif., base hospital, for instruction, Capt. F. T. BUDD, Scranton.
To Camp Lee, Va., base hospital, Lieut. A. A. PETERSON, Elizabeth. Base hospital, for instruction, Capt. G. A. VANLENNEP, Philadelphia.
To Camp Meade, Md., Capt. D. M. MYERS, Lancaster; H. M. FINK, Pittsburgh; Lieuts. F. A. MURPHY, Doylestown; M. W. COX, Kane; H. L. BATES, Philadelphia. Base hospital, Capt. R. S. FREED, Pittsburgh. Base hospital, for instruction, Lieuts. H. S. BALLARD, McKeesport; L. L. HUNTER, Midland; W. L. SHEARER, Reading; A. T. WALSH, Scranton.
To Camp Sevier, S. C., Capt. B. B. WORMSER, Scranton; Lieut. M. WIAIT, Pittsburgh.
To Camp Wadsworth, S. C., base hospital, for instruction, Capt. C. C. MARSHALL, Sharon.
To Camp Wheeler, Ga., base hospital, for instruction, Capt. C. B. NOECKER, Scranton.
To Camp Zachary Taylor, Ky., Capt. I. D. METZGER, Pittsburgh. Base hospital, Capt. J. C. MARKEL, H. H. TURNER, Pittsburgh.
To Colonia, N. J., Capt. J. A. BOALE, Vendergrift.
To Fort Oglethorpe for instruction, Capt. H. D. JORDAN, Allentown; L. T. MITCHELL, Aspinwall; C. M. COON, Athens; L. C. FAUSOLD, Glenshaw; A. B. KAUFFMAN, Lancaster; M. G. YEAGER, Mercer; T. MATLACK, Philadelphia; J. H. CARY, Prosperity; Lieuts. J. C. KELSO, Cannonsburg; T. H. GILLAND, Greencastle; C. E. RINK, Indiana; P. R. DEEMAR, Manorville; J. G. WARNER, Monongahela; J. M. CONWAY, Pittsburgh; S. J. SONDHEIM, Reading; L. G. REDDING, Scranton; S. B. GEISE, Sunbury; J. M. HESS, Tylersburg; W. F. WHITE, Wellsboro.

To Fort Riley for instruction, Lieut. S. A. QUINN, Allentown.
To New Haven, Conn., Yale Army Laboratory School for instruction, Lieut. G. D. HEIST, Philadelphia.
To Newport News, Va., Lieuts. J. M. WEAVER, Allentown; J. C. KIBLER, Corry; S. S. CARRIER, D. L. SIMON, Pittsburgh.
To Richmond, Va., Capt. J. G. ALTER, New Kensington; F. KENWORTHY, Pittsburgh.
To Rockefeller Institute for instruction in special chemical methods, Lieut. J. ROSENBLOOM, Pittsburgh.
To Washington, D. C., Major G. P. MULLER, Philadelphia; St. Elizabeth's Hospital, Lieuts. J. M. GRIST, Chester; R. NEBINGER, Danville; I. J. ISRAEL, Monessen.

Porto Rico

To Camp Las Casas, P. R., Capt. J. M. RODRIGUEZ, Barranquitas; Lieut. J. R. GONZALES, San Juan. Base hospital, for instruction, Lieut. W. R. WATSON, San Juan.

Rhode Island

To Camp Devens, Mass., base hospital, for instruction, Lieut. J. J. KENNEY, Providence.
To Camp Meade, Md., Lieut. W. S. STREKER. Base hospital, for instruction, Lieut. E. S. CAMERON, Providence.
To Fort Oglethorpe for instruction, Capt. R. C. ROBINSON, Providence.
To Richmond, Va., Capt. F. P. CONWAY, Newport.

South Carolina

To Fort Oglethorpe for instruction, Lieuts. J. E. PRESSLEY, Abbeville; I. J. CAMPBELL, Clover; N. T. CLARK, Spartanburg.
To New Haven, Conn., Lieut. N. B. HEYWARD, Columbia.

South Dakota

To Camp Dodge, Iowa, base hospital, Capt. C. A. BUTLER, Dell Rapids. Base hospital, for instruction, Capt. W. O. LEACH, Huron.
To Fort Des Moines, Iowa, Capt. F. V. WILLHITE, Yankton.
To Fort Oglethorpe for instruction, Lieut. O. B. SHEETS, Carthage.
To Fort Riley for instruction, Capt. P. R. BURKLAND, Vermillion.

Tennessee

To Camp Gordon, Ga., base hospital, for instruction, Capt. R. L. SANDERS, Memphis.
To Camp McClellan, Ala., Lieut. W. P. SUMNERS, Harms.
To Fort Benjamin Harrison, Ind., base hospital, Capt. G. R. LIVERMORE, Memphis.
To Fort Oglethorpe for instruction, Capt. L. A. HAUN, Knoxville; H. L. ALEXANDER, McKenzie; E. D. MITCHELL, Memphis; Lieuts. S. E. McDONALD, Bells; A. G. HAYES, Coldwater; T. D. CLOYD, Mosheim.

Texas

To Camp Bowie, Texas, base hospital, Lieut. G. T. BLACKWELL, Gorman.
To Camp Fremont, Calif., base hospital, Capt. W. D. JONES, Dallas.
To Camp Logan, Texas, Capt. L. G. WITHERSPOON, El Paso; Lieuts. N. R. JACKSON, Manor; R. M. MUNROE, Richmond; E. G. LYONS, Sachse. Base hospital, Lieut. N. LONG, San Antonio.
To Camp MacArthur, Texas, Capt. A. M. SPURGIN, Dallas. Base hospital, for instruction, Lieuts. A. W. NASH, Dallas; J. H. HOLT, Sherman.
To Fort Oglethorpe for instruction, Capt. H. HORNEY, San Angelo; Lieuts. L. V. DAWSON, Plainview; H. T. COULTER, Rockdale; T. E. COOK, Temple.
To Fort Riley for instruction, Capt. E. A. DAVIS, Mineral Wells; Lieuts. G. T. HALL, Big Spring; H. D. ROACH, Bogata; E. D. STRONG, El Paso; L. K. BECK, San Antonio; E. STIRLING, Sulphur Springs.
To Newport News, Va., Capt. J. B. LEGNARD, Jr., Houston.
To San Antonio, Texas, Capt. C. F. HAYES, Fort Worth; Lieut. W. W. BLANKENSHIP, Mosheim.

Utah

To Camp Cody, N. M., base hospital, for instruction, Capt. C. R. OPENSHAW, Salt Lake City; Lieut. E. R. MURPHY, Clear Creek.
To Fort Riley for instruction, Lieut. J. C. HARDLE, Garland.

Vermont

To Camp Devens, Mass., base hospital, for instruction, Lieut. H. B. WILSON, White River Junction.
To Fort Oglethorpe for instruction, Lieut. F. E. STEELE, Jr., Waterbury.

Virginia

To Camp Greene, N. C., Lieut. N. A. NICHOLSON, Back Bay.
To Camp Jackson, S. C., Lieut. J. H. BELL, Bridgewater.
To Camp Lee, Va., Lieuts. G. W. JOHNSON, Danville; J. A. STRICKLAND, Norfolk.
To Camp Meade, Md., Lieut. L. S. EARLY, Petersburg.
To Fort Moultrie, S. C., Lieut. R. W. SELBY, Burgess Store.
To Fort Oglethorpe for instruction, Capt. A. C. LANCASTER, Fayerdale; Lieut. K. W. HOWARD, University.
To New Haven, Conn., Lieut. N. J. GOULD, Norfolk.
To Newport News, Va., Capt. W. N. BRECKINRIDGE, Fincastle; Lieut. O. L. WATKINS, Rustburg.

Washington

To Camp Kearney, Calif., Capt. J. H. FITZ, Montesano; Lieuts. F. C. HOLGATE, Almira; W. W. DAY, Dayton; C. B. JONES, Everett. Base hospital, for instruction, Lieut. E. J. RHOADES, Pomeroy.
To Camp Lewis, Wash., Capt. N. H. YOUNG, Fort Steilacoom; Lieut. E. NICHOLSON, Seattle. Base hospital, Lieuts. C. H. WEIR, North Yakima; P. J. MAHONE, Seattle. Base hospital, for instruction, Capt. S. D. COFFIN, H. D. DUDLEY, L. W. RENFRO, Seattle.
To Fort Riley, Lieut. A. H. WINKEL, Kittitas. For instruction, Capt. W. M. BROWN, North Yakima.
To San Francisco, Calif., Lieut. P. P. CRIMMINS, Seattle.

West Virginia

To Camp Beauregard, La., base hospital, for instruction, Lieut. R. U. DRINKARD, Wheeling.
To Camp Meade, Md., Lieuts. J. M. BARR, Middleton; T. W. KEITH, Selbyville.
To Camp Wadsworth, S. C., base hospital, Capt. M. B. KELLY, Wheeling.
To Fort Oglethorpe for instruction, Capt. B. KEIFER, Paden City; E. W. GUILFORD, Summerville; Lieut. G. WYATT, White Sulphur Springs.
To Hot Springs, N. C., Capt. H. G. TONKIN, Martinsburg.

Wisconsin

To Camp Custer, Mich., base hospital, for instruction, Lieuts. H. F. DERGE, Eau Claire; L. E. BERINGER, Plymouth; F. NEE, Spring Green.
To Camp Dodge, Iowa, base hospital, for instruction, Capt. G. J. EGAN, LaCrosse.
To Camp Grant, Ill., for instruction, Lieut. J. A. HEARTY, Milwaukee.
To Camp Pike, Ark., base hospital, for instruction, Capt. C. O. LATHAM, Green Bay.
To Fort Oglethorpe for instruction, Capt. E. D. RIGBY, Milwaukee; Lieuts. F. B. WELCH, Janesville; B. F. KOCH, Wauwatosa.
To Fort Riley for instruction, Lieuts. C. W. RICE, Delavan; H. J. HAUBRICK, Oshkosh; R. E. DOERN, Stockbridge.
To New Haven, Conn., Yale Army Laboratory School for instruction, Capt. J. J. SEELMAN, Milwaukee.

Wyoming

To Fort Riley for instruction, Lieuts. H. E. McCOLLUM, Laramie; E. S. LAUZER, Rock Springs.

ORDERS TO OFFICERS OF THE MEDICAL CORPS, U. S. ARMY

Alabama

To Camp Bowie, Texas, base hospital, for instruction, from Fort Oglethorpe, Lieut. C. H. MOORE, Birmingham.
To Fort McPherson, Ga., Lieut. R. H. LISTER, Muscle Shoals.
To Fort Riley to examine the command for nervous and mental diseases, Lieut. A. A. THURLOW, Cullman.
To Fort Sam Houston, Texas, base hospital, for instruction, from Fort Oglethorpe, Capt. J. M. BARFIELD, Lineville.
To Hot Springs, N. C., Lieut. C. H. DRAKE, Birmingham.
To Rockefeller Institute for instruction in the treatment of infected wounds, Lieut. M. J. HEATH, Ensley.

Arizona

To Denver, Colo., from Southern Department, Capt. B. A. WARREN, Leupp.
To Fort Sam Houston, Texas, Capt. G. H. FITZGERALD, Bisbee.

Arkansas

To Camp Crane, Pa., from Rockefeller Institute, Lieut. J. C. SIMPSON, Hamburg.
To Camp McClellan, Ala., base hospital, for instruction, from Fort Oglethorpe, Lieut. W. K. GRAY, Little Rock.
To Camp Pike, Ark., from Camp Bowie, Capt. W. K. SMITH, Hot Springs.
To Fort Oglethorpe for instruction, Lieut. W. F. BALL, Batesville.
To Fort Riley for instruction, Lieut. D. STAPLES, Little Rock.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Capt. I. H. JEWELL, Paris.

California

To Army Medical School for instruction, from Camp Lewis, Lieut. R. W. WILCOX, San Francisco.
To Camp Beauregard, La., from Fort Riley, Capt. H. A. BARCLAY, San Diego.
To Camp Crane, Pa., from Alcatraz, Calif., Capt. F. C. SHURTLEFF, Los Angeles; from Camp Cody, Capt. A. K. BRUMAN, San Francisco; from Camp Fremont, Capt. R. L. BYRON, Los Angeles; E. K. KOPKINS, San Francisco; from Camp Kearney, Capt. G. T. POMEROY, Oakland; from Camp Lewis, Capt. J. R. BROWN, San Francisco; from Fort Oglethorpe, Lieut. A. J. HOLETON, San Diego. Mobile hospital from Camp Kearney, Lieut. R. G. VAN NUYS, Oakland; from San Francisco, Capt. R. G. DUFFICY, San Rafael.
To Camp Custer, Mich., base hospital, Capt. G. H. BRASH, Los Angeles.
To Camp Dodge, Iowa, base hospital, from Camp Lewis, Lieut. T. C. SCHNEERES, Los Angeles.
To Camp Fremont, Calif., as orthopedic surgeon, from San Francisco, Capt. H. V. HOFFMAN, San Francisco.
To Leon Springs, Texas, from Fort Riley, Lieut. W. B. HILL, Long Beach.
To New York, Cornell Medical College, as instructor, from Fort Oglethorpe, Lieut. F. W. H. TAYLOR, San Diego.
To report to the commanding general, Western Department, from Fort McDowell, Capt. T. B. ROCHE, San Francisco.
To Rockefeller Institute for instruction in the treatment of pneumonia, Lieut. M. C. CHENEY, Berkeley.
To San Diego, Calif., Rockwell Field, from Mineola, Capt. J. F. GRANT, San Diego.
To San Francisco, Calif., Letterman General Hospital, from Camp Fremont, Lieut. G. E. MYERS, Agnew.
To Vancouver Barracks, Wash., to examine the troops for tuberculosis, from Camp Fremont, Capt. O. O. YOUNG, Garden Grove.

Canal Zone

To Fort Sam Houston, as department surgeon, from Panama Canal Department, Col. W. H. WILSON.
To New Haven, Conn., Yale Army Laboratory School, for instruction, from Canal Zone, Capt. L. B. BATES, Ancon.

Colorado

To Camp Fremont, Calif., from Camp Lewis, Major A. J. MARKLEY, Denver.
To Camp Gordon, Ga., base hospital, for instruction, from Fort Oglethorpe, Capt. W. A. KICKLAND, Fort Collins.
To Camp Zachary Taylor, Ky., from Fort Oglethorpe, Capt. C. H. WILKINSON, Canon City.
To Denver, Colo., from Fort Logan, Capt. J. C. GORSUCH, Denver.
To Mineola, N. Y., Hazelhurst Field, for instruction, from Camp Dick, Lieut. M. D. BROWN, Craig.
To San Francisco, Calif., Letterman General Hospital, from Talmadge, Calif., Lieut. H. E. FARNSWORTH, Denver.

Connecticut

To Camp Dick, Texas, to assist the flight surgeon, from Walter Reed General Hospital, Capt. A. E. BRIDES, New Haven.
To Camp Sevier, S. C., to examine drafted men for nervous and mental diseases, from Camp Jackson, Lieut. S. E. WELD, Hartford.
To Hot Springs, N. C., for instruction, Lieut. L. G. BEARDSLEY, Bridgeport.
To Rockefeller Institute for instruction, Lieut. W. A. MONAGHAN, Hartford.

District of Columbia

To Camp Beauregard, La., from Eastern Department, Major WILLIAM E. HALL.
To Camp Bowie, Texas, from Washington, Lieut.-Col. H. B. MCINTYRE.
To Camp Dix, N. J., from Washington, Lieut.-Col. L. R. POUST.
To Camp Dodge, Iowa, from Southern Department, Major L. D. CRUCE.
To Vancouver Barracks, Wash., Col. R. G. EBERT.
To Walter Reed General Hospital, D. C., from duty as a contract surgeon, Lieut. R. H. LEECE, Washington.
To Washington, D. C., from Southern Department, Col. J. B. CLAYTON. Army War College, for instruction, and on completion to Camp Greene, N. C., from Army Medical School, Lieut.-Col. G. H. SCOTT.

Florida

To Camp Crane, Pa., mobile hospital, from Fort Oglethorpe, Lieut. E. C. BRUNNER, Miami.
To Camp Gordon, Ga., from Camp Sheridan, Capt. M. E. HECK, St. Augustine.
To Camp Sherman, Ohio, as assistant to division surgeon, from Camp Gordon, Major H. O. BLACK, Jacksonville.
To French Lick, Ind., from Camp Wheeler, Capt. E. T. SELLERS, Jacksonville; A. M. AMES, Pensacola.
To New York, Bellevue Hospital, for instruction, from Fort Oglethorpe, Capt. L. A. PEEK, West Palm Beach.

Georgia

To Camp A. A. Humphreys, Va., as commanding officer of base hospital, from Fort Oglethorpe, Major J. M. GREER.
To Camp Crane, Pa., from Fort Des Moines, Capt. W. L. COOKE, Columbus.
To Camp Devens, Mass., from Camp Forrest, Lieut. J. P. JONES, Savannah.
To Camp Lee, Va., base hospital, for instruction, from Fort Oglethorpe, Lieut. C. L. PEACOCK, Atlanta.
To Camp Pike, Ga., base hospital, Lieut. H. T. EDMONDSON, Berlin. Base hospital, for instruction, from Fort Oglethorpe, Lieut. C. USHER, Savannah.
To Camp Sevier, S. C., Capt. N. CRAIG, Atlanta.
To Camp Sherman, Ohio, base hospital, Lieut. D. D. WALKER, Macon.
To Camp Wadsworth, S. C., as tuberculosis examiner, from New Haven, Lieut. A. ELKIN, Atlanta. To examine the troops for cardiovascular diseases, from Lakewood, Major J. W. DANIEL, Savannah.
To Camp Wheeler, Ga., base hospital, Lieut. E. G. ADAMS, Greensboro.
To Camp Zachary Taylor, Ky., base hospital, Lieut. E. ISEMAN, Savannah.
To Detroit, Mich., from Atlanta, Lieut. C. O. MIDDLEBROOKS, Bogart.

Idaho

To Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Fort Riley, Lieut. R. FALK, Boise.
To Camp Crane, Pa., from Fort Oglethorpe, Capt. J. ASPRAY, Moscow.

Illinois

To Austin, Texas, State University, from Fort Sill, Lieut. P. H. ROWE, Chicago.
To Camp Abraham Eustis, Va., camp hospital, for instruction, from Fort Oglethorpe, Lieut. F. L. BROWN, Oak Park.
To Camp Beauregard, La., base hospital, for instruction, from Fort Oglethorpe, Lieut. J. C. GARARD, Chicago.
To Camp Bowie, Texas, base hospital, for instruction, from Fort Riley, Capt. M. PFEIFFENBERGER, Alton.
To Camp Crane, Pa., from Fort Oglethorpe, Capt. G. L. DAVENPORT, H. SCOTT, Chicago; R. C. DANFORD, Pana; from the Surgeon-General's Office, Lieut. A. S. BAILEY, Chicago. Mobile hospital, from Fort Oglethorpe, Capt. W. H. GILMORE, Mount Vernon; Lieuts. L. H. HILLS, D. J. MARGOLIS, Chicago.
To Camp Custer, Mich., base hospital, from Camp Grant, Lieuts. S. J. PEARLMAN, H. S. SULLIVAN, Chicago; from Camp Sherman, Capt. B. R. BEERS, Chicago; from Camp Zachary Taylor, Lieut. R. KING, Olney. Base hospital, for instruction, Lieut. B. W. CLAYPOOL, Chicago; from Fort Oglethorpe, Lieut. D. N. EISENDRATH, Chicago.
To Camp Devens, Mass., from Army Medical School, Lieut. C. E. BERGIN, Chicago. Base hospital, from Mineola, Capt. N. S. DAVIS, 3rd, Chicago.
To Camp Dix, N. J., base hospital, for instruction, from Fort Oglethorpe, Lieut. S. F. KUBALA, Chicago.
To Camp Dodge, Iowa, as assistant to camp surgeon, from Fort Oglethorpe, Capt. J. A. KAPPELMAN, Chicago.
To Camp Gordon, Ga., from Fort Oglethorpe, Capt. W. W. HOYT, Chicago. Base hospital, from Camp Wadsworth, Lieut. L. E. MEE, Wilmette.
To Camp Grant, Ill., from Army Medical School, Lieuts. E. H. ALBERS, Chicago; F. E. BEST, Freeport. Base hospital, for instruction, Lieut. P. F. SNYDER, Chicago.
To Camp Hancock, Ga., base hospital, from Fort Oglethorpe, Lieut. A. J. WEIRICK, Marseilles. Base hospital, for instruction, from Fort Oglethorpe, Capt. C. E. GREER, Charleston.
To Camp Joseph E. Johnston, Fla., from Fort Oglethorpe, Capt. S. ROSENBLATT, Chicago. Base hospital, for instruction, from Fort Oglethorpe, Lieut. J. T. GREGORY, Chicago.
To Everman, Texas, Barron Field, as flight surgeon, from Mineola, Capt. G. W. MOSHER, Chicago.
To Fort Jay, N. Y., for consultation and on completion, to Washington, D. C., for consultation, from Camp Lewis, Major H. M. ADLER, Chicago.
To Fort McPherson, Ga., from Fort Oglethorpe, Capt. J. R. ERNST, Peoria.

To Fort Oglethorpe, base hospital, from Camp Meade, Lieut. J. EISENSTAEDT, Chicago. Evacuation hospital, from Camp Grant, Lieut. R. H. STENGER, Kankakee. For instruction, Capt. G. FITZPATRICK, Chicago; H. G. WRIGHT, DeKalb; Lieuts. P. M. HUNTER, F. REINSCH, Chicago; from duty as an enlisted man, Lieut. C. G. HAIDOUPOULOS, Chicago.
To Fort Riley for instruction, Lieuts. S. E. OXFORD, Cave-in-Rock; J. I. MARTIN, G. L. OSTROWSKEY, Chicago; A. O. MOORE, Highland Park.
To Fort Snelling, Minn., base hospital, from Fort Des Moines, Capt. W. W. COLEMAN, Lincoln.
To Garden City, N. Y., from Mineola, Lieut. T. A. WAYLAND, Dallas City; from St. Paul, Lieut. F. L. POWERS, Chicago.
To Hoboken, N. J., from Camp Zachary Taylor, Capt. N. KERR, Chicago; from Eastern Department, Capt. T. J. O'MALLEY, Chicago.
To Hot Springs, N. C., from Fort Oglethorpe, Lieut. H. M. WILSON, Granville; from Richmond, Capt. A. B. KEYES, Chicago.
To Mineola, N. Y., Hazelhurst Field, from Camp Custer, Capt. N. C. GILBERT, Chicago. Hazelhurst Field, for instruction, from St. Paul, Major O. YARNELL, Decatur.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Capt. F. M. WOOD, Chicago.

To New York, Bellevue Hospital, for instruction, from Fort Oglethorpe, Lieut. C. W. SEEVER, Sheldon.

To Richmond Va., from Camp Pike, Major C. H. McKENNA, Chicago.

To Urbana, Ill., from Mt. Clemens, Lieut. R. F. KNOLL, Chicago.

The following order has been revoked: To Camp Grant, Ill., base hospital, Lieut. H. S. SULLIVAN, Chicago.

Indiana

To Camp Bowie, Texas, base hospital, for instruction, from Fort Oglethorpe, Capt. M. I. ROSENTHAL, Fort Wayne.

To Camp Crane, Pa., from Camp Custer, Lieuts. J. A. M. ASPY, Indianapolis; R. A. GILMORE, Michigan City; from Camp Devens, Lieut. H. C. BRAUCHLA, Indianapolis; from Camp Zachary Taylor, Lieut. C. N. FRAZIER, Indianapolis. Mobile hospital, from Camp Kearney, Capt. E. B. CHENOWETH, Nineveh.

To Camp Custer, Mich., base hospital, Capt. R. L. SENSENICH, South Bend; from Camp Sherman, Lieuts. E. B. RUSCHLIN, Lafayette; W. O. FRELIGH, Terre Haute; from Mineola, Capt. E. D. WALES, Indianapolis.

To Camp Dix, N. J., from Fort Oglethorpe, Capt. S. McGAUGHEY, Indianapolis.

To Camp Gordon, Ga., base hospital, from Camp Sevier, Capt. R. G. HENDRICKS, Indianapolis.

To Camp Greene, N. C., base hospital, from Camp Wadsworth, Capt. E. R. CHURCHELL, Richmond; Lieut. A. F. SCHULTZ, Lafayette.

To Camp Jackson, S. C., base hospital, from Fort Riley, Major G. W. NEWELL, Peru.

To Camp Lee, Va., base hospital, from Camp Sherman, Capt. F. TERFLINGER, Logansport.

Iowa

To Camp Crane, Pa., from Rockefeller Institute, Lieut. M. T. MORTON, Iowa City. Mobile hospital, from Camp MacArthur, Capt. E. S. EVANS, Grinnell.

To Camp Gordon, Ga., base hospital, from Camp Sevier, Capt. J. R. BRADY, Sioux City.

To Camp Lee, Va., from Fort Oglethorpe, Lieut. A. H. KONIG-MACHER, Council Bluffs.

To Camp Sherman, Ohio, base hospital, from Camp Dodge, Capt. G. T. McCAULIFF, Webster City; Lieut. R. W. WOOD, Newton.

Base hospital for instruction, Lieut. L. B. E. OLIVER, Sigourney.

To Camp Travis, Texas, from Fort Riley, Lieut. H. S. DETCHON, Victor.

To Camp Wheeler, Ga., from Camp Meade, Capt. G. R. HILL, Charter Oak.

Kansas

To Camp Pike, Ark., base hospital, from Camp Beauregard, Capt. L. S. COPLAN, Wellington.

To Camp Sheridan, Ala., from Camp Gordon, Capt. E. A. DRAKE, Natoma.

To Camp Travis, Texas, from Fort Riley, Capt. A. A. SHELLEY, Galena.

To Fort Benjamin Harrison, base hospital, from Camp Dodge, Lieut. F. P. MANN, Valley Falls; from Camp Travis, Capt. G. H. HOBSON, Kansas City.

To Fort Oglethorpe for instruction, from Fort Riley, Lieut. O. R. BRITTAIN, Salina.

To Fort Riley for instruction, from Walter Reed General Hospital, Lieut. W. L. BUTLER, Stafford.

To Fort Sheridan, Ill., base hospital, from Camp Bowie, Lieut. E. M. IRELAND, Coldwater.

Kentucky

To Camp Crane, Pa., mobile hospital, from Camp MacArthur, Lieut. J. S. McGINNIS, Lexington.

To Camp Greene, N. C., Lieut. O. A. EDDLEMAN, Benton.

To Camp Lee, Va., from North Charleston, S. C., Capt. G. W. HILL, Springfield.

To Camp Meade, Md., from Fort Meyer, Lieut. E. D. TURNER, Cave City.

Louisiana

To Camp MacArthur, Texas, base hospital, for instruction, from Fort Oglethorpe, Lieut. R. C. WEBB, Rayne.

To New York, Bellevue Hospital, for instruction, from Fort Oglethorpe, Capt. L. O. CLARK, Lafayette.

To report to the commanding general, Southeastern Department, Lieut. V. J. FUNDERBURK, Monroe.

Maine

To Camp Crane, Pa., from Fort Oglethorpe, Capt. J. S. BRAGG, Winter Harbor.

To Camp Gordon, Ga., base hospital, for instruction, from Fort Oglethorpe, Lieut. H. C. BUNDY, Lake View.

To Camp Meade, Md., evacuation hospital, from Fort Oglethorpe, Lieut. N. BISSON, Waterloo.

To Camp Wadsworth, S. C., as tuberculosis examiner, from New Haven, Capt. C. R. O'BRIEN, Bangor.

To Charleston, S. C., from Fort Oglethorpe, Lieut. H. M. HOWES, Portland.

To Hoboken, N. J., from Camp Jackson, Capt. H. M. CHAPMAN, Bangor.

Maryland

To Camp Crane, Pa., from Fort Oglethorpe, Capt. P. WROTH, Hagerstown.

To Camp Jackson, S. C., base hospital, from Camp Sevier, Lieut. B. E. HARRELL, Baltimore.

To Camp Pike, Ark., base hospital for instruction, from Fort Oglethorpe, Lieut. H. H. STANSBURY, Baltimore.

To Camp Travis, Texas, to examine the troops for cardiovascular diseases, from Camp Jackson, Lieut. I. J. FEINGLOZ, Baltimore.

To Colonia, N. J., from Hoboken, Capt. R. FAYERWEATHER, Baltimore.

To Fort Des Moines, Iowa, base hospital, for instruction, from Fort Oglethorpe, Lieuts. T. S. MOISE, E. NOVAK, Baltimore.

To Rockefeller Institute for instruction in the treatment of infected wounds, Lieut. W. A. DARBY, Baltimore.

Massachusetts

To Camp Jackson, S. C., base hospital, for instruction, from Fort Oglethorpe, Lieut. W. A. BISHOP, North Abington.

To Camp Lee, Va., from Biltmore, N. C., Lieut. F. A. STEVENS, Boston.

To Camp Meade, Md., base hospital, for instruction, Lieut. G. M. SHIPTON, Pittsfield.

To Camp Sevier, S. C., base hospital, for instruction, from Fort Oglethorpe, Lieut. S. P. WILDE, New Bedford.

To Camp Sherman, Ohio, base hospital, from Camp Lee, Lieut. M. M. HAMBURG, Waltham.

To Camp Wadsworth, S. C., from Fort Oglethorpe, Lieut. F. C. SHULTIS, Leominster. As tuberculosis examiner, from Fort Oglethorpe, Lieut. W. L. TUCKER, Hinsdale.

To Camp Zachary Taylor, Ky., from Fort Oglethorpe, Lieut. J. P. A. BACON, Lawrence.

To Fort Myer, Va., from Camp Wheeler, Lieut. F. C. LEAVITT, Belmont.

To Fort Oglethorpe, evacuation hospital, from Camp MacArthur, Lieut. B. L. ASHMORE, Palmer. For instruction, from Camp Meade, Lieut. B. D. PAUL, Boston.

To Ithaca, N. Y., Cornell University, from Everman, Texas, Lieut. E. E. LIGHT, East Long Meadow.

To New Haven, Conn., Yale Army Laboratory School, for instruction, from Atlanta, Ga., Major H. L. CONNER, Haverhill.

To Rockefeller Institute for instruction in the treatment of infected wounds, Lieuts. J. H. GALLAGHER, Chicopee; L. C. DURSTHOFF, Lowell.

The following orders have been revoked: To Camp Crane, Pa., from Rockefeller Institute, Lieut. A. B. LYON, Boston; to Camp Jackson, S. C., base hospital, Major F. R. JOUETT, Cambridge.

Michigan

To Austin, Texas, State University, from Fort Sill, Lieut. R. S. GOUX, Detroit.

To Camp Beauregard, La., base hospital, from Camp Shelby, Capt. B. F. GREEN, South Hillsdale.

To Camp Crane, Pa., from Camp Custer, Lieut. R. A. MORTER, Kalamazoo; from Camp Dodge, Lieut. J. K. ORMOND, Detroit; from Camp Meade, Lieut. W. B. ANDERSON, Jackson; from Hoboken, N. J., Capt. M. L. CUSHMAN, Lansing.

To Camp Custer, Mich., base hospital, Lieut. W. H. NILES, Marshall; from Camp Sherman, Capt. F. C. WARNSHUIS, Grand Rapids.

To Camp Dodge, Iowa, base hospital, from Camp Beauregard, Capt. B. FRIEDLANDER, Saginaw.

To Camp Sherman, Ohio, base hospital, for instruction, Capt. L. S. RAMSDELL, Manistee.

To Camp Wadsworth, S. C., base hospital, for instruction, from Fort Oglethorpe, Capt. C. GEORG, JR., Ann Arbor.

To Fort Oglethorpe for instruction, Capt. W. C. White, Yale.

To Princeton, N. J., Princeton University, from South San Antonio, Lieut. R. F. BOONSTRA, Detroit.

To Raleigh, N. C., Lieut. A. J. DROLETT, Lansing.

Minnesota

To Berkeley, Calif., University of California, from Houston, Lieut. R. A. JOHNSON, Minneapolis.

To Camp Sherman, Ohio, base hospital, from Camp Custer, Lieut. D. E. NELSON, Brainerd.

To Camp Travis, Texas, from Fort Riley, Capt. J. A. GATES, Kenyon; C. C. WALKER, Lamberton.

To Camp Zachary Taylor, Ky., base hospital, from Fort McPherson, Major W. M. CHOWNING, Minneapolis.

To Fort Benjamin Harrison, base hospital, from Camp Grant, Capt. M. M. GHENT, M. C. WELCH, St. Paul.

To Fort Bliss, Texas, from Camp Bowie, Lieut. H. E. CANFIELD, Willmar.

To Fort Oglethorpe, evacuation hospital, from Ann Arbor, Lieut. W. B. MARTIN, Fergus Falls.

To Fort Riley for instruction, Lieut. H. A. MOLANDER, St. Paul.

To Lake Charles, La., Gerstner Field, from Mineola, Lieut. P. B. GILLESPIE, Minneapolis.

The following order has been revoked: To Camp Meade, Md., from Camp Lee, Major J. C. SESSIONS, Minneapolis.

Mississippi

To Camp Zachary Taylor, Ky., base hospital, for instruction, from Fort Oglethorpe, Lieut. J. B. HIRSCH, Greenville.

Missouri

To Biltmore, N. C., from Fort Oglethorpe, Lieut. K. R. BARNUM, Sedalia.

To Camp A. A. Humphreys, Va., base hospital, for instruction, from Fort Oglethorpe, Lieut. J. D. BOEHM, Monett.

To Camp Crane, Pa., from Fort Oglethorpe, Capt. W. J. SHELTON, DeKalb; from the Surgeon-General's Office, Major H. G. WYER, Kirkwood.

To Camp Custer, Mich., for instruction in the base hospital, and on completion to his proper station, from Camp Hancock, Major R. W. SCHLUETER, St. Louis.

To Camp Gordon, Ga., from Army Medical School, Lieut. B. W. LEWIS, St. Louis. Base hospital, from Camp Travis, Capt. J. D. PORTERFIELD, JR., Cape Girardeau.

To Camp Grant, Ill., from Army Medical School, Lieuts. J. H. MURPHY, S. J. WOLFERMAN, St. Louis. As camp psychiatrist, from Jefferson Barracks, Lieut. J. F. McFADDEN, St. Louis.

To Camp Greene, N. C., base hospital, from Fort Porter, Capt. F. L. LONG, Farmington.

To Camp Hancock, Ga., base hospital, for instruction, from Fort Oglethorpe, Capt. W. J. FERGUSON, Sedalia.

To Camp Joseph E. Johnston, Fla., to examine the command for nervous and mental diseases, from Camp Pike, Capt. H. S. MAJOR, Fulton.

To Camp Lewis, Wash., from Camp Kearney, Major R. S. BRYAN, St. Louis.

To Camp McClellan, Ala., base hospital, for instruction, from Fort Oglethorpe, Lieut. W. J. SPARHAWK, St. Louis.

To Camp Sevier, S. C., base hospital, for instruction, from Fort Oglethorpe, Capt. H. E. HAPPEL, St. Louis.

To *Camp Sheridan, Ala.*, base hospital, for instruction, from Fort Oglethorpe, Capt. J. R. GREEN, Independence. For instruction, Lieut. A. R. COHN, Kansas City.

To *Camp Sherman, Ohio*, base hospital, for instruction, from Fort Riley, Lieut. P. LUX, Kansas City.

To *New York, Bellevue Hospital*, for instruction, from Fort Oglethorpe, Capt. F. J. MOENNIGHOFF, Odessa. Neurological Institute, for instruction, from Fort Riley, Lieut. L. E. MONROE, Bonne Terre.

The following order has been revoked: To *Camp Shelby, Miss.*, from Fort Oglethorpe, Capt. R. H. MORRIS, Kansas City.

Montana

To *Camp Custer, Mich.*, base hospital, for instruction, from Fort Sheridan, Ill., Major R. HORSKY, Helena.

To *Camp Dodge, Iowa*, base hospital, for instruction, Capt. A. E. Longeway, Great Falls.

To *Cape May, N. J.*, base hospital, from Rockefeller Institute, Lieut. J. D. HOBSON, Missoula.

To *Fort Oglethorpe* for instruction, Major W. C. RIDDELL, Helena.

To *Jefferson Barracks, Mo.*, Lieut. J. J. FLYNN, Missoula.

Nebraska

To *Berkeley, Calif.*, University of California, from Houston, Lieut. J. R. KLEYLA, Omaha.

To *Camp Bowie, Texas*, base hospital, for instruction, from Fort Oglethorpe, Capt. G. H. RATHBUN, Fremont.

To *Camp Crane, Pa.*, from Fort Oglethorpe, Lieut. C. B. COE, Wakefield; from Hoboken, Major A. J. BROWN, Omaha.

To *Camp Jackson, S. C.*, base hospital, for instruction, from Fort Oglethorpe, Major S. R. HOPKINS, Hastings.

To *Camp Joseph E. Johnston, Fla.*, from Fort Oglethorpe, Capt. A. E. GADBOIS, Madison.

To *Camp Meade, Md.*, evacuation hospital, from Watervliet, N. Y., Capt. J. BUIS, Pender.

To *Fort Oglethorpe* for instruction, Capt. T. J. JONES, St. Edwards.

To *Fort Riley*, as orthopedic surgeon, from Camp Travis, Lieut. L. K. STRATE, Hastings.

To *New Haven, Conn.*, Yale Army Laboratory School, for instruction, from Atlanta, Capt. E. H. McLEAN, Omaha.

New Hampshire

To *Camp McClellan, Ala.*, base hospital, from Fort Oglethorpe, Capt. C. F. NUTTER, Nashua.

New Jersey

To *Camp Dix, N. J.*, Lieut. L. H. ROGERS, Trenton.

To *Camp Greene, N. C.*, base hospital, for instruction, from Biltmore, N. C., Capt. N. K. BENTON, Newark.

To *Camp Jackson, S. C.*, base hospital, Lieut. C. P. CLARK, Summit.

To *Camp Meade, Md.*, base hospital, for instruction, Lieut. A. KROLL, Jr., Passaic.

To *Fort Des Moines, Iowa*, base hospital, for instruction, from Fort Oglethorpe, Capt. C. B. LUFBURROW, Plainfield.

To *Fort Oglethorpe* for instruction, Lieut. N. P. LOBSENZ, Passaic.

To *New Haven, Conn.*, Lieut. J. F. A. RUBACKY, Passaic.

To *New York, Bellevue Hospital*, for instruction, from Fort Oglethorpe, Capt. N. W. CURRIE, Plainfield.

To *Picatinny, N. J.*, Lieut. R. B. JARRATT, Penna Grove.

To *Rockefeller Institute* for instruction in the treatment of infected wounds, Lieuts. M. KUMMEL, Harrison; J. N. PANNULLO, Newark; E. H. SEIFERT, Paterson.

To *Urbana, Ill.*, from Mount Clemens, Lieut. S. Z. ORGEL, Hackensack.

To *Washington, D. C.*, Army War College, for instruction, and on completion to *Camp Devens, Mass.*, from Camp Dix, Lieut.-Col. W. H. HUTCHINGS.

New York

To *Camp A. A. Humphreys, Va.*, to examine the command for nervous and mental diseases, from Fort Oglethorpe, Capt. J. C. FISK, New York.

To *Camp Abraham Eustis, Va.*, camp hospital, for instruction, from Fort Oglethorpe, Lieut. H. S. MARCLEY, New York.

To *Camp Crane, Pa.*, from Camp Wheeler, Capt. H. B. PRITCHARD, Syracuse; Lieut. F. C. KELLER, New York; from Fort Oglethorpe, Lieut. J. M. BERNHARD, New York; from Rockefeller Institute, Lieut. D. S. DOOMAN, Buffalo; from Washington, Lieut. P. W. DEGARMO, Kingston. Mobile hospital, from Camp Joseph E. Johnston, Lieut. A. A. J. JOHNSON, Brooklyn; from Fort McHenry, Lieut. B. W. McCUEN, Syracuse; to Fort Oglethorpe, Lieut. W. F. HUME, New York.

To *Camp Devens, Mass.*, from Army Medical School, Lieuts. H. B. SWAN, Chestertown; J. L. HEMSTEAD, Waterford; as orthopedic surgeon, and on completion to *Boston, Mass.*, Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieut. H. S. REYNOLDS, Schenectady. Base hospital, from Boston, Lieut. C. K. DEMING, New York. Base hospital, for instruction, Lieuts. J. J. FINIGAN, Buffalo; A. B. ALLEN, New York; T. F. JUDGE, Troy.

To *Camp Dick, Texas*, from Love Field, Dallas, Lieut. D. D. STOWELL, New York.

To *Camp Dix, N. J.*, from Army Medical School, Lieuts. M. B. BENDER, L. F. SANMANN, New York; R. E. ELLIOTT, Rochester, from Fort Oglethorpe, Lieut. G. FLAMM, New York.

To *Camp Dodge, Iowa*, to examine the command for nervous and mental diseases, from Fort Benjamin Harrison, Capt. B. R. NAIRN, Buffalo.

To *Camp Gordon, Ga.*, base hospital, from Camp Wheeler, Lieut. P. F. PURCELL, Schenectady.

To *Camp Greene, N. C.*, base hospital, from Biltmore, N. C., Lieut. R. C. SCHLEUSSNER, New York. Base hospital, for instruction, from Fort Oglethorpe, Lieut. I. W. KAHN, New York. Evacuation hospital, from Fort Oglethorpe, Lieut. J. KAUFMAN, New York.

To *Camp Hancock, Ga.*, base hospital, from Camp Jackson, Capt. E. N. WILCOX, Pleasantville.

To *Camp Holabird, Md.*, from Army Medical School, Lieut. B. J. SLATER, Rochester.

To *Camp Jackson, S. C.*, from Army Medical School, Lieut. G. P. McNEILL, Jr., New York; from Fort McHenry, Lieut. B. ROSENTHAL, New York. Base hospital, for instruction, from Fort Oglethorpe, Capt. I. M. HOLLY, Brooklyn.

To *Fort Oglethorpe*, base hospital, from Camp McClellan, Lieut. R. PEMBERTON, New York; from Camp Wadsworth, Lieut. R. B. ERNEST, Jr., New York; from Houston, Lieut. A. VALENSI, New York. For instruction, Capt. C. H. HOWELL, New York; Lieuts. H. AGRIS, H. SHARLIT, Brooklyn; T. J. O'RIOURDAN, J. RESNIK, New York; A. WINKELSTEIN, Syracuse; from Camp Greene, Lieut. H. T. CARTWRIGHT, New York.

To *Fort Slocum, N. Y.*, and on completion to *Washington, D. C.*, from Syracuse, Lieut. F. N. POTTS, Buffalo.

To *Hot Springs, N. C.*, for instruction, Lieut. L. J. DeRUSSO, Albany.

To *Jefferson Barracks, Mo.*, from Syracuse, Capt. E. W. BROWN, Mount Kisco.

To *Lakeview, N. J.*, Lieut. H. T. HYMAN, New York.

To *Lonoke, Ark.*, Eberts Field, as flight surgeon, from San Antonio, Capt. D. H. WEBSTER, New Rochelle.

To *Morrison, Va.*, from Fort Oglethorpe, Lieut. T. P. GOLDSTEIN, New York.

To *New Haven, Conn.*, from Army Medical School, Lieut. W. G. HAYWARD, Jamestown; from Camp Gordon, Lieut. I. E. LISS, New York. Yale Army Laboratory School, from Army Medical School, Lieuts. G. P. McNEILL, Jr., M. M. NEMSER, New York. Yale Army Laboratory School, for instruction, Lieuts. E. KELLERT, Albany; W. E. ZIELENSKI, Buffalo; F. C. McCLELLAN, Canandaigua; from Atlanta, Capt. M. C. FIELD, Brooklyn; from Camp Gordon, Major H. I. VAN WINKLE, Albany; from Canal Zone, Major O. TEAGUE, Staten Island; from Fort Oglethorpe, Majors B. F. KNAUSE, Brooklyn; J. S. BILLINGS, New York; from Rockefeller Institute, Lieuts. D. JUNG, Buffalo; C. H. HOCHMAN, New York.

To *Newport News, Va.*, from Syracuse, Lieut. H. F. GOCKLEY, New York.

To *New York, Neurological Institute*, for instruction, Lieut. B. DIAMOND, New York.

To *Princeton, N. J.*, Princeton University, from South San Antonio, Lieut. P. B. JENKINS, New York.

To report to the commanding general, Eastern Department, Lieut. S. W. THOMPSON, Oswego.

To *Rockefeller Institute* for instruction in the treatment of infected wounds, Lieuts. P. T. HARPER, Albany; J. T. FOWKES, Lafargeville; H. COWAN, New York; J. G. MORRESSEY, Yonkers.

To *San Diego, Calif.*, Rockwell Field, from Mineola, Lieut. P. F. BERNSTEIN, Brooklyn.

To *Urbana, Ill.*, from Mt. Clemens, Lieut. J. P. FITZGERALD, New York.

To *Washington, D. C.*, from Fort Oglethorpe, Capt. M. B. PALMER, Rochester. Army War College, for instruction, and on completion to *Army Medical School*, from Fort Ontario, Lieut.-Col. G. H. SCOTT. For conference and on completion to *Bellevue, Ill.*, Scott Field, as flight surgeon, from Mineola, Capt. W. A. SCRUTON, New York. Surgeon-General's Office, from Fort Oglethorpe, Capt. C. BREWER, New York.

The following orders have been revoked: To *Camp Cody, N. M.*, from Fort Riley, Lieut. L. M. VINCENT, New York; to *Camp Crane, Pa.*, from Camp Sheridan, Lieut. B. WILSON, New York.

North Carolina

To *Camp Bowie, Texas*, base hospital, for instruction, from Fort Oglethorpe, Capt. A. F. REEVES, Asheville.

To *Camp Crane, Pa.*, mobile hospital, from Fort Oglethorpe, Lieut. H. R. LIPSCOMB, Greensboro.

To *Camp Sevier, S. C.*, base hospital, from Fort Oglethorpe, Lieut. H. B. CONRAD, Winston-Salem.

To *Camp Wadsworth, S. C.*, evacuation hospital, from Fort Oglethorpe, Capt. C. E. WOODING, Winston-Salem.

To *Fort McHenry, Md.*, for instruction, Lieut. G. B. ROBERSON, Greensboro.

To *Newport News, Va.*, Lieut. R. A. BAGLEY, Mayock.

North Dakota

To *New York, Bellevue Hospital*, for instruction, from Fort Oglethorpe, Lieut. J. B. TYRRELL, Underwood.

Ohio

To *Camp Wheeler, Ga.*, base hospital, for instruction, from Fort Oglethorpe, Lieut. F. W. DIXON, Youngstown.

To *Dayton, Ohio*, Acceptance Park, from Fairfield, Ohio, Capt. P. A. DAVIS, Akron.

To *Detroit, Mich.*, from Fort Oglethorpe, Lieut. E. C. YINGLING, Beaverdam.

To *Fort Des Moines, Iowa*, base hospital, for instruction, from Fort Oglethorpe, Capt. E. A. MURBACH, Archbold.

To *Fort Monroe, Va.*, from Plattsburg Barracks, Capt. A. P. COLE, Cincinnati.

To *Fort Oglethorpe*, Capt. L. A. BREWER, Toledo. For instruction, Major C. A. L. REED, Cincinnati; Capt. R. M. MANLEY, Cleveland; Lieut. W. W. BECK, Toledo.

To *Hoboken, N. J.*, base hospital, from Camp Upton, Lieut. M. E. HARRELL, Woodstock.

To *Hot Springs, N. C.*, from Fort Oglethorpe, Lieut. J. F. BEERMAN, Toledo.

To *Ithaca, N. Y.*, Cornell University, from Everman, Texas, Lieut. F. W. THOMAS, Piqua.

To *Lakeview, N. J.*, for instruction, Lieut. J. A. GARVIN, Cleveland Heights.

To *New York, Bellevue Hospital*, for instruction, and on completion to his proper station, from Fisherman's Island, Va., Lieut. N. C. MAYER, Cleveland.

To *Richmond, Va.*, Lieut. F. G. KREFT, Toledo.

To *West Point, Ky.*, from Camp Zachary Taylor, Capt. H. J. WARE, Cincinnati.

Oklahoma

To *Camp Crane, Pa.*, mobile hospital, from Fort Sam Houston, Capt. M. E. STOUT, Oklahoma.

To *Camp Lee, Va.*, base hospital, for instruction, from Fort Oglethorpe, Capt. M. ROGERS, Clinton.

To *Camp Meade, Md.*, evacuation hospital, from Fort Oglethorpe, Capt. J. H. WHITE, Muskogee.

To *Camp Shelby, Miss.*, evacuation hospital, from Fort Worth, Lieut. D. E. LITTLE, Eufaula.

To *Columbus, Ga.*, from Fort Sill, Major C. M. O'CONNOR, JR.
To *Fort Bliss, Texas*, base hospital, from Fort Sam Houston, Capt. F. B. SORGATZ, Oklahoma.
To *Fort Oglethorpe*, base hospital, from New Haven, Capt. J. E. HUGHES, Shawnee.
To *Fort Snelling, Minn.*, base hospital, from Camp Bowie, Lieut. A. R. BUNGARDT, Cordell.
To *New York*, Bellevue Hospital, for instruction, from Fort Oglethorpe, Lieut. R. I. ALLEN, Nowata.

Oregon

To *Camp Crane, Pa.*, from New Haven, Capt. J. H. THOMPSON, Enterprise.
To *Camp Dick, Texas*, from Dallas, Capt. H. L. UNDERWOOD, Le Grande.
To *Camp Lewis, Wash.*, from duty as a contract surgeon, Major R. C. MATSON, Portland.
To *Camp Sheridan, Ala.*, from Camp Forrest, Lieut. W. R. TAYLOR, Milwaukee.

Pennsylvania

To *Arcadia, Fla.*, Dorr Field, as flight surgeon, from Mineola, Capt. E. E. CAMPBELL, Butler.
To *Azalea, N. C.*, from New Haven, Lieut. H. W. KINDERMAN, Philadelphia; from Waynesville, N. C., Capt. N. R. GRAHAM, Sharsburg.
To *Berkeley, Calif.*, University of California, from Houston, Lieut. R. T. M. DONNELLY, Philadelphia.
To *Buffalo, N. Y.*, Capt. M. H. BAKER, Pittsburgh.
To *Camp Bowie, Texas*, base hospital, for instruction, from Fort Oglethorpe, Lieut. E. M. ELLSWORTH, Wilkes-Barre.
To *Camp Crane, Pa.*, from Camp Abraham Eustis, Capt. J. H. ARNETT, Philadelphia; from Camp Holabird, Lieut. B. FULTON, Pittsburgh; from Fort Oglethorpe, Capt. W. H. GLYNN, Pittsburgh; Lieuts. E. G. HENRY, Oil City; A. M. SHARPE, Philadelphia; from Rockefeller Institute, Lieuts. G. A. DAPP, Harrisburg; O. R. ETTER, Philadelphia; N. D. GANNON, Pittsburgh. Mobile hospital, from Fort Oglethorpe, Lieut. R. J. HAUSER, Danville; from Williams-bridge, Lieut. L. W. FREDERICK, Philadelphia.
To *Camp Custer, Mich.*, from Army Medical School, Lieut. J. A. LOGAN, Pittsburgh. Base hospital, from Army Medical School, Capt. W. F. ROSS, Aspinwall; from Camp Sherman, Lieut. E. H. MCCLISTER, Kittanning; from Fort McHenry, Capt. S. C. BOWERS, New Freedom.
To *Camp Devens, Mass.*, from Army Medical School, Lieuts. P. L. COOK, J. M. WELCH, Philadelphia. As orthopedic surgeon, and on completion to *Boston, Mass.*, Harvard Graduate School of Medicine, from Fort Oglethorpe, Lieut. J. A. LAFFERTY, McKees Rock. Base hospital, from Camp Dodge, Capt. C. S. CALDWELL, Swissvale.
To *Camp Dick, Texas*, from Champaign, Ill., Capt. W. S. SHIMER, Philadelphia; from Dallas, Lieut. G. S. CUNNINGHAM, Pittsburgh.
To *Camp Zachary Taylor, Ky.*, base hospital, for instruction, from Fort Oglethorpe, Lieut. P. T. HOPE, Mercer.
To *Fort Oglethorpe* for instruction, from Camp Sevier, Lieut. M. F. SULLIVAN, Philadelphia.
To *Fort Sam Houston, Texas*, base hospital, for instruction, from Fort Oglethorpe, Lieut. P. L. BRUNER, Oil City.
To *Fort Snelling, Minn.*, base hospital, from Camp Dodge, Lieut. J. P. MAUS, Philadelphia.
To *Hoboken, N. J.*, from Camp Upton, Lieut. F. D. LEVY, Philadelphia. Base hospital, from Camp Wheeler, Lieut. E. G. HAWMAN, Reading.
To *Hot Springs, N. C.*, from Fort Oglethorpe, Capt. J. C. BOGG, Pittsburgh.
To *Lake Charles, La.*, Gerstner Field, from Mineola, Lieut. W. C. SMITH, Woodbine.
To *Madison Barracks, N. Y.*, from Fort Oglethorpe, Major J. W. BAUMAN, Lansdale.
To *Markleton, Pa.*, from New Haven, Capt. J. WALSH, Philadelphia.
To *New Haven, Conn.*, Lieut. L. G. FLANNERY, Philadelphia. Yale Army Laboratory School, from Army Medical School, Capt. C. H. MANLOVE, Jr., Altoona; Lieut. J. N. HAYES, Crafton.
To *Newport News, Va.*, from Fort Oglethorpe, Lieut. A. F. BECK, Philadelphia.
To *New York*, Bellevue hospital, for instruction, from Fort Oglethorpe, Capt. T. A. STEELE, McKeesport.
To *Philadelphia, Pa.*, Jefferson Medical College, from the Surgeon-General's Office, Lieut.-Col. J. T. RUGH, Philadelphia.
To *Rockefeller Institute* for instruction in the treatment of infected wounds, Capt. H. C. UPDEGRAFF, Pittsburgh.
To *Syracuse, N. Y.*, Lieut. J. N. CAMP, Foxburg.
To *Washington, D. C.*, for conference, and on completion to *Fort Sill, Okla.*, Post Field, as flight surgeon, from Mineola, Capt. J. H. McKEE, Philadelphia.

The following order has been revoked: To *Camp Crane, Pa.*, from Camp Pike, Lieut. G. D. SCHOONMAKER, Philadelphia.

Porto Rico

To *Mineola, N. Y.*, Hazelhurst Field, for instruction, from San Diego, Major E. I. VAUGHN, Central Aguirre.

Rhode Island

To *Camp Sheridan, Ala.*, from Camp Forrest, Lieut. F. H. BECKETT, Providence.
To *Princeton, N. J.*, Princeton University, from South San Antonio, Capt. A. W. STEVENSON, Newport.

South Carolina

To *Camp Crane, Pa.*, from Camp Wheeler, Lieut. R. H. LONG, Carlisle.
To *Camp Devens, Mass.*, from Camp Forrest, Lieut. W. O. WRIGHTSON, Spartanburg.
To *Camp Lee, Va.*, base hospital, for instruction, Lieut. C. RIGBY, Spartanburg.
To *Camp Wadsworth, S. C.*, Capt. T. J. PEAKE, Clinton. Base hospital, for instruction, Lieut. R. CATHCART, Charleston.
To *Fort Riley*, base hospital, for instruction, from Fort Oglethorpe, Lieut. H. DEAS, Charleston.
To *Hoboken, N. J.*, base hospital, from Camp Hancock, Capt. A. P. McELROY, Union.

South Dakota

To *Camp Dix, N. J.*, base hospital, for instruction, from Fort Oglethorpe, Capt. J. G. CHICHESTER, Redfield.
To *Camp Gordon, Ga.*, base hospital, for instruction, from Fort Oglethorpe, Capt. J. F. McKIE, Wessington.
To *Hampton, Va.*, Langley Field, from Lee Hall, Lieut. H. D. NEWBY, Parker.

Tennessee

To *Camp Crane, Pa.*, base hospital, from Walter Reed General Hospital, Lieut. J. W. RAGSDALE, Memphis.
To *Camp Dix, N. J.*, from Fort Oglethorpe, Capt. J. F. ADAMS, Bradyville. Base hospital, for instruction, from Fort Oglethorpe, Lieut. S. MEEKER, Memphis.
To *Camp Zachary Taylor, Ky.*, base hospital, for instruction, Lieut. N. H. COPENHAVER, Bristol.
To *Fort McDowell, Calif.*, from Camp Fremont, Capt. W. A. CASHION, Fayetteville.
To *Mineola, N. Y.*, Hazelhurst Field, from Fort Omaha, Capt. G. E. CAMPBELL, Elizabethton.
To *Washington, D. C.*, Surgeon-General's Office, from Everman, Texas, Capt. L. LEVY, Memphis.

Texas

To *Camp Pike, Ark.*, base hospital, Lieut. P. E. LUECKE, Galveston; from Fort Benjamin Harrison, Capt. T. T. JACKSON, San Antonio; from Fort Oglethorpe, Lieut. W. C. TENERY, Waxahachie.
To *Camp Sevier, S. C.*, base hospital, from Camp Logan, Lieut. J. L. MITCHELL, San Antonio.
To *Camp Sheridan, Ala.*, base hospital, for instruction, from Fort Oglethorpe, Capt. A. M. McELHANNON, Sherman.
To *Camp Sherman, Ohio*, base hospital, from Camp Fremont, Lieut. T. J. CAGLE, Crosbyton.
To *Camp Travis, Texas*, Lieut. E. W. CLAWATER, Tyler. Base hospital, Lieut. A. E. GREER, Houston. Base hospital, for instruction, Capt. M. B. STOKES, Houston; from Fort Oglethorpe, Capt. J. M. F. GILL, Austin; T. D. FRIZZELL, Quanah.
To *Camp Zachary Taylor, Ky.*, from Army Medical School, Lieut. E. J. STEVES, San Antonio.
To *College Station, Texas*, from Camp Travis, Capt. O. EHLINGER, College Station.
To *Fort Oglethorpe* for instruction, Major J. E. THOMPSON, Galveston. Capt. J. W. SCOTT, Houston.
To *Fort Riley* for instruction, Lieuts. F. B. HART, Kountze; R. S. K. WOOD, Waco.
To *Fort Sam Houston, Texas*, from Fort Bliss, Major S. M. CORBETT.
To *New York*, Bellevue Hospital, for instruction, from Fort Oglethorpe, Lieuts. E. D. RICE, Tyler; H. E. HOKE, Waco.

Utah

To *San Francisco, Calif.*, Letterman General Hospital, from Talmadge, Calif., Lieut. F. J. CURTIS, Salt Lake City.

Vermont

To *Camp Crane, Pa.*, from Fort Oglethorpe, Capt. T. S. BROWN, Burlington.
To *Camp Shelby, Miss.*, base hospital, for instruction, from Fort Oglethorpe, Capt. J. P. GIFFORD, Randolph.
To *New York*, Bellevue Hospital, for instruction, and on completion to *Camp Meade, Md.*, base hospital, from Camp Crane, Lieut. J. P. TIERNEY, St. Johnsburg.

Virginia

To *Camp Travis, Texas*, as orthopedic surgeon, from Camp Pike, Lieut. W. I. LAUGHON, Bedford.
To *Lakewood, N. J.*, for instruction, from Camp Lee, Lieut. L. E. STUBBS, Gloucester.
To *New Haven, Conn.*, Lieut. W. C. HARMAN, Dolphin.
To *Raleigh, N. C.*, Lieut. A. F. BAGBY, St. Petersburg.
To *Richmond, Va.*, Union University, Lieut. H. L. HARRIS, JR., Richmond.
To *Rockefeller Institute* for instruction, Lieut. H. W. BLANTON, Richmond.

Washington

To *Camp Crane, Pa.*, mobile hospital, from Fort Oglethorpe, Lieut. L. S. DEWEY, Okanogan.
To *Mineola, N. Y.*, Hazelhurst Field, for instruction, from Rockwell, San Diego, Capt. G. W. BEFLER, Seattle.
The following order has been revoked: To *Camp Lewis, Wash.*, base hospital, Lieut. C. S. PASCOE, Tacoma.

West Virginia

To *Camp Greene, N. C.*, base hospital, Lieut. W. E. MYLES, White Sulphur Springs. Base hospital, for instruction, Major H. D. HATFIELD, Huntington.
To *Camp McClellan, Ala.*, base hospital, for instruction, from Fort Oglethorpe, Capt. E. B. WRIGHT, Richwood.
To *Camp Travis, Texas*, base hospital, for instruction, from Fort Oglethorpe, Lieut. O. H. GRIFFITH, Parkersburg.
To *Fort Oglethorpe* for instruction, Lieut. C. G. MORGAN, Moundsville.
To *Fort Thomas, Ky.*, from Camp Meade, Lieut. V. L. GLOVER, Inwood.

Wisconsin

To *Camp Gordon, Ga.*, base hospital, from Army Medical School, Capt. F. A. McJUNKIN, Milwaukee.
To *Camp Grant, Ill.*, base hospital, for instruction, Lieut. J. M. ARNISON, Eau Claire.
To *Camp McClellan, Ala.*, to examine the troops for cardiovascular diseases, from Fort Oglethorpe, Lieut. E. I. MOQUIN, Fairwater.
To *Camp Sevier, S. C.*, base hospital, for instruction, from Fort Oglethorpe, Capt. H. A. ROBINSON, Kenosha.
To *Fort Leavenworth, Kan.*, Lieut. F. C. CHRISTENSEN, Racine.
To *New York*, Bellevue Hospital, for instruction, from Fort Oglethorpe, Lieut. W. G. DARLING, Milwaukee.

Wyoming

To *Camp Crane, Pa.*, base hospital, from Rockefeller Institute, Lieut. J. F. O'DONNELL, Casper.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Personal.—Dr. Lee W. Roe has been elected medical inspector of the schools of Mobile, to succeed Dr. M. Toulmin Gaines, who has resigned to enter the military service.

Home for Antituberculosis Dispensary.—The Birmingham Anti-Tuberculosis Association at its annual meeting announced that it had purchased a permanent home to house a dispensary. The association adopted resolutions of regret on the death of Lieut. Philip M. Kyser, M. C., U. S. Army, and elected officers. Dr. George Eaves was made secretary of the association; Dr. Horace M. Edmonds, Tonawanda, N. Y., a member of the board of trustees, and Dr. Morris Newfield, a member of the executive committee.

CALIFORNIA

Venereal Disease Reports.—For the first six months of 1918 nearly 2,000 cases of gonorrhea were reported to the state board of health under the new venereal disease regulations, and during the same time about 1,500 cases of syphilis. This represents a great improvement in the reporting of these diseases, and it is expected that for the whole year the number of these cases reported will be greater than the number of tuberculosis cases.

Shipyard Sanitation.—California now has an increased number of shipyards and work is being carried on actively. According to the *Bulletin* of the state board of health, sanitary conditions in the neighborhood of some of these shipyards have been bad. A shipyard was built in a marshy district overflowed by tides and consequently a breeding-place for mosquitoes. Mosquitoes were so numerous that they interfered greatly with the work in the shipyard and even compelled the suspension of work at times. This applied also to some of the other shipyards in the state, and it became so serious that the governor was appealed to for aid. He referred the matter to the state board of health, and after investigation, drainage was instituted where possible and standing water covered with oil. At Long Beach this work was done by the local authorities with assistance from Los Angeles, the National Cannery Association and other corporations. The mosquito nuisance has now been abated.

DISTRICT OF COLUMBIA

Railway Surgeons to Meet.—The twelfth annual meeting of the Minneapolis, St. Paul, and Sault Ste. Marie Railway Surgical Association will be held at Hotel Radison, Minneapolis, December 3 and 4.

Personal.—Commander Howard F. Strine, M. C., U. S. Navy, has been appointed associate professor of the principles and practice of medicine in Georgetown University, Medical School, and acting chief of the department of surgery, at the University Hospital, Washington, D. C.

IOWA

Denied New Trial.—Dr. C. Allen Snyder, Dubuque, convicted of murder in the second degree and sentenced to twenty years in the penitentiary, is reported to have been denied a new trial.

Guilty of Disloyalty.—Dr. Walter A. Matthey, charged with bringing Daniel H. Wallace to Davenport to a seditious meeting, July, 1917, is said to have been found guilty on one of two counts. Sentence has not yet been pronounced.

Personal.—Dr. David K. Douthett, Osceola, fractured his right arm while cranking his automobile, October 2.—Dr. E. T. McLaughlin, Knoxville, has started for France where he goes as secretary to the Knights of Columbus.—Dr. William C. Goenne has been appointed city physician of Davenport during the absence of Dr. George M. Middleton, in the military service.—Dr. Max E. Witte has been reappointed superintendent of the Clarinda State Hospital.

MARYLAND

Public Health Service to Aid in "Flu" Epidemic.—The state department of health has announced that the United

States Public Health Service will send to Maryland four or five doctors to help out in the counties where many of the local physicians are either ill or overworked because of the influenza epidemic.

The most encouraging feature of the situation which has been alarming public health officers for more than a week was the announcement that the disease appeared to be abating somewhat in the city and state, as well as at the military camps. Information received at the Baltimore City Health Department was that the disease seemed to be lessening its grip on South Baltimore. While the deaths in the city did not show any decrease, there was a slight drop in the number of new cases reported. Dr. C. Hampson Jones, chief of the state bureau of communicable diseases, stated that conditions were generally improved in the counties. Reports to this effect came from Cumberland, Hagerstown, Frederick, and Kent County.

Personal.—Dr. James J. Murphy, chief of staff of the Emergency Hospital, Annapolis, and county health officer for Anne Arundel County, is ill with pneumonia following an attack of influenza. His removal from active practice is a severe blow to the city, whose depleted supply of physicians are overworked in attending influenza cases.—Dr. James H. Mason Knox, Jr., has returned to Baltimore, after a year in France, where he helped organize the work of the Children's Bureau, a part of the Civilian Relief activities of the Red Cross. Dr. Knox paid two visits to the front, one in Belgium and the other to an American sector, during his stay in France.—Drs. William A. Fisher, William S. Baer and George Walker, all of Baltimore, who were attached to the Hopkins Unit, but since have been detached into other branches of the medical service in France, and Dr. Archibald C. Harrison of the University of Maryland unit have received the rank of lieutenant-colonel. Dr. Fisher is chief assistant to Dr. John M. T. Finney; Dr. Baer has been made chief consultant orthopedic surgeon of the American Expeditionary Forces, and Dr. Walker is doing social hygiene work at ports of debarkation of American soldiers.—The many friends of Prof. Thomas S. Cullen of the Johns Hopkins University will hear with regret the news of the recent death of Mrs. Cullen.

MINNESOTA

Health Association Incorporated.—The Minnesota Public Health Association announces in its weekly bulletin, October 3, that the association has been regularly incorporated in the state as an "educational, scientific and benevolent society, not for gain or profit." The incorporators are the present officers, who are Governor J. A. A. Burnquist, president; M. L. Burton, Dr. Warren L. Beebe, St. Cloud; Mrs. A. L. Robinson, Mrs. Mary Brandrup, Drs. Edward L. Tuohy, Duluth; Pearl M. Hall, Minneapolis; George D. Head, Minneapolis; Prof. F. H. Bass, Mrs. W. L. Laidlaw and A. D. Wilson. The annual meetings will be held in November.

MONTANA

State Tuberculosis Society Election.—At the annual meeting of the Montana State Association for the Prevention and Cure of Tuberculosis, September 25, the following officers were elected: president, H. R. Cunningham, Helena; vice presidents, Dr. Oscar M. Lanstrum, Helena, Mrs. S. Sadler, Great Falls, and Otto Simonson, Butte; honorary vice presidents, Governor S. B. Stewart, Harry Yeager, Great Falls, and Roy Alley, Butte; secretary, Mrs. Sarah Morse, Helena, and treasurer, Dr. T. O. Hammond, Helena. The principal addresses were those by Dr. David R. Lyman, New Haven, Conn., president of the National Tuberculosis Association, on "The Rehabilitation and Reconstruction of the Tuberculous Soldier," and by Dr. Charles J. Hatfield, Philadelphia, secretary of the National Tuberculosis Association, on "The Function of the Organized Tuberculosis Forces."

NEW JERSEY

Epidemic Abating.—According to the health board of Gloucester the epidemic is receding and a few days more will find most of the shipyard workers back at work. Seven additional deaths were reported, October 12, making a total of eighty-five. Sanitary squads are inspecting the homes in which cases have occurred and are volunteering their services to clean and disinfect. In Camden there has been a daily decrease in the number of new cases reported. Up to October 12, 5,163 cases had been reported.

NEW YORK

Public Health Nurses Appointed.—The following places have secured appropriations for public health nurses since April 15; Syracuse, Olean, Rensselaer, Dunkirk, Ogdensburg, Tuckahoe, Herkimer, Endicott, Gloversville, Kingston, Hudson, Norwich, Cohoes, Carthage, Greene, Ticonderoga and the Dutchess County Health Association.

New York City

New Naval Hospital in Brooklyn.—A naval hospital which will house 1,200 patients and a nurses' home for 250 nurses is in the process of construction on Flushing Avenue near Emerson Street, Brooklyn. The building is to be four stories high with a floor area of 280 by 200 feet. The cost of the building will be \$950,000. The contract calls for the completion of the building within 120 calendar days.

Home for Overseas Nurses.—The New York County Chapter of the American Red Cross opened a temporary home for nurses passing through this city on their way to or from the front, at 11 West Tenth Street, with appropriate exercises on October 10. With more than 1,000 Red Cross nurses always quartered in this city this home will fill a great need in providing rest and recreation for transient nurses.

Outing for Convalescent Soldiers and Sailors.—Special Deputy Police Commissioner John A. Harriss, October 1, acted as host to 150 convalescent sailors from United States war ships on duty in foreign waters and 100 marines who are recovering from wounds received in the fighting around Chateau Thierry. The patients were conveyed by automobiles from various hospitals to Dr. Harriss' steam yacht which took them to his summer home at Collender's Point, Conn., where they were entertained with a concert and a shore dinner.

Influenza in New York.—The records of the health department show that, from September 18 to October 11, 25,082 cases of influenza have been reported with 394 cases of pneumonia. There have been 183 deaths from influenza and 210 from pneumonia during this period. The board of estimate has given the health department \$55,000 with which to fight the epidemic. Health Commissioner Dr. Royal S. Copeland has taken the unusual method of calling on the district leaders to use their party machinery to hunt out influenza cases. A statement issued by the Public Health Committee of the New York Academy of Medicine asserts that more vigorous measures should be taken by the health department in its campaign against Spanish influenza, but declares that there is no occasion for undue alarm on the part of the public, as only 2 per cent. of the population has been affected thus far. The committee strongly endorses the educational campaign being carried on by the health authorities here and elsewhere, and predicts that the epidemic will begin to decline in from two weeks to a month. Precautionary measures are recommended, many of which the health department is already enforcing. The most serious phase of the situation is the shortage of nurses. It is said that 5,000 nurses are needed at once. To meet this demand a Nurses' Emergency Council has been formed through which the Red Cross is making a house to house canvass for women with nursing knowledge. Reports from the state board of health show that, October 10, there were 31,217 cases of influenza in the state. The state laboratory is preparing an anti-influenza serum which will be ready for distribution in a few days.

OKLAHOMA

Personal.—Dr. Albert C. Hirshfield, assistant city physician of Oklahoma City, is said to have resigned.—Dr. Nelson P. H. White, Clinton, was seriously injured when his automobile was struck by a train at a grade crossing, 3 miles east of Clinton.—At a recent meeting of the state medical board of Oklahoma City, Dr. B. L. Denison, Garvin, was elected president.

Tuberculosis Conference.—The annual meeting of the Oklahoma Association for the Prevention of Tuberculosis and the State Public Health Conference was held in the Chamber of Commerce, Oklahoma City, September 24. Two hundred delegates were present, and the following officers were elected: president, E. K. Gaylord, Oklahoma City (reelected), honorary vice president, Dr. John W. Duke, Guthrie (reelected); vice presidents, Drs. Lewis J. Moorman, Oklahoma City, Mr. John Moffitt, Muskogee, Mr. John Woodward, Tulsa, and Mr. John W. Sunder. It was voted to change the name of the association to the Oklahoma Tuberculosis Association.

PENNSYLVANIA

Epidemic in Schuylkill County.—According to a special telegram to the *Public Ledger* on October 12, there were 11,000 cases of influenza in Schuylkill County, of which 1,600 were in Pottsville. Many physicians from other localities, making a total of seventy, were getting the situation in hand. In addition fifty physicians have been ordered there from the U. S. Medical Corps at Allentown. In Minersville the epidemic raged among the foreign born population and a number of men from the United States Medical Corps were ordered to take charge there. Coal production in this place has been greatly curtailed.

Philadelphia

Governor Appeals for Nurses.—October 11, Governor Braumbaugh issued a proclamation calling on nurses to volunteer their services during the influenza epidemic, especially nurses engaged as companions in the homes of the wealthy.

Influenza Epidemic.—Lieutenant-Commander Plummer, surgeon in charge of the Fourth Naval District, in which the first cases of epidemic influenza appeared in this city, reported, October 11, that the district was practically cleared of the disease. There were but twenty-six cases of influenza and three of pneumonia, of these only sixteen were within the district, the other ten having been taken from arriving ships. A chart in the surgeon's office shows that the epidemic began in the district on September 12, the peak was reached September 18 and that there was a steady decline since that date. The death rate for the week ending October 12, in Philadelphia was the highest ever recorded—3,234, of which 2,635 were caused by influenza and pneumonia. The highest death rate of any previous week was 1,191 on October 5, when the death rate was 35.26 per thousand. The rate for the week just passed reached 95.74 per thousand. Five nurses have died from influenza at the Philadelphia General Hospital since October 8.

Personal.—Dr. Cyrus L. Stevens, Athens, the president elect of the Medical Society of the State of Pennsylvania, who was stricken with pneumonia during the convention of the Medical Society, in this city, is convalescing at the University Hospital.—Dr. Elmer G. Whinna has just completed twenty-five years of continuous service as physician-in-charge of the Philadelphia Home for Infants.—Drs. Isaac F. Stover, Philadelphia, and Louis Weinstock, New York, are recovering from pneumonia. Dr. Stover is outside physician of the Germantown almshouse.—Dr. James F. Carrell is recovering from influenza at the St. Joseph's Hospital.—Dr. Donald Guthrie, chief surgeon at the Packer Hospital, Sayre, Pa., is in the University Hospital suffering from pneumonia following influenza.—Dr. Harrington S. Dickinson has been appointed assistant school medical inspector.—Dr. James M. Anders, who has been ill with influenza, has recovered.—Dr. Eugene Swayne, Bristol, who mysteriously disappeared last week, returned to Bristol, October 11. He had been working among influenza patients for a number of days and had gone to Philadelphia for a conference, collapsed on the train and was taken to the Frankford Hospital, where he was unconscious for four days before his identity could be determined.

UTAH

New Officers.—At the twenty-fourth annual meeting of the Utah State Medical Association held in Salt Lake City, September 10 and 11, Dr. George W. Middleton, Salt Lake City, was elected president and Dr. William L. Rich, Salt Lake City, secretary.

Personal.—Dr. Harry N. Mayo, Salt Lake City, has resigned as a member of the state board of medical examiners to enter the military service.—Major Walter C. Chidester, M. C., U. S. Army, has been assigned to duty as chief of the surgical staff of the reconstruction hospital, Fort Douglas.

VERMONT

Personal.—Dr. John H. Woodruff, Barre, has been appointed medical aide to the governor of Vermont, to succeed Dr. John B. Wheeler, Burlington, who has resigned.—The Caledonia County Medical Society gave a farewell dinner at St. Johnsbury for Lieut. Robert H. Burke, who has been ordered to Camp Upton, and presented him with a wrist watch and a masonic ring.—Dr. Fremont Hamilton, Brattleboro, was seriously injured by the overturning of his automobile, August 31.—Dr. Chester M. Ferrin, Burling-

ton, has been elected Surgeon-General of the Grand Army of the Republic.

WASHINGTON

Hospital at University.—A plan to build a hospital on the campus of the University of Washington, Seattle, to cost a million dollars and which is to form the nucleus for a medical department of the university, was proposed and endorsed at the meeting of the Kings County Medical Society.

Law Violators.—Dr. William G. Emonds, Seattle, is reported to have been found guilty, September 24, of issuing a prescription for liquor. He is said to have been convicted twice in 1916, and once in 1918, of unlawfully issuing prescriptions for liquor.—Dr. Thomas R. Loer, Seattle, is said to have been found guilty of unlawful issuance of prescriptions, September 6, and to have been fined \$200.

WISCONSIN

State Society Meeting.—At the seventy-second annual meeting of the State Medical Society of Wisconsin, held in Milwaukee, October 2 to 4, the following officers were elected: president-elect, Dr. Dennis J. Hayes, Milwaukee; vice presidents, Drs. J. Sothoran Keech, Racine, Luther A. Potter, Superior, and Herman Gilbert, Madison; Councilor for the first district, Dr. Hoyt E. Dearholt, Milwaukee; member of the committee of public health and instruction to succeed Dr. John M. Beffel, Milwaukee, Dr. William H. Washburn; delegate of medical education, to succeed Dr. Louis M. Warfield, Dr. Louis F. Jermain, Milwaukee; delegates to the American Medical Association, Drs. Horace M. Brown, Milwaukee, and L. Rock Sleyster, Waupun; alternates, Dr. John F. Pember, Janesville, and Louis F. Jermain, Milwaukee, and acting councilor for the seventh district, during the absence of Dr. Edward Evans, in France, Dr. Wilbur T. Sarles, Sparta.

CANADA

Influenza.—The influenza has seized Montreal, Ottawa, Toronto, Hamilton, and other Canadian cities in a firm grip. Hotels are being turned into improvised hospitals in Toronto for the accommodation of patients, the hospitals being filled to overflowing. There is a great demand for nurses, not only among soldiers but among civilians. Many deaths have been reported, particularly from pneumonia.

GENERAL

Meeting of American Public Health Association.—At the request of the Surgeon-General of the U. S. Public Health Service, the Officers of the American Public Health Association announce the postponement of their annual meeting, which was to have been held in Chicago October 14-17, to December 9-12, at the same place. This action was deemed advisable especially because it was considered unwise to ask sanitarians to leave their posts under present health conditions.

Cancellation of Meeting of Clinical Congress of the American College of Surgeons.—Information has been received, under government frank, that "owing to the influenza epidemic prevalent throughout the country and the resultant increased demand for the services of doctors in their home communities, it has been considered advisable by the executive committee of the General Medical Board to cancel the meeting scheduled to be held in New York City at the Waldorf Astoria, October 20. The regular annual session of the Clinical Congress of the American College of Surgeons, arranged for the week beginning October 21, has been cancelled for the same reason."

FOREIGN

Austria Forbids the Export of Drugs to Hungary.—Austrian telegram advices from Vienna state that Austria has forbidden the exportation of pharmaceutical supplies to Hungary. The Hungarian government has, therefore, been compelled to confiscate all supplies that are found in pharmacies.

Personal.—Dr. Maurice F. Egan, formerly American minister to Denmark, had bestowed on him the grand cross of the Order of Dannebrog by King Christian.—Dr. William White, Pittsburgh, has been placed in charge of the Italian Tuberculosis Unit, recently organized by the American Red Cross.

Collective Inquiry on the By-Effects of Arsphenamin.—The *Hospitalstidende* quotes a German weekly to the effect that so many reports have been made on by-effects from arsphen-

amin that a Cologne medical society, the Allgemeine ärztliche Verein, has appointed a committee to collect data on the subject. The German Dermatologic Association is represented on the committee by Professor Hoffmann, and physicians in general are asked to report all instances of by-effects in their practice to the committee, Rudolfplatz 3, Köln.

Deaths in the Profession Abroad.—Dr. M. Jatta, of the Italian Public Health Service, in charge of the campaign against malaria in the province of Puglia.—Dr. F. Arena, professor of chemical analysis at the University of Naples.—Dr. F. Jeannel, dean and professor of surgery at the University of Toulouse, aged 68, author of numerous articles on surgery and of a manual on surgery of the intestines.—Dr. E. Fraenkel, a prominent Danish practitioner of the Slagelse province.—Dr. J. R. Semprun, professor of clinical neurology at the University of Buenos Aires, senator, consejero de la Facultad de Ciencias Medicas, director of the Asistencia Publica, and president of the Comision Nacional de Bellas Artes, in addition to his work as chief of the Hospital Muñiz and detention hospital.

"New and Nonofficial Remedies" in France.—The *Paris médical* now falls into line with some other French medical periodicals in describing for its readers the work and ideals of the Council on Pharmacy and Chemistry and the book "New and Nonofficial Remedies." It reproduces entire Professor Puckner's letter on the subject to the *Journal de pharmacie et de chimie* relating that he had followed with interest the recent discussion in the Académie de médecine relative to regulating the sale of proprietaries. A whole page in the *Paris médical* is devoted to a translation of the preface to N. N. R., and the fact is emphasized that of all the proprietaries indexed only five or six are of French origin while over half of them are of German production. A previous notice of the kind was summarized in THE JOURNAL, June 8, 1918, p. 1783.

In Honor of Cortezo.—The director of the *Siglo Medico*, Excmo. Señor Don Carlos Maria Cortezo, has been a prominent figure in medical and political circles in Spain for many years, and has occupied high posts in the state, minister of public instruction, senator, etc. As already mentioned in these columns, the highest center of national culture, the Academy of Language, recently elected him to membership, and his friends on this occasion have opened a subscription for the purpose of offering him, it is said, "a homage worthy of his name and high position." The treasurer of the fund is Dr. J. Sarabia, Velasquez 5, Madrid. The dean of the medical department of the University of Madrid, Professor Recasens, initiated the movement in appreciation of Cortezo's constant efforts to promote the moral and material welfare of the profession, and particularly for his plan for the support and education of the orphans of physicians, the new Colegio de Huerfanos at Madrid.

SOUTH AND CENTRAL AMERICA, MEXICO AND WEST INDIES

Fiftieth Professional Anniversary of Uribe.—On the initiative of the medical society of Medellin, Colombia, the profession throughout the whole country, Colombia, joined in doing honor to Dr. F. A. Uribe of Medellin on the occasion of his "golden wedding with science." He is a member, with three other physicians, of the senate of the republic. The lower house has about fourteen medical members.

Medical Society and Journal of Northern Brazil.—In 1899 the physicians of northern Brazil organized the Sociedade de Medicina e Pharmacia do Amazonas, and founded the *Revista Medica do Amazonas*. Neither the society nor its journal lasted more than a few months, but ten years later the *Amazonas Medico* was founded. This, too, survived only for ten issues. The medical organization was revived last year, and it has now started anew the publication of the *Amazonas Medico*, and both seem to be entering on an era of successful and fruitful work. The *Amazonas* starts on its second phase as a quarterly, under the editorial supervision of Drs. A. da Matta, J. de Moraes and four others. An appeal for exchanges is printed in seven languages: Address Caixa Postal 40 A, Manaus. The first issue is indexed in the Current Literature Department.

CORRECTION

Captain Morehouse Living.—THE JOURNAL last week carried the report of the death of Capt. Cecil Goodard Morehouse, Waukon, Iowa. We are informed that a cablegram received by Mrs. Morehouse states that Captain Morehouse was severely wounded on July 16, but recovered and is now at work again.

MEXICO LETTER

MEXICO CITY, Sept. 23, 1918.

Popular Scientific Lectures

The alumni of the Escuela Medico Militar have organized a series of lectures on scientific subjects to be delivered by the professors of the school. They are held in the hall of the National Museum, and the three that have already been delivered have been very well attended. One was by Dr. E. Cervera, professor of bacteriology. His subject was "The Therapeutics of Yesterday and Today." Dr. E. Ramirez, professor of medical chemistry, spoke on the present status of medical science, and Sr. I. Ochoterena, professor of histology, on the relations between comparative neurology and human psychology.

Friends of France

A society has been organized among the leading intellectuals of the country. It is called the Amigos de Francia, and includes Dr. E. G. Martinez, physician and poet, who is president of the society, Dr. C. Barajas, author; Dr. J. Urueta, former minister of foreign affairs; Dr. L. M. Rojas, director of the daily paper, the *Universal*; Dr. F. Canale; D. C. D. Dufoo, economist; Dr. M. Flores and E. Pallares, journalists; Dr. A. Pruneda, director of the Escuela Nacional de Comercio, Lic. J. S. Azcona, and a number of others.

The Blind

A committee of which Dr. J. Terres is president has been organized to prevent the spread of blindness and to ameliorate the condition of the blind. It has inaugurated its work by publishing articles in the daily papers to enlighten the public on the dangers of smallpox as a frequent cause of blindness, and the necessity for warding it off by vaccination and revaccination. The importance of using exclusively animal vaccine for the purpose has been emphasized, as this eliminates the possibility of inoculation with syphilis by this means (since unfortunately even yet some physicians employ humanized vaccine). Instructions were also given how vaccination should be done correctly. The committee announced further that it will present tubes of vaccine lymph to all who apply.

The Homeopaths Appeal

The governor of the state of Puebla has issued a decree prohibiting the practice of medicine to the homeopaths in that state, as there they are generally very ignorant persons. They appealed to the district judge, alleging that the governor's order violated their constitutional rights. The judge denied their appeal, and they have carried their appeal to the supreme court of the nation. This high tribunal has not yet handed down its decision in the matter.

Quadruplets

The wife of a citizen of Merida, in Yucatan, was recently delivered of four children at one birth, three boys and one girl. Mother and children are in the best of health, according to the local papers.

Quarantine Against Guatemala

The Departamento de Salubridad has been officially informed that yellow fever has disappeared from the state of Guatemala, where there have been cases during the last months. An official survey is to be made at once to verify this notice so that the quarantine between Guatemala and Mexico can be suspended, as it materially hampers commerce between the neighbor countries.

Bazaar for Hospital

A *kermesse* was organized, September 15, for the benefit of the American Hospital. It was held in the halls of the Eliseo, founded by the United States colony, in this city. It was crowded with citizens and subjects of the Allied nations and leading members of Mexican society, and a large amount was collected for the improvements needed at the hospital.

Influenza

About 50 per cent. of the sailors on the Argentine man of war at present in Vera Cruz waters, and those that had come to this city for a visit have been affected with influenza, but fortunately it has been mild to date. It is remarkable that among the inhabitants of the city influenza has not assumed an epidemic character. The epidemic among our Argentine guests is ascribed to the influence of the altitude of the city and the relative drop in temperature noted at this time of the year. The sailors affected were isolated and properly cared for.

PARIS LETTER

PARIS, Sept. 26, 1918.

Antidysentery Measures

A number of cases of dysentery, several of which terminated in death, have occurred in Paris, and in the *département* of the Seine. In order to avoid a spread of the disease, the prefect of police has asked the people to conform strictly to certain regulations, such as, to use only milk that has been boiled for at least five minutes; not to put ice in any drinks; to protect food from flies, which should be destroyed in every possible way.

Biology of War

The Société de biologie has arranged to hold a series of meetings devoted to discussion of the biology of war. These meetings will be held monthly. The first meeting will take place October 19 and will be given over to the discussion of shock and anesthesia during shock. At the second meeting will be considered infection in the army, and antiseptics at the third.

Brazilian Medical Mission

An important Brazilian medical mission has arrived in Paris. It consists of 180 persons and is in charge of Dr. Nabuco de Gouvea, deputy. The physicians composing the mission will go to the various French hospitals where they will remain until the Brazilian hospital of 500 beds has been completed in the war zone. Dr. de Gouvea has under his direction eight general *chefs de service*, sixteen *chefs d'infirmeries* or *laboratories*, and forty-one *auxiliaires* for the surgical service proper. The pharmacy staff consists of a *chef de service* with two assistants and three *auxiliaires*. There is also a *service d'intendance*, or clerical force. A corps of nurses and a section of the navy sanitary (medical) corps accompany the mission.

Workshop for Franco-American Wounded Soldiers

In Paris there is an *atelier du blessé franco-américain* (at the Grand Palais) where wounded soldiers and the invalided, as well as men on furlough may find employment that is both remunerative and suitable for them. The government, appreciating the work done since the beginning of the war, by Madam Nicolas Eliasco, who is in charge of the *Atelier du blessé franco-américain*, has conferred on her the medal of the "Reconnaissance française."

A New French Red Cross Stamp

The postal department has on sale a new French Red Cross stamp. On one side of this stamp is the picture of a nurse against a background of ruins, from which unfortunate refugees are being taken by an automobile ambulance. On the other side is a small boat carrying to the hospital ship wounded and sick soldiers who are being brought back from the Orient.

LONDON LETTER

LONDON, Sept. 10, 1918.

A State Medical Service

In recent years much socialistic legislation has taken place, particularly in regard to matters of health. The outstanding instance, for example, is, of course, the insurance act. As pointed out in previous letters, this act is certain to be developed in many directions. Its defects, such as the failure to provide for specialist advice or hospital treatment, are indisputable. About three fourths of physicians are on its panels and therefore are part-time state officials. The burning question now is whether whole-time physicians should be employed. Advanced social reformers are strongly in favor of this proposal, but it is not acceptable to any except a small socialistic minority of the medical profession. The great changes brought about by the war are being used as an argument in favor of the proposal. It is said that our vast armies are well cared for by a state medical service and that when the physicians return to civil practice they will have been admirably trained for a similar service. Moreover, many who in consequence of their patriotism have sacrificed their practices will thus be provided for. Though not officially announced, there is reason to think that a scheme for a whole-time medical service has already been drawn up whereby there are to be five classes corresponding with army ranks: Class 5, lieutenant; Class 4, captain; Class 3, major; Class 2, lieutenant-colonel, and Class 1, colonel. The commencing pay for the fifth class, equal to the lieutenant, is \$2,000 a year, with promotion to the fourth class at \$2,500, third class

at \$3,750, second class at \$5,000 and first class, equal to the full rank of colonel, \$7,500 a year. The second and first classes will remain at these amounts, but for the lower classes there will be yearly increments, for the fifth class of \$75 a year until a maximum of \$2,500 is reached, and for the fourth class a rise of \$125 a year until the third, or major's, class, when the annual increase will be \$250 a year, till \$5,000 is reached. A novel feature of the scheme is that promotion can be obtained from one class into another only by examination. Thus, unless he passes an examination, the fifth class man will never get above his \$2,500 a year. There must be four years interval between the fifth and fourth classes and eight years between both the fourth and third, and the third and second, from which will be chosen the highest class at \$7,500 a year. There will be no necessity for a vacancy to exist before a man can qualify for a higher class and pay, at any rate up to the third or major class. The higher classes will deal chiefly with administrative work and with the giving of consultative advice. There will be no expenses to be paid out of the physician's salary; everything—drugs, appliances, clinics and traveling expenses—will be paid for by the government. Men will be expected to look after the health of between 2,000 and 3,000 persons. It will not be necessary to live in the big houses at present in vogue. Any sized house and in any adjacent locality will do, as long as it has telephonic communication. On the argument that either a patient is fit for work or unfit so he will be expected to attend at the office in the morning, evening consultations will be discontinued, and fewer visits paid than is the case at present. Work out of hours, that is to say, after 5 o'clock, will be taken by the juniors, who will take duty in rotation. Localities will be mapped out with exact boundaries, and in those areas all residents, whether rich or poor, will be entitled to medical benefit. All hospitals will be taken over by the government. There will probably be no compensation for the capital value of practices except in cases of unusual hardship; but those entering the scheme will have at 60 pensions, equal to two thirds of their salary, though perhaps they may go on practicing after that date. As a beginning, men who have been in practice for many years and are otherwise qualified will be enabled to enter the service at a higher class than the lowest. Full consultant and specialist services will be provided; men will be appointed to them after taking a special course and passing an examination in the particular work. They will receive higher pay. Study leave up to six months will be granted. Holiday leave will be the same as in the civil services—a month each year. All local lay control will be done away with, the service being under a central board of commissioners consisting of: (1) members appointed by the government from outside the medical profession; (2) members appointed by the government from men at the head of the medical profession, and (3) members elected by those medical men serving in the scheme.

One organized body of physicians, the Medico-Political Union, which principally consists of panel physicians (indeed, it was originally formed by them and then termed the Panel Medico-Political Union) is strongly opposing the scheme. The union was formed because the British Medical Association was not considered sufficiently representative of panel interests and its action not all that could be desired. It may be remembered that at the time of the passing of the insurance act the association was divided into two camps, for and against the act, and considerable ill feeling was aroused that has not entirely subsided. Unlike the association, the Medico-Political Union is registered as a trade union. It thus has the advantage in case of a medical "strike" that its members can interfere with those that do not strike without being open to a charge of "conspiracy," "wrongfully inciting" others to leave their employment and of "libel." Moreover, its accumulated funds cannot be attached. The union is opposed to the whole-time medical service on the grounds that: 1. The most intimately human of all professions enters into confidences in every phase of family life that would not be possible in the case of a paid official. 2. Free choice of physician (a strong point under the insurance act) would no longer be possible and the incentive of fair competition would be abolished, allowing the slowest mover to set the pace. 3. The pay, though excellent and attractive for newly qualified physicians, is not sufficient for experienced ones. 4. Any scheme brought forward with the hope of enlisting the support of physicians should compensate for the capital value of their practices.

Interallied Food Control

Conferences have taken place between the food controllers of America, France, Great Britain and Italy with the object

of organizing an interallied food council. A wheat commission sits in London which buys in America, Argentina, Australia and India, thus abolishing competition in neutral markets. It is intended to establish three other commissions, for meat and fats, oil-yielding grains, and sugar. The council intends to form reserves of cereals in America and Europe to guard against bad harvests. Our food controller has recently issued an order regulating the use of wheat, rye, barley and dredge corn for the feeding of animals. Grain fit for human consumption must not be given to animals; grain unfit for human consumption can be so used only under license, except in the case of small quantities not exceeding 10 hundredweight.

Lectures on Shell Shock and War Neuroses

A course of instruction in shell shock and war neuroses, open to all medical officers of the British and American services and to civilian physicians is being given under the sanction of the War Office at the Maudsley Neurological Clearing Hospital, Denmark Hill. Applications for admissions are to be made to Brevet Lieut.-Col. F. W. Mott, M.D., F.R.S. The course consists of daily instruction and practice in the diagnosis and treatment and systematic lectures and demonstrations twice weekly. These are on: 1. The anatomy, physiology and pathology of the nervous and muscular systems applied to the diagnosis, prognosis and treatment of shell shock and war neuroses. 2. The physiologic and pathologic conditions underlying shock—emotional, commotional and surgical. 3. The methods of examining cases of functional nervous disorders (hysteria, neurasthenia and psychoses) and the determination of fitness for military service. 4. The methods of differential diagnosis of organic and functional disease and the combined condition. 5. The diagnosis of conscious simulation (malingering), unconscious simulation and exaggeration. 6. The general principles of treatment of functional diseases of the nervous system. 7. General aspect of the surgical side of neuromuscular disabilities. 8. General principles of psychology as applied to war neuroses and shell shock.

Another American War Hospital in Great Britain

The American Navy has taken over another hospital, which is established in the East Coast of Scotland. The American staff consists of twenty-two medical officers, sixty-three nurses, paymaster, clerical staff, orderlies and artisans. It was organized at Los Angeles by Dr. Rea Smith, surgeon, U. S. Navy, and the commanding officer is Dr. C. M. Devalin, U. S. Navy. The equipment has been brought from America. The hospital will receive not only Americans but also British patients from both the army and the navy.

Marriages

LIEUT. LEE FRANKLIN TURLINGTON, M. C., U. S. Army, Birmingham, Ala., on duty at Camp Greenleaf, Fort Oglethorpe, Ga., to Miss Olivia Johnston White of Lynchburg, Va., September 17.

LIEUT. MAURICE RASCHBAUM, M. C., U. S. Army, New York City, on duty at Camp A. A. Humphreys, Accotink, Va., was married to Miss Justine Todd of New York City, March 27.

LIEUT. ROBERT BYRON GILES, M. C., U. S. Army, New York City, to Miss Fredericke Kröger of Spuyten Duyvil, New York City, September 12.

LIEUT. VIVIAN JOHN NEALE, M. C., U. S. Army, to Miss Helen Theresa Douaire, both of Chicago, at Des Moines, Iowa, September 11.

GEORGE WILLIAM SCHAEFER, Bridgeport, Ohio, to Miss Corynne Price Bush of Wheeling, W. Va., at Columbus, Ohio, August 29.

LIEUT. COMMANDER HOWSON WHITE COLE, JR., M. C., U. S. Navy, to Miss Mary Constance Wiggins, at Brooklyn, September 9.

LIEUT. RAYMOND WILLIAMS LEWIS, M. C., U. S. Navy, to Miss Alice Gregory Cragin, both of New York City, October 3.

CHARLES J. STAMBAUGH, Reidsville, Pa., to Miss Florence P. Newton of Lewistown, Pa., at Harrisburg, September 25.

FREDERICK CONRAD SCHADT, Williamsburg, Iowa, to Miss Louise Setzer of Middle Amana, Iowa, recently.

CLAUDE VERNET DAVIS, Cleveland, to Miss Laura Sheridan of Connellsville, Ohio, September 21.

Deaths

Capt. Lorenzo Burrows, Jr., M. C., U. S. Army, Buffalo; College of Physicians and Surgeons in the City of New York, 1889; aged 51; a Fellow of the American Medical Association and the New York Academy of Medicine; ophthalmologist to the Buffalo General Hospital; a specialist in diseases of the eye; on duty with Buffalo Base Hospital No. 23; who had been in France since October, 1917; died from pneumonia, September 17.



Died in the Service
IN FRANCE

**CAPT. LORENZO BURROWS, JR., M.C.,
U. S. ARMY, 1867-1918**

penal institutions; one of the best known administrators of penal institutions of America; died suddenly at his home, July 29, from heart disease.

Act. Asst. Surg. Charles B. Gruver, U. S. P. H. S., Waco, Texas; formerly of Rosman, N. C.; University of Maryland, Baltimore, 1902; aged 40; a member of the Medical Society of the State of North Carolina; at one time president of the Stroudsburg (Pa.), board of health; a member of the staff of the health department of Waco; died in a sanatorium in that city, October 7, from pneumonia.

Ludson Worsham, Evansville, Ind.; New York University, New York City, 1879; aged 63; a Fellow of the American Medical Association; surgeon of the Alaska Commercial Club from 1882 to 1884; chief surgeon of the Evansville and Terre Haute, and Evansville and Indianapolis railroads since 1896; at one time councilman at large; died at his home, September 29, from pneumonia.

David L. Haight, New York City; College of Physicians and Surgeons in the City of New York, 1864; aged 79; a member of the United States Sanitary Commission in 1862, and during the remainder of the Civil War assistant surgeon at the Douglas Hospital, Washington, D. C.; died at the Rockaway Country Club, Cedarhurst, L. I., September 30.

Lieut. Justin A. McCarthy, U. S. N. R. F., Lawrence, Mass.; Jefferson Medical College, 1918; aged 25; a Fellow of the American Medical Association; who came to New London, Conn., to assist in the treatment of influenza at the base hospital, died at the local hospital, New London, September 27, from pneumonia, following influenza.

Clinton E. Stark, Norwich, Conn.; New York Homeopathic Medical College, New York City, 1878; aged 64; once president of the Connecticut State Homeopathic Medical Society; a member of the board of trustees of the Norwich State Hospital since its institution; died at his home, September 26, from pneumonia, following influenza.

Russell H. Dean, Jacksonville, Fla.; Tulane University, New Orleans, 1875; aged 63; once vice president of the Florida Medical Association and president of the Duval

Lieut. Arthur Lewis Beyerlein, M. C., U. S. Army, Chicago; University of Illinois, Chicago, 1912; aged 30; a Fellow of the American Medical Association; who was in the government service in the Canal Zone from 1910 to 1916, and was later on duty in the orthopedic department of the Walter Reed General Hospital, Washington, D. C.; died in that institution, October 10, from bronchial pneumonia, following influenza.

John T. Gilmour, Toronto, Ont. (license, Ontario, 1876); aged 63; for nearly twenty years warden of the Ontario Reformatory for Men; an active member and once president of the American Prison Association, and later parole commissioner for the provincial

County Medical Society and of the Lake County (Fla.) Board of Health; died at his home, September 28, from cerebral hemorrhage.

Theodore Fessler, Portland, Ore.; University of Oregon, Portland, 1904; aged 47; at one time a Fellow of the American Medical Association; great sachem of the Independent Order of Red Men for Oregon in 1911; died in the Good Samaritan Hospital, Portland, September 27, after a surgical operation.

Capt. Charles Alton Sturtevant, M. C., U. S. Army, Manchester, N. H.; Boston University, 1899; aged 43; a Fellow of the American Medical Association; medical officer of the Seventy-Fourth U. S. Infantry; died at Camp Devens, Ayer, Mass., September 24, from pneumonia, following influenza.

Asst. Surg. Hadley Howard Teter, Lieutenant (Junior Grade), U. S. Navy, Cleveland; Ohio State University, Columbus, 1916; aged 27; is reported to be one of the missing from the *U. S. S. Tampa*, which was torpedoed in foreign waters, September 26, while escorting a convoy.

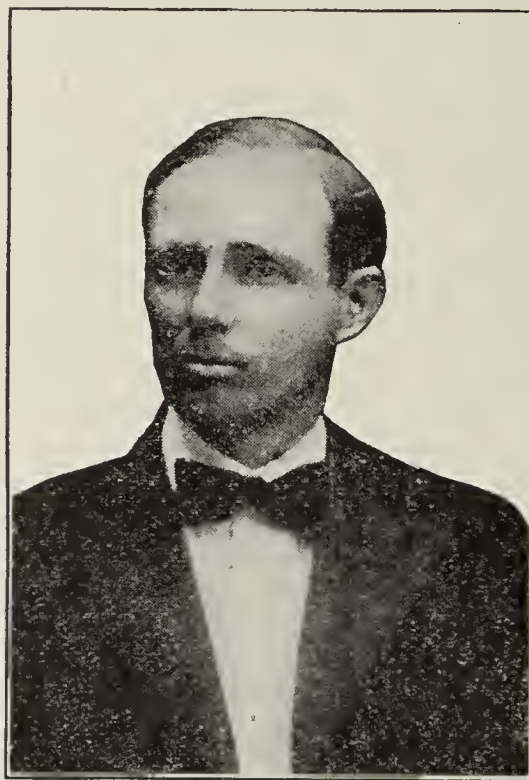
Orion Vassar Wells, Westford, Mass.; Harvard Medical School, 1906; aged 37; a Fellow of the American Medical Association; first lieutenant, M. C., Massachusetts State Guard, and assigned to duty with the Nineteenth Infantry; died at his home, October 4, from pneumonia.

Edward Hastings Wiswall, Wellesley, Mass.; Boston University, 1887; aged 57; for five years assistant physician at the Westboro Insane Hospital; superintendent of the Wellesley Sanitarium; a member of the local school committee for twelve years; died at his home, October 7.

Arthur Kraft Petery, Norristown, Pa.; Medico-Chirurgical College of Philadelphia, 1908; aged 32; a Fellow of the American Medical Association; a member of the staff of the Norristown State Hospital; died in that institution, October 2, from pneumonia, following influenza.

Robert E. Moss, Riverside, Calif.; Marion-Sims College of Medicine, St. Louis, 1897; aged 45; a member of the Medical Society of the State of California, and president of the Riverside County Medical Society; died at his home, September 27.

Lieut. Pressly Robinson Brown, M. C., U. S. Army, Swepsonville, N. C.; North Carolina Medical College, Charlotte, 1914; aged 34; a Fellow of the American Medical Association; is reported in the *Official Bulletin* of July 15 to have been killed in action in France.



Died in the Service
IN FRANCE

**LIEUT. PRESSLY R. BROWN, M. C.,
U. S. ARMY, 1884-1918**

Capt. Philip John Keizer, M. C., U. S. Army, North Bend, Ore.; University of Oregon, Portland, 1914; aged 32; a Fellow of the American Medical Association; assigned to duty with the Thirtieth U. S. Engineers; was killed in action in France, in line of duty, July 13.

William Binder Shick, Philadelphia; Jefferson Medical College, 1907; aged 39; a Fellow of the American Medical Association; a specialist of diseases of the ear, nose and throat; surgeon to the Jewish Hospital; died, October 3, from pneumonia, following influenza.

Elbert Ellsworth Heaton, Lancaster, Mo.; formerly of Centerville, Iowa; College of Physicians and Surgeons, Keokuk, Iowa, 1896; aged 46; is reported to have died in his office, October 4, from a gunshot wound, self-inflicted, it is believed, with suicidal intent.

George Wells, Annapolis, Md.; College of Physicians and Surgeons in the City of New York, 1867; aged 74; for several years chief of the medical staff of the Annapolis Emergency

Hospital; clerk of the court of Anne Arundel County; died at his home, September 29.

George A. Jennings, Burlington, N. J.; Baltimore Medical College, 1902; aged 46; a member of the Medical Society of the State of New Jersey; athletic director of the public schools of Burlington; died, September 30, from pneumonia, following influenza.

William Armstrong DeWitt, Blossburg, Pa.; University of Pennsylvania, Philadelphia, 1908; aged 32; a Fellow of the American Medical Association; chief surgeon of the Blossburg State Hospital; died at his home, October 1, from pneumonia.

Lieut. Philip Melton Kyser, M. C., U. S. Army, Birmingham, Ala.; Vanderbilt University, Nashville, Tenn., 1910; aged 30; a Fellow of the American Medical Association; on duty at Camp Lee, Va.; died in that place, recently, from pneumonia.

Lieut. John Riley Lewis, M. C., U. S. Army, Gainesville, Texas; Fort Worth (Texas) University, 1912; aged 31; a Fellow of the American Medical Association; on duty at a training camp in Long Island, N. Y.; died at the camp, September 25.

Thomas Francis Leen, Boston; Harvard Medical School, 1901; aged 43; a Fellow of the American Medical Association; a specialist in internal medicine; formerly a member of the Boston school committee; died at his home, September 16.

Ernest Albert D. Watson; Pittsburgh; Howard University, Washington, D. C., 1909; aged 40; a colored practitioner, born in Jamaica, British West Indies; died at the West Penn Hospital, Pittsburgh, September 18, from acute nephritis.

Hyman Cohen, Boston; Harvard Medical School, 1918; aged 25; attached to the second medical service of the Boston City Hospital; died in that institution, September 30, from pneumonia, following influenza.

John R. Cross, Buxton, Iowa (license, Iowa, years of practice, 1886); aged 63; at one time a Fellow of the American Medical Association; was killed, October 1, in a grade crossing accident at Hamilton.

Max Maurice Fladen, New York City; University and Bellevue Hospital Medical College, New York City, 1909; aged 32; died at his home, September 30, from pneumonia, following influenza.

Charles Vinton Mathewson, Plainfield, N. J.; Harvard Medical School, 1878; aged 65; who retired several years ago to engage in the insurance business; died at his home, September 20.

Omar Perlle Badger, Boston; Harvard Medical School, 1918; aged 29; an intern in the Boston City Hospital; died in that institution, September 30, from pneumonia, following influenza.

Joseph Warren Tillson, Cohay, Miss.; University of Tennessee, Nashville, 1899; aged 44; a Fellow of the American Medical Association; died at his home, June 10, from heart disease.

Alexander Murdoch Polk, Winthrop, Wash.; Jefferson Medical College, 1887; aged 55; formerly a practitioner of Concomully, Wash.; died at his home, September 18, from heart disease.

William R. Black, Bolivar, Ohio (license, Ohio, twenty-eight years practice, 1896); aged 71; mayor of Bolivar; a veteran of the Civil War; died at his home, September 21.

John R. MacDaniel, Arkadelphia, Ark.; Jefferson Medical College, 1867; aged 78; also a druggist; died at his home, September 18, from cerebral hemorrhage.

John Flood, Chicago; Bennett Medical College, Chicago, 1873; Rush Medical College, 1889; aged 68; died at his home, September 28, from pneumonia.

Benjamin F. Severns, Marion, Ohio; Eclectic Medical Institute, Cincinnati, 1886; aged 69; died at his home, September 24, from cerebral hemorrhage.

George Roy Heaton, Rock Mart, Ga.; Atlanta (Ga.) School of Medicine, 1911; aged 31; died at his home, September 21, from an overdose of poison.

Leo Henry Rahling, Chicago; Northwestern University Medical School, 1906; aged 36; died at his home, September 30, from bronchopneumonia.

Vachel Thomas Lindsay, Springfield, Ill.; Miami Medical College, Cincinnati, 1869; aged 75; died in the Springfield Hospital, September 20.

William F. Elmendorf, Buffalo; University of Buffalo, 1890; aged 64; died at his home, September 28, from spinal meningitis.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

PHILLIPS' PHOSPHO-MURIATE OF QUININE COMP.

Report of the Council on Pharmacy and Chemistry

The following report on Phillips' Phospho-Muriate of Quinine Comp. has been adopted by the Council and authorized for publication.

W. A. PUCKNER, Secretary.

Phillips' Phospho-Muriate of Quinine Comp.¹ is sold by the Charles H. Phillips Chemical Co., New York. According to the published formula, each fluidrachm contains:

Phosphoric Acid	2 minims
Potassium Phosphate	}2¼ grains
Magnesium Phosphate	
Calcium Phosphate	
Ferric Phosphate	
Quinin Muriate (equal to nearly ½ gr. Bi-Sulph.)	¼ grain
Strychnin	1/120 grain
Flavoring, Glycerin and Syrup, q. s.	

Some typical claims made for the preparation are:

"With marked beneficial action upon the nervous system. To be relied on where a deficiency of the phosphates is evident."

"... brace those tired nerves and aid that worn stomach with Phillips' Phospho-Muriate of Quinine."

"The maintenance of a satisfactory blood pressure level free from intervals of depression may be accomplished by the use of Phillips' Phospho-Muriate of Quinine Compound in appropriate doses."

"The quantities of quinin and strychnin in this preparation are so well balanced that they relieve the depression and fatigue from mental or physical exertion, without the necessity of recourse to alcoholic stimulation."

"The other ingredients of Phillips' Phospho-Muriate of Quinine—phosphoric acid, and the phosphates of potash, magnesia, lime, and iron—are the most rational as well as convenient means of administering these tissue remedies, and of introducing phosphorus—the vitalizing constituent of the nervous system—into the organism."

The action of such a mixture as a whole is practically that of the sum of the actions of its constituents. The therapeutic action of strychnin and quinin are described in every textbook of therapeutics, but it is necessary to distinguish carefully between the various conditions in which these alkaloids have been used without discrimination, and those conditions in which they have been proved to be of value. While both have been widely used in a great variety of conditions, neither is of proved value in more than a distinctly limited range of diseases. The manufacturers of Phillips' Phospho-Muriate of Quinine Comp. seem to appeal to the less discriminating who use these alkaloids without any definite conception of exactly what they seek to accomplish with them. Quinin, although used by the uncritical in a host of diseases, has a definite field of usefulness in the treatment of malaria, both prophylactic and curative, but the required dose in the treatment of malaria is many times larger than that recommended in the Phillips' preparation. The claim that the "strychnin and quinin in this preparation are so well balanced that they produce a

1. The evolution of "Phillips' Phospho-Muriate of Quinine Comp." from "Phillips' Wheat Phosphates" may be interesting. Every one knows that therapeutics tends to fashions, and "Phillips' Wheat Phosphates" appears to have had its inception as the result of the observation that super-refined white flour contains less phosphates than the corresponding amount of wheat. It was assumed that such flour must be deficient in an essential constituent, and the Wheat Phosphates preparation was apparently designed to fill the want. It was exploited for the relief of numerous conditions that were supposed, without satisfactory evidence, to result from this deficiency. When iron, quinin and strychnin mixtures became the vogue a quarter of a century ago, it was only natural to ride on the wave of popularity and the already widely advertised "Wheat Phosphates" was further enhanced—commercially—by the addition of the iron, quinin and strychnin, the amount of alkaloid added being practically negligible. Those who are not familiar with the various phases of the phosphorus, phosphoric acid, lactophosphate, lecithin, nuclein and glycerophosphate propaganda are referred to a report of the Council on Pharmacy and Chemistry in THE JOURNAL A. M. A., Sept. 30, 1916, p. 1033.

mild, buoyant effect, so advantageous, instead of alcoholic stimulation, to relieve depression and fatigue from mental or physical exertion" is nonsensical, if, indeed, it is not mendacious balderdash.

Calcium and potassium have important functions in the body, but any deficiency that may arise is usually attributable to an inability of the body to utilize that which is supplied, for there is seldom any deficiency of these salts in the food, and when they are needed they are best supplied as simple solutions of the salts in appropriate doses without all of the other constituents of Phillips' Phospho-Muriate of Quinine Comp.

Phosphoric acid exerts practically the same actions as other mineral acids, hydrochloric being usually preferred for internal administration in certain forms of indigestion, aside from which they are seldom used as such.

In the more recent literature for Phillips' Phospho-Muriate of Quinine Comp., we find the attempt to utilize the well-known craze about phosphorus, which has been through so many phases, every one of which has had its day and has been discarded.

The phosphoric acid and phosphates present in Phillips' Phospho-Muriate of Quinine are of no more value in nervous diseases than is simple sodium phosphate which does not require the addition of a host of other ingredients for its action. As a matter of fact, the phosphates of calcium and potassium present in a dose of Phillips' Phospho-Muriate of Quinine are probably devoid of appreciable effect in practically all conditions.

To pretend that one who suffers from physical and nervous exhaustion can be materially benefited by this mixture is sheer nonsense and is unworthy of a moment's consideration by a clinician who is called on to treat such patients.

Iron is useful in anemia, as every one knows. Iron has practically no other field of usefulness in therapeutics. When it is indicated it should be administered in a simple form, such as the pill of ferrous carbonate, for example, and not in a "shotgun" mixture that is quite as likely to do harm as good.

The claim that a satisfactory level of blood pressure can be maintained by Phillips' Phospho-Muriate of Quinine is mentioned only to condemn as the limit of impudent therapeutic claims. It is an insult to the intelligence of any practitioner to pretend that any known agent or combination of remedial agents can maintain a uniform blood pressure in any one of innumerable conditions.

In short, Phillips' Phospho-Muriate of Quinine Comp. is a complex and irrational mixture exploited by means of unwarranted claims. It is a survival of the old days of therapeutic chaos when impossible and fantastic chemical formulas were gravely published and as solemnly accepted without question, and also without the slightest understanding on the part of many; when the most eminent of practitioners did not hesitate to give glowing testimonials for lithia waters that contained no more lithium than ordinary river water; when no therapeutic claim was too preposterous to receive acceptance, no theory too nonsensical to justify the use of all manner of claptrap mixtures for all manner of conditions.

Contrasting Casualty Lists.—The *Health Bulletin*, State Board of Health of North Carolina, has adopted the unique experiment of printing in its *Health Bulletin* the names of the boys from that state who have been killed or wounded in France and comparing it with lists of those killed at home by typhoid fever, those severely injured in the performance of duty, and those seriously injured through carelessness or ignorance in their home state. It is shown that in France, for this year up to August 1, eighty-six "Tar Heels" have given up their lives or have been wounded in battle. During the same period 1,379 citizens of the state have needlessly given their lives or suffered weeks of illness because of typhoid fever. The eighty-six who died or were wounded in France were in the performance of duty. The 1,379 who died or suffered in North Carolina from typhoid fever died or suffered from an absolutely preventable disease.

Correspondence

ABORTION AS A SEQUELA OF INFLUENZA

To the Editor:—In the epidemic of influenza now prevalent I have noticed that pregnant women are especially liable to die. They usually abort or contract the very pronounced type of pneumonia, with cyanosis, the lungs full of coarse, mucous râles, and death, in from two to three days.

In Stroudsburg, where I assisted Dr. Angle, nearly every pregnant woman I saw died. Dr. Durham, who has just returned from a mining camp near Punxsutawney, reports a similar condition. I do not recall anything like this in previous epidemics and have seen no mention of the fact in this one.

Bacillus abortus of Bang is so closely allied to the influenza group that the question of their being identical is raised by these observations.

In Ziemssen's Encyclopedia, 1875 edition, in an article by Zuelzer, I find: "Pregnant women frequently suffer abortion. . . . This effect of influenza repeatedly verified in many epidemics . . . analogous phenomenon in other infectious diseases."

M. W. BALL, M.D., Warren, Pa.

CONTRIBUTIONS FOR BELGIAN AND FRENCH PHYSICIANS

To the Editor:—I beg to acknowledge through your columns the following contributions in cash to aid the civilian physicians of Belgium and France when they again return to their looted offices. The prospect now is that they will soon be able to do so. Meantime the money that I have forwarded to Professor Depage in LaPanne and the Comité d'appui des réfugiés de professions libérales through the Belgian and French Relief Associations of this city are accumulating in bank ready to be used whenever it is possible to do so.

Including the prior contributions, the sum total that I have been able to forward is \$2,624.88, and the estimated value of the instruments that have been forwarded amounts to \$4,360.

I wish particularly to acknowledge the very generous contributions of Dr. Gifford and his partners in Omaha. They have contributed \$1,000 of the entire amount. Dr. C. T. Faries of Narberth, Pa., also most generously gave \$10 a month for eight months, when he entered the service.

I trust that the members of the profession will be willing now to give more largely than before because the need is urgent. The villainous destruction which the Huns are visiting on even every little village has wiped out practically everything that our civilian confrères ever had. They will resume their work with nothing but willing hands and warm hearts. It is up to us to help them out of their troubles.

SUBSCRIPTIONS IN CASH

Dr. William G. Rowe, Blue Springs, Mo.	\$ 5.00
Dr. Clarence T. Faries Narberth, Pa. (fifth, sixth, seventh and eighth contributions)	40.00
Dr. H. Gifford and his partners, Drs. James M. Patton, W. F. Callfas and John B. Potts, Omaha	500.00
Dr. Anna Odell, Detroit	10.00
Dr. Clyde L. Cummer, Cleveland	5.00
Dr. C. W. More, Eveleth, Minn. (through Dr. John M. Robinson, Duluth)	25.00
	\$585.00
Additional interest	6.54
	\$591.54

DONORS OF INSTRUMENTS

Dr. Alexis Dupont Smith, Philadelphia; Miss E. K. Bray, New York; sundry physicians through Dr. J. M. Robinson, Duluth, Minn.; Dr. Walter J. Freeman, Philadelphia; Widow of Dr. A. T. Clark, Shick-shinny, Pa.; Dr. F. S. Spearman, Whiting, Iowa; Dr. Charles M. Montgomery, Philadelphia; Dr. W. Estell Lee, Philadelphia; Dr. C. L. Cummer, Cleveland; Dr. L. B. Pilsbury, Lincoln, Neb.

Messrs. Harvey R. Pierce & Co. have very kindly put these instruments in order and packed them for transmission to Europe.

W. W. KEEN, M.D., Philadelphia.

Major, M. C., U. S. Army.

ATTITUDE OF CHRISTIAN SCIENTISTS IN
THE PRESENT EPIDEMIC OF
INFLUENZA

To the Editor:—Your optimistic current comment (THE JOURNAL, Oct. 12, 1918, p. 1223) concerning the change in attitude of the public toward public health methods would be highly reassuring if it were true in the measure that the comment indicates. You say, "When health authorities place a ban on public gatherings, when they insist that the windows of public conveyances be kept open, when they insist on absolute quarantine in order to stop the spread of the disease, the public is ready to obey, and does obey to the *fullest* measure" (italics mine). Further, "Another feature is the confidence of the public in public health authorities, apparently the result of the intense education of the public in prophylaxis of disease which has been going on during the past decade."

I beg to call your attention to a special telegram to the Philadelphia Public Ledger, dated Boston, October 7, which reads thus:

In connection with the influenza epidemic, the directors of the "Mother" Christian Science Church here announce that "the mind is a source of contagion" and that "ailments can contaminate only as diseased images are held before the thought and paraded before excited imagination preliminary to having them expressed on the body through fear and apprehension."

They declare that "disease is being industrially promoted through the common avenue of mesmeric [sic] wear," and quote Mrs. Eddy as follows:

"At a time of contagious disease, Christian Scientists endeavor to rise into consciousness to the true sense of omnipotence of life, truth, and love, and this great fact, as Christian Science realized, will stop a contagion."

The church held its regular services Sunday, explaining that good rather than harm was effected. The health officials had asked churches to close during the influenza epidemic [italics mine].

This sort of stuff is doubtless doped out in every Eddyite congregation in the United States, and even the least observing and he of dullest comprehension must have discovered that the following of this cult is large. I have been told that Chicago is a veritable hotbed of Eddyism.

Would it not be wise to bend some editorial energies, if any are available, to the scotching or killing of this skunk in lieu of complacently recording dubious impressions? Here at home the Eddyites have not been able to get by with their "activities" unchallenged.

C. B. BURR, M.D., Flint, Mich.

ILL ADVISED REFERENCES TO TREATMENT
IN ARTICLES ON PUBLIC HEALTH
PROBLEMS

To the Editor:—The attached clipping is a part of a "syndicated article" that has appeared in a number of newspapers.

It strikes me that this line of so-called information is wrong. In writing on any public health problem, the writer should avoid reference to treatment. The treatment of any particular disease should be decided by the physician in charge after he has examined the patient. It is not right to state baldly that "drugs are virtually impotent." The patient calls the physician for his own relief and benefit, and if he believes all of this article he will probably send to the drug store and buy his own aspirin. And, by the way, is this writer in the pay of the Bayer people and helping them to put across their advertising campaign? Self medication is now one of the great banes of the American people, and such articles, either in the public press or in board of health publications, are the greatest incentive to such "doping." A carefully considered statement on any medical subject is often misquoted both in the medical and the lay press, as instance the comment aroused by Osler's age limit and Bevan's talk on pneumonia some years ago, both of which are still wildly and widely misquoted in both lay and medical publications. No two cases of any acute infection can be treated in exactly the same manner; the age and surroundings of the patient, the condition of the heart, kidneys, lungs and other organs must be taken into consideration, and the very necessary steps taken to avoid dangerous and possibly fatal complications and sequelae. Aspirin may be dangerous or even fatal in

some cases, as may other salicylates. Another bad effect of self medication is that a case improperly diagnosed as epidemic influenza will not be reported, and may be the starting point of a dangerous epidemic. In fact, a case so diagnosed may be almost any one of the infectious diseases. I have seen severe cases of smallpox diagnosed as grip in the early stages, and an epidemic start therefrom.

The authorized public health publications of many states and occasionally of the Public Health Service have been guilty of the actions of which I complain. I think these mistakes are largely due to carelessness on the part of these writers, and calling their attention to them will have a good effect. I was one time the state health officer of one of the Southern states, and know how easy it is to overlook important matters and to make mistakes of judgment.

F. B. YOUNG, M.D., Gering, Neb.

[COMMENT.—The clipping to which our correspondent refers reads:

It should be remembered, too, in treating patients who have acquired "Spanish influenza," care and sanitation are the all-important points. Drugs are virtually impotent, although aspirin may be administered to relieve headaches and body pains. With proper attention the disease will run its course in three days and the patient fully recover in less than two weeks. Death seldom ensues, except through neglect.

No doubt it would be in the interest of public health and the public pocketbook were medicines taken only on the advice of physicians. The objections to the lay advertising of aspirin were thus stated by the Council on Pharmacy and Chemistry:

The public does not know, as physicians do, that headaches are merely symptoms of other, sometimes very serious conditions, and that they are often the signal for the need of a thorough physical examination and diagnosis. It is true that they are often also the symptoms of very minor derangements, which will right themselves spontaneously; and that, in such cases, drugs like aspirin may give relief and may do no harm. The patient, however, is not educated to distinguish one class from the other, and therefore anything that tends to promote the indiscriminate use of such remedies as aspirin itself is not always harmless. Alarming idiosyncrasies are sufficiently common that the use of the first doses, at least, should require medical supervision.—Ed.]

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

PURCHASE OF MEDICAL OFFICERS' EQUIPMENT THROUGH
QUARTERMASTER'S DEPOT

To the Editor:—In THE JOURNAL, October 5, you say that officers' uniforms are available through the quartermaster's department, one depot being located in Chicago. Will you please give me the address?

H. T. K., Joliet, Ill.

To the Editor:—I have been examined for a commission in the Army and expect to be commissioned soon. Will you please tell me if I can buy my uniform and equipment at cost from a quartermaster as provided in the last clause of the "Man Power Bill"? If so, can I get them from the quartermaster of any camp?

L. W. C., Franklin, N. Y.

ANSWER.—In THE JOURNAL, October 5, page 1142, appears an item relative to the furnishing of uniforms through various quartermasters' depots. The seven depots mentioned are at New York, Washington, Atlanta, Ga., Fort Sam Houston, Texas, San Francisco, Chicago and St. Louis. Officers desiring to purchase uniforms may communicate with the nearest quartermaster's depot. We are informed by the officer in charge of the quartermaster's depot at Chicago that they are authorized to sell to newly appointed officers, on presentation of the telegram notifying them of their appointment or commission, any articles on the list of goods furnished, at the prices and in the maximum quantities shown. The Chicago sales room is located in Bungalow A, Thirty-Ninth Street and Winchester Avenue. Newly appointed officers residing outside of Chicago may communicate by mail with this department, or with the nearest quartermaster's depot, and the proper forms and information relative to purchase of equipment will be sent to them. The list of equipment and prices is not available for general publication, but will be furnished by the quartermaster to any officer on application. It includes practically everything that the officer will require.

Medical Education and State Boards of
Registration

COMING EXAMINATIONS

ARKANSAS: Little Rock, Nov. 12-13. Sec., Regular Bd., Dr. T. J. Stout, Brinkley, Ark.; Sec., Eclectic Bd., Dr. C. E. Laws, 803½ Garrison Ave., Ft. Smith.

CALIFORNIA: Sacramento, Oct. 21-24. Sec., Dr. C. B. Pinkham, State Capitol, Sacramento.

CONNECTICUT: New Haven, Nov. 12-13. Sec., Regular Bd., Dr. C. A. Tuttle, 196 York St., New Haven; Sec., Eclectic Bd., Dr. James E. Hair, 730 State St., Bridgeport; Sec., Homeopathic Bd., Dr. E. C. M. Hall, 82 Grand Ave., New Haven.

MAINE: Portland, Nov. 12-13. Sec., Dr. Frank W. Searle, 776 Congress St., Portland, Me.

MASSACHUSETTS: Boston, Nov. 12-14. Sec., Dr. Walter P. Bowers, No. 1 Beacon St., Boston, Mass.

NEVADA: Carson City, Nov. 4. Sec., Dr. S. L. Lee, Carson City.

TEXAS: Dallas, Nov. 19-21. Sec., Dr. M. F. Bettencourt, Mart.

WEST VIRGINIA: Charleston, Nov. 19-21. Sec., Dr. S. L. Jepson, Masonic Bldg., Charleston.

Minnesota June Examination

Dr. T. S. McDavitt, secretary of the Minnesota State Board of Medical Examiners, reports the oral, practical and written examination held at Minneapolis, June 4-7, 1918. The examination covered 15 subjects and included 80 written questions. An average of 75 per cent. was required to pass. Forty-one candidates were examined, all of whom passed. Six candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Northwestern University	(1918)	92
University of Illinois	(1918)	89
Boston University	(1915)	85
University of Minnesota (*)	86, 86, 86, 87, 87, 88, 88, 88, 88, 89, 95; (1918)† 77, 80, 83, 86, 87, 87, 88, 89, 89, 89, 90, 90, 91, 91, 91, 92, 92, 92, 92, 93, 93; (1918) 91.		
Syracuse University	(1917)	87, 91
Jefferson Medical College	(1917)	86

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Northwestern University	(1909)	N. Dakota
State University of Iowa Coll. of Med.	(1901)	Iowa
University of Louisville	(1910)	Tennessee
Medical College of Virginia	(1910)	Virginia
Marquette University	(1915)	Wisconsin
Milwaukee Medical College	(1911)	Wisconsin

*Degrees held pending removal of conditions.
†Received M.B. degree on completion of four years' work. M.D. degree granted on completion of internship.

Rhode Island July Examination

Dr. B. U. Richards, secretary of the Rhode Island State Board of Health, reports the practical and written examination held at Providence, July 11-12, 1918. The examination covered 7 subjects and included 70 questions. An average of 80 per cent. was required to pass. Four candidates were examined, all of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Maryland Medical College	.....	(1913)	83
Tufts College Medical School	(1918) 84.7, 89.4, 91.2.		

Utah July Examination

Dr. G. F. Harding, corresponding secretary of the Utah State Board of Medical Examiners, reports the written examination held at Salt Lake City, July 2-3, 1918. The examination covered 19 subjects and included 100 questions. An average of 75 per cent. was required to pass. Three candidates were examined, all of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Rush Medical College	(1917)	84.8
Johns Hopkins University	(1918)	79
University of Maryland	(1917)	79.4

Dr. Harding also reports that 3 candidates, including 1 osteopath, were licensed through reciprocity, July 5, 1918. The following colleges were represented:

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Denver College of Medicine	(1883)	Colorado
Columbia University	(1897)	Colorado

Book Notices

THE DISPENSATORY OF THE UNITED STATES OF AMERICA. Thoroughly revised, largely rewritten and based on the ninth revision of the United States Pharmacopoeia and the British Pharmacopoeia, 1914. By Joseph P. Remington, Ph.M., F.C.S., chairman of the Committee of Revision of the Pharmacopoeia of the United States of America; Horatio C. Wood, Jr., M.D., Professor of Pharmacology and Therapeutics in the University of Pennsylvania; Samuel P. Sadtler, Ph.D., LL.D.; Charles H. LaWall, Ph.M., Associate Professor of Theory and Practice of Pharmacy in the Philadelphia College of Pharmacy; Henry Kraemer, Ph.G., Ph.D., Professor of Botany and Pharmacognosy in the University of Michigan; and John F. Anderson, M.D., Director of the Research and Biological Laboratories of E. R. Squibb & Sons. Twentieth edition. Buckram. Price, \$12. Pp. 2150. Philadelphia: J. B. Lippincott Company, 1918.

This book and the authors are so well known that words of introduction are unnecessary. We find the statement on the title page to be strictly true; the volume has been thoroughly revised and largely rewritten. The scope of the works of reference consulted in its compilation seems to have been broadened. Aside from the United States and British Pharmacopoeias, the National Formulary and New and Nonofficial Remedies, more than 200 titles appear in the list of journals, etc., used for reference. It is pleasing to note that the statements quoted from these sources are treated in a critical manner; in fact, the policy of constructive criticism seems to have been adopted, a thing not very pronounced in previous editions. A valuable feature is the thorough manner in which the Federal Food and Drugs Act and the Harrison Narcotic Act are elucidated. The general arrangement of the text is the same as in previous editions. Part I, Pages 1 to 1222, contains the discussion of the articles described in the United States and British Pharmacopoeias. As an aid to reference, a uniform style of treatment has been adopted; and, as previously, various features, such as properties, uses, preparation and commercial history, are set off by boldface type. Incompatibilities receive special attention and always appear at the end of the paragraph on uses. In Part II are considered those articles that are described in the National Formulary and New and Nonofficial Remedies, and those other things that are thought to be of sufficient interest to warrant mention. Part III, Section I, contains with a few exceptions a reprint of Part II of U. S. P. IX, Appendixes I to XIII inclusive of the British Pharmacopoeia, and numerous tables of specific gravity and the like. Part III, Section II, contains Part I of the National Formulary in abstract. With all, the United States Dispensatory, Twentieth Edition, is a valuable book of reference, and this encyclopedia of drugs should be in the possession of every physician who aims to have an efficient reference library.

THE INDIAN OPERATION OF COUCHING FOR CATARACT INCORPORATING THE HUNTERIAN LECTURES DELIVERED BEFORE THE ROYAL COLLEGE OF SURGEONS OF ENGLAND. By Robert Henry Elliot, M.D., B.S., Sc.D. Cloth. Price, \$3.50. Pp. 94, with 45 illustrations. New York: Paul B. Hoeber, 1918.

This booklet represents the Hunterian lectures delivered before the Royal College of Surgeons of England in 1917. The work of Colonel Elliot is perhaps the most important done on this subject. He presents the history of couching beginning with the operation first described by Celsus, following with the technical methods and statistical material, and discusses the pathologic anatomy of couched eyes based on a collection of fifty-four eyeballs which he himself presented to the Museum of the Royal College. This is believed to be the most valuable collection in the world. The final chapters concern the diagnosis and clinical care of these cases.

THE ESSENTIALS OF MATERIA MEDICA AND THERAPEUTICS FOR NURSES. By John Foote, M.D., Assistant Professor of Therapeutics and Materia Medica, Georgetown University School of Medicine. Third edition. Cloth. Price, \$1.75. Pp. 310. Philadelphia: J. B. Lippincott Company, 1918.

This edition is based on the new pharmacopoeia, New and Nonofficial Remedies, and on Wood's "Pharmacology and Therapeutics." The book is practical; much of it is in outline form. The last hundred pages consist of ready reference tables, lists of drugs, etc., which should be quite helpful.

Society Proceedings

COMING MEETINGS

American Public Health Association, Chicago, Dec. 9-12.
Assn. for S. & P. of Inf. Mort., Asheville, N. C., Nov. 11-14, 1918.
N. Y. and New England Assn. of Railway Surgs., N. Y. City, Oct. 21.
Southern Medical Association, Asheville, N. C., Nov. 11-14, 1918.
Virginia State Medical Society, Richmond, Oct. 22-25.
Western Roentgen Society, Chicago, Nov. 20-22.

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS

Thirty-First Annual Meeting, held at Detroit, Sept. 16-18, 1918

The President, DR. ALBERT GOLDSPOHN, Chicago,
in the Chair

Stab Wound Drainage in Pelvic Infections

DR. H. WELLINGTON YATES, Detroit: It should be our constant endeavor to close without drainage, so far as safety will permit. Drainage materials should be removed earlier than is done in the general practice now obtaining. The great majority of all infected areas in the pelvis are suitable for culdesac or stab wound drainage. The abdominal incision should be left free to close by primary union. Stab wounds are securely and quickly united after the drainage is withdrawn, with no fear of subsequent hernia. The musculature of the areas usually chosen for stab wound drainage is our greatest asset to a speedy closure of the drainage opening.

DISCUSSION

DR. GORDON K. DICKINSON, Jersey City, N. J.: Drainage is a misnomer. Gauze does not drain. It is a local irritant and because of that property it walls off the local processes to a certain extent and makes things fairly safe. About ten years ago I made a study as to the value of the omentum in abdominal drainage, and I came to the conclusion then, and I feel the same now, that the omentum, properly applied, will drain more in ten minutes than any gauze will take out in a day.

DR. J. HENRY CARSTENS, Detroit: I have not drained for I do not know how long. I clean out the abdomen thoroughly without washing it. I mop it out and then close the incision without drainage.

DR. JOHN W. KEEFE, Providence, R. I.: Hard rubber drainage tubes in the abdomen have been largely discarded. Most surgeons feel that a hard rubber drainage tube should not be put next to the intestine. There is no question that an incision into Douglas' pouch for drainage is a desirable thing in a few cases. Looking back over the literature of gynecology one can see how many patients have died from the placing of drainage tubes in the pelvis and the withdrawal by nurses of the serum that formed. As soon as surgeons began to close the abdomen and not interfere with nature, these patients recovered.

DR. CHARLES L. BONIFIELD, Cincinnati: Dr. Keefe said that when surgeons began to keep drainage tubes out of the abdomen we got better results. While that is partly true, it is not the whole truth. One of the reasons we get better results now is that abdominal surgeons are improving their technic, and drainage becomes less necessary.

DR. HUGO O. PANTZER, Indianapolis: I concur in what Dr. Bonifield says, but there are cases in which we cannot get along without some form of drainage, cases with an accumulation of pus indicating that the peritoneum is unable to cope with it at that time, and hence some form of drainage is necessary.

Pathologic Conditions of the Pelvic Viscera, the Result of Induced Abortions Causing Sterilization

DR. FRANCIS REDER, St. Louis: All abortions, whether induced or not, pave the way, sooner or later, for sterilization of the woman. An instrumentally induced abortion is more prone to cause sterilization than an abortion induced by therapeutic measures. The resultant pathologic changes

in the pelvic organs, following an abortion, can be judged only vaguely. An abdominal section on a healthy woman who, in previous years, has had her pregnancies interrupted, causing sterilization, and who now desires to have a child, is a justifiable procedure after all therapeutic and minor gynecologic measures have proved of no avail. In the application of these measures, an approximate time limit of no less than two years, and of no more than three years, can be assumed. The correction of the pathologic conditions present may or may not enable the woman to become pregnant. Nothing definite can be formulated from a surgical measure undertaken to remove a barrier to pregnancy.

Cesarean Section Under Local Anesthesia

DR. WILLIAM MORTIMER BROWN, Rochester, N. Y.: The chief conditions for which this form of anesthesia may be chosen are myocarditis with relaxed muscle, toxemia with urinary insufficiency, pulmonary tuberculosis, and other conditions that may contraindicate a general anesthetic.

Cesarean Section

DR. ABRAHAM J. RONGY, New York: My experience with this operation consists of 109 cases, eight of which terminated fatally. During a period of twelve years I saw approximately 1,500 women in labor, all of them presenting some form of dystocia. Out of this great number I resorted to cesarean section eighty-two times. Cesarean section has no place in eclampsia when nature has already commenced to do its work, that is, when labor has already set in. In such cases large doses of morphin are the best form of treatment. Cesarean section has no place in the pre-eclamptic stage. In such cases one always has time to induce labor, and the results are usually very satisfactory. Only he who is well trained in obstetrics has a right to decide on this operation. A general surgeon has not the necessary knowledge to be competent to pass judgment on such an important question—important not only to the woman and to her future pregnancies, but also to the nation. If cesarean section is performed indiscriminately, there is bound to be a decrease in the birth rate, for the average woman will not submit too many times to this operation. For this and many other reasons, cesarean section should be left entirely to the well trained obstetrician.

Treatment of Pregnancy Toxemia

DR. GEORGE CLARK MOSHER, Kansas City, Mo.: The technic that involves least shock consists of: (1) Preliminary gradual dilatation by Hegar's dilators up to No. 20; (2) Voorhees bag No. 4, if at term, introduced by Reed's method—cigaret roll held by Pean's forceps; lavage with sodium bicarbonate, 2 per cent., after uterus is emptied. Cases of the fulminating type, long hard cervix (in which no vaginal examination has been done), are best treated by classical cesarean section. When after contamination by frequent digital examination, infection is almost surely to be expected, a Porro or other hysterectomy should be done in the interest of the mother. I have had 95 per cent. recoveries of mothers, and 85 per cent. of the children at term. From my own experience, and that of other observers, including a report by Dr. Ben Meyers of Alaska, who finds that in the last year, an unusually cold wet season, 12 per cent. of his cases suffered from toxemia—the conclusion is drawn that the weather does at least aggravate the tendency to this condition. As there is a close relation between the toxemia and the nervous system, is it not also fair to ascribe to the war an incidental effect as a causative factor?

Observations on Interned Venereal Patients

DR. JAMES E. DAVIS, Detroit: All cases of the series were examined serologically by the state board. Bacteriologic examinations of the smears taken from the urethral meatus, Bartholin's duct meatus, cervix uteri, and vagina were repeatedly made. Methylene blue and gram strains were employed. Patients were pronounced cured after the clinical disappearance of all lesions, and after obtaining negative Wassermann reactions before and after provocative arsenphenamin injections and after five consecutive smears, preceding which provocative doses of gonococcal vaccine had

been administered. The average age of the patients was 17 years, and fourteen were married. The average length of time patients were confined in the hospital was thirteen weeks. The average cost to the state per patient was \$195. There were ninety cases of gonorrhea and syphilis, forty-six of syphilis, seventy-two of gonorrhea with positive laboratory findings, and ten of gonorrhea, clinically positive, with laboratory findings negative.

Recognition and Management of Labor Injuries

DR. ARTHUR J. SKEEL, Cleveland: I wish to emphasize four points: 1. Limiting or entirely avoiding vaginal examinations during labor is a routine preliminary part of the technic of primary repair of labor injuries. 2. Immediate inspection of the cervix, with primary repair of its injuries, reduces the risk of subinvolution and of uterine displacement. 3. The routine use of buried sutures in the perineum for the repair of second degree lacerations permits accurate coaptation and restoration of the parts. 4. Perineal lacerations are more surely repaired than is subpubic damage. Therefore, slow delivery and skill in directing the small diameters of the head through the vulvar ring should be sought. Forcing the head against the pubic arch produces more damage than it prevents.

Vertigo of Menopause

DR. K. I. SANES, Pittsburgh: In most of our patients the vertigo was of the objective type, that is, they experienced a sense of rotation around them of the visible or palpable environments. In some of them the vertigo was of a subjective type, a sensation of motion of the body itself. A few of our patients described the vertigo as a sort of swimming movement, a feeling of being intoxicated, an extremely embarrassing condition (the pseudonarcotism of Tilt). Vertigo was seldom the only prominent menopause symptom; it was almost always accompanied by hot and cold flashes, cold perspiration, palpitation, blurred vision, flickering before the eyes, headache, nausea, tinnitus, etc. The relation of vertigo to climacteric functional hypertension is of interest, and it is claimed by some that it is responsible for the menopause vertigo. Excluding as far as possible the cases of organic hypertension (cardiovascular and renal), we found 102 patients with vertigo that had their blood pressure specified on their records, and of these only 45 or 46 per cent. had their blood pressure above 150, and only 20 or 30 per cent. above 160.

In most of our cases, the vertigo was only slight, just a mild dizziness; in others it was so severe that they feared walking by themselves on streets on account of the frequent falls and even loss of consciousness during the attacks of vertigo. If the case can definitely be diagnosed as that of climacteric vertigo, the treatment to be outlined must be that of menopause in general.

The results obtained from the use of ovarian substance, while sometimes strikingly good, are so frequently negative as to raise the question whether it has within it the same finished product or products that the internal secretion consists of; and if it has, whether it is competent to take care of the functional changes of the correlated endocrine glands brought about by the functional changes of the ovarian secretion.

The Heart of a Pregnant Woman

DR. LOUIS BURCKHARDT, Indianapolis: An early diagnosis is the chief factor for successful therapeutics. The menstrual disturbances, the aversion to physical exercise and the vasomotor symptoms will help greatly to single out suspicious cases. To depend on marked objective changes in the heart and the general system will lead to a loss of valuable time. If a heart affection has progressed to a point where drastic measures are unavoidable, irreparable damage has been inflicted on mother and fetus. Under drastic measures I include prolonged and absolute rest in bed, the use of opiates and large doses of digitalis; all these must interfere with a normal metabolism, so essential in this condition.

The first prophylactic steps ought to prevent impregnation, the prohibiting of marriage or the avoiding of con-

ception. If, however, conception has taken place, the pregnancy, in all but the severest cases, must be carried to term. The interruption of pregnancy offers as many chances of a cardiac breakdown as a normal well conducted delivery—excepting an abortion induced before the formation of the placenta has begun. If a patient with a well compensated heart lesion presents herself for prenatal care, we must impress on her mind the necessity of preservation of energy. Saving alone does not suffice, but working up of new vital forces is needed. Not rest alone, but rest and exercise. We demand regular exercises and careful attention to elimination in every normal case; we must control both most minutely in heart cases. The blood pressure readings will assist greatly in controlling the patient's work. Between the thirty-fourth and the thirty-fifth week of pregnancy, daily observations will be necessary in order to determine the proper time of interference. During this period such patients are best strictly confined to bed. As soon as settling has occurred, a considerable amelioration of symptoms is frequently observed and the patient may be given more liberty of action.

(To be continued)

COLORADO STATE MEDICAL SOCIETY

Forty-Eighth Annual Meeting, held at Estes Park, Sept. 9-11, 1918

(Concluded from page 1246)

Spastic Irritability of the Intestinal Tract

DR. JULIUS L. MORTIMER, Denver: A spastic state is due to exaggerated physiologic tonic contractions either of circumscribed areas or of entire intestinal segments, or to cramplike constrictions of the peristaltic waves. The intensity and duration of this condition varies according to the disposition of the patient and the nature of the prevailing cause. Prevailing causes are to be sought in the abnormal irritation from the intestinal contents, or in mechanical or chemical reflexes by the formation of large amounts of liquid or gaseous decomposition products. An increase of intestinal contents alone will often produce abnormally increased motility. This may be a consequence of hurried eating or poor mastication. Large undigested food substances as well as foreign bodies will generally pass through the small intestine rapidly without any manifestations. Disturbances will occur usually in the large intestine, where local spasms will be intensified by the occlusion of the foreign body.

Inflammations and new growths of the intestinal wall will result in an increased irritability of the automatic centers of motility. A frequent cause of intestinal spasm as a result of toxic action is found in lead poisoning and nicotin poisoning. Proctospasm may be caused by irritation through the sacral autonomic system, the pelvic nerve, as in tabetic crises, hysteria and neurasthenia.

DISCUSSION

DR. LEONARD FREEMAN, Denver: Perhaps the most startling and most characteristic form of spasmodic obstruction is that which takes place in the small intestine, usually in the lower portion of the ileum, where a section of bowel not more than from 3 to 6 inches in length will contract to the limit so that it is hard and white and bloodless, not bigger than a lead pencil or fountain pen, and so firm that one can pick it up by one end during a surgical operation and it will stand out straight without bending. This obstruction may take place in many portions of the intestinal canal, but it is usual to find it in one particular place. The contraction is so cut off from the rest of the bowel that the walls of the adjacent intestine are perpendicular. The causes of this obstruction are extremely obscure. The only thing we can say is that it is due to a reflex irritation arising generally in the intestinal canal itself, but possibly arising in other portions of the abdominal cavity like a twisted ovarian pedicle or strangulated hernia, or a twisted testicle or vein. It may follow any kind of surgical operation.

DR. J. E. MATLACK, Longmont: Spasm of the gastrointestinal tract is both a great help and a great hindrance to diagnosis by means of the roentgen ray. It is a help in that

many of the roentgen signs of disease of the stomach, for instance, are due to spasm, to deformity of the duodenum in duodenal ulcer as the result of spasm of that portion of the intestine, and in that way the diagnosis can be made definitely. A valuable method of differentiation between spastic and organic conditions of the stomach is repeated roentgen examinations and the administration of the tincture of belladonna.

Fractures of the Tibia

DR. WILLIAM SINGER, Pueblo: During the past three years we have treated ninety-two cases of tibial fractures; twenty-five were compound and forty-four comminuted; eight involved the knee joint and twenty-eight the ankle. Amputation because of thrombosis was necessary in one case. As soon as possible the fractured leg is roentgenographed. The preliminary treatment of simple fracture consists of placing the limb in a blanket splint resting on a pillow and further protected by sand bags. Ice caps are applied and nothing further done until the swelling has nearly disappeared. The fracture is then reduced under the fluoroscope. When thus treated, we have never had a simple tibial fracture that has not given good results.

Comminuted fractures can usually be treated as simple fractures; but when the fracture involves the ankle joint or the knee, it may be impossible to reduce and fix properly, except by open operation. Likewise, it is the rule that an open operation is almost imperative in a comminuted spiral fracture with the fibula splintered at a higher level. We do not use the intramedullary autogenous graft. We feel that destruction of the bone marrow is a mistake. In open operations we have completely abandoned the use of all metallic substances for fixation. The autogenous graft answers every purpose and avoids the possibility of future irritation. In the treatment of compound fractures we follow the Carrel-Dakin method. It has proved most satisfactory. In a compound fracture the soft parts should never be sutured in the first aid dressing. It is far better to pour half strength tincture of iodine into the wound and about the surrounding parts. After this has dried, a loose, sterile dressing should be applied, the limb placed in a blanket splint, immobilized, and, if possible, the patient sent to a hospital for further treatment.

The von Pirquet Test in Four Hundred and Sixty-Four Children

DR. EMANUEL FRIEDMAN, Denver: These patients ranged in age from a few months to 18 years. The acutely ill were excluded. The majority had abundant opportunity for infection. Most of the children were of tuberculous parents, many of whom had been inmates of sanatoriums in which they have had thoroughly inculcated rules of prophylaxis, which were scrupulously observed in many of the homes. The material conformed in kind with that on which most reports bearing on the frequency of childhood tuberculosis are based.

Of the 464 children tested, 39.8 per cent. reacted positively. Under 1 year, almost 12 per cent. reacted positively; from 10 to 14 years, 55 per cent., and from 14 to 18 years, only 51 per cent. The highest number of positive reactions was noted during the 11 to 13 year period, with 66.7 per cent.; and the lowest at the 5 to 6 year period, with only 13 per cent. positives. A comparison of these figures with those obtained at other sources warrants the conclusion that tuberculous infection among children in Colorado, while not as frequent as in Europe, is certainly no less frequently observed than in other American cities, barring New York.

Water Hemlock Poisoning

DR. MARY R. STRATTON, Denver: Eleven boys, between the ages of 8 and 12 years, were seriously poisoned by eating the root of the water hemlock or *Cicuta occidentalis*. Two of the cases were fatal. The boys had eaten the root after 6 o'clock while out on the grounds after their evening meal. They were taken sick in about an hour after eating. Those first taken sick had been in convulsions between thirty and forty minutes when I first saw them—others for a much shorter time. The sickness began with acute cramp or severe pain in the stomach, with an inclination toward a bowel movement, and vomiting. Mostly the vomit was a clear, frothy fluid. Those that vomited the stomach contents were not so sick. They

then became dazed and fell wherever they were and went into the most frightful convulsions and unconsciousness. None of them remembered anything about the events of that night when they awoke in the morning. The spasms were of a tonic character, with cyanosis and frothing at the mouth. The pupils were widely dilated, with the eyes open, eyeballs rigid and no corneal reflex. With some, the eyes were rolled up and the head drawn backward when they went into the convulsions, and they became rigid in that position. In the case of others, the eyes were bent downward and the head forward. The jaws became locked, and it was impossible to give them anything by mouth. The legs were somewhat parted and partly flexed. The arms partly flexed and held from the body, the hands clenched and finger nails blue. The muscles of the whole body were rigid and hard. In those who had been in convulsions some time, the pulse was fast, irregular and weak. During the severe convulsions, the breathing was interfered with to such an extent that the face was blue and livid, and one wondered if they might not die from suffocation. The external surface of the body was cold. There was no bowel action or urination during the convulsions. Once in a while the convulsions would relax only to return again.

The treatment consisted of stomach lavage with a weak tannic acid solution, hypodermic stimulation, chloroform inhalations for the convulsions or twitching, and a dose of salts in the morning. Those who vomited and evacuated the stomach thoroughly at the beginning had a good prognosis. The poison is absorbed rather slowly from the stomach, so that if the stomach is evacuated, even some time after the drug has been taken, it will often prevent a fatal termination.

Seminal Vesiculitis: Its Treatment

DR. WILLIAM M. SPITZER, Denver: Seminal vesiculitis may cause all the symptoms of a cystitis with its resultant miseries. It may result in an abscess with high temperature, prolonged prostration, and eventually death, simulating typhoid. Peritonitis occasionally, but rarely, ensues from a rupture of such an abscess into the peritoneal cavity. Colic, simulating renal colic, may appear, and the presence of pus in the urine at some time complicates the picture still more. Various ejaculatory disturbances, such as premature ejaculation, bloody ejaculation, painful ejaculation, or absence of ejaculation at the termination of coitus, exists. Dysuria, polakiuria, inability to urinate and other urinary disturbances may add to this condition. Various reflex pains, such as suprapubic, perineal, rectal, lumbosacral, sciatic, intra-abdominal (simulating appendicitis) and lumbar pains (simulating renal lesions) are common.

With the vesicle as a focus of infection, any condition may arise. Very common are various arthritides (gonorrheal), myocarditis, iritis and even choroiditis; and infections in any of the organs may ensue.

The following symptoms are more or less classic: 1. Pain; an infected seminal vesicle is always painful or tender to the touch. 2. Induration of the walls of the seminal vesicle. 3. The bringing forth of large, ribbon-shaped, vesicular casts on vesicular expression. 4. Sensitiveness or pain in the region of the verumontanum, which is determined by the aid of the olivary bougie.

The treatment should be divided into three parts, namely, the treatment of acute vesiculitis, subacute vesiculitis and chronic vesiculitis. There is a class of cases that demands surgical interference. These are the cases in which the seminal vesicle acts as a focus of infection and serious results threaten to follow, such as gonorrheal arthritis, iritis, serious myocarditis and any other diseased condition threatening the life or life work of the patient. Within the last three years I have opened and drained continuously over a period of two weeks the vesicles in fifteen patients suffering from gonorrheal arthritis. In no case had the arthritis (always polyarticular) existed for less than three months, and in each case everything had been done in the way of local treatment and vaccines that was possible, without any effect on the arthritis. In each case the arthritis was completely stopped within a few days, all joints being restored to normal within two weeks. Metastasis is cured by opening and draining the vesicles.

Current Medical Literature**AMERICAN**

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

September, 1918, **24**, No. 3

- 1 Development of Hypophysis Cerebri of Rabbit (*Lepus Cuniculus*). W. J. Atwell, Ann Arbor, Mich.—p. 271.
- 2 Morphology of Mammalian Seminiferous Tubule. G. M. Curtis, New York.—p. 339.

American Review of Tuberculosis, Baltimore

September, 1918, **2**, No. 7

- 3 How United States is Meeting Tuberculosis War Problem. G. E. Bushnell.—p. 387.
- 4 How Canada is Meeting Tuberculosis War Problem. J. H. Elliott, Toronto.—p. 400.
- 5 How America is Helping France with Her Tuberculosis Problem. J. A. Miller, New York.—p. 409.
- 6 Campaign Against Infants Tuberculosis in France by "Oeuvre Grancher." P. Armand-Delille, Paris, France.—p. 435.
- 7 What Shall Be Done with Tuberculous Soldiers Discovered in Draft, in Cantonments, or Overseas. J. Perkins, Providence, R. I.—p. 449.

American Journal of Medical Sciences, Philadelphia

September, 1918, **156**, No. 3

- 8 Focal Necrosis of Suprarenal: Acute Suprarenal Insufficiency Analysis of Two Cases. E. Moschowitz, New York.—p. 313.
- 9 Side-Lights on Multiple Myeloma. A. W. Meyer and R. E. Swain, San Francisco.—p. 329.
- 10 *Meningitis in New-Born and in Early Infancy. M. Barron, Minneapolis.—p. 358.
- 11 Prognosis of Exophthalmic Goiter. E. MacD. Stanton, Schenectady, N. Y.—p. 369.
- 12 Symptoms of Syphilis of Nervous System. J. Collins, New York.—p. 375.
- 13 Pudendal Hernia. A. V. Moschowitz, New York.—p. 395.
- 14 Studies in Cholelithiasis. Clinical Relationships of Cholesterinemia to Pathologic Process. A. O. Wilensky and M. A. Rothschild, New York.—p. 404.
- 15 Work of Bureau of Tuberculosis in France—American Red Cross. W. C. White.—p. 415.

10. **Meningitis in New-Born and in Infancy.**—Barron reviews the literature and cites one case. A male infant, 11 days old, was delivered in breech presentation. During the latter months of the last pregnancy the mother experienced pain in the epigastrium which was of the character of real labor pains during the last two weeks before delivery. She noticed that her abdomen was excessively enlarged. The childbirth, she thinks, was about one month premature. There was a condition of hydramnios during the second stage of labor, more than one gallon of amniotic fluid escaped. The delivery of the head was assisted by the insertion of a finger into the mouth of the fetus and then using a moderate amount of traction. The infant was cyanotic at birth, and it required considerable effort to initiate respiration. The infant had a whimpering cry and at no time nursed well. A slight right-sided paralysis made its appearance on the third day. The right hand appeared puffy and edematous. On the tenth day there was a bilateral swelling of the eyelids. Several slight convulsions were noticed on the morning of the eleventh day. The lips turned cyanotic. The child died on the same day. At the necropsy it was found that the brain was covered with a layer of brownish fibrinopurulent exudate. This is most marked over the left parietal region. Smears from the exudate show disintegrated pus cells and immense numbers of extracellular and intracellular gram-negative, short, plump bacilli. The organism recovered by culture was definitely the *Bacillus coli-communis*.

Arkansas Medical Society Journal, Little Rock

September, 1918, **15**, No. 4

- 16 Some Problems Confronting Public Health Service. T. J. Woods, Evening Shade.—p. 63.
- 17 Mental Health. T. Douglass, Ozark.—p. 67.

Boston Medical and Surgical Journal

Sept. 12, 1918, **179**, No. 11

- 18 *Suspension and Traction Treatment of Fractures in Base Hospital. G. A. Moore, Brockton.—p. 349.
- 19 *Use of Turn-Buckle for Traction and Counter-Traction in Treatment of Fractures. F. Holyoke, Holyoke.—p. 362.
- 20 War Surgery in France. W. I. Clark, Worcester.—p. 365.

- 21 Empyema and Its Treatment in Military Cantonments During the Winter of 1917-1918. H. Gage, Worcester.—p. 368.
- 22 Splints for Transportation. K. Emerson, Worcester.—p. 373.
- 23 Ultraviolet Light for Boils; Case Report. J. Bryant, Boston.—p. 377.

Sept. 26, 1918, **179**, No. 13

- 24 Mortality from Organic Diseases of Heart Among Wage Earners, 1911-1916. L. I. Dublin, New York.—p. 413.
- 25 Birth Control. M. D. Ordway, Boston.—p. 421.
- 26 Hearing Test with Voice to Detect Malingering. J. F. Callahan, Brockton.—p. 423.
- 27 Treatment of Symptoms and Complications in Tuberculosis. H. F. Gammons, Deerwood, Minn.—p. 425.
- 28 Tetanus with Incomplete Trismus; Recovery with Serum. R. W. Angevine, Rochester, N. Y.—p. 427.
- 29 *Nonsurgical Cure of Incompetence of Ileocecal Valve. J. Bryant, Boston.—p. 428.

18. **Suspension and Traction Treatment of Fractures in Base Hospital.**—The idea of treating fractures by suspension and traction is not a product of the present war, as it was first used over a hundred years ago. The adaptation of this method to fractures of the arm and many improvements on the original method of Hodgen for treating fractures of the leg are the results of the present war. Many of the new ideas in this method have been developed by surgeons of the staff of the American Ambulance Hospital, especially by Major Joseph Blake. The introduction of this method in the present war was for the treatment of badly infected compound fractures. It has proved of inestimable value, from both a subjective and an objective point of view. Subjectively, there is absolute comfort to the patient at all times, as the fragments of bone remain in the same relative position when the patient moves about in bed and when the dressing is done. The pain from congestion of the limb is eliminated owing to the improved circulation. Objectively, the edema of the limb disappears as the limb is higher than the body, and there are no tight bandages about the limb; the wound heals more quickly, due to better circulation. Union of fractures occurs early as a result of immobilizing the fragments, and ankylosis of neighboring joints is avoided by massage and motion during treatment. It requires some training and patience to apply the apparatus properly at the first dressing. It also requires watchfulness on the part of the surgeon to maintain a proper application of the apparatus throughout treatment; but the results more than compensate for the added work.

19. **Use of Turn-Buckle for Traction in Treatment of Fractures.**—The turn-buckle is a peculiarly unique mechanism where carefully controlled traction and counter-traction has proved necessary under roentgen-ray findings, and Holyoke believes that it will find a very important place in surgery. He describes a case to illustrate the use of the buckle.

29. **Nonsurgical Cure of Incompetence of Ileocecal Valve.**—Bryant cites a case as proof that an incompetent ileocecal valve may become competent under medical treatment. The treatment he used is not described.

Bulletin of Medical and Chirurgical Faculty of Maryland, Baltimore

May, 1918, **10**, No. 4

- 30 Responsibilities of Medical Profession in this War. V. Vaughan.—p. 54.

Colorado Medicine, Denver

September, 1918, **15**, No. 9

- 31 Nontuberculous Chest Conditions Diagnosed as Tuberculosis; Unusual Cases of Pulmonary Tuberculosis. J. B. Crouch.—p. 210.
- 32 Cesarean Section in Toxemia of Pregnancy. L. H. McKinnie, Colorado Springs.—p. 218.
- 33 Few Difficulties in Administration of Ether. D. E. Hoag, Pueblo.—p. 223.

Georgia Medical Association Journal, Augusta

August, 1918, **8**, No. 4

- 34 Syphilis vs. Cancer of Stomach. G. M. Niles, Atlanta.—p. 71.
- 35 Diagnosis and Treatment of Gastric Ulcer. J. T. Rogers, Savannah.—p. 74.
- 36 The Man with Horns; A Sideshow Fake. A. D. Little, Thomasville.—p. 79.
- 37 Direct Alcoholization of Sensory Root of Fifth Nerve in Treatment of Tic Douloureux. H. H. Martin, Savannah.—p. 81.
- 38 Examination of Stools of Children and Its Significance. W. L. Funkhouser, Atlanta.—p. 82.

Journal of Biological Chemistry, Baltimore

September, 1918, 35, No. 3

- 39 Studies on Pollen and Pollen Disease. Chemical Composition of Ragweed Pollen. J. H. Koessler, Chicago.—p. 415.
- 40 *Experimental Scurvy of Guinea-Pig in Relation to Diet. B. Cohen and L. B. Mendel, New Haven, Conn.—p. 425.
- 41 Indicators in Animal Tissues. W. J. Crozier.—p. 455.
- 42 Significance of Glycollic Acid, Glyoxal, Glycol Aldehyd and Amino-Aldehyd in Intermediary Metabolism. I. Greenwald, New York.—p. 461.
- 43 Rapid Micromethod for Determination of Phosphate and Total Phosphorus in Urine and Stools. A. Sato, Baltimore.—p. 473.
- 44 Scurvy of Guinea-Pigs. Experimental Dietary. A. F. Hess and L. J. Unger, New York.—p. 479.
- 45 *Id. Experiments on Effect of Addition of Fruits and Vegetables to Dietary. A. F. Hess and L. J. Unger, New York.—p. 487.
- 46 Influence of Electrolytes on Osmotic Pressure of Gelatin Solutions. J. Loeb, New York.—p. 497.
- 47 Simple Application of Volhard Principle for Blood Plasma Chlorids. W. C. Rappleye, Foxboro, Mass.—p. 509.
- 48 Determination of Creatinin and Creatin in Blood. W. Denis, Boston.—p. 513.
- 49 *Fat Soluble Vitamin. H. Steenbock, P. W. Boutwell and H. E. Kent, Madison, Wis.—p. 517.
- 50 Refractive Index of Blood Serum of Albino Rat at Different Ages. S. Hatai, Vineland, N. J.—p. 527.
- 51 Carbon Dioxid Combining Power of Blood Plasma in Experimental Tetany. W. S. McCann, Boston.—p. 553.
- 52 Modified Method for Preparation of Picramic Acid. G. Egerer, Minneapolis.—p. 565.
- 53 Metabolism of Glycerin Given Intravenously at Constant Rates. J. H. Lewis, Chicago.—p. 567.

40. **Scurvy in Relation to Diet.**—The extended experimental work done by Cohen and Mendel may be summarized as follows: Experimental scurvy of the guinea-pig is demonstrated at will with suitably chosen diets. Exclusive diets of cereal grains like oats and barley produce the disease. Germinated oats or barley prevent the appearance of scurvy even when fed for comparatively long periods. Scurvy arises on a diet of soy bean flour, even when the latter is supplemented with fat soluble and water soluble vitamins, inorganic salts and cellulose. Small additions of raw milk do not prevent the onset of scurvy. Larger quantities cause the symptoms to disappear. Roughage in the diet plays, if anything, a minor accessory rôle in the prevention of scurvy. This disease is not essentially dependent on constipation as a causative factor though the latter may aggravate the symptoms. Cabbage seems to retain some antiscorbutic properties even when dried. Contrary to certain current statements, highly purified lactose, fed with a scurvy producing diet appears to have no effect on the course of the disease.

45. **Effect of Fruits in Dietary in Scurvy.**—Hess and Unger found that orange juice which had been allowed to age for some months in the refrigerator lost some of its antiscorbutic power. This factor may be extracted from orange juice by means of 95 per cent. alcohol, and is entirely absent in the residue. Artificial orange juice prepared according to the formula of McCollum and Pitz failed to protect guinea-pigs from or to cure them of scurvy. It was also found to lack antiscorbutic power in infantile scurvy. Orange peel possesses marked antiscorbutic potency, and withstands desiccation remarkably well, retaining considerable of this power after being dried for three months. Prunes possess practically no value as a preventive against scurvy. Dehydrated vegetables were found to contain little or no antiscorbutic virtue. This experience coincides with that encountered in relation to human scurvy. As this food is of decided nutritive value efforts should be instituted to improve the methods of dehydrating and of storing so as to obviate this deficiency.

49. **Fat Soluble Vitamin.**—Much emphasis has been placed on the superior value of butter fat as compared with other fats used in the human diet, due to the larger content of fat soluble vitamin in the former. The experiments briefly discussed in this paper indicate some of the conditions which may modify and even eliminate all reasons for this distinction. Lard, vegetable fats, and beef fats on the average, as has been shown repeatedly, do not compare favorably with butter fat. The liquid portion of beef fat as first found by Osborne and Mendel and later by Halliburton and Drummond, and also the fats of certain animal organs are richer in the fat soluble vitamin and in some instances may compare very favorably with butter fat. In general, however,

oleomargarins on account of the large amounts of the vitamin poor fats used in their manufacture and in spite of the fact that they are churned with milk and contain some butter fat are not to be considered in the same class as good butter in providing the organism with the fat soluble vitamin. Questions of influence of feed, storage conditions, and temperatures used in the renovation of inferior products and even the method of use of the product in the home must be taken into consideration when depending on butter fat as a sole source of fat soluble vitamin in the dietary. With an abundance of a considerable amount of the vegetative parts of plants in the diet the superior value of butter fat over other fats in the human diet is questionable. In the rat as small an amount as 5 per cent. of alfalfa in the ration provides sufficient fat soluble vitamin for normal growth, reproduction, and the rearing of some young. In the absence of such materials in the diet the superior value of butter fat and in fact its necessity for normal nutrition is not to be denied. Then it becomes an important matter to know how this superior quality of butter fat can be obtained and preserved.

Journal of Laboratory and Clinical Medicine, St. Louis

September, 1918, 3, No. 12

- 54 Recent Aspects of Streptococcus Infection. F. P. Gay.—p. 721.
- 55 *Study of Leukocytes in an Epidemic of Influenza. R. P. Forbes and H. A. Snyder.—p. 758.
- 56 Introductory Exercises in Experimental Pathology. W. H. Manwaring, Stanford University, Calif.—p. 761.

55. **Leukocytes in Influenza.**—During April, 1918, a highly contagious, but comparatively mild infection of the respiratory tract was epidemic at Camp Hancock. Several thousand men in the command were infected, but relatively few were ill enough to be sent to the base hospital. The only fatal case occurred early in the epidemic. A blood culture made on the second day of the disease showed in twenty-four hours a heavy growth of small nonmotile, gram-negative, bacilli—*B. influenzae*. *B. influenzae* was recovered from cultures taken from the lung and spleen. Early in the epidemic, Forbes says, it was noted that leukopenia or at least absence of hyperleukocytosis, was a constant factor, and the leukocyte count was frequently of aid in differential diagnosis. However, the clinical picture of the disease usually made diagnosis easy: Nearly every patient gave as the initial symptoms backache, headache and slight cough or sore throat. Conjunctivitis and a marked injection of the soft palate was noted in 90 per cent. of the cases. In addition, a slight or moderate general adenopathy was often noted. The face was flushed and in a few cases the skin of the thorax presented a mild erythema. In three cases a provisional diagnosis of scarlet fever was made until the blood count showed a leukopenia.

Laryngoscope, St. Louis

September, 1918, 28, No. 9

- 57 Treatment of Stenosis of Larynx and Trachea Following Diphtheria. H. L. Lynah, New York.—p. 629.
- 58 Tests for Malingering in Defective Hearing. P. D. Kerrison, New York.—p. 662.
- 59 Problem of Stammering and Its Solution. E. L. Kenyon, Chicago.—p. 666.
- 60 Report of Cases, Mostly Traumatic, of Serious Damage to Nose and Accessory Sinuses, Operated on Externally with Excellent Cosmetic Results. J. R. Winslow, Baltimore.—p. 679.
- 61 Recurrent Teratomatous Growth of Trachea. W. Freudenthal, New York.—p. 690.
- 62 Case of Meningitis Treated by Labyrinthectomy and Decompression. C. E. Perkins, New York.—p. 695.
- 63 Diseases and Deformities of Nose vs. Neuralgia of Head. F. Stauffer, Salt Lake City.—p. 698.
- 64 Conservatism in Radical Surgery of Nose and Throat. J. W. Wright, Indianapolis.—p. 705.

Medical Record, New York

Sept. 28, 1918, 94, No. 13

- 65 An Appeal to Physicians in Behalf of Fourth Liberty Loan. J. J. Kindred, Astoria, L. I.—529.
- 66 Cancer; Its Causation and Prevention. J. W. Shannon, San Diego, Calif.—p. 530.
- 67 Perils from Faulty Postures. J. M. Taylor, Philadelphia.—p. 540.
- 68 Resistance and Transference in Psychoanalysis. C. P. Oberndorf, New York.—p. 542.
- 69 Why Iodin? What Iodin? D. H. Stewart, New York.—p. 546.
- 70 The Terror that Comes in the Night. E. F. Bowers, New York.—p. 547.

Military Surgeon, Washington, D. C.

September, 1918, 43, No. 3

- 71 *Communicable Diseases in National Guard and National Army of United States During Six Months from Sept. 29, 1917, to March 29, 1918. V. C. Vaughan and G. T. Palmer.—p. 251. To be concluded.
- 72 History of Base Hospital, Camp Sherman, Chillicothe, Ohio.—C. A. Wood.—p. 296.
- 73 *Treatment of Infections and Infected Wounds with Dichloramin-T. W. E. Lee and W. H. Furness.—p. 312.

71. See THE JOURNAL, Oct. 12, p. 1248, No. 42.

73. **Treatment of Infections and Infected Wounds with Dichloramin-T.**—At present records have been obtained by the authors from 19,040 completed cases in civil surgical practice which have been treated with dichloramin-T during the last fifteen months. These patients have been treated in the Pennsylvania, the University of Pennsylvania, Germantown, Children's and Bryn Mawr hospitals and the accident services of the Midvale Steel Works and the Remington Arms Company. After these fifteen months' investigation they feel that the use of dichloramin-T has definitely improved the results they have obtained in the primary closure of traumatic wounds of the soft tissues, bones and joints. In the treatment of superficial accessible infections dichloramin-T has uniformly given them better results than any other germicide they have employed, and that the method of its application is simpler and the dressings more economical than with any of the other chlorin agents.

The best results with dichloramin-T can only be obtained when actual chemical contact of the germicide with the infecting organism is maintained. To maintain such contact in superficial surgical infections is a simple matter, and in the first few months of the work a satisfactory technic for this class of wounds was developed. In deep and inaccessible infections the problem is more difficult, and the greater part of the fifteen months has been devoted to this aspect. The confidence in the germicidal value of dichloramin-T has so developed that when it does not control infection the authors feel that the chemical contact has not been maintained, the mass of the germicide employed has not been sufficient, or adequate surgical treatment has not been given.

The striking detoxicating effect of the chlorin group of agents which has become common knowledge through the general use of neutral solution of chlorinated soda is just as satisfactory exhibited with dichloramin-T. Dichloramin, unlike the aqueous hypochlorite solution, has no effect on the knots of catgut ligatures and no disintegrating effect on the catgut itself. The occurrence of secondary hemorrhages in wounds treated by the Carrel method was not uncommon in their experience at the American Ambulance. Major Sweet reports that, in his 1,200 cases of major infected military wounds, there was not one secondary hemorrhage.

The authors say that too great stress cannot be laid on the value of dichloramin as a deodorant dressing. The absence of the usual disagreeable odors in their wards, containing cases with fecal fistulas, is a general observation. During the last two months it has been used routinely in the wards of the Oncological Hospital in Philadelphia. Where formerly these putrid, sloughing, malignant tissues were irrigated every two hours with all kinds of solutions, with indifferent success in the control of infection and with a persistence of the offensive odor, now they are packed lightly every six hours with gauze saturated with a 5 per cent. solution of dichloramin-T. Dr. Gordon Saxon reports that not only has the odor disappeared entirely, but the wound infections have been controlled.

New Jersey Medical Society Journal, Orange

September, 1918, 15, No. 9

- 74 Involuntary Nervous System and Organ Therapy. J. Rogers, New York.—p. 297.
- 75 Duty of Family Physician to Patient Suffering from Headache and Eye Strain. L. Emerson, Orange.—p. 303.
- 76 Acidosis in Infants. J. Levy, Newark.—p. 309.

New York Medical Journal

Sept. 28, 1918, 108, No. 13

- 77 Civilization and Liberty Loan. G. D. Stewart, New York.—p. 533.
- 78 Mecca of Medicine for Future. F. Tilney, New York.—p. 534.

- 79 General Diagnostic Study by Internist. L. F. Barker, Baltimore.—p. 538. To be continued.
- 80 Sex Hygiene. G. W. Franklin, Albany.—p. 542.
- 81 Syphilis of the Stomach. A. F. R. Andresen, Brooklyn.—p. 544.
- 82 Dietetic Treatment of Intestinal Stasis. J. W. Weinstein, New York.—p. 547.
- 83 Congenital Dislocation of Hip in Three Generations. S. A. Jahss, New York.—p. 550.

South Carolina Medical Association Journal, Greenville

August, 1918, 14, No. 7

- 84 Middle Ear and Mastoid Infection in Children. J. W. Jervey, Greenville.—p. 202.
- 85 Tonsillectomy with Local Anesthesia. P. V. Mikell, Columbia.—p. 206.

Southwest Journal of Medicine and Surgery, El Reno, Okla.

September, 1918, 26, No. 9

- 86 Therapy of Pellagra. G. M. Niles, Atlanta, Ga.—p. 193.
- 87 Goiter. C. R. Phelps, Oklahoma City.—p. 202.

Vermont Medicine, Rutland

August, 1918, 3, No. 8

- 88 American Association of Independent Physicians. A. S. M. Chisholm, Bennington.—p. 191.
- 89 Health Inspection in Public Schools. C. S. Caverly, Rutland.—p. 193.

War Medicine, Paris

August, 1918, 2, No. 1

- 90 *Wounds of Chest. P. B. Soltau.—p. 1.
- 91 Early Operative Treatment in Chest Surgery. A. L. Lockwood.—p. 6.
- 92 *Gunshot Wounds of Chest as Seen in Hospitals on Lines of Communication. J. R. Bradford.—p. 10.
- 93 *Secondary Surgical Treatment of Chest Wounds. T. Tuffier.—p. 16.
- 94 *Operative Results of Early Surgical Treatment of Wounds of Lung. P. Duval and E. Vaucher.—p. 21.
- 95 *Extraction of Projectiles from Pleura and Diaphragm. E. P. de la Villéon.—p. 24.
- 96 Nature of Nervousness in Soldiers. F. Kennedy.—p. 26.
- 97 Outline of American Plans for Dealing with War Neuroses. T. W. Salmon.—p. 34.
- 98 Psychoneurologic Disturbances Affecting Limbs Observed During the War. G. Roussy.—p. 37.
- 99 Diagnosis and Treatment of War Psychoneuroses Especially with Reference to Cases of Convulsions and Asthenia. Laignel-Lavastine.—p. 44.
- 100 Preventive Measures in Relation to War Neuroses in U. S. Army Cantonments in America. H. W. Rhein.—p. 47.

90. **Wounds of Chest.**—According to Soltau the chest wound formed on an average 2.5 per cent. of all casualties admitted to the casualty clearing stations and, on occasions, it had risen to 3.5 per cent. To deal properly with cases in these numbers he considered that the following preparations were necessary in a casualty clearing station: 1. A chest team, consisting of a physician and surgeon, who should work in close collaboration, selecting the right type of case for operation, etc. 2. A ward with fifty beds, of which twenty should be fitted with the Fowler elevating frame. (This would allow for the accommodation and retention of cases admitted during forty-eight hours, on an estimated basis of 1,000 admissions a day, which might be expected in active times.) 3. A skilled nursing staff and trained orderlies; apparatus for giving oxygen, preferably Haldane's; if possible, an operating theater attached; immediate access to a bacteriologic laboratory and a roentgenographic outfit. 4. It is necessary also to have a systematized method of note taking and recording.

The mortality had been calculated from returns made from the greater part of the British front during the fighting in 1917. It was impossible to be certain of the death rate in the regimental aid post, but such deaths were practically all in the fatally wounded. At the field ambulance stations it was 7 per cent. In the casualty clearing stations it was 17.18 per cent., that is, 15.9 per cent. in the ninety-three remaining cases. At the base it was about 6 per cent., that is, 4.6 per cent. in the seventy-seven remaining cases. The total mortality in 100 cases which reached a medical unit was therefore 27.5 per cent.

The causes of death were: (a) anatomic, (b) septic. (a) This class included gross lesions, with profound shock and hemorrhage, the complicating lesions involving abdomen

and other areas, the multiple wounds, and deaths from edema of the lung and asphyxia. (b) The types of infecting organisms at the base were: gas forming organisms, 48 per cent.; streptococci, 40 per cent., and lung organisms, 12 per cent. The infected cases in the front area showed a similar distribution of organisms. The streptococcal infections were the most fatal. In the field ambulance zone the death rate was due entirely to anatomic causes; in the casualty clearing stations it was due both to anatomic and to septic causes, while at the base it was entirely septic in origin. The septic death rate in the casualty clearing stations area was about 26 per cent. of all deaths. Applying the figures given as to mortality, it will be seen that of every 100 men wounded in the chest, about nine die of sepsis.

In the line of treatment, the following points required attention: cleanliness; the combating of shock by careful warming, taking care not to overdo the "réchauffement"; the relief of pain by morphin or one of its derivatives, and by placing the patient in the position which he himself finds most comfortable. The necessity of closing an open wound is mentioned. This is best done by suture, and, in cases in which this is impossible, by most careful plugging. The case should be evacuated to a casualty clearing station as soon as the primary shock is overcome, usually in about three or four hours.

At the casualty clearing station the first essential is to secure rest. Early examination should be confined to determining that there is neither bleeding nor a sucking wound. More detailed examination may follow in a few hours, when an exact diagnosis as to the conditions present, coupled with roentgen-ray localization of foreign bodies, etc., should be made. Sepsis must be continually watched for, both by needling and by observing the constitutional signs. The large hemothorax needs aspiration, which is best done about forty-eight to seventy-two hours after wounding. As regards surgery, the following types of wound might be taken as needing operation: the large open wound or the "stove-in" chest, requiring plastic repair, and closure; the large retained foreign body, when accurately localized; the infected chest, which could be treated either by cleansing and closure or by drainage.

When to evacuate is a constant problem especially in times of active fighting. In quiet times it is better to evacuate the straightforward cases either at the end of three days or else after ten days. The intervening period is the time when sepsis usually appears, and it is better not to let patients travel during that period. In rush times, all wounds unaccompanied by extensive parietal injury, in which the hemothorax is not excessive, may be evacuated within twenty-four hours, provided the primary shock is overcome. After operation, patients should be retained for at least ten days. The open or draining chests travel badly. Patients should not be evacuated within twenty-four hours of aspiration. Soltau says that it is better to hold all patients until convalescent, but the ideal was rarely attainable, and it is often absolutely essential to evacuate early. He emphasizes that surgical treatment concerns only a small portion of the cases, that in these the highest skill is necessary, and that for the remainder the painstaking care of a skilled physician is needed.

92. Treatment of Gunshot Wounds of Chest in Hospitals on Lines of Communication.—The main problem in the treatment of these cases, Bradford says, is that of forming an accurate diagnosis: first, as to the exact anatomic condition present; and second, as to the presence or absence of infection. For the adequate treatment of these cases it is essential that these patients should be placed in special wards under the care of a physician and a surgeon working together in close cooperation. If the hemothorax is sterile and small in amount no special treatment is required. Aspiration should be employed in all cases of moderate or large size. The fluid should be removed slowly. The oxygen replacement method is of great value, inasmuch as by this means all the bloody effusion can be removed at one sitting with the minimum discomfort to the patient, provided local anesthesia is employed. In the exceptional cases where clotting en masse has occurred the chest should be opened and the clot removed,

the chest being then closed and subsequently aspiration practiced if necessary. In cases of infected hemothorax there should be no delay in the treatment of the patient by surgical methods, such as drainage of the pleura or preferably by cleansing the pleura after the excision of a long length of rib with immediate closure of the chest and subsequent repeated aspiration. The only class of case that admits of delay is that in which the patient presents no symptoms and yet the pleural fluid contains organisms. Some of these patients undoubtedly get well if only treated with aspiration, but in many of these the patient's condition is not really satisfactory, the fluid reaccumulates and it is questionable whether it is not better to treat such patients by opening and cleansing the pleura with immediate closure.

93. Surgical Treatment of Chest Wounds.—Tuffier believes that the surgical operations necessitated by the complications which follow wounds of the chest are relatively few. He divides them into two classes: Aseptic complications, which include foreign bodies, hemothorax, pulmonary sclerosis, and ultimately pulmonary tuberculosis; and infections complications, which are constituted by purulent pleurisy, abscess and gangrene of the lungs. He states that foreign bodies should be extracted, after the usual process of localization, only when they cause functional troubles which can be definitely traced to their presence. Tuffier and his colleague Depage advocate a method of treating cases of open purulent pleurisy, based on chemical disinfection of the wound followed by closure of the surgical incision, both in medical purulent pleurisy and in posttraumatic surgical suppurations. (a) Treatment of pleural suppuration in unopened cavity comprises three steps: pleurotomy, chemical disinfection and closure. (b) Treatment of fistular purulent pleurisy: A bacteriologic examination of the discharge is made by swabs taken from three points: (1) the deep part of the cavity; (2) the edges of the fistula; (3) the skin near the wound. The nature of the discharge being thus established, the treatment is instituted. It comprises three steps, as in the procedure previously described: (1) Débridement and incision of the pleural adhesions; (2) chemical disinfection; (3) closure. When three successive swabs, taken from the depths of the wound, from the edges, and from the neighboring skin, remain negative, the wound is sutured.

94. Results of Early Surgical Treatment of Lung Wounds.—For the last two years Duval has treated the wounds of the lungs presenting serious immediate accidents, external or internal bleeding, and opened thorax, by immediate surgical operation on the wound of the lung. For the past year and a half he has operated systematically without compulsion of urgency on certain wounds of the chest to remove the foreign bodies (missile, splinters), to clean surgically the wound of the lung (excision, sweeping suture), to clean the pleura and to treat the wound of the chest wall. Without any immediate surgical treatment the total mortality of chest wounds reaches 30 per cent., not including the soldiers who die in the midposts of the regiments. Through and through wounds, 21.2 per cent.; wounds with shell fragment retained, 30.3 per cent.; wounds with opened thorax, 27 per cent.; wounds with closed thorax, 15 per cent. These figures are based on 3,453 cases.

The authors' personal statistics of last year, including all cases from the field ambulance to the evacuation hospital, all the patients who died without having been operated on, those operated on for serious bleeding or opened thorax, those operated on systematically, and those not operated on, are taken from 161 cases among which there were 27 deaths, a mortality of 16.7 per cent. Of these 27 soldiers who died, 13 were not operated on. They died soon after reaching the ambulance in such bad state that nothing could be done to save them; 148 patients could be treated, 14 died, mortality 10.5 per cent. Among these 148 cases, 29 patients were operated on through urgency, either because they were bleeding severely—16 patients, 9 died—or because the thorax was opened—13 patients, 4 died—the mortality among these being 13. The mortality among the patients operated on through urgency was 44.8 per cent. There were 119 cases which probably would have been treated medically in other ambulances. One hundred and two patients were treated medically because

there was no indication for operating; 5 developed empyema; one of them healed perfectly; one died of pleural infection—it was the only death among the 102 cases; the 17 remaining patients who presented no urgent indication for operation but who, according to Duval's personal experience, would probably have developed infection, were nevertheless operated on immediately after reaching the ambulance; the indications for operating being given either by the size of the missile or the injury of the chest wall, fracture of ribs or of scapula, or the importance of the hematoma in the lung. This prophylactic operation consists in: removal of the foreign body; direct treatment of the wound of the lung; bleeding of the pleural cavity; careful excision of the wound of the chest wall. Duval's opinion is that infections are due to the fact that the wound of the lung had not been thoroughly treated, incomplete excision, bits of clothing, or splinters remaining in the wound or in the pleura, and the missile not removed.

95. Extraction of Projectiles from Pleura and Diaphragm.—Villéon has abandoned the classic method of thoracotomy in extracting projectiles in the pleura for the simpler method by means of forceps of his own design manipulated under a radioscopic screen and inserted through a small incision. The results thus obtained have been uniformly excellent with a minimum of surgical disturbance and no pneumothorax.

Wisconsin Medical Journal, Milwaukee

September, 1918, **17**, No. 4

- 101 Use of Precise Methods in Medicine. H. P. Greeley, Madison.—p. 131.
- 102 Relationship of Temperament to Psychoses. A. W. Rogers, Oconomowoc.—p. 136.
- 103 Submucous Resection of Nasal Septum. C. G. Dwight, Madison.—p. 139.
- 104 Seminal Vesicleography. H. J. Millstone, Chicago.—p. 146.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

August, 1918, **23**, No. 3

- 1 Universal Roentgen Ray Apparatus of Great Utility. E. C. B. di Castelvechio.—p. 73.
- 2 Case of Fracture of Sesamoid Bones. F. S. Scales.—p. 83.
- 3 Germicidal Action of Ultraviolet Radiation and Its Correlation with Selective Absorption. C. H. Browning and S. Russ.—p. 85.
- 4 Roentgen Rays and Electricity in Exophthalmic Goiter, and other Disorders of Ductless Glands. F. Hernaman-Johnson.—p. 91.
- 5 Exposure of Photographic Plates Varies with Milliamperage and Hardness of Tube. E. H. Nelthorpe.—p. 99.

British Medical Journal, London

Sept. 7, 1918, **2**, No. 3010

- 6 *Etiology and Treatment of Seborrheic Eruptions. H. W. Barber and H. C. Semon.—p. 245.
- 7 *Ten Thousand Recruits with Doubtful Heart Conditions. S. R. Wells.—p. 248.
- 8 Reactivity of the Blood. Relation to Cardiac Breathlessness, Surgical Shock and Allied Conditions of the Nervous and Circulatory Systems. B. Moore.—p. 251.
- 9 Treatment of Epilepsy by Collosol Palladium. A. C. King-Turner.—p. 255.
- 10 Medical Education in England. Overloaded Curriculum and Incubus of Examination System. E. H. Starling.—p. 258.
- 11 Education Act and Medical Profession. H. B. Brackenbury.—p. 259.

6. Treatment of Seborrheic Eruptions.—After studying the effect of giving alkalis in some 300 cases with seborrheic manifestations Barber and Semon have satisfied themselves that their action may be described as specific. It is not contended, however, that administration of alkalis abolishes the necessity for local applications, but it is claimed that this method of treatment hastens in remarkable fashion the clearing of the various eruptions dependent on the seborrheic state, and, provided that the patient be then given an adequate quantity of alkaline salt per diem, relapses will not occur. The best local applications are oily alkaline suspensions of calamine—for example:

R Calamine praep	2
Aqua calcis	8
Ol. arachis. vel ol. olivae	ad. 30

Most seborrheic lesions are amenable to this application, which should be renewed not less than twice daily, on lint. When oil is difficult to obtain in sufficient quantity, sodium bicarbonate in 2 per cent. solution in water is very useful. It must be applied thrice daily at least, as a soak on lint under jaconet, and should be changed once during the night if the lesions are very acute. At a later stage when erythema and congestion with irritability of the skin surface persist, the part should be covered with lint or linen smeared with Lassar's paste. All hairy parts, with the exception of the eyebrows and lashes, should be close cropped or shaved.

7. Recruits with Doubtful Heart Conditions.—Wells endeavored to determine the incidence in 10,000 cases of various diseases which have been supposed to lead to damage of the cardiac valves or myocardium. A history of rheumatic fever was obtained in 19.2 per cent.; chorea, 2.6 per cent.; rheumatism, 16.1 per cent.; growing pains, 26.5 per cent.; tonsillitis, 22.1 per cent.; scarlet fever, 21.8 per cent.; diphtheria, 7.2 per cent.; pneumonia, 5.3 per cent.; influenza, 56.0 per cent.; syphilis, 2.0 per cent.; gonorrhea, 5.95 per cent., and strain, 27.1 per cent.

Indian Medical Gazette, Calcutta

August, 1918, **53**, No. 8

- 12 Plague and Rat Destruction. F. N. White.—p. 281.
- 13 Rat Killing Operations in Mahableshwar. A. V. Gokhale.—p. 288.
- 14 Plague Inoculation. C. J. Ghia.—p. 290.
- 15 Antimalarial Measures in Relation to Human Carrier. W. B. Orme.—p. 293.
- 16 Cases of Surgical Interest. F. P. Connor.—p. 297.
- 17 Cerebrospinal Fever at Gaya. R. H. Pulipaka.—p. 298.
- 18 Case of Postoperative Tetanus. K. Prasad.—p. 299.
- 19 Case of Ectopic Gestation Burst into Rectum (Four to Five Months). T. C. Chatterjee.—p. 300.

Journal of Pathology and Bacteriology, Cambridge

July, 1917, **21**, No. 3

- 20 Formation of Bone in Calcified Epithelioma of Skin. G. W. Nicholson.—p. 287.
- 21 Serologic Classification of Bile Soluble Diplococci. W. Mair.—p. 305.
- 22 Investigation of Strains of Tubercle Bacilli from Animal Tuberculosis. A. S. Griffith.—p. 329.
- 23 *Cultural Reactions of Certain Anaerobes Found in Wounds. H. Henry.—p. 344.
- 24 Biochemistry of Pathogenic Anaerobes. B. Welchii and B. Sporogenes (Metchnikoff). C. G. L. Wolf and J. E. G. Harris.—p. 386.

October, 1917, **21**, No. 4

- 25 *Experimental Observations on Perforating Wounds of Abdominal Viscera. H. Drummond and J. Fraser.—p. 457.
- 26 *Gas Gangrene of Muscle; Its Morbid Anatomy and Histology. E. Emrys-Roberts and E. M. Cowell.—p. 473.
- 27 Preparation of Dry Museum Specimens of Bone for War Office Collection. G. Richardson.—p. 491.
- 28 *Transplantation of Fatty Tissue into Spleen. Y. Matsuoka.—p. 493.
- 29 *Effect of Infection with Staphylococci, Streptococci and Tubercle Bacilli on Bone Marrow Transplanted into Spleen. Y. Matsuoka.—p. 501.
- 30 *Rapid Method for Differentiation of Ameboid Forms of Endameba Histolytica from those of Endameba Coli. D. W. Cutler and R. Williamson.—p. 511.

23. Cultural Reactions of Anaerobes.—The conditions of modern warfare are such that the soiling of a wound by earth or by clothing infected with fecal organisms is unavoidable. Further, the short range bullet and the shell fragment bring about a destruction of tissue which gives just those conditions that are most favorable for anaerobic growth. These two factors in combination result in the implantation of anaerobes into a focus of dead tissue and so reproduce in the living body a condition which in certain respects is comparable to an artificial culture.

In estimating the extent of the initial trauma, Henry says, one has to take into consideration, not only the amount of tissue in the wound which is directly destroyed by the missile, but also the amount of tissue in the vicinity and confines of the wound which is damaged through interference of its blood supply either by laceration of its vessels or by the pressure from hemorrhage. It is this extra destruction which makes the wound produced by the modern missile so much more formidable than that produced by the long range bullet of the South African War. Quite apart from the destruction produced by the missile in the wound itself, the early growth of

the saccharolytic anaerobes initiates a spreading devitalization process in the surrounding tissues, a process in which gas formation, edema and the appearance of autolytic enzymes all figure as causative factors.

This early period is followed by a second phase which is characterized by the development of the more slowly growing proteolytic organisms. The gas formed in the proteolytic stage of wound infection contains sulphuretted hydrogen and certain volatile bodies, and it is these which give rise to the heavy penetrating fetid odor which is such a striking clinical feature of anaerobe infected wounds. The blackening which develops under artificial conditions in meat cultures, and which indicates the formation of a sulphid of iron, is likewise to be found in wounds.

The third phase in anaerobic infection consists in the development of a toxemia, the exact nature of which is as yet undetermined. The clinical picture produced is chiefly that of a rapidly increasing circulatory failure in which death may result so abruptly as to give the impression that it has been caused by pulmonary embolism. But not a single example of the latter condition has been met in a series of over 600 necropsies on men dying from gunshot wounds. This state of rapid circulatory failure has none of the clinical features that are usually associated with acidosis, nor is there any clear laboratory evidence that the local production of acid in and about an infected wound may alter the general reaction of the circulating blood and so cause an acid intoxication of the person. Therefore, the toxemia is believed to be caused by the absorption of some degradation product of protein rather than of carbohydrate, and that it is a toxic protein derivative rather than acid which brings about the abrupt shocklike collapse of the circulation.

The last stage of anaerobic growth is that of successful bacterial invasion of the blood stream. In the majority of cases this inroad occurs just at, or immediately preceding, the death of the person.

25. Perforating Wounds of Abdominal Viscera.—Certain facts regarding penetrating wounds of the abdomen on which the clinical evidence is at present somewhat obscure were worked out experimentally by Drummond and Fraser. The first question considered was that of, to what extent can perforating wounds of the intestine recover without operation? The authors used hares, cats and dogs in this work. They found that bullet wounds of the intestine can be very closely simulated by cutting the intestine wall with small sharp scissors. Single artificially made wounds of small size recover, irrespective of the portion of the intestinal tract in which they may occur. Multiple small experimental wounds occasionally undergo spontaneous recovery, but, if too numerous, are fatal.

The second question considered was: If perforation of the intestinal tract occurs, is there any one portion of the intestine that has a greater tendency to spontaneous cure than another? It was found that wounds of the ileum show a greater tendency to spontaneous recovery than any other part of the intestinal tract. In the absence of omentum, spontaneous closure of intestinal wounds occurs by adhesion of neighboring coils of intestine with a plastic peritonitis. Spontaneous closure is hastened when omentum is brought into contact with the injured part. The omentum is at first widely adherent over the injured part. At the end of three days the points of adhesion are limited to the actual intestine perforation. At the end of seven days a vascular anastomosis has occurred between omentum and intestine wall. Mucous membrane at the point of injury remains prolapsed for about a week, in this was to some extent blocking up the aperture. It is eventually replaced by a plug of fibrin. At the site of perforation there tends eventually to be a small sacculation of the mucous coat through the unsupported gap in the muscular tissue. Large areas of stomach wall can be replaced by omental tissue, but restoration of the stomach epithelium does not appear to occur.

26. Gas Gangrene of Muscle.—As the result of studying a large number of cases of gas gangrene, Emrys-Roberts and Cowell recognize three main clinical types: *A.* The common type which occurs in wounded lying out twelve to twenty-four hours, or which develops a few hours after the first operation.

B. The fulminating type where the patient, if untreated, may be dead in a few hours. *C.* The delayed type with a slow onset, so that the condition only becomes established several days, or even weeks, after the date of wounds. In the established cases, the clinical picture is so striking, with the pungent smell, color changes of dead muscle, and grave constitutional symptoms, that the diagnosis never remains long in doubt. It is in the earliest stages of the common type that the importance of immediate diagnosis lies. Here, if attention is paid to the local physical signs found in the wound, a diagnosis can be made before general symptoms have had time to develop. There are two types of wound of muscle in which gas gangrene is especially liable to develop. First, in deep penetrating wounds, with or without fracture of the bone, in which the main vessels may or may not be involved; and, second, an extensive surface wound, where gross laceration of the muscles has been produced, and where large amounts of infective material, such as dirt and fragments of clothing, have been carried in. The authors describe, in detail, the macroscopic and microscopic appearances of the infected muscle at different levels.

The belief is held that gas gangrene of muscle is essentially a manifestation of anaerobic infection. Extensive trauma is an important etiologic factor, as is also the symptom complex of shock, hemorrhage, and exhaustion. The toxins evolved by the growth of the anaerobes contain a myolytic substance—an acid, and, possibly also, deleterious disintegration products; in addition, they possess antichemiotactic properties toward leukocytes. The lytic changes in individual fibers are traced through the following stages during the process of advance: Blurring and eventual loss of cross striations, exaggeration of longitudinal striae, swelling of the fiber, changes in staining properties, and the formation of fluid containing perifibrillar spaces, in which are suspended the toxins and bacilli; fragmentation of the fiber, with marked lysis (which may proceed to complete disintegration); and, finally, phagocytosis by the leukocytes at and near the wound surface. Lytic changes also take place in the muscle fibers of blood vessels, though these are comparatively late phenomena. The capillaries owing to their lack of muscle constituents escape, and, as the result of free anastomoses, the blood supply is generally maintained, and diapedesis of leukocytes provided for. The formation of a fibrinous leukocytic layer at the wound surface is characteristic. The greater the number of leukocytes present, the greater the degree of neutralization of the toxins, and vice versa. The presence of this layer is associated with the absence of pus.

In cases in which the stage of recovery and arrest of the process is reached, the fibrinous leukocytic layer assumes the character of a white line of demarcation, separating dead muscle on the one hand from living muscle on the other. Subsequently this layer is cast off in the form of sloughs, and true granulation tissue takes its place. During the stage of arrest of the process the lytic changes are so abbreviated or compressed in the case of individual fibers, that the change from living striated fiber to the last stage of lysis and phagocytosis is abrupt. The production of gas is always a late phenomenon, except in the fulminating type of case. Its action is purely mechanical, and may lead to ischemia by compression within fascial sheaths, thus assisting and hastening the infective process. Although anaerobic bacilli can be demonstrated in apparently normal muscle well ahead of the process of gas gangrene, they do not assume a pathologic rôle, except when, in case of very grave infection, they are associated in the process of a bacteremia and may give rise to secondary foci. Vascular changes, apart from the effects of trauma, are absent in the advancing edge of the gas gangrene process. Regeneration of muscle fiber is extremely improbable.

28. Fatty Tissue Transplantation Into Spleen.—Experimental work was done by Matsuoka to ascertain whether there is any difference in the fat of transplanted fat-cells from the bone marrow and from lobulated fatty tissue proper, that is, from so-called primitive fat organs. With this end in view he autoplastically transplanted fat from the peritoneum and from the cervical region into the spleen. Autoplasty of lobulated fatty tissue from the peritoneum into the spleen was

always successful. Various regenerative processes appear in the fat-cells as early as three days after transplantation. Healing over of the transplanted fatty tissue is much more rapid than in the case of bone marrow; at the same time all fat-cells of the transplanted tissue are well developed.

Autoplasty of the so-called primitive fat organ into the spleen was also successful. Peritoneal connective tissue transplanted with the fatty tissue is converted into fatty tissue after transplantation into the spleen. Epithelial-like fat-cells of the so-called primitive fat organs are converted into common signet-ring shaped fat-cells after autoplasty into the spleen. After transplantation of fatty tissue into the spleen it is evident that connective tissue cells of the spleen may be changed into fat-cells by heterogeneous regeneration during the healing over of the graft.

From these experiments with fat transplantation it is apparent that fat cells of any kind may originate by indirect metaplasia of connective tissue cells, and that there is no conclusive evidence of the presence of so-called *sui generis* fat-cells.

29. Action of Micro-Organisms on Transplanted Bone Marrow.—Matsuoka infected rabbits with tubercle bacilli in order to cause chronic irritation of the bone marrow. In two cases which were examined eighty-nine and 112 days respectively after the subcutaneous injection of tubercle bacillus emulsion, the mesenteric glands showed necrosis and secondary fibrous induration. Disseminated, miliary, and also conglomerated tubercles and tuberculous pneumonia were present in the lungs. The spleen exhibited miliary, partly caseated tubercles, consisting mainly of epithelial cells. There was thus a general widespread tuberculosis partly brought about by hematogenous infection. The transplanted bone marrow in the spleen consisted principally of well developed fatty marrow, in a small part of which islets of marrow cells were to be seen between the fat cells. In another part, however, the bone marrow was diffusely cellular with uniform hyperplasia of the various medullary cells. The bone marrow in the femur had the same appearance as the transplanted bone marrow in the spleen.

The animals were dissected 185 and 190 days after transplantation, at which times, after simple autoplasty into the spleen, no evidence of myeloid deposits of the spleen substance is present. Tuberculous infection did not result in the appearance of myeloid cells. It is evident from these observations that even with such slight general functional irritations, as occurs in tuberculous infection, bone marrow transplanted autoplastically into the spleen in moderate amounts has the same reaction as the remaining untransplanted bone marrow. This view is also in accordance with the biologic healing up of the graft in the spleen.

30. Differentiating Between *Endameba Histolytica* and *Endameba Coli*.—With the intention of facilitating the rapid recognition of the ameboid form of the parasite, Cutler and Williamson have employed a 1:10,000 solution of neutral red in 0.85 per cent. sodium chlorid solution. A loopful of feces is emulsified in a drop of the neutral red solution on a glass slide. The preparation is covered with a coverslip and examined with one-sixth inch objective and No. 10 eyepiece. A warm stage is an advantage, but is not essential. In such a preparation the vegetative form of *E. histolytica* takes up the neutral red, and the stained amebas can readily be seen and recognized. The pink dye is uniformly distributed throughout the endoplasm, while the ectoplasm remains unstained. *Endameba coli* is not stained and appears as a light gray body. The method forms an easy and satisfactory means of differentiation between the two micro-organisms.

Journal of State Medicine, London

September, 1918, 26, No. 9

- 31 Women Workers and Health of Nation. A. M. Anderson.—p. 257.
- 32 Reform of Treatment of Mental Disorders. G. E. Smith.—p. 267.
- 33 What Steps Can Be Taken to Improve Teeth of Nation? J. G. Turner.—p. 269.

Lancet, London

Sept. 7, 1918, 2, No. 4958

- 34 Employment of Pregnant Women in Munition Factories. M. A. S. Deacon.—p. 311.
- 35 *Methods of Control of Fragments in Gunshot Wounds of Jaws. H. P. Pickerill.—p. 313.

- 36 Hemoglobinuria (Blackwater Fever). L. G. Parsons and J. G. Forbes.—317.
- 37 *Susceptibility of Antiscorbutic Principle to Alkalinity. A. Harden and S. S. Zilva.—p. 320.
- 38 *Prognosis in Trench Nephritis. S. C. Dyke.—p. 320.
- 39 Obscure Epidemic Encephalitis. S. K. Vaidya.—p. 322.
- 40 Influenza and Purulent Bronchitis. A. Maude.—p. 324.
- 41 Influenza Outbreak. C. W. Wirgman.—p. 324.
- 42 Successful Use of Intravenous Injections of Antimony Tartar Emetic in Bilharziosis. J. B. Christopherson.—p. 325.
- 43 Case of Acute Delirious Mania; Recovery. F. Wyatt-Smith.—p. 327.

35. Controlling Fragments in Gunshot Wounds of Jaws.—Pickerill maintained that there is, or should be, no best method of controlling fragments. Each case should be treated individually, according to its requirements. Control and not absolute immobilization of the fragments should be the aim of any method of treatment. The utilization of function and perhaps slight mobility of the fragments from as early a time as possible is the best stimulus to union. A conservative line of control should be adopted whenever possible; that is, loose teeth and small fragments should be retained and controlled with function rather than be sacrificed to obtain a quick but inferior result.

37. Susceptibility of Antiscorbutic Principle to Alkalinity.—The experiments made by Harden and Zilva show definitely that alkalinity has a very deleterious effect on the antiscorbutic potency of orange juice. Most antiscorbutic vegetables are either neutral or very slightly acid, and any culinary manipulation which entails alkaline treatment, even to a slight degree, will be instrumental in the destruction, if not of the entire, at least of a significant part of the antiscorbutic potency of such vegetables. When orange juice was made twentieth normal alkaline it was found that it did not prevent or delay the onset of scurvy.

38. Prognosis in Trench Nephritis.—Evidence presented by Dyke seems to indicate that the condition known as trench nephritis differs little from nephritis as met with in civilian practice except in the greater frequency of its occurrence, and that it is either a primary acute nephritis or an exacerbation of preexisting disease, induced by fatigue and exposure.

Medical Journal of Australia, Sydney

Aug. 10, 1918, 2, No. 6

- 44 Malarial Survey of Township of Cairns. A. Breinl and F. H. Taylor.—p. 109.
- 45 Plea for Adequate Recognition of Part that Can Be Played in Shell Shock by Septic Foci. S. Pern.—p. 115.
- 46 War Surgery. H. Flecker.—p. 116.

Aug. 17, 1918, 2, No. 7

- 47 Treatment of Strabismus. E. T. Smith.—p. 135.

Annales de Médecine, Paris

May-June, 1918, 5, No. 3

- 48 *Familial Hypertrophic Neuritis. P. Marie and Bertrand.—p. 209.
- 49 *Voltaic Nystagmus. L. Bard.—p. 239.
- 50 *Origin of Albuminuria. P. Merklen.—p. 256.
- 51 *Sign of Adhesive Mediastinitis. E. Lenoble.—p. 267.
- 52 *Tuberculous Cavities with Few Bacilli. C. Mantoux.—p. 307.

48. Familial Hypertrophic Neuritis.—Marie and Bertrand report with eighteen illustrations some interesting histopathologic findings at necropsy in two cases of familial hypertrophic neuritis.

49. Electrically Induced Nystagmus.—Bard discusses the nystagmus and other phenomena induced by placing on the temples the electrodes from a battery. The differences between the phenomena thus induced and those from thermic stimulation of the labyrinth throw light on the mechanism of the nystagmus, etc., under these conditions, as he explains in detail. The results from the two methods usefully supplement each other.

50. Albuminuria in Soldiers.—Merklen found complications on the part of the kidneys directly after acute infectious diseases in 17 per cent. of the men examined, irrespective of whether the men had been serving at the front or had never reached the trench line. In six of eighteen men the albuminuria had developed after acute tonsillitis. There was a history of some old acute infectious disease in 40 per cent. of the eighty men from the front and in 50 per cent. of the thirty others. In 22 per cent. there was primary nephritis

occurring in previously healthy men. In two of the men the albuminuria developed after antityphoid vaccination. Merklen's final conclusion is that chronic albuminuria which may be well borne in civilian life is extremely liable to give trouble under the stress of military life, even of limited service.

51. Signs of Adhesive Pericarditis.—Lenoble concludes from his study of eight cases of adhesive mediastinitis that there are no pathognomonic signs of it. Operative measures are called for when access to the adhesions is possible. The diagnosis is facilitated whenever certain radiographic fixed shadows show a special intensity. Also by the thickening of the pleura detected on attempting to puncture it, the needle meeting resistance as if from leather or thick cardboard.

52. Tuberculous Cavities with Few Bacilli.—The *Annales* has joined the *Lyon Chirurgical* and a number of other French, Italian and Swedish Journals which now are giving a brief abstract in English of each article. The abstract accompanying Mantoux' article is given herewith complete. "There are some chronical cavitary tuberculous patients far from any evolving push, of which the repeated examination of the spits, even preceded by homogenisation and centrifugation, is unfit for disclosing the presence of the Koch-bacillus; the only inoculation to the guinea-pig identifies those cavitary paucibacillaries (with few bacilli) tuberculoses. It is necessary, with every sick suspected of tuberculosis, to have recourse of the triple stethacoustical, bacteriologic and radiologic examination. The three methods are equally indispensable; one corrects the errors of the other; an examination of a tuberculous is incomplete, if it does not rest on this diagnostical tripod."

Archives Médicales Belges, Paris

July, 1918, 71, No. 7

- 53 *Spirochete Fetid Bronchitis. P. Nolf and P. Spehl.—p. 1.
- 54 Chronic Sinusitis. C. Sterckmans.—p. 20.
- 55 Vision and Fitness for Service. Moret.—p. 47.
- 56 *Night Blindness in Soldiers. M. Danis.—p. 63.
- 57 *War Wounds of Chest. R. Lefebvre.—p. 78.

53. Spirochete Bronchitis.—Nolf and Spehl have encountered eight cases of bronchitis which resembled Castellani's bronchospirochetosis and also Violle's spirochete bleeding bronchitis but differed from both by the extremely fetid character of breath and sputum. There was a hemorrhagic tendency only in one of the cases. The bronchitis was primary in six of the eight cases, and one of these men died. The onset was stormy, with progressive weakness, dyspnea and cyanosis, and numerous spirochetes in the sputum. The duration of the disease was over a month at least; in the fatal primary case, seventy-three days, and in the two secondary cases, ten days and two months.

56. Night Blindness in Soldiers.—Danis reviews the literature on hemeralopia and states that he has encountered it in 7.52 per cent. of 2,700 Belgian soldiers with eye disturbances of various kinds. There seems to be a recrudescence of it in the men on active service. Alcohol is totally proscribed on the Belgian front, and the coffee is made weak, but the men smoke a great deal. No central scotomas were discovered. Probably the hemeralopia in many cases is merely the revealing under army conditions of an old unsuspected tendency to night blindness, but there is no doubt that the physical and emotional stress of the war has sometimes induced essential hemeralopia by some disturbance in the local circulation, rendering the retina unable to adapt itself in the obscurity of the night. These men should be spared night service, but simulation must be guarded against.

57. Wounds of the Lung.—Lefebvre's long study of the immediate complications of wounds of the lung concludes by urging immediate suture of the pleura as almost the routine procedure, like a laparotomy for an abdominal wound. Surgical closing of the breach in the wall immobilizes enough to favor hemothorax, and the compression from this may check further hemorrhage. Moving a man wounded in the chest is even more serious for him than with an abdominal wound. If possible, he should be kept for two or three days. Shock in men wounded in the chest simulates grave anemia. Repose and immobilization are the best treatment. If the heart is

much displaced, it may be advisable to puncture. It may prove possible to arrest hemorrhage by artificial pneumothorax. The Italians have used this method considerably for war wounds of the chest, and laud the results obtained. It seems logical to get rid of the extravasated blood, liable to set up infection, and replace it with a sterile artificial pneumothorax to keep up the compression. If the hemorrhage persists, thoracotomy and suture of the lung are indicated. With increasing experience this will probably be done earlier to arrest hemorrhage and not be left for the last resource. The immediate advantages of suturing the pleura are so great that the danger from leaving a foreign body in the cavity can be overlooked. Local anesthesia or simply morphin is preferable to general anesthesia. The ribs can be spread apart, to enlarge the opening, resecting the ends of a fractured rib.

Archives de Médecine des Enfants, Paris

September, 1918, 21, No. 9

- 58 *Microbic Associations in Meningitis. Condat.—p. 449.
- 59 Acute Tuberculous Nephritis. L. Petitpierre.—p. 467.
- 60 *Phlegmon in the Orbit. Condat.—p. 473.
- 61 Present Status of Aerocephaly. J. Comby.—p. 476.

58. Mixed Meningitis.—Condat reviews the experiences with 47 recent cases of meningitis in Comby's service. She has compiled others, bringing the total to 168 cases, with mortality of 31.5 per cent. A number of the patients were young infants who always present an exceptionally high death rate. All but 11 of her 47 cases were meningococcus cases, with 25 per cent. mortality. Treatment was always by intraspinal injection of 15, 20 or 30 c.c. of antimeningococcus serum, according to the age of the child, whenever the lumbar puncture fluid looked turbid. If the meningococcus is found, the injection is repeated the next day and again after forty-eight hours. Two injections answered the purpose in 3 cases; three were required in 12 and four in 6. In 9 cases from five to ten injections were made; in 3 cases a tardy relapse or recurrence compelled a new series of injections. No special precautions were taken against serum sickness and except for an occasional rash or slight arthralgia there were no mishaps from it. She keeps up the serotherapy so long as the fluid is turbid; recovery followed in some cases which had seemed absolutely beyond relief. To start the serotherapy early is more important than the type of meningococcus involved. Everything should be done to simplify it and render it available for every practitioner. Any attempt to mix serums from different strains merely renders the serotherapy more complicated. This should be left to institutions. Even at the best it may delay proper treatment.

60. Phlegmon in Orbit.—There had been first a rhinopharyngitis, then ethmoiditis and then the phlegmon in the left orbit. The general condition kept good and the pus broke through spontaneously with complete recovery during the several months to date.

Bulletins de la Société Méd. des Hôpitaux, Paris

May 31, 1918, 42, No. 19

- 62 *Tardy Relapses in Meningitis. A. Netter.—p. 527.
- 63 Parameningococcus Meningitis and Septicemias. Brulé.—p. 537.
- 64 Subacute Lethargic Encephalitis. P. Sainton.—p. 543.
- 65 Heart Block. C. Laubry and C. Esmein.—p. 550.
- 66 Intestinal Bilharziosis. P. Ameuille and G. Magne.—p. 553.
- 67 *Hemoglobinuria in Malaria. P. Ameuille, M. Sourdcl and A. P. Marcovelle.—p. 556; R. Porak.—p. 559.
- 68 *Intravenous Injection of Hexamethylenamin. Loeper and L. Grosdidier.—p. 566; Loeper and C. Wagner.—p. 569.
- 69 Periarterial Sympathectomy in Raynaud's Disease. L. Veillet.—p. 571.

62. Tardy Relapses of Meningitis.—Netter says that among 350 meningitis patients, 1.14 per cent. had a relapse in from one to nearly three months after apparent recovery. In two infants intercurrent measles probably brought on the relapse. Some of his and others' cases suggest that antityphoid vaccination may produce a reaction in the organism which might favor the proliferation of otherwise harmless meningococci slumbering in the nasopharynx. In certain exceptional cases, the reaction to an antityphoid injection may simulate meningitis. In one case meningitis was soon followed by paratyphoid B and this in turn by meningitis again, with final recovery under serotherapy. Sainton reported syncope after

an intravenous injection of antimeningococcus serum, which required artificial respiration to revive the patient.

67. Hemoglobinuria in Malaria.—These two communications describe several cases of malarial *bilieuse hémoglobinurique* and explain the disturbances as the result of a kind of auto-anaphylaxis. This auto-anaphylaxis is of a physical nature, and it is the initial phenomenon of the hemoglobinuric jaundice. The massive destruction of red corpuscles occurs suddenly and rapidly and the blood pressure falls, but the reds that escape display normal resisting powers, and no hemolytic substance can be detected in the serum nor in extracts of various organs. The liver and kidneys were found apparently sound. A small dose of quinin may start the auto-anaphylaxis in those hypersusceptible to it, but it occurs in others in the absence of quinin. The practical conclusion of the articles is that *bilieuse hémoglobinurique* should be treated by anti-anaphylaxis measures such as have proved effectual under other conditions. The blood serum taken during a malarial attack might be used in the anti-anaphylaxis. This might serve to "consolidate the hemolytic complex" as Widal, Abrami and Brissaud have accomplished in paroxysmal *hemoglobinuria a frigore*. One of the patients recovered but two others died, the massive destruction of the red corpuscles having induced extreme anemia with fatal anoxemia. Death occurred more rapidly than is the case from anemia alone.

68. Intravenous Injections of Hexamethylenamin.—Loeper and Grosdidier determined the relative harmlessness of hexamethylenamin in injections by the vein in rabbits and then they applied it in typhoid, pneumonia, nephritis and liver disease. The action of the drug by the vein, they say, is infinitely superior to that by subcutaneous injection or by the mouth. It had an unmistakably favorable influence on the temperature, the general condition and on kidney functioning. In fifteen pneumonia cases all were improved and cured; in five the disease was aborted, defervescence occurring the following day. In septic bronchopneumonia the temperature declined more gradually but the general condition improved. Very slight influence was noted in the pleural streptococcus cases and it was inconstant in the secondary streptococcemias. Rabbits bore perfectly injection by the vein of 0.5 gm. per kg. and man seems to bear without harm 1.5 to 2 gm. The dose was 0.25 gm. to 1 c.c. sterilized water, the solution prepared cold, with intermittent sterilization. The volume introduced should not be over 6 or 8 c.c., that is, about 2 gm.

The same treatment was applied in serofibrinous pleurisy with good effects, slow but progressive. The results seemed to be the same when the drug was injected directly into the pleural cavity. In tuberculosis, they say that a series of twenty injections seemed to induce *très réelles améliorations*. One young soldier with nephritis and dropsy, pneumonia and sputum swarming with tubercle bacilli was given 21 gm. of the drug in two series of seven injections, and notable improvement followed. They add that of course this medication is only palliative, but the experiences to date indicate that it acts on the general reactions, the febrile, the toxic and the septic. It is a sedative but without depressing action, and it seems to reduce the intoxication from the infection wherever the infectious process may be located.

Journal de Médecine de Bordeaux

August, 1918, 89, No. 8

70 *Disturbances in Nails after War Wounds. A. Le Dantec.—p. 215.

71 *Operations for Wounds of Nerves. A. Hesnard.—p. 218.

72 Pseudo-Tuberculosis of Peritoneum. J. Vitrac.—p. 224.

73 Suggestions for Rural Hygiene. Darbouet.—p. 226.

70. Finger Nail Sign of Irritative Neuritis.—Le Dantec has frequently noticed as a trophic disturbance in the finger nails after a war wound of the arm, the development of a roll of flesh under the outer end of the nail. This *bourrelet sous-unguéal* is a warning of the presence of some scrap of projectile or gravel in the tissues. The matrix, the bed of the nail and the nail itself all seem to be subject to a manifest process of hyperplasia. Percussion of the nerve its entire length will generally locate the foreign body, the cause of the trouble. This is usually where the nerve is embedded in cicatricial tissue. The percussion induces an intense tingling pain to the tip of the fingers or toes. He has succeeded in

releasing the adherent nerve by daily potassium iodid ionization of the spot, the electrodes applied to both sides of the limb, supplemented by massage and exercise to break up gradually the adhesions. In one case he abolished the pain by injecting alcohol (70 per cent.) into the adherent cicatrix. As the cause for the irritative neuritis is removed, the protuberant flesh under the nails disappears with it.

71. War Wounds of Nerves.—Hesnard reviews the indications and contraindications for operations on peripheral nerves as determined from the immediate and remote experiences at the Bizerte *centre neuro-psychiatrique* of which he is chief. Good results were seldom obtained when the interval was over four months, and the best outcome was with intervals of from one up to four months. The operation might even be done the very day of the war wound. He thinks that the danger of an aseptic operation near a recent or slightly infected wound may have been exaggerated. He has witnessed again and again the excellent reunion of surgical wounds made for intervention on nerves a few centimeters from a war wound in evolution and previously infected. But such haste is not indispensable, and he advocates operating regardless of the interval when clinical examination shows the absence of complete or very pronounced degeneration of the wounded nerve and the muscles which it innervates. By "degeneration" he does not mean the degeneration response to electric tests. This may be encountered with superficial and curable injuries. Only anatomic neuromuscular degeneration indicates that the nerve is lost beyond redemption, and this may take eight or ten months; in some cases up to one year or three years. Some stop short of complete degeneration and finally recuperate spontaneously. Suture after the nerve had been completely severed resulted in a cure in two out of fifteen cases, and improvement only in two other cases. Certain nerves recuperate earlier and more completely than others; in this order he lists the radial, the external sciatic, the ulnar, the internal sciatic, the median, and the trunk sciatic nerves.

Journal d'Urologie, Paris

August, 1918, 7, No. 3

74 *Kidney Stones. Rochet and Boulouneix.—p. 225.

75 *Autoplastic Procedures for Urethra Fistulas. F. Cathelin.—p. 267.

76 *Bilharziasis of Bladder. E. Desnos.—p. 319; Marion.—p. 325.

77 Fragment of Penny Driven into Bladder by Projectile. A. Mendaro.—p. 329.

78 Concretion around Bullet in Woman's Bladder. Removed Ten Years after Wound. S. N. Oeconomos.—p. 333.

79 *Radium Treatment of Cancer of Prostate. G. Marion.—p. 335.

80 *Transactions of Urologic Conference.—p. 337.

74. Kidney Stones in Soldiers.—This report from a *centre urologique* states that in the total of thirty-four cases of kidney stones encountered in the course of three years, the kidney was infected in all but five. The remarkable clinical latency of stones in the kidneys as long as the kidney is not infected is shown by many of the cases. The unhygienic conditions at the front predisposing to autointoxication, and the jolting over rough roads, etc., damage kidneys already impaired by the presence of stones, and if an infectious process is set up this first attracts attention to the kidneys. The experiences related teach the importance of radiographing the whole urinary apparatus when there are even vague complaints in respect to the kidneys. Ambard's ureosecretory constant showed a marked turn for the better after removal of the stones.

75. Fistulas of the Urethra.—Cathelin devotes nearly fifty pages to analysis of the different war wounds of the external genitals and the best means for repair. His article is accompanied by twenty-seven illustrations, and he emphasizes the necessity in operating always to be ultra conservative, as every minutest scrap of skin is extremely important for the plastic operation later. Even when the penis has been almost completely severed, he has succeeded in getting it to heal in place. He gives minute directions for the various plastic operations and calls attention in particular to his method of curing a fistula by turning in the skin. (It was briefly described with an illustration in THE JOURNAL, Aug. 17, 1918, p. 606.) He has applied it in thirteen cases of war fistulas with complete and rapid cure in a few days, the men soon

returning to service. In nine cases of inflammatory fistulas the cure was prompt and complete in seven, but the tissues were too pathologic in the other two cases. This technic is applicable to fistulas anywhere, in the intestine, salivary glands, bladder, etc. He regards it as destined to a future, "a great progress which we owe to the war." This *inversion cutanée avec section bipolaire* is the ideal method, he reiterates, for treating a fistula into the urethra as it does not encroach on the urethra itself at all, and the cure is permanent without ulterior stenosis. He warns that a retention catheter is disastrous after these autoplasmic operations. The intermittent use of the catheter answered the purpose in his cases.

76. Bilharziasis of the Bladder.—Desnos reports a case in which there have been no further symptoms during the two years since he gave a ten months' course of diathermy treatment. The cystoscopic findings now show clinically normal conditions in the bladder. The application of the high frequency current was somewhat painful, so that he could not cauterize more than ten or twelve of the minute vesicular elevations in the bladder walls at one sitting. The only danger with this treatment is the possibility of hemorrhage as the little eschars drop off in about two days. There was only slight hematuria in his case.

Marion's patient complained only of his right kidney, which proved to be absolutely sound. Fifteen little bleeding elevations were seen in the bladder walls, while the ureter urine was normal on both sides. The patient clamored for an operation on his right kidney but Marion compromised by resecting the little polypous bunches through a suprapubic incision, and cauterized the site of each. At once all symptoms subsided and the cure has been complete to date.

79. Radium Treatment of Cancer of the Prostate.—Marion punctures to the prostate with a hydrocele trocar, a little to one side of the median line of the perineum, guided by the finger in the rectum. The radium tube, mounted on a silver wire, is then introduced in place of the trocar. The same procedure is repeated on the other side. In forty-eight hours after withdrawal of the radium tubes the puncture holes are healed and the patient can get up and return to business.

80. Conference of Army Urologists.—The men in charge of the French "urologic centers" held a conference recently at Paris. Two questions had been appointed for discussion; the treatment of war wounds of kidney and ureter, and autoplasmic procedures for traumatic fistulas of the urethra. The transactions are reported here in full. The leading address on the second subject is summarized in Abstract 75 above.

Presse Médicale, Paris

Aug. 22, 1918, 26, No. 47

81 *Scarlatinal Endocarditis. Nobécourt.—p. 429.

82 *Malarial Mammitis. H. de Brun.—p. 430.

83 Extraction of Projectiles in Skull. H. Bécèle.—p. 431.

84 Sulphur-Oil Injections for Psoriasis. L. Bory.—p. 432.

81. Scarlatinal Endocarditis.—According to Nobécourt's experience, scarlatinal endocarditis is more liable to run into a chronic phase in children than in adults. In seven cases in soldiers under 24 the heart sounds returned to normal in from thirty to fifty days in five of the men. Others have reported similar experiences, showing about 28.5 per cent. left with persisting valvular trouble. Tardy tachycardia may occur after scarlet fever with or without the endocarditis. In one soldier acute articular rheumatism developed at the twenty-seventh day of scarlet fever, and mitral endocarditis followed, with pericarditis, pleuritis and phlebitis in left leg. Another had acute articular rheumatism the fifth day of the scarlet fever, mitral endocarditis the seventh, and acute nephritis the thirtieth. Scarlatinal endocarditis is of the simple type. The best testimony to an infectious endocarditis is the existence of severe secondary infections, a tardy infectious syndrome. In conclusion he reiterates that the agent of acute articular rheumatism and the agent of scarlet fever can determine clinically identical affections of the heart.

82. Malarial Mammitis.—De Brun has encountered sixteen cases of a characteristic swelling and pain in the mamma on one or both sides in soldiers with a severe form of malaria, or the mammitis may develop as the first manifestation of the malaria. The men button their suspenders farther along on

that side, and this "suspenders sign," or the pain from lying on the breast in sleeping may be the first thing to call attention to the malaria. The mammitis persisted for six and for eight months in two of his cases; only exceptionally was it as brief as twelve and fourteen days. No tendency to sclerosis later was detected in any instance. All the men had ordinary tertian malaria. In one the mammitis developed three months after contracting the malaria; in one not until after fourteen months. No action on the mammitis was apparent from quinin, even pushed with 2 gm. a day, and the usual sedatives had little effect in reducing the pain.

Revue de Chirurgie, Paris

Jan.-Feb., 1918, 37, No. 1-2, Pub'd August

85 *War Wounds of Wrist. V. Combiér and J. Murard.—p. 1.

86 *Conservative Treatment of Wounds of Knee. J. Delmas.—p. 49.

87 *Amputation of Thigh. J. Martin.—p. 104.

88 *Rupture into Peritoneum of Echinococcus Cyst. F. Dévé.—p. 125.

89 *Laws Regulating Healing of Skin Wounds. A. Lumière.—p. 168. Conc'n.

85. War Wounds of Wrist.—The indications for operation are deduced by Combiér and Murard from the ultimate results of their treatment in twenty-seven cases. With a suppurative process, the effects of treatment are not very brilliant. In their four cases of this kind, amputation had to be done later in one, but one of the others has good use of his hand seven months after the total carpectomy. It was done the twenty-eighth day after the seton wound of the left wrist.

86. Conservative Treatment of Wounds of Knee.—Delmas is an advocate of extreme conservatism in treatment of wounds of the knee. He says that Willems' method of immediate and active mobilization of the knee (described in these columns on page 1009, abstract 23), has resulted in more rapid and more perfect cures in the cases in which asepsis can be counted on, than with other methods. Otherwise, in simple cases Delmas' practice is a lateral arthrotomy. It is easy then to open up the joint by severing the patellar ligament if the lesion is found extensive.

87. Amputation of the Thigh.—Martin discusses the indications, the technic and the results in fifty-three cases. He says it is not a grave operation when done correctly and rapidly under general ethyl chlorid anesthesia. The shock of the wound is the main thing; the operative shock is insignificant in comparison. The prognosis depends on the wound or the gas gangrene compelling the amputation. The latter, he declares, does not aggravate the prognosis, but the amputation cannot cure unless it removes the septic focus entire. Before September, 1915, he had to amputate for septicemia in seventeen cases but since then only in eight cases. The mortality in the first group was 41 and in the second 12.5 per cent. Salvation with a penetrating wound of the knee lies in immediate extensive exploration of the knee and early resection if demanded. A rebellious purulent arthritis calls for amputation when the reactions of the organism demonstrate that the arthritis is getting the upper hand. The application of these principles has brought his mortality from 44.4 per cent. down to zero. When septicemia after a war wound of the leg or thigh shows no signs of yielding to treatment, he bows to the inevitable and amputates in time, and thus has brought the mortality down to zero in this category also.

88. Rupture of Echinococcus Cyst in Biliary Apparatus.—Dévé refers to what he calls *choleperitoine hydatique*, that is, a torpid effusion in the abdomen consecutive to the accumulation in the peritoneal cavity of nonvirulent bile escaping from a ruptured echinococcus cyst in the liver. He devotes forty-two pages to the various aspects of this phenomenon and its consequences. The possibility of an echinococcus cyst as the cause of the accumulation of bile in the peritoneal cavity should never be forgotten. He warns that multiple cysts should always be suspected, and the permeability of the biliary passages verified before concluding the operation. When an accumulation of bile in the peritoneum has become encysted, it is dangerous and useless to attempt to remove it. But it is important to destroy any elements liable to start new cysts, and he relies on ether for the purpose, convinced that it has a specific destructive action on the scolex. Copious ether lavage of the peritoneum is thus advisable when a cyst

has recently ruptured into it. Later than this, the granulations or vesicles showing inoculation of the peritoneum, should be crushed by rubbing with a sponge and the site cauterized with 1 or 2 per cent. formaldehyd.

89. **Laws of Healing of Wounds.**—Lumière's measurements of 3,000 war wounds have shown that they heal better and more rapidly when the dressings are changed daily and are not allowed to stick to the tissues. To keep them from sticking, he covers the wound with gauze of 2 mm. mesh, impregnated with petrolatum. This allows the secretions to escape while the dressing above it can be changed without injuring the tissues. Of all the numerous antiseptics he has been testing, iodized starch insured a more rapid repair of tissue than any other antiseptic.

Correspondenz-Blatt für Schweizer Aerzte, Basel

Aug. 31, 1918, 48, No. 35

90 *Traumatic Nephritis. H. Wildbolz.—p. 1153.

91 *Nephrectomy for Traumatized Kidney. P. Reinhold.—p. 1161.

92 Ascaris Ileus. A. v. Beust.—p. 1166.

90. **Traumatic Nephritis.**—Wildbolz reports a case in which after a severe contusion of one kidney region the man did not feel entirely well and after a few months 0.5 per thousand albumin was found in the urine, with other signs of nephritis. As catheterization of the ureters showed functional disturbance of the same degree in both kidneys, there do not seem to be grounds for incriminating the contusion as responsible for the nephritis. Only in 3 of a number of such cases on record were the ureters catheterized separately; in 2 the albuminuria was found restricted to the traumatized side. The injury had been from a horse's kick. After transient hematuria there were no further symptoms in one case until five months later albumin and tube casts were found continuously in the urine but only from the kidney on the damaged side. The connection with the trauma was regarded as established, and compensation to 30 per cent. was awarded, as also in another case in which the unilateral albuminuria had developed and kept up continuously after the injury. Wildbolz adds another case to this group. The young soldier fell in carrying a heavy shell and it hit him in the left loin region. Albumin and tube casts were found in the urine at once and continuously for months thereafter. As the pathologic urine was restricted to the traumatized side, the kidney was decapsulated and in less than two weeks the urine was normal once more. The kidney had evidently been squeezed between the shell and the spine, with the result that the capsule had developed cicatricial tissue which pressed on the kidney parenchyma and dragged on or compressed the vessels in the kidney hilus. This mechanical action was felt more severely by the thin walled veins than by the arteries, so that venous hyperemia resulted. As soon as the decapsulation made possible the free escape of the blood, the kidney cells resumed normal functioning. In another case an inflammatory intestinal process had led to inflammation in the perirenal connective tissue with resulting cicatricial impairment of the circulation in the kidney in question. The venous hyperemia in this case was not intense enough to induce continuous albuminuria and hematuria. They developed only after physical stress and they subsided each time under repose, and disappeared permanently after resection of the kidney capsule.

91. **After Nephrectomy for Traumatized Kidney.**—Reinhold comments on the constantly excellent health of a man whose left kidney had been ruptured by a fall and removed at the time, seven years ago. He changed afterward from the trade of mason to one requiring less physical exertion. Trades exposing to occupational poisoning should also be avoided after nephrectomy. The disability is estimated in France at 40 to 50 per cent.; in Germany, from 35 to 50 per cent. This case was settled on a 40 per cent. basis.

Annali di Ostetricia e Ginecologia, Milan

April, 1917, 19, No. 4, Pub'd November

93 *Status Epilepticus in Pregnant Women. A. Tomiselli.—p. 135.

94 Operative Treatment of Uterine Fibromyomas. A. Cernezz.—p. 143.

May, 1917, 19, No. 5

95 *The Pituitary and Diuresis in the Pregnant. A. Gentili.—p. 173.

93. **Status Epilepticus in the Pregnant.**—Tomiselli's case teaches that convulsions in a pregnant woman must not be ascribed to eclampsia as a matter of course. The tongue may be bitten in an eclamptic convulsion, and eclampsia may develop without edema or characteristic urine findings. It rarely happens that epilepsy manifests itself for the first time during a pregnancy, although Resinelli has reported a case of the kind. Others are cited who have seen epileptic seizures arrested during the pregnancy or aggravated by it. Energetic treatment with bromids may tide the patient past the danger point, while if the epileptic seizures are mistaken for eclampsia, and treatment is addressed to the uterus, this adds to the cortical irritation by new reflex stimuli. Tomiselli pushed potassium bromid, giving a little by the mouth and 8 or 10 gm. by the rectum, with morphin subcutaneously. The young woman had twenty-six seizures in the first thirty-six hours but then they subsided. She was given 3 or 4 gm. of the bromid daily for a time and for the two weeks preceding term. The status epilepticus was thus conquered.

95. **The Pituitary Body in Pregnancy.**—Gentili's long study of the relations between diabetes insipidus and mellitus in the pregnant is based on a case with polyuria of over 6 liters at the sixth month. It became associated with osteomalacia a month later, rebellious to all measures, including pituitary treatment. At the eighth month premature delivery was induced, and all the symptoms gradually subsided, aided by epinephrin treatment.

Policlinico, Rome

August 11, 1918, 25, No. 32

96 Success of Perivascular Sympathectomy for Causalgia. O. Tenani.—p. 749.

97 *Bipp Used in Italy Since 1908. E. Calandra.—p. 752.

98 Welfare Work for Infants. P. Pellicciotti.—p. 753.

97. **"Bipp" Used in Italy Since 1908.**—Calandra states that the drawbacks of "bipp" as now used in western Europe would be obviated if his directions were followed, as he published them in his first communications on the advantages of this method of treating wounds. His formula is 10 gm. chemically pure bismuth subnitrate, free from traces of arsenic; 10 gm. petrolatum or white wax; 4 gm. iodoform, and 15 gm. olive oil or more or less to modify the consistency to suit the wound. The oil and petrolatum are heated to boiling, the bismuth is stirred in, and the mixture cooled to about 70 C., and the iodoform is then added. Before using, the whole is heated again to about 70 C. He has never had any toxic action from this paste while its sterilizing and healing properties have been demonstrated by years of experience.

Riforma Medica, Naples

July 27, 1918, 34, No. 30

99 *Amputation of Breast. I. Tansini.—p. 586.

100 Blood Picture with Paratyphoid B. C. Cantieri.—p. 589.

101 Evolution of Malaria Plasmodium. G. Cavazzani.—p. 592.

102 Rehabilitation of War Cripples. G. Loriga.—p. 592.

103 Fator of the Breath. B. de Vecchis.—p. 593.

104 Dilatation of Esophagus. E. Aievoli.—p. 594.

99. **Amputation of Breast.**—Tansini gives an illustrated description of his method of cutting a large U-shaped flap in the skin of the back, the base reaching from the base of the axilla to a point on the scapula. The flap is cut long and broad enough to cover the raw area left after amputation *en bloc* of the breast and the glands in the axilla. This flap is then drawn to the front, stretching the skin at the base of the arm until the flap fits over the entire raw area. The gap left in the back is covered by stretching and drawing up the skin from the middle of the back in a nearly vertical suture. There is no dead space, and no necessity for drainage nor for a compressing bandage. Recent reexamination of patients whose breast had been removed on account of cancer five or seven years ago has confirmed anew the superiority of this technic. It has enlarged the limits of operability, he insists, while the removal of all the skin of the breast is a better guarantee against recurrence, as also the use of the greater dorsalis instead of the pectoralis, as Ruth proposes. The muscle flap used has scanty lymphatic connections and is thus better protected against recurrence.

Brazil Medico, Rio de JaneiroJuly 20, 1918, **32**, No. 29

- 105 Sarcosporidiosis in Cattle. G. Hasselmann.—p. 225.
106 Infant Welfare Work at S. Paulo. C. Ferreira.—p. 225. Conc'n.

Progresos de la Clinica, MadridJuly, 1918, **6**, No. 67

- 107 Histogenesis of Ocular Muscles. F. P. del Fresno.—p. 5.
108 *The Vascular Crises with Aorta Disease. B. L. Duran.—p. 28.
109 Influence of Acute Infections on the Hearing. Prada.—p. 31.
110 Present Status of Leprosy. S. de Buen.—p. 33.

108. **Vascular Crises with Arteriosclerosis.**—The attacks or vascular crises may occur in the brain, the chest, the abdomen or in the legs. The latter group is formed of the cases of intermittent claudication. The chest group comprises angina pectoris and acute edema of the lung. The abdominal crises occur after physical exertion or emotional stress, and they seem to be independent of the meals. In the cerebral group there may be attacks of sudden unconsciousness for a few minutes, but there are no convulsions. The pallor is followed by vasodilation and sweating as consciousness returns. In a case described, these attacks return every three or four weeks. They gradually became longer and they left a little difficulty in speech and twisting of the head, which persisted for a week or so. They first developed at the age of 50. In other cases these lipothymias were accompanied with transient monoparesis or hemiparesis, amnesia or aphasia. Treatment should aim to ward off excitement and stimulants for the circulation, while reducing auto-intoxication to render the nervous system less irritable and reduce the blood pressure. Tobacco and coffee seem most injurious of all stimulants in these cases. With acute pulmonary edema, Duran always found venesection useful, supplemented by tonics for the heart hampered by the pressure. In the cerebral type stimulation of the peripheral circulation is the main thing. Carbonated baths are useful in the incipient cases of arteriosclerosis.

Revista de Medicina y Cirugia, HavanaJuly 25, 1918, **23**, No. 14

- 111 *Genital Prolapse. J. A. Presno y Bastiony.—p. 379.
112 Traumatic Aneurysm of Radial Artery. E. Stincer.—p. 385.

111. **Treatment of Genital Prolapse.**—Presno has applied with excellent results in six cases of severe genital prolapse the method of subtotal hysterectomy with fixation of the uterine cervix to the abdominal wall. He passes stout catgut through the stump of the cervix diagonally, from each side, and draws it up and fastens it to the abdominal rectus muscles. The operation is completed by colpoperineorrhaphy.

Revista Medico-Cirurgica do Brazil, Rio de JaneiroJune, 1918, **26**, No. 6

- 113 Public Health at Rio in 1917. C. Seidl.—p. 243.

Nederlandsch Tijdschrift voor Geneeskunde, AmsterdamJuly 20, 1918, **2**, No. 3

- 114 Visual Acuity as Gage for Retina Function. H. Snellen, Jr.—p. 240.
115 Error in Estimates of Enzyme Functioning. Visser.—p. 245.
116 Danger of Troops Spreading Malaria. Hoogslag.—p. 252.
117 Scabies. A. H. L. Otto.—p. 255.
118 "Spanish Influenza." H. J. Kloosterman.—p. 256.

Hospitalstidende, CopenhagenJuly 24, 1918, **61**, No. 30

- 119 Two Operative Cases of Solid Double Rudimentary Uterus. S. A. Gammeltoft.—p. 977.
120 Progressive Lipodystrophy; three Cases. A. V. Neel.—p. 989.
121 *Pyelography. F. Rydgaard.—p. 996. Conc'n.
Aug. 7, 1918, **61**, No. 32
122 *Colon Bacillus Infection of Male Genital Organs. T. Rovsing.—p. 1041. Commenced in No. 31, p. 1009.
123 With Danish Red Cross in Finland. O. Chievitz.—p. 1052. Cont'n.

121. **Pyelography.**—Rydgaard concludes this comprehensive survey of international literature on pyelography by emphasizing that the present measures for pyelography are too dangerous for use with pathologic conditions in the kidney. Even with merely displaced and deformed kidneys or abdominal tumors, ordinary roentgen examination gives equally conclusive findings without the danger from the pyelography.

Hence, he reiterates, the latter method has no justification for its use in the clinic until some substance can be found which will prove equally effectual for pyelography without the danger of irritating the kidney tissue, which is inherent in the present technic.

122. Blood Borne Colon Bacillus Infection of Male Genital Organs.

Rovsing describes the clinical picture, diagnosis and treatment of these infectious processes as they affect the epididymis, the seminal vesicles or the prostate, giving several case histories of each type. In his five cases of coli abscess in the prostate the diagnosis had been cystitis in each case. In one the course was so stormy that he had to evacuate the abscess through the perineum, but in the others, massage and an autogenous vaccine brought a speedy cure. The intestinal disease has to be combated at the same time. In 18 other cases the coli infection started in the seminal vesicles and spread downward to the epididymis. In six the onset suggested acute pyelonephritis; in the others the insidious and chronic course deceptively resembled that of urogenital tuberculosis. In all the groups colon bacilli and pus were found in the urine from the urethra while catheter urine from the bladder was normal. There was no history of venereal disease in the total twenty-three cases described in full, but in all there was a history of chronic constipation and intestinal inflammation, the source of the infection. The epididymis in these cases was more diffusely swollen and fibrous than is the rule with a tuberculous process. In one typical case a man of 43 with chronic constipation developed diarrhea and pains in the ileocecal region, followed by a subacute epididymitis which recurred and passed into a chronic phase. In other cases there was a history of sigmoiditis or recent typhoid. In three cases the pressure from a truss on the bowel and vas deferens may have been a factor. In about half the cases the frequent painful micturition and slight admixture of blood in the urine at the beginning or end led to the assumption of urogenital tuberculosis.

In the discussion later, Rovsing specified that he makes the vaccine according to Wright's technic, and begins with 20 millions to a Pravaz syringe. By proceeding cautiously, keeping within the doses which do not induce a temperature reaction or symptoms of anaphylaxis, he increases to 100 millions. When this is reached, he jumps at once to 200 and then to 400, 700 or 800 millions, to the maximum, 1,000 millions. This he continues, giving the 1,000 millions four, five or ten times, as this seems to be the effectual dose. In his twelve cases of coli epididymitis, the epididymis had been removed on the diagnosis of tuberculosis, but nothing was found to suggest a possible tuberculous origin. As the men were cured by the operative treatment, no attempt at vaccine therapy was made in these cases. Rovsing reiterates in conclusion that he was the first to conduct extensive research on the bacterial content of the normal male urethra, and he never found colon bacilli present. There is thus no opportunity for canalicular infection, and in the cases described it must have been of hematogenous origin.

Hygiea, StockholmJuly 15, 1918, **80**, No. 13

- 124 *Bladder Tumors. A. Neander.—p. 753.
125 Center of Gravity in Erect Position. T. Resmark.—p. 781.

124. **Bladder Tumors.**—Neander analyzes the experiences in 49 operative cases of primary bladder tumors. Blood in the urine, often without pains, was the most characteristic and constant symptom, but it has no connection with physical exercise, thus differing from bladder stone hematuria. An enlarged prostate must not be allowed to divert the attention from a possible tumor with hematuria. In 2 of the 49 cases there were pains suggesting cystitis several weeks or months after the first appearance of blood in the urine. Cystoscopic examination is imperative in every case of catarrhal disease of the bladder as also when blood appears in the urine. In one case pain on one side of the spine was the first sign of trouble. It was supposed to be rheumatism but finally the diagnosis was changed to pyelitis. The cystoscope revealed three small papillomas near the ureter mouth on that side. After their removal there were no further pains.

In another case the man of 30 had ten operations for papillomas in the bladder in the course of nearly six years. The tumors finally recurred in a malignant form. After the tenth operation, roentgen treatment was given through a temporary bladder fistula, and the man has had no recurrence during the nine years since to date. Eight twenty-minute exposures were given in the course of eight days. A medium hard tube was used, with a total of 17.5 H units; distance, 22 cm. The exposures were preceded by local anesthesia and morphin. The general practitioner must bear in mind the marked tendency of benign bladder tumors to develop early into cancer, and not waste too much time on symptomatic treatment of hematuria and cystitis. The operation must be extensive and radical, and the patient must be kept under regular control for the first few years so that any recurrence may be detected and removed at once. All bladder tumors seem to possess a potentially malignant character. Only 12 of the 49 patients were women; the youngest was 29, the oldest 80. The immediate postoperative mortality was 45 per cent., but 3 of the 7 cancer patients who survived the operation are still living, nine, seven and six years to date. Of the 20 patients with apparently benign tumors, no less than 9 have died since, all from malignant disease except 2.

Norsk Magazin for Lægevidenskaben, Christiania

August, 1918, 79, No. 8

126 *Idiopathic Dilatation of Esophagus. F. Harbitz.—p. 841.

127 *Thalamometer. G. Ræder.—p. 862.

128 *Chronic Stenosis in Larynx or Trachea. V. Uchermann.—p. 872.

129 *Syphilis of Internal Organs. K. Nicolaysen.—p. 890.

130 *Aplasia or Dystopia of Kidney. G. Schaanning.—p. 901.

131 *Mechanism of Acute Duodenal Occlusion. S. Høyer.—p. 914.

126. **Idiopathic Dilatation of the Esophagus.**—Harbitz describes the clinical and necropsy findings in three cases of this anomaly which he classes with Hirschsprung's disease and hypertrophy of the pylorus in infants. All three seem to be the result of some congenital abnormality, possibly a tendency to functional atony of the walls, with abnormal conditions in the vagus nerve causing spasmodic contraction of the bowel, pylorus or cardia. The patients in the three cases reported were men of 34, 40 and 27, and they had been having noticeable dilatation of the esophagus for eight, four and seven years.

127. **To Measure Depth of Anterior Chamber.**—Ræder calls the instrument described, with illustrations, the thalamometer.

128. **Operative Treatment for Stenosis in Trachea and Larynx.**—Uchermann reviews the different methods in vogue for treating chronic stenosis in trachea or larynx and expatiates on the unsatisfactory results often obtained with these needlessly extensive and comprehensive operations. All that is necessary is to act on the exact point of the traumatic stenosis, stretch it, and leave the rest of the organ intact. He accomplishes this by introducing a nicked cylinder on a handle. It is introduced from the cannula opening, just below the stenosis, and does not extend above it. No force is used to introduce it as the stenosis is severed beforehand on the median line. The blunt-tipped herniotome with which this is done does not incise the skin except the buttonhole for its introduction. Since 1909 he has applied this treatment in five severe cases, all but one sequels of diphtheria. The patients were children from 2 to 4 years old and one young woman. The latter had worn a tracheotomy cannula for seven years after diphtheria at the age of 4. After its removal the tracheostomy could not be closed on account of the stenosis. All were completely cured with this slitting of the stenosis tissue plus retrograde dilation. He makes a point of removing the cylinder and the cannula every morning to allow the patient a chance to cough up mucus. They are then replaced at once.

129. **Visceral and Pulmonary Syphilis.**—Nicolaysen writes that unquestionable syphilis was found in 10.5 per cent. of 1,137 cadavers before 1906, and in 6.4 per cent. of the 2,695 since then. In a case described in detail the man of 51 had presented symptoms at 40 diagnosed as beriberi at the time. Later came ascites, with dyspnea, dulness over both lungs at the rear, and edema, but no fever; occasionally there was vomiting of brownish masses. Necropsy showed the brain,

heart and large vessels apparently normal but a large gumma was found in one lung and smaller ones in the liver, pylorus and around the spleen, plus a fibrous orchitis. No signs of tuberculosis anywhere.

130. **Congenital Kidney Anomalies.**—Schaanning states that the solitary kidney and the displaced kidney are peculiarly subject to disease. He reports a case of each. Winter found pathologic conditions in sixty-five of 235 solitary kidneys. The displaced kidney may press on the bowel, bladder or genital organs and interfere with their functioning or induce neuralgia, etc., from pressure on nerves or vessels. Twelve cases of chronic renal tuberculosis with a spontaneous cure have been published in Norway, but the "cure" is usually at the expense of the functional capacity of the kidney. In two such cases, at necropsy or operation, the kidney felt as if made of cement.

131. **Acute Paralytic Occlusion of the Duodenum.**—Høyer applies this term to what others call acute arteriomesenteric occlusion, duodenojejunal ileus or acute gastroduodenal atony. The acute dilatation of the stomach is usually the most striking feature of the cases, and lavage of the stomach, with change to the prone position often bring relief and cure. In an otherwise typical case described there was no dilatation of the stomach, and von Haberer has published a similar case. The acute dilatation of the stomach may occur from some mechanical hindrance or from paralysis of the stomach or both. The mechanical hindrance may be from spasm of the pylorus from an impacted piece of meat or a polyp or a kinking of the pylorus or upper duodenum or from pressure from a tampon, as after a gallstone operation. When the mechanical hindrance is lower down, in the lower duodenum or upper jejunum, the course is less acute; the vomit contains bile, but no fecal matter, the peristalsis of the stomach is lively but the stomach may not become dilated, and in these cases no benefit is derived from change to the prone position. Gastroparesis seems to afford a predisposition.

Høyer's experimental research on dogs has confirmed his clinical deductions that the explanation of the whole trouble is that the bowel becomes obstructed by paralysis and dilatation of the lower duodenum—irrespective of whether or not there is dilatation of the stomach. The occlusion is induced by some kinking or some fold or valve formation at the point where the loose duodenum joins the more solidly fastened and relatively narrow jejunum, that is, at the duodenojejunal flexure. Possibly also cases occur in which, without any actual mechanical occlusion, the lower third of the duodenum may become too weak to force its contents through the lumen of the flexure. Lavage of the stomach, the pelvis raised, and change of position are called for at once; the prone position or the knee-elbow, or merely lying on the right side may bring relief. If not, operative measures are indispensable. No food should be allowed by the mouth; fluids should be given by the rectum. When it is necessary to operate, jejunostomy with a drain introduced into the duodenum seems rational or, possibly better yet, expose the duodenum after dividing the gastroduodenal ligament between two ligatures, and try to mobilize the flexure, making a small opening into the duodenum and inserting a drain. The cases on record in which gastrojejunostomy was done or merely the duodenum evacuated have given bad results, as also gastrotomy.

Ugeskrift for Læger, Copenhagen

Aug. 1, 1918, 80, No. 31

132 *Test for Sugar. H. C. Hagedorn and B. N. Jensen.—p. 1217.

132. **Quantitative Determination of Minute Amounts of Sugar.**—Hagedorn and Jensen comment on some of the disadvantages of Bang's micromethod for determining the sugar content of blood; among others the extreme precision required in the boiling procedure, and the nondurability of the iodine solution. With potassium ferricyanide it is possible to obtain equally reliable findings without these drawbacks, as they describe in detail. The technic is based on the fact that a chemical once reduced does not become oxidized anew during the short time required for the test. Several tables are given showing the precision of the method. The technic is simple although five reagents are required.

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THE RETROGRADE MOVEMENT OF URETERAL CALCULI

HERMAN L. KRETSCHMER, M.D.

Captain, M. R. C., U. S. Army; Urologist, Presbyterian Hospital;
Genito-Urinary Surgeon, Alexian Brothers' Hospital

CHICAGO

The advent of the roentgen ray marks the beginning of the period which is rightly characterized as the period of accurate and intelligent treatment of ureteral calculi. The roentgen ray, while contributing so largely to the diagnosis and treatment of this condition, is also accompanied by certain sources of error, chief of which are: (1) failure to demonstrate a calculus when present; (2) a wrong interpretation of shadows found in the plate, and (3) failure to find at operation a calculus which was definitely demonstrated by the roentgen ray to be in a "given portion" of the ureter.

1. With improved technique, failure to demonstrate the presence of a stone when present now makes up a very small percentage of cases. This small percentage can be still further reduced by subsequent examinations with the roentgen ray, by a careful rereading of the plates, by intra-ureteral injections of colloidal silver salts, and by the use of wax-tipped catheters.

2. Wrong interpretations of shadows found on the plates have been the cause of "unnecessary operations," and still lead to them. Thanks to the introduction of the shadowgraph catheter and to ureteropyelography, these extra-ureteral shadow-producing bodies are no longer a source of wrong diagnosis, thus making it possible to avoid unnecessary operations. The nature and origin of these bodies have been described so many times that it is not necessary here to enter into a detailed discussion of them. There is still a very small percentage of cases in which the source of error consists in the passing of a shadowgraph catheter, localizing the stone or suspected stone shadow thereby,

and yet finding no stone at operation. Another source of error consists in the fact that the shadow, while extra-ureteral, lies in the same plane as the shadowgraph catheter. To overcome this error, stereoscopic plates should be made in all doubtful cases.¹ Still another source of error will be considered under the next heading, on the failure to demonstrate at operation a calculus which was definitely demonstrated by roentgen ray in a given portion of the ureter.

3. There has been introduced into this topic another phase equally important as the ones just discussed, if not more important, because occasionally it results in an operation that fails to relieve the patient of the calculus. I refer to a condition which, for want of a better term, may be designated as the retrograde movement of ureteral calculi.

The circumstances are generally about as follows, in the order of their sequence:

The patient has symptoms and signs of stone in the ureter.

This is verified by the roentgen ray and the shadowgraph catheter.

The patient is operated on and no stone is found at the location in which a stone shadow was seen on the roentgenogram.

Further roentgenograms show that the stone has wandered back up the ureter or perhaps back into the kidney, excluding that group of

cases in which the stone has wandered down the ureter or into the bladder and which are not to be considered in this paper.

This sequence of events may also occur following the observation and treatment of stone in the ureter by means of intra-ureteral manipulations with the ureteral catheter and the intra-ureteral injections of oil, glycerin, papaverin, etc.

Owing to the fact that I narrowly escaped this error, namely, of operating on the wrong part of the ureter, in one case, and because I saw the same phenomenon occur in a case under treatment without operation, and for the purpose of calling attention to this all-impor-

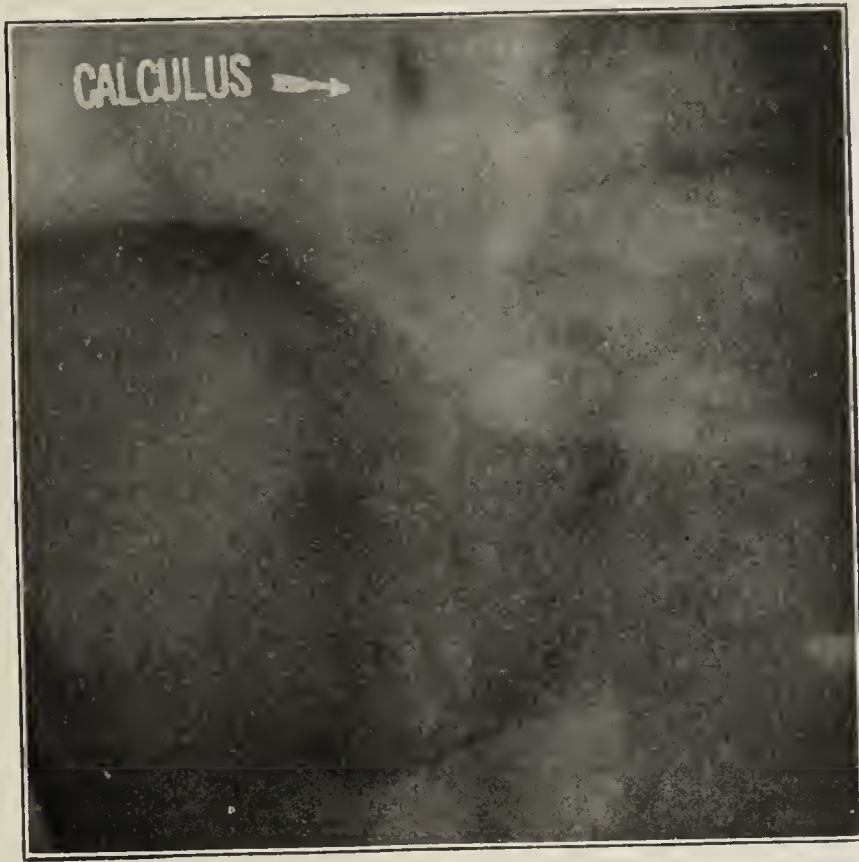


Fig. 1 (Case 1).—Calculus in left ureter, May 7, 1917

1. Recently we have used a new procedure which consists of making a double exposure on a single plate. The technic for this procedure is fully described in: Kretschmer, H. L.: A New Method for the Localization of Ureteral Calculi, Surg., Gynec. and Obst., to be published.

tant fact, thereby possibly preventing others from falling into the same trap, I shall report two cases.

REPORT OF CASES

CASE 1.—History.—A man aged 50, referred to me by Dr. Clifford McCullough, entered the Presbyterian Hospital, May 7, 1917, complaining of pain in his left side. This pain was first noticed about 1 p. m., May 5, and was dull in the beginning and later colicky in type. It radiated along the course of the ureter and into the scrotum. By 6 p. m. he had a chill and his temperature began to rise. Alternating periods of chill, fever and perspiration continued for forty-eight hours, when he was taken to the hospital. During this time the output of urine was scanty.

Fourteen years before the patient had had a severe attack of ptomain poisoning. In 1906 he consulted Dr. Frank Billings. At that time no stone was found in the urinary tract and a diagnosis of pyelitis was made. Since then he has had varying forms of treatment, and was sent abroad for the cure of Bright's disease. In 1907 he had another severe attack, lasting six weeks.

The last attack of renal colic occurred four weeks before I saw him and lasted for twenty hours. During some of the attacks he had severe spells of hiccup, one of which lasted for four days.

Seven years ago the patient passed a small stone.

The patient denied all specific infection. His habits were moderate. He used alcohol and tobacco only occasionally, and his diet was rigidly meat-free for years.

Examination.—The patient was well nourished and of good color. He suffered considerable pain. The pupils were equal and reacted to light and accommodation. The neck, lungs and heart were negative. The liver was palpable on deep inspiration, and there was considerable tenderness over the region of the left kidney and ureter. The kidneys and spleen were not palpable. The genitalia were negative and the reflexes were normal.

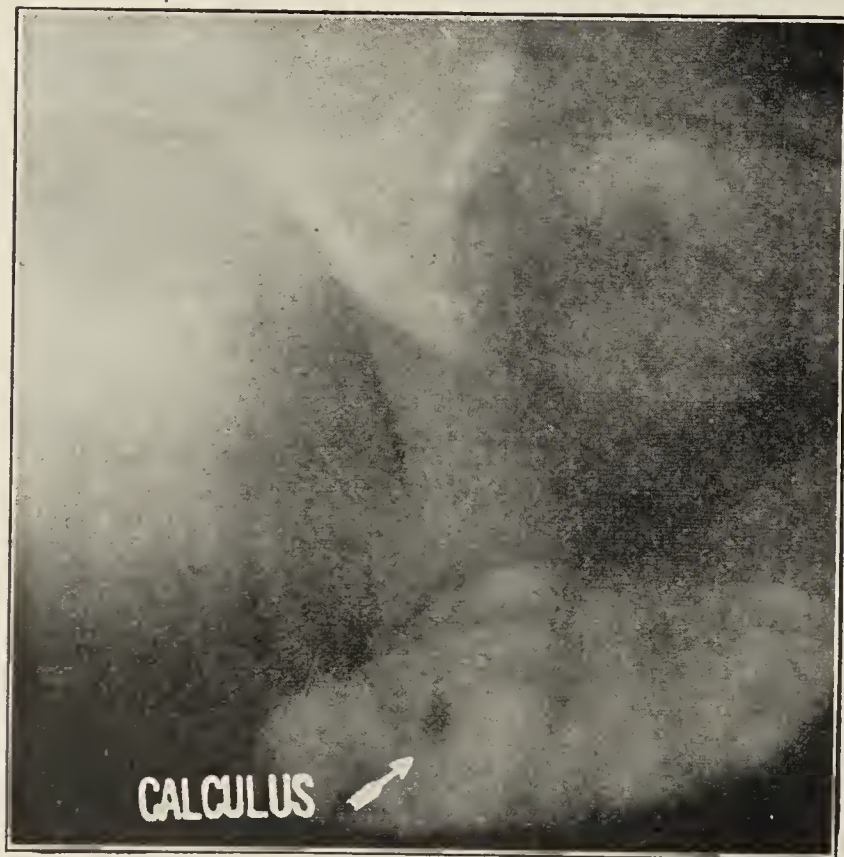


Fig. 2 (Case 1).—Calculus below brim of pelvis, May 18, 1917.

The urine was turbid; albumin was ++; there was no sugar, no acetone, no blood, no casts nor red cells; pus was present in large amount.

Blood examination revealed 5,560,000 red cells and 22,000 leukocytes. The systolic blood pressure was 130 and the diastolic 70.

Roentgenoscopy revealed a calculus in the left ureter at the level of the fourth lumbar vertebra (Fig. 1).

On cystoscopic examination the bladder was negative except for a slight amount of congestion around the internal urethral orifice. Both ureteral orifices were normal. Because of the large size of the stone, it was thought advisable to increase the size of the left ureteral orifice. Therefore, the left ureteral orifice was slit with the scissors, introduced through the operating cystoscope. A ureteral catheter was passed until an

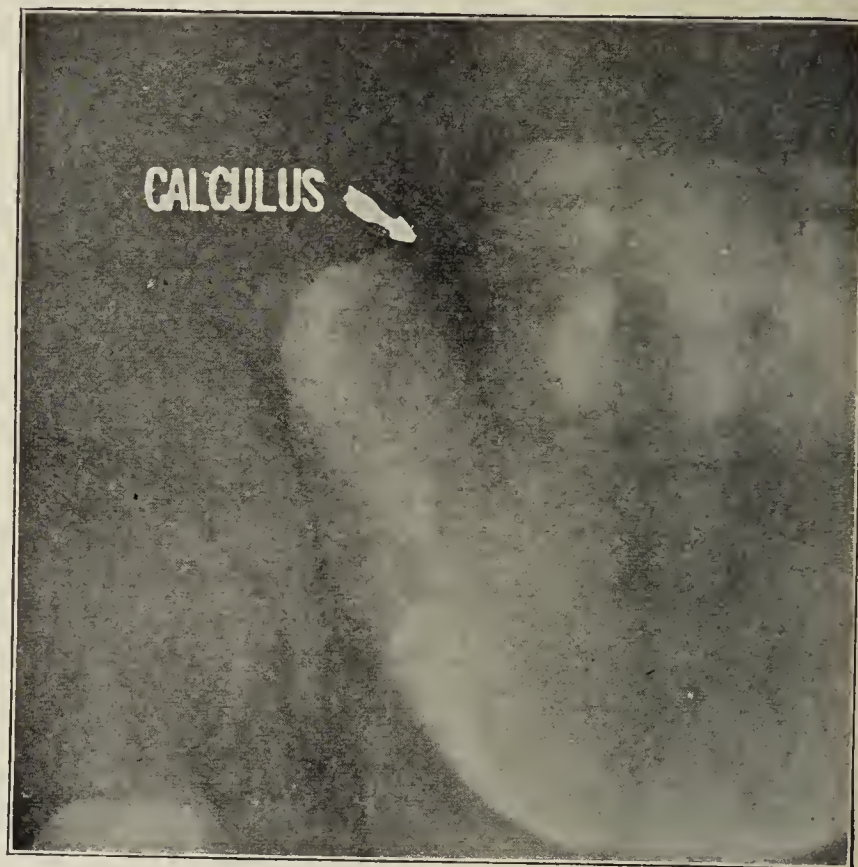


Fig. 3 (Case 1).—Calculus over edge of sacrum, May 27, 1917.

obstruction was met high up in the ureter, and 20 c.c. of sterile oil were injected.

Treatment and Course.—Following the cystoscopy, the patient became very toxic and had a chill which lasted twenty minutes and a temperature of 103; he was somewhat irrational. This was followed by hiccup, which lasted five days.

At a phenolsulphonaphthalein test, June 10, the appearance time was eight and one-half minutes; the output for the first hour was 18 per cent., and for the second hour, 20 per cent.

From May 19 to June 21, the patient received a total of four injections of sterile olive oil into the left ureter, the amounts varying from 15 to 25 c.c. During this time he also received four injections of a 2 per cent. solution of papaverin hydrochlorid.

The patient left the hospital, June 19, very much improved.

A series of roentgenograms, made at various dates from May 7, 1917, to Feb. 5, 1918, show that the calculus, during the intra-ureteral treatment, wandered from a position opposite the third lumbar vertebra down into the pelvis, so that it was seen lying along the margin of the sacrum (Fig. 4). Just before the patient left the hospital, another roentgenogram was made; this showed that the stone had wandered back up the ureter so that it lay opposite the transverse process of the fourth lumbar vertebra.

Two subsequent roentgenograms, one made Aug. 8, 1917, and one Feb. 5, 1918, showed the stone in approximately the same position as it was when the patient left the hospital.

From a review of this series of roentgenograms (Figs. 1, 2, 3, 4, 5, 6 and 7), it is evident that the stone wandered from the lumbar portion of the ureter into the pelvic portion and subsequently wandered back up into the lumbar portion of the ureter. These roentgenograms, however, did not show the lowest position which the stone attained, for at one of the ureteral catheterizations the catheter met an obstruction about 1 inch above the ureteral orifice.

CASE 2.—History.—A physician, Dr. Z., aged 38, had an attack of renal colic fourteen years before, associated with pain in the penis and testicles, during which time he passed two small kidney stones. In the summer of 1914 he again

noticed some blood in the urine. In 1915 he had a very severe hemorrhage, passing about a pint of port wine colored urine without any pain; he also passed a great many large clots. The hematuria has been more or less continuous ever since; at times the urine was clear for a few days. The last attack of hematuria occurred a week before his admittance, Aug. 14, 1917. He also complained of pain in the left groin. This was so distinct that he could put his finger on the spot, and at times was so severe that he was obliged to take morphin. The only urinary symptom was that of pain, which was always present at the end of urination. The patient had a backache, which was dull in character and aggravated by standing.

Examination.—The general physical examination was completely negative.

Examination of the urine revealed an alkaline reaction, specific gravity 1.020, albumin +, blood +, and no sugar. Microscopic examination revealed pus cells and red blood cells.

A roentgenogram, made by Dr. H. E. Potter, disclosed the presence of a stone in the left ureter, near the junction of the ureter with the bladder (Fig. 8). The kidneys were negative.

Cystoscopic examination revealed the bladder and ureteral orifices normal.

Treatment and Course.—At ureteral catheterization the ureteral catheter met an obstruction 1 inch above the ureteral orifice. Because of the low lying position of the stone, as verified by roentgenoscopy and obstruction to the catheter, it was decided to slit the ureteral orifice with the operating scissors and to inject papaverin and oil into the ureter. In all, the patient received three injections of oil and papaverin without the position of the stone changing.

In view of the fact that the stone failed to respond to this treatment, and because of the subjective symptoms, which were enough to interfere with the patient's occupation, it was decided to operate. I had planned to perform a suprapubic cystotomy and remove the stone transvesically. Just before the patient was taken to the operating room, another roentgenogram showed the stone lying between the fourth and fifth lumbar vertebrae (Fig. 9).

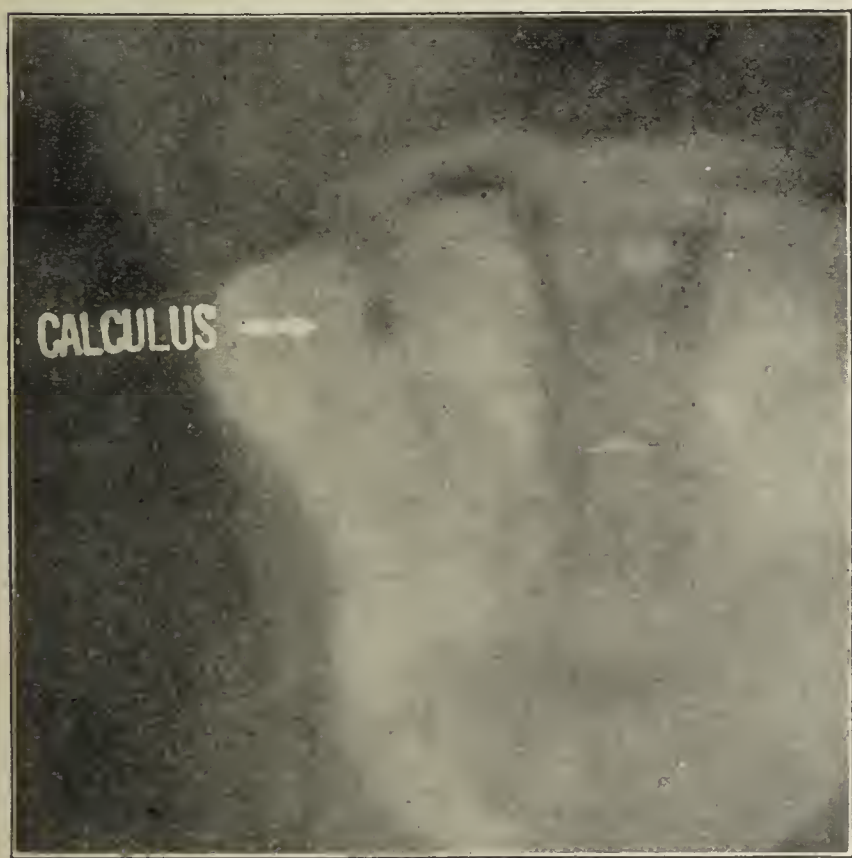


Fig. 4 (Case 1).—Calculus at edge of sacrum, June 1, 1917.

From these pictures, made Aug. 14 and Oct. 5, 1917, it is clear that the calculus wandered back up the ureter from a point just outside the bladder to a point in the lumbar portion of the ureter between the fourth and fifth lumbar vertebrae.

I removed the stone by an extraperitoneal ureterotomy. This precautionary measure of taking a roentgenogram just before the patient received the anesthetic prevented my carry-

ing out the operation originally planned, namely, a suprapubic operation, which, had it been carried out, would not have been successful under the circumstances.

COMMENT

The question that most naturally arises from the experience of having two cases of retrograde move-

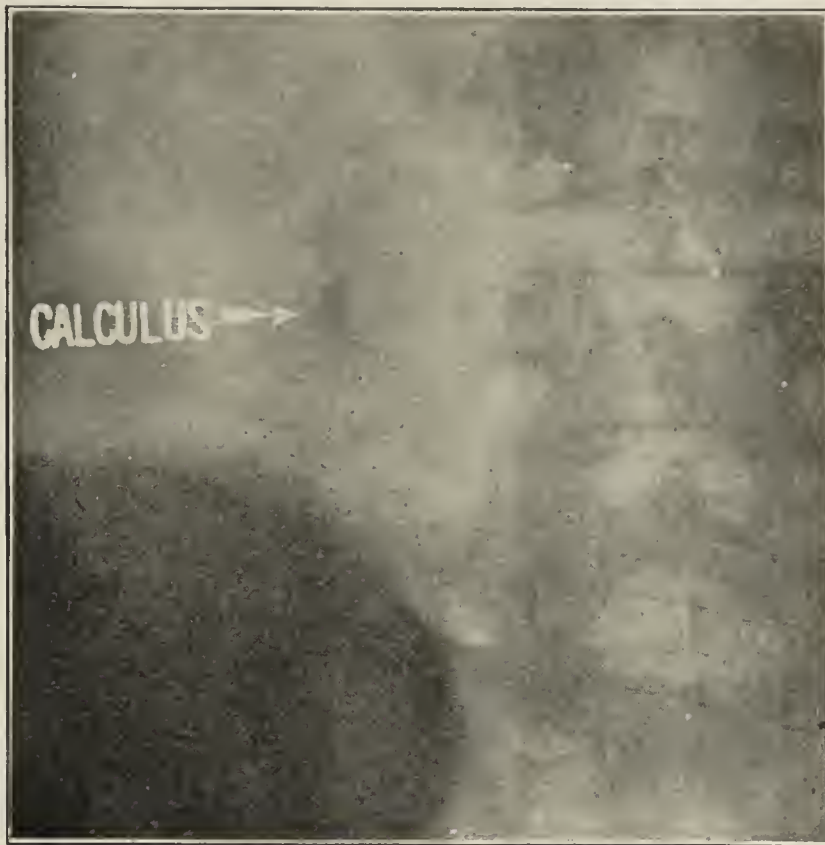


Fig. 5 (Case 1).—Calculus opposite fourth lumbar vertebra, June 19, 1917.

ment of ureteral stone is, How is it possible for a stone to wander back up the ureter for a varying distance or even to wander back into the renal pelvis?

Two possibilities at once suggest themselves:

1. In the first group of cases the ureter is dilated, either as the result of the presence of the stone or of some other pathologic condition, as stricture, to such a degree as to permit the stone to fall about at will, so that when the patient is erect the stone will lie in the lowest part of the ureter, and when the patient is placed on his back or in the Trendelenburg position, the stone falls "up" the dilated ureter for a variable distance or may even be found in the kidney pelvis.

This explanation suffices in a certain number of cases and has been proved correct at the time of operation, when the ureter was found enormously dilated. Cases belonging in this category have been reported by various authors, and in this connection may be mentioned the cases reported by Legueu,² Escat,³ Thomas,⁴ Holland,⁵ Jeanbrau,⁶ Hunter⁷ and Fowler.⁸

Owing to the scarcity of cases reported, it appeared to be desirable to collect as many instances as possible from the literature at hand and make brief abstracts. These are given at the end of the paper.

From some of the case reports it appears that the stones were located in dilated ureters and that because of the dilatation the stones were able to wander up

2. Legueu: Bull. et mém. Soc. de chir. de Paris, 1906, **32**, 357-358.
3. Escat: Tr. Assn. franç. d'urol., 1908, **12**, 340-354.
4. Thomas: Ureteral Calculi, Liverpool Med.-Chir. Jour., 1912, **32**, 324.
5. Holland, C. T.: Proc. Roy. Soc. Med., 1900-1910, 3. Electrotherap. Sec., pp. 87-97.
6. Jeanbrau, Emile: Tr. Assn. franç. d'urol., 1909-1910, **13**, 1-175.
7. Hunter, J. W.: Discussion on Lithiasis, abstr., THE JOURNAL A. M. A., Nov. 3, 1917, p. 1496.
8. Fowler: Tr. Am. Assn., G.-U. Surg., 1915, p. 178.

and down the ureter at will. This conclusion is borne out by the fact that the stones were changed in location by changes in the position of the patients, and furthermore by the fact that at the time of operation the ureter was found to be dilated.

2. The second group of cases, namely, those in which no dilatation of the ureter was found at operation, will have to be explained on another basis—that the retrograde movement of the stone was the result of reversed peristalsis of the ureter.

Reversed peristalsis occurs in other hollow viscera, such as the intestine, and it seems reasonable to assume that this phenomenon is also possible in the ureter, although many authors question this.

Evidence tending to substantiate this view has been brought forth both clinically and experimentally. That fluid can travel from the bladder up into the kidney has been demonstrated roentgenographically by various observers in cases in which there was no disease of the genito-urinary tract. In a study of a large number of cystographs made in normal cases, I⁹ have shown that solutions of thorium, collargol or cagentos, placed in the bladder, can find their way into the renal pelvis. In cases in which there is disease of the ureteral orifice (tuberculosis) that would interfere with the normal closure, this would of course occur, but these cases do not come under consideration here.

The question may therefore be raised that if it is possible to have fluid propelled up into the pelvis of the kidney from the bladder, is it not possible to have a stone transported upward by reversed peristalsis?

Besides this above-mentioned proof of the possibility of fluid going up into the kidney from the bladder, there can also be brought forth experimental work in

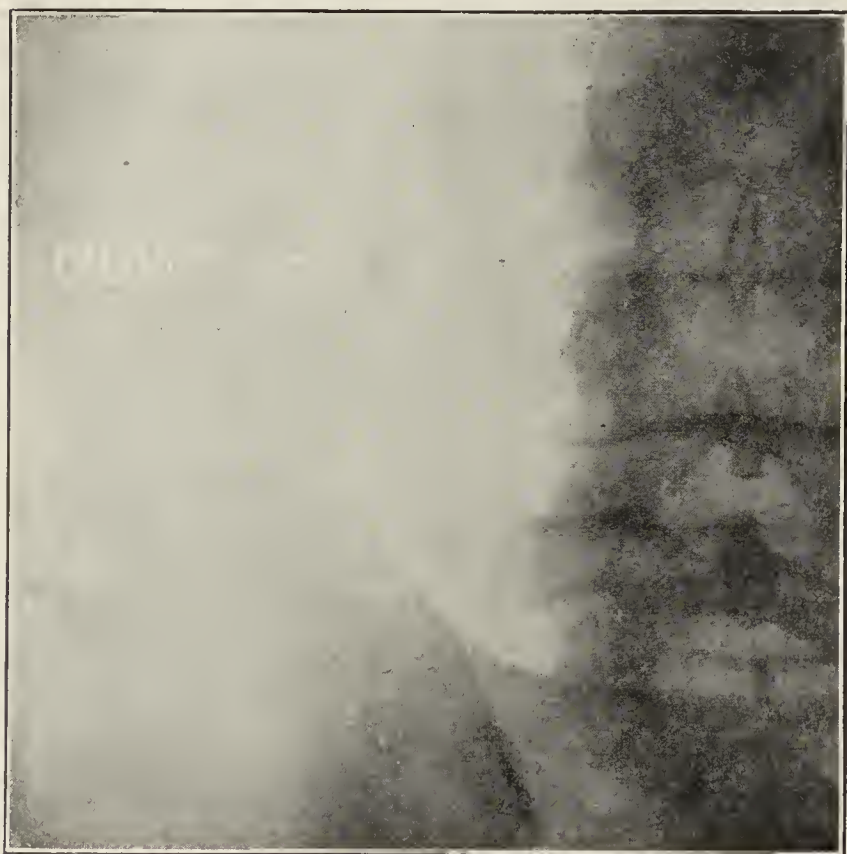


Fig. 6 (Case 1).—Calculus in lumbar portion of ureter, Aug. 8, 1917

which the phenomenon has been demonstrated in laboratory animals. In view of the fact that a regurgitation is possible, it naturally brings up the question of the mechanism by which this regurgitation takes place.

The following possibilities may be mentioned:

First, that the ureter remains passive; that at the time the ureterovesical valve or sphincter opens to permit the escape of urine, the fluid in the bladder finds its way up the ureter.

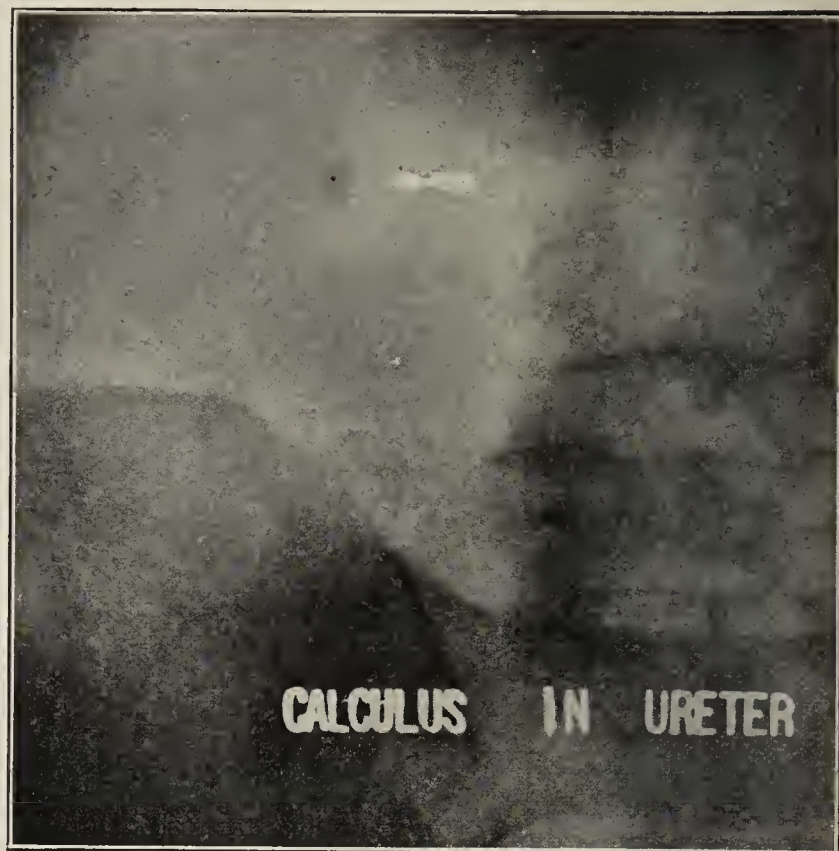


Fig. 7 (Case 1).—Calculus in practically the same position, Feb. 5, 1918.

Second, that the fluid is propagated upward by a reversed peristalsis, and if fluid may be propagated upward by a reversed peristaltic action, why cannot the same reversed peristaltic action be responsible for the retrograde movement of at least some of the ureteral calculi?

Reversed peristalsis of the ureter was demonstrated experimentally by Semblinoff in 1883; he was probably the first to demonstrate a back flow of urine from the bladder to the kidney. He demonstrated the following facts:

1. That a back flow of urine from the bladder into the ureters and kidneys may take place under normal anatomic conditions.

2. That this may be caused by a series of combined movements of the bladder and ureter.

3. That this explains the kidney changes in cases of pyelonephritis of vesical origin.

Semblinoff,¹⁰ by the mechanical irritation of a dog's bladder distended to a certain degree, produced antiperistaltic movements of the ureter, so that Berlin blue solution was driven back through the ureters from the bladder to the kidney pelvis.

In 1893, Lewin and Goldschmidt¹¹ took up the question of reversed peristalsis and regurgitation of fluid up the ureter. Reviewing their experiments, they found that there was a reflex of bladder contents into the ureter and kidney pelvis. They likewise observed both peristaltic and antiperistaltic movements.

According to Alksne,¹² every part of the ureter is irritable and reacts to mechanical and electrical stim-

9. Kretschmer, H. L.: Surg., Gynec. and Obst., 1916, **23**, 709.

10. Semblinoff, quoted by Alksne, J.: Folia urol., 1907, **1**, 338-365.

11. Lewin and Goldschmidt: Virchows Arch. f. path. Anat., 1893, **134**, 33-70.

12. Alksne, J.: Folia urol., 1907, **1**, 338-365.

ulation with contractions. The contractions produced by stimulating any given segment of the ureter are transmitted in both directions, toward the kidney as well as toward the bladder. On irritating the bladder end of the ureter, pronounced antiperistaltic waves are produced.

From the above-mentioned facts it must be conceded that reflux of fluid up the ureter is possible and that reversed peristalsis has been amply demonstrated in the laboratory. In the face of this clinical and laboratory evidence, it would appear logical to assume that the calculi in a certain percentage of cases change their positions because of the presence of a dilated ureter, and that in a certain number of them the retrograde movement of the stone is due to reversed peristalsis.

CASES REPORTED IN THE LITERATURE

LEGUEU².—In a patient, aged 30, who had recurrent attacks of kidney colic, a roentgenogram disclosed two calculi in the left kidney that were movable and could be displaced. In a series of ten roentgenograms the calculi were never found in the same location; sometimes they were in the kidney and sometimes in various places along the ureter. At operation the kidney was dilated and the pelvis and ureter more so.

ESCAT.³—A man, aged 36, had attacks of pain, vomiting and difficult urination. Cystoscopy revealed a calculus protruding from the ureteral orifice. A roentgenogram revealed a calculus in the prevesical ureter. Suprapubic cystotomy was performed, and the stone, which could be seen with the cystoscope, could not be seen. It was felt 8 cm. from the ureteral meatus. The ureteral orifice was slit, and the patient subsequently passed the stone.

THOMSON-WALKER.¹³—In a patient on whom operation was performed, a round calculus the size of a marble traveled from the lower part of the pelvic ureter into the lumbar

13, one stone in kidney, two in pelvic ureter and two (?) in bladder; November 22, one in kidney, one in pelvic ureter and three (?) in bladder; November 25, one in kidney, one in pelvic ureter and three in bladder; November 27, four in pelvic ureter and one in bladder. At operation one stone was found in the bladder, and four were removed from the dilated

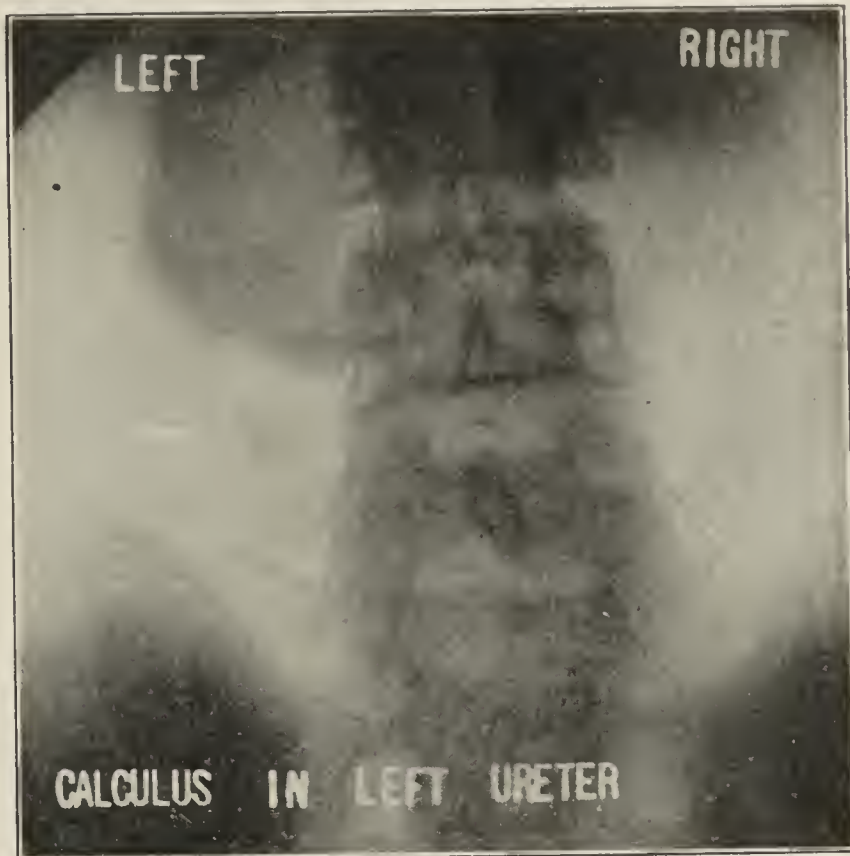


Fig. 9 (Case 2).—Calculus in lumbar ureter, Oct. 5, 1917, just before patient was anesthetized.

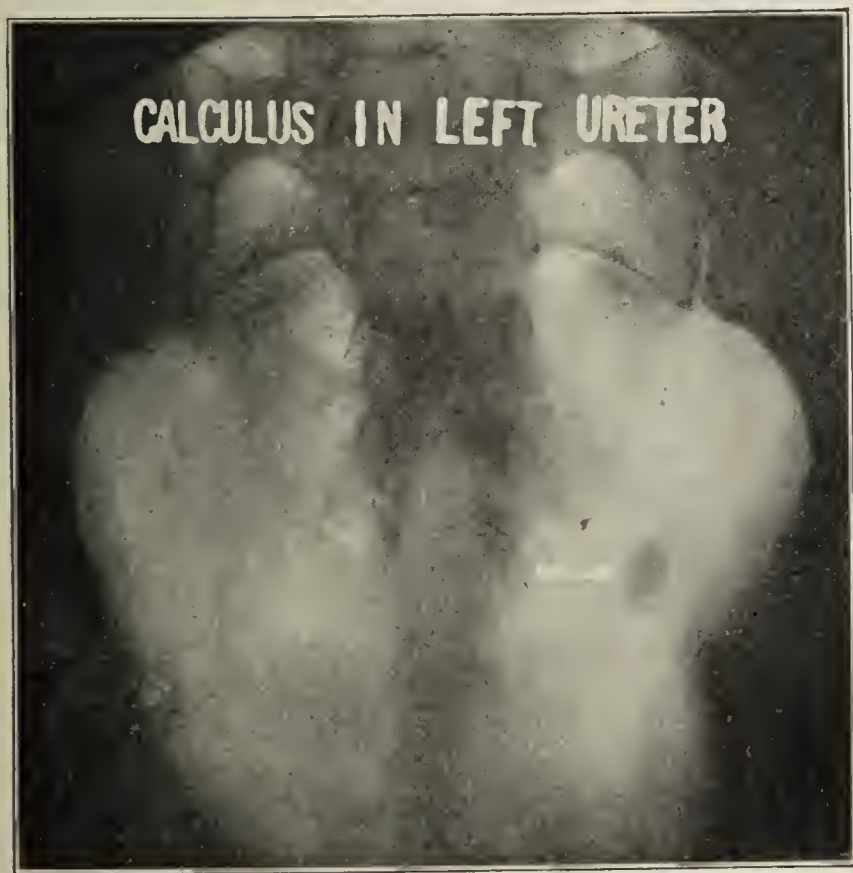


Fig. 8 (Case 2).—Calculus in pelvic portion of ureter, Aug. 14, 1917, about seven weeks before operation.

ureter, when the patient was placed in the Trendelenburg position.

THOMAS.⁴—A man, aged 23, gave a history of stoppage of urine and hematuria. Four sets of roentgenograms were taken on four different days with these findings: November

portion of the ureter. Thomas concludes that the dilatation of the ureter permitted the stones to move up and down according to the position of the patient.

CODMAN.¹⁴—The ureter was greatly dilated, associated with an intravesical cyst of the ureter. Codman believes that the high position of the stones found at operation was due to the Trendelenburg position of the patient.

HUNTER.⁷—A woman was operated on twice for stone in the lower ureter and no stone was found, although at the operation the ureter was found dilated and inflamed. Later the stone was found in the pelvis of the kidney. When the patient was up the stone would descend to the lower end of the ureter, but when she remained in bed it worked back up into the kidney.

FOWLER.⁸—In a case of stone in the ureter Fowler had the unpleasant experience of operating and failing to find the stone. He finally succeeded in removing it from the kidney.

HOLLAND.⁵—A woman, aged 45, had had attacks of pain in the right loin with backache and hematuria for six years. Roentgenoscopy revealed a small calculus in the right kidney and also a very large shadow in the pelvis, more than an inch long. The small kidney stone was removed and the ureter probed, but no other stone was found. On roentgenoscopy the next day, the large pelvic shadow had disappeared. Two and a half months later the patient returned with the same complaint, and a roentgenogram revealed the same shadow in the right kidney. Another roentgenogram, made a few days later, just before the patient was to be operated on, revealed no shadow in the kidney pelvis, but a stone was seen in the lower end of the ureter. The ureter was opened and the stone removed. The ureter was dilated and this large stone could apparently move at will up and down its whole length.

122 South Michigan Avenue.

14. Codman, E. A.: Boston Med. and Surg. Jour., 1908, 158, 828-831.

13. Thomson-Walker: Surgical Diseases and Injuries of the Genito-Urinary Organs, London, 1911.

A Long Life.—“He lives longest,” says an ancient proverb, “that is awake the most hours.”

ISOLATED DISEASE OF THE SCAPHOID*

CHARLES R. McCLURE, M.D.

Lecturer on Orthopedic Surgery, University of Oregon Medical School;
Orthopedic Surgeon to Multnomah County Hospital

PORTLAND, ORE.

A pathologic condition limited to the scaphoid bone of the foot is rarely observed. First described by Köhler in 1908, it has since been known as "isolated disease of the scaphoid," or "Köhler's disease." Including the three cases described by Köhler, thirteen cases of this condition have been reported in the literature. Having had the opportunity of observing such a case recently, I have found it worth while to report it, incidentally directing attention to certain distinguishing features concerning its pathologic history.

REPORT OF CASE

A boy, aged 7 years, was brought to see me, Nov. 6, 1917. Lameness was the chief complaint. The family history was negative as to tuberculosis and syphilis. Both parents are living and well. The home surroundings, the rural environment of a prosperous farmer, had been ideal. The child had never had any illnesses, except measles and infected ears the preceding two winters, his health having been apparently perfect.

About two weeks before he came to see me, it had been noticed that he was limping and lame in his right foot. There had been no previous injury, except about six weeks before the onset of his symptoms, when a board had fallen across the dorsum of his foot. The lameness had persisted. Pain had seldom been complained of, and never when he was off his feet. There had been no night cries. A slight swelling had been noticed over the inner side of the dorsum of his foot.

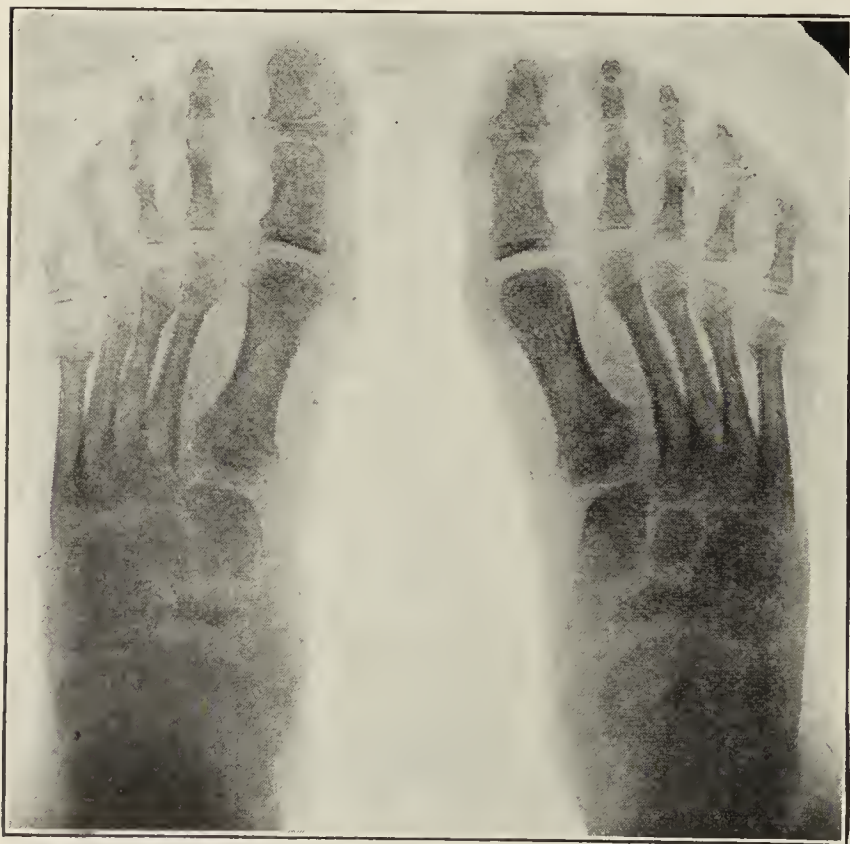


Fig. 1.—Roentgenogram of both feet taken at first examination, the right or diseased foot being shown at the left.

The physical examination revealed a well nourished, healthy looking boy. The general examination was negative. He walked with distinct lameness of the right foot. The ankle joint function was normal. Locally, there was a slight swelling over the inner side of the dorsum, also a slight

tenderness, but no discoloration. When he stood and bore weight, there was marked pronation and bulging of the inner side of the foot.

The boy presented very notched teeth, but the Wassermann reaction was negative, likewise the von Pirquet reaction.

Roentgen-ray examination disclosed a typical appearance of the scaphoid. Lantern slides will demonstrate them better than I can describe them. Briefly, the shadow of the scaphoid

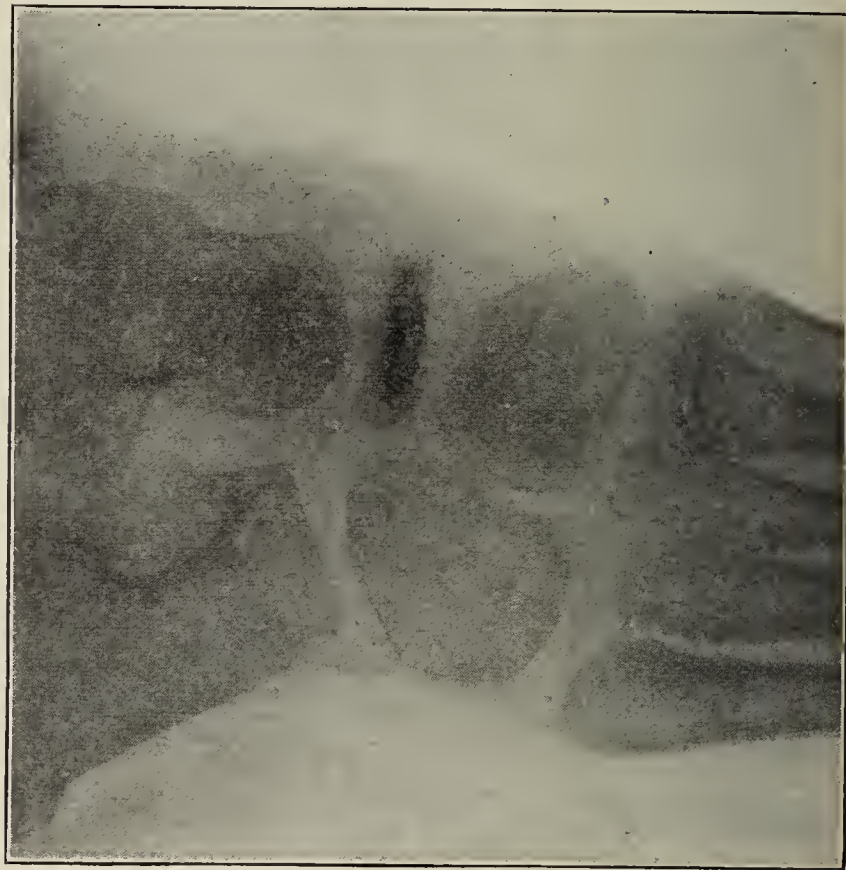


Fig. 2.—Right foot at first examination.

was smaller than normal and irregular in outline, and the cortex and spongy portion showing no distinction (Figs. 1 and 2).

The diagnosis was Köhler's disease of the scaphoid. Treatment consisted of immobilization in plaster-of-Paris and crutches.

Two months later, the boy was brought to see me again and the plaster was removed. All swelling and tenderness had disappeared and he was in his usual good physical condition. Another roentgenogram showed much improvement, as seen in the increased size and filling out of the irregular bone (Fig. 3). The density was also better. Another plaster dressing was applied and the patient was sent home.

Three months later, or five months after the first examination, he again returned to Portland. The plaster was removed and the foot looked normal in every way. Another roentgenogram disclosed an almost perfect scaphoid, and he was considered practically cured (Fig. 4). Living several hundred miles away, he was sent home with another plaster dressing to be worn for a month, with instructions to follow it with adhesive plaster strapping and to wear a supportive shoe while gradually resuming use of the foot. Late reports are that the boy seems perfectly well.

ETIOLOGY

There is nothing new to be offered as explanatory of the etiology or nature of the affection. Numerous theories as to its etiology have been advanced, but the situation is still doubtful. With Pfahler,¹ all authors agree that it is not tuberculous. Fassett² inclines to the theory that it is a mild tuberculous focus, the wall of cicatrization having been broken down by some trauma. My own case does not impress me as tuberculous, as the amount of bone involvement pres-

* Read before the Section on Orthopedic Surgery at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Pfahler, G. E.: Surg, Gyn. and Obst., 1913, 17, 625.

2. Fassett, F. J.: Isolated Disease of the Scaphoid, THE JOURNAL A. M. A., April 11, 1914, p. 1155.

ent within two weeks of the onset of symptoms and its rapid disappearance under treatment do not harmonize with the history of known tuberculous bone disease. The recovery has been too prompt and too complete to be consistent with tuberculosis.

That syphilis was not a factor in my case, in spite of the negative history and Wassermann reaction, is shown by the fact that recovery took place without any antispecific treatment.

Trauma has been considered a factor. While my case gives a history of a board falling across the foot six weeks before the onset of any symptoms, the circumstance seems almost too inconsequential to be a factor of much importance. Still Pfahler considers the condition as an osteitis, probably of traumatic or rheumatic origin, which interferes with the development of the bone. That it is inflammatory, almost all authors agree, but as to the nature of the inflammation, we are still at sea. Hetzel,³ in his valuable paper of a year ago, notes the similarity of the condition and osteochondritis juvenalis of the hip, both occurring in the epiphysis at the height of ossification.

Delayed ossification has been suggested, but if one compares the roentgenograms of both feet (Fig. 1) in my case, it would be hard to explain why one foot lagged so far behind the other, except on account of trauma, which in my case would seem hardly sufficient.

The diagnosis is the important feature; for when once recognized, the prognosis is absolutely good, both as to function and cure, under rest and support in a comparatively brief period of time. Before this section, it is unnecessary to emphasize the importance of routine roentgen-ray examinations. But their importance should be more generally recognized. How often children are presented to us with weak feet or flatfoot! As they are at times associated with moderate swelling



Fig. 3.—Right foot two months later.

and tenderness, pronation on standing, and limping, especially if unilateral, we should be on our guard and make the roentgenogram a part of our examination. At times we all see tuberculous ankles that have been treated as flatfoot. Likewise these affections, similar to the one under discussion, should not be considered as a broken arch or flatfoot and so treated. The dis-

covery of one such case all the more thoroughly justifies routine roentgen-ray examination in all foot cases of doubtful history.

ABSTRACT OF DISCUSSION

DR. WILLIS C. CAMPBELL, Memphis, Tenn.: I have had two cases of this condition within the past year, and two others



Fig. 4.—Right foot five months after first examination.

in previous years. Trauma did not seem to be the cause in any of the cases I have seen. In one of my cases the Wassermann was 2 +, and it was interesting that the grandmother of this child was under my care for syphilitic periostitis, with a 3 + Wassermann. The grandmother responded to treatment. The child has been on antisyphilitic treatment, and I am doubtful whether the improvement in the condition has anything to do with the treatment. The roentgen-ray findings are quite characteristic, as Dr. McClure described. For instance, in the scaphoid the edge is somewhat irregular in appearance, and on the side view it looks like a flattened coin. I have not used plaster or any other form of fixation in these cases. I have used a simple steel arch support, which has been quite sufficient.

DR. S. C. BALDWIN, Salt Lake City: I should like to know what treatment the doctor used, if any, besides the plaster cast.

DR. CHARLES R. McCLURE, Portland, Ore.: The treatment consisted exclusively of immobilization in plaster of Paris and keeping the weight off the foot.

Cooperation in Treatment.—The late S. Weir Mitchell was a marvel of proficiency in curing patients. Those associated with him professionally usually endeavored to appropriate and apply his methods. To those of his assistants like myself, having experience with other neurological clinicians, illuminating contrasts are afforded. In my opinion the chief instrumentality of his amazing successes was his prompt and cordial cooperation with experts in correlated lines, himself not attempting to do it all. The distinguishing characteristic of Dr. Mitchell was his radiant energy and his clear-sighted recognition of the value of joint action. He so stimulated the zeal of his adjutants as to get the best out of them not only in diagnosis but in treatment. Thus an efficient coalition was constantly at work. He uniformly said and did the judicious thing to create and maintain team work. In leadership he was wisdom personified in plan, in strategy, in shifting the point of approach, in creating useful surprises, in persistent effort, thus achieving the most economic and permanent results.—J. M. Taylor, *Pennsylvania Medical Journal*, September, 1918.

3. Hetzel, W. B.: *Am. Jour. of Orthop. Surg.*, 1917, 15, 214.

FRACTURE OF THE SPINAL COLUMN WITH AND WITHOUT CORD INJURY

NORMAN SHARPE, M.D.

NEW YORK

When the subject of fracture of the spinal column is under consideration, we think of it in terms of cord symptoms—impairment of motility and sensation, or paralysis with disturbance of sphincteric control. This is natural, for in by far the greater number of fractures of the spine, the cord or its roots are involved, and the bony fracture itself is a minor hurt compared to the possible result if the cord also is injured.

There are, however, a large number of spinal fractures (Pearce Bailey estimates this to be one third of all cases) in which the cord and its roots escape damage. Unless careful examination is made, these cases are apt to be diagnosed as sprain or contusion. In a recent article I¹ reported such a case, a fracture dislocation of the second cervical vertebra without damage to the cord. Since then I have seen five other cases, in some of which the bone injuries were such that it is difficult to understand how the cord escaped involvement.

In four of these cases the fracture occurred in the vertebral bodies, in two of them the bodies being almost completely crushed. Yet these patients were able to stand and move after the accident. As we know that many of the posterior arches or laminae can be removed without materially weakening the spine, and, as we have just seen, crushing of a vertebral body does not render one unable to stand erect,



Fig. 1 (Case 1).—Fracture of the body of the eleventh dorsal vertebra.

it is apparent that the main support or strength of the spinal column lies in the articulations on the transverse processes. And it is rare in fracture by indirect force to have the cord injured (except by hemorrhage)

unless there is rupture of these articulations. The converse is also true, that the most severe injuries of the cord are seen when these articulations are ruptured, the familiar unilateral or bilateral fracture-dislocation of one or more vertebrae.

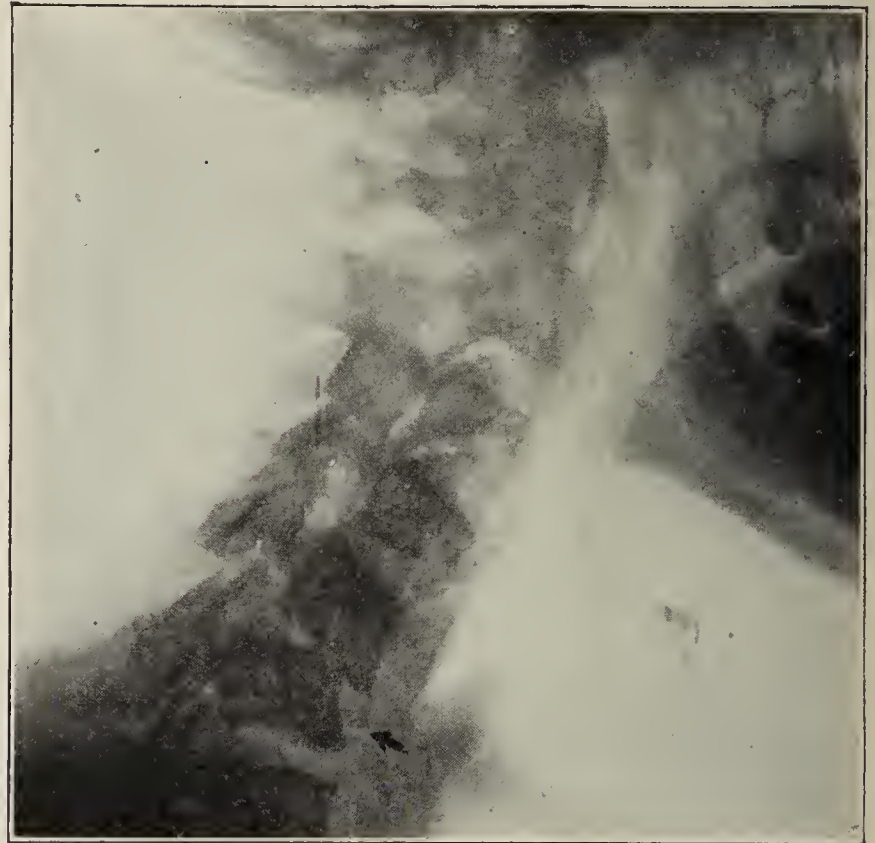


Fig. 2 (Case 2).—Fracture-dislocation of the sixth cervical vertebra.

In fracture-dislocation, the displaced vertebra may remain displaced, or spring back partially or completely into its normal position, leaving as the only signs of its dislocation the signs of cord injury. These signs may vary from partial paralysis to complete abolition of all function below the lesion, giving rise to the suspicion that the cord has been completely crushed at the point of injury. But, as was pointed out in a former article,¹ complete abolition of function below the lesion in a spinal fracture does not prove that the cord is completely crushed or severed, or even that it is damaged beyond repair. This has been shown time and again at operation, and also in the after-results in unoperated cases.

In a case recently seen by me, one and a half years after the accident, there had been a fracture of the fifth and sixth cervical vertebrae, with complete loss of function below the lesion. On the ground that this showed complete destruction of the cord, operation was withheld. Three months after the accident there was slight return of power in the right leg and partial return of sensation over the body below the lesion. At this time operation was again withheld, on the ground that the improvement was too slight to make it worth while to operate, and, on the other hand, that as the condition was improving it would be better to wait and see how much it would improve. Eighteen months after the accident the patient reported that improvement had ceased at the end of one year. He could weakly raise the arms, but could not bring them down, and could weakly extend and flex the right foot and leg. There was hypesthesia to all forms of sensation below the lesion, with complete loss of sphincteric control. He could not stand or even sit. Laminectomy was done and the laminae and pedicles of the fifth and sixth cervical vertebrae were found fractured and jammed about the cord, severely compressing it. The dura had not been torn, and the cord, though pale, was of normal appearance otherwise. Following operation there has been gradual return of power, so that now, six months after operation, there is fair strength in the arms, especially in the

1. Sharpe, Norman: *Am. Jour. Med. Sc.*, 1916, **152**, 865.

right, and the patient is able to walk with crutches. Hypesthesia has been replaced by areas of hyperesthesia and paresthesia. He is still improving.

Though helped by late operation, how much more benefit would this patient have received by an early laminectomy. The only reliable sign that proves a complete crush of the cord, and the only contraindication to early operation, is a bony deformity so great as to show complete obliteration of the spinal canal. By the term "early operation" is meant a laminectomy after the patient has rallied from the initial shock of the injury. Naturally if the injury has been so severe, or if the patient's vitality is such, that he cannot rally from the condition of shock, any operation at this time will hasten death. A safe general rule to follow is not to operate while the pulse is above 110.

In many fractures of the spinal column without cord signs, the fracture has been entirely overlooked. In the case of a woman previously reported who fell on a stairway striking the back on a step, there were no signs of nerve involvement, and a fracture was not suspected. Months after the accident and when all pain had long since disappeared, cord symptoms appeared and gradually increased. Only when they became marked was attention directed to the old accident, and roentgenoscopy disclosed marked callus formation at the site of the injury, the twelfth dorsal and first lumbar vertebrae.

In the absence of cord symptoms and no marked protrusion or "knuckle" of the spine, the diagnosis is apt to be "simple sprain or contusion." Thus in Case 3, in which there was a marked crushing of the body of the twelfth dorsal vertebra, at the hospital to which the patient was first taken he was told that the injury was simply a contusion, and no roentgenogram was taken.



Fig. 3 (Case 3).—Crushing of the first lumbar vertebral body.

If other injuries are present, the spinal fracture without cord involvement is apt to be overlooked. In Case 4, in which severe burns of the arms and shoulders were sustained in addition to the injury of the back, the burns were treated as the principal lesion, and in the absence of cord symptoms no attention was

given to the spine, though the patient complained of pain in the lumbar region. Three weeks later, when the burns were nearly healed, the persistence of the pains directed attention to the spine, and examination revealed alteration in the normal spinal curve in the



Fig. 4 (Case 4).—Crushing of the twelfth dorsal vertebral body.

dorsal lumbar region. Roentgenoscopy disclosed a marked crushing of the body of the twelfth dorsal vertebra.

These cases indicate the necessity of careful examination, both clinical and by the roentgen ray, of all cases of suspected injury to the spine. Although in neither of these cases did the failure to recognize a spinal fracture result seriously, it is readily conceivable that in a patient able to move about in bed with the fracture not immobilized, sudden twisting or turning movements by the patient or his attendants might easily convert a fracture without cord signs into a fracture with marked and serious cord involvement. Also failure to recognize a fracture and no attempt made to restore the normal spinal curve may result in weakening of the spinal column and more or less permanent disability, with perhaps appearance later of cord symptoms, due to new bone formation. This is especially true when the fracture occurs in the vertebral bodies.

The treatment of fractures of the spinal column without cord symptoms is immobilization. In fractures of the cervical vertebrae, immobilization is best secured by a plaster collar. If the fracture is high in the cervical region, an extension should be made from the collar about the forehead. If the fracture lies in the lower cervical region, an extension should also include the upper chunk. After from six to ten weeks, when all pain and tenderness have disappeared, the plaster may be followed by a stiff leather collar, which gives support but is more comfortable and allows greater freedom of movement. If the fracture lies in the laminae of the dorsal or lumbar vertebrae, a molded splint of plaster on each side of the spinal column and connected by transverse bands above and below the lesion will be found a satisfactory way of immobilizing the fracture and preserving the normal

outline of the spinous processes. Fracture of the vertebral body is best treated by overextension on a Bradford frame, which is much more comfortable and efficacious than a plaster jacket.

REPORT OF CASES

The following cases, some of which were seen with Dr. William Sharpe, are examples of extensive fractures of the spine following severe injuries, without cord signs:

CASE 1.—A. M., man, aged 22, while employed as a bell boy in September, 1915, fell through the dome of a skylight, a distance of 18 feet, striking the floor on his head and shoulders. Unconscious and severely contused, he was taken to a hospital where a diagnosis was made of fractured skull; this was changed a few days later to cerebral contusion. The patient was unconscious for three days, and stuporous and dazed for two weeks. There were no signs of cord involvement present at any time. No operation was done, and he was discharged from the hospital "improved," but complaining of headache and pain in his back. When seen, two months later, his cere-



Fig. 5 (Case 5).—Fracture-dislocation of the fifth cervical vertebra.

bral condition had almost entirely cleared up except for occasional dull headache. His chief complaint was pain and weakness in the back aggravated by standing or walking. This pain was severe enough to prevent his returning to work. Examination disclosed a projection backward of the spinous process of the eleventh dorsal vertebra and alteration of the normal spinal curve in this region. Roentgenoscopy revealed moderate crushing of the body of the eleventh dorsal vertebra and slight dislocation backward of this vertebra; the upper borders of the twelfth dorsal vertebral body were "lipped," and there was evidence of slight crushing of this vertebra also. The neurologic examination was negative. The tendon and skin reflexes were present and normal; there was no Babinski reflex, no ankle clonus, no sensory changes and no disturbance of the sphincters. A metal brace was applied, causing slight overextension of the spine at this point. When seen two years later, the patient was found to be normal except for some spinal rigidity at the dorsal lumbar junction and slight alteration of the normal spinal curve. From habit he was still wearing the brace, which he was advised to discard.

CASE 2.—R. H., a man, aged 20, while playing polo in October, 1915, was thrown from his horse, striking on his neck and shoulders. He was not unconscious, but complained of severe pain in the neck radiating to the back of the head. He

was able to walk off the field. He remained in bed two days with severe pain in the neck. There was no radiation of pain in the arms and legs and no sphincteric disturbance. Two weeks later the lower tendon reflexes were found to be somewhat increased; there was no Babinski reflex; the abdominal reflexes were present and equal; there was no impairment of motility or of sensation in either the upper or the lower extremities. Roentgenoscopy (by Dr. Caldwell) revealed a fracture-dislocation of the sixth cervical vertebra with backward displacement of one-half inch. Naturally, in view of the fact that there were no signs of cord injury found, no operation was done, but the head and neck were placed in a plaster collar. The patient made an excellent recovery, so much so that in the following year he rowed on a 'varsity crew. There have been no complaints up to the present time.

CASE 3.—S. B., a man, aged 30, in April, 1917, fell 40 feet from a window, first striking his back on a wooden railing 10 feet below the window, and then continuing to fall 30 feet, landing on a wooden floor on his left side. When he struck the railing he had severe pain, and says he "thought his back was broken." He was not unconscious and had no pain nor numbness in the legs. When lifted he was able to stand alone; he was taken to a hospital, where he was told that the injury to the back was a contusion. No roentgenogram was made. He had severe pain in the lumbar region and the left flank. There was no sphincter trouble, and he passed no blood. He was out of bed on the eleventh day, and left the hospital in two weeks. He was at home a week, in and out of bed, with severe pain in the back and some pain on the inner side of the left thigh. During this week he tried various "stunts to loosen up his back," getting down on the floor on his hands and knees and twisting about, kicking out with the feet, etc. This caused pain. Three weeks after the accident, examination revealed an alteration in the normal spinal curve at the dorso-lumbar junction, a kyphosis, and protrusion of the spinous process of the first lumbar vertebra. Roentgenoscopy revealed marked crushing of the body of the first lumbar vertebra. There were no motor or sensory changes, and the reflexes were unaltered. There was some tenderness to pressure over the spine and marked tenderness in the left flank. The tenderness on the inner side of the left thigh disappeared the following week. The patient was placed on a Bradford frame with overextension of the spinal column for four weeks. When he left the hospital he was fitted with a steel brace, which he wore during the day for eight months. Examination nine months after the injury showed the spine strong and supple, with slight projection of the spinous process of the first lumbar vertebra. There were no root pains and no signs of motor or sensory involvement of the cord or roots.

CASE 4.—C. P., a woman, aged 18, was trapped by fire on the fifth floor, in March, 1917. After clinging to the window-sill and being burned extensively on the arms and back, she fell and struck the middle of the back across an iron bar at the first story, and then fell to the ground. She was dazed but not unconscious, and after being lifted up could stand erect and move about. She was brought to the hospital in an ambulance. She complained of pain in the back at this time more than of the burns. There was no pain nor any numbness in the legs. The burns were treated and no attention was paid to the back. Thirty hours after the injury the temperature rose to 105 F. and fell shortly to 102; on the seventh day it was normal and continued so. The patient moved about in bed, but there was no weakness in the legs, though these movements caused pain. Three weeks later, because of the persistence of the pain, examination of the back was made and a protrusion found in the dorsolumbar region. Roentgenoscopy revealed marked crushing of the twelfth dorsal vertebra. Careful neurologic examination at this time showed no impairment of motility or sensation. The patient was placed on a Bradford frame in hyperextension, and the pain ceased in a day or two. After five weeks the patient was fitted with a rigid brace for the spine, which she wore for several months. Examination one year later showed her to be normal and able to work, and with no complaint.

CASE 5.—H. B., a man, aged 47 years, while working as a ship rigger, in March, 1918, fell 35 feet and was unconscious

for fifteen minutes. The right side of the head and face was badly cut and three ribs were broken, but his chief complaint was pain in the back of the neck. He was unable to turn his head in any direction on account of the pain in the neck. He was taken to a hospital, where he was told that his neck was sprained. He was twelve days in bed, being treated for the fractured ribs and other injuries, though his chief complaint was pain in the neck. No roentgenogram was taken at this time. Three weeks later, twenty-two days after the injury, the pain persisting, a roentgenogram was taken, which showed a dislocation backward of the fifth cervical vertebra with fracture of the body of the fourth cervical. Neurologic examination at this time was entirely negative. There was no impairment of motility or sensation and no alteration of the deep or superficial reflexes. The patient carried his head in a peculiar stiff manner, though he could move it without much discomfort. A plaster collar was applied and he is still under observation.

315 West Ninety-Seventh Street.

CANCER OF THE ORAL CAVITY, JAWS AND THROAT

TREATMENT BY ELECTROTHERMIC METHODS OR IN COMBINATION WITH SURGERY, THE ROENTGEN RAY AND RADIUM, WITH AN ANALYSIS OF TWO HUNDRED CASES SO TREATED *

WILLIAM L. CLARK, M.D.

PHILADELPHIA

Electrothermic methods are peculiarly adapted to the treatment of cancer within the mouth. Malignant tissue (including bone) occurring in any part of the oral cavity, comprising the lips, buccal surface, tongue, floor of the mouth, alveolus, hard palate, antrum, tonsils, pharynx, epiglottis, larynx and proximal end of the esophagus, may be destroyed with one electrothermic operation.

It is not necessary to split the cheek surgically to render a growth accessible to treatment, since the exposure secured by the use of a mouth gag, cheek retractors, traction on tongue by means of a suture or tongue forceps, or by the use of an endoscope is



Fig. 1.—A, basal cell epithelioma of the upper lip in a woman, aged 72, referred by Dr. William Hamilton of Philadelphia. One desiccation treatment was given in September, 1914. B, result. Note absence of contracted scar. No recurrence in nearly four years.

sufficient to permit the destruction of a growth. A tongue may be coagulated to the base and then excised without hemorrhage.

In addition to the desiccation or coagulation of tissues and the sealing of blood and lymph channels, the heat penetrates beyond the area totally destroyed

and devitalizes malignant cells without impairing the healthy tissue, thus lessening the likelihood of local recurrence or metastasis and conserving the maximal amount of normal tissue.

Blood vessels encountered in the oral cavity are blocked by the current, and secondary hemorrhage rarely occurs. The efficiency of electrothermic methods is increased in some cases by the judicious use of operative surgery, the roentgen ray and radium.



Fig. 2.—A, epithelioma of lower lip, a recurrence after surgical excision, in a man, aged 75, referred by Dr. Paul Cassidy of Philadelphia. One desiccation treatment under local anesthesia was given in April, 1915. B, result of treatment. Note absence of contracted scar and regeneration of lost tissue in lip. No recurrence in more than three years.

ELECTROTHERMIC METHODS

The methods to be considered are electrodesiccation and electrocoagulation. The desiccation method is one by means of which malignant growths of small or moderate size may be destroyed by the utilization of heat of just sufficient intensity to desiccate or dehydrate the tissues, and is produced by a monopolar high frequency current of the Oudin type, which is applied to the lesion by means of a steel needle or other pointed metallic applicator (usually steel knitting needles) which may be cut and curved, if necessary, to suit the case under treatment. The desiccation method is of advantage when the lesion is localized and a good cosmetic result is to be desired, and is subject to such control as to area and depth that a very small growth even on the cornea may be successfully treated without injury to vision, as may a growth on the vocal cords be destroyed without impairing phonation. The very slight trauma and absence of secondary inflammation probably explains the absence of scarring and the success obtained in treating delicate structures.

Electrocoagulation is produced by a bipolar high frequency current of the d'Arsonval type, is more penetrating and intense in action than the desiccation method, and is utilized to destroy large growths, including those that involve bone.

There are many variations of technic in the application of both methods to suit the requirements of the individual case, which need not be considered in detail here.¹ The heat from high frequency currents, unlike that from the thermocautery and galvanocautery, is not transmitted by contact, but is generated within the tissues by the resistance offered to the current. The

* Read before the Section on Stomatology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Pfahler, G. E.: *Electrothermic Coagulation and Roentgenotherapy in the Treatment of Malignant Disease*, Surg., Gynec. and Obst., December, 1914. Clark, W. L.: *Electrical Desiccation as an Adjunct to Surgery*, with Special Reference to the Treatment of Cancer, *ibid.*, August, 1912; *The Desiccation Treatment of Congenital and New Growths of the Skin and Mucous Membranes*, *THE JOURNAL A. M. A.*, Sept. 12, 1914, p. 925; *Electrothermic Methods in the Treatment of Rodent Ulcer*, *Urol. and Cutan. Rev.*, November, 1917.

cautery is comparatively superficial in action, while the high frequency current under proper conditions will penetrate and destroy tissue to any depth, in parallel or divergent lines, depending on the size and arrangement of the electrodes, and also the strength and quality of current, which are varied to suit indications.

Before large growths at the base of the tongue, epiglottis, larynx or esophagus are treated, a tracheotomy should be done first and the larynx packed from below to prevent aspiration of toxic or other secretions. The ligation of the external carotid, and in rare instances the common carotid, may be practiced as

preliminary to the treatment of some growths of the throat. Hemiplegia may occur, however, in the latter instance.

Deep, cross-fire roentgen therapy, according to standard technic, should be applied to the neck after dissection of the cervical glands, with the hope of preventing recurrence. When the glands are not involved, the roentgen ray should also be applied to them after electrothermic treatment of the primary lesion. The roentgen ray is of more value in the latter instance than in the former, as its use often

prevents involvement of the glands, and when they are involved the roentgen ray will often retard the progress of the disease. Deep, cross-fire roentgen therapy may be used following electrothermic destruction at the site of the primary lesion to reach possible outlying cancer cells, as may radium, especially within the mouth; but the same area should never be treated by both the roentgen ray and radium. I have never seen any benefit result, however, from the use of the roentgen ray or radium alone in the treatment of cancer within the oral cavity, but the roentgen ray is of undoubted value as an adjunct to electrothermic methods and surgery.

CLINICAL OBSERVATIONS

Cancer of the mouth occurs more frequently in men than in women. The great majority of persons suffering from malignant lesions within the mouth have all their lives been insanitary or careless in the care of their mouth and teeth. Indifferent dental work or rough teeth causing continued irritation has been found to be a predisposing cause in many cases of mouth cancer, for the disease begins exactly at the site of the area which has been subject to a continued irritation.

Permanent bridge work and poorly fitting plates permitting the retention of food, and irritation to the gums are also factors in the development of malignant disease in the mouth. The removable bridge is best, and great care should be taken by dentists in properly fitting and adjusting plates.

Leukoplakia, papillomas, angiomas, chronic stomatitis, root abscesses and fistulas should be appropriately treated as a prophylactic measure against the development of malignant disease.

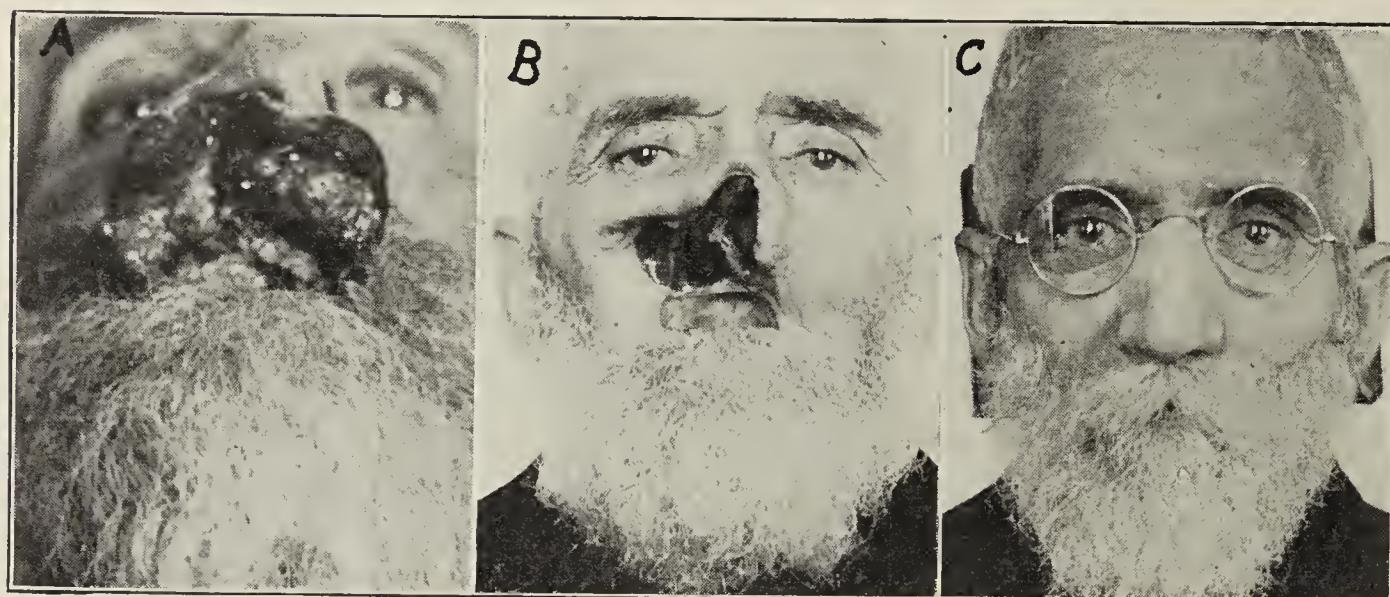


Fig. 3.—*A*, epithelioma involving upper lip, antrum, septum, nose, alveolus and hard palate, of three years' duration, in a man, aged 66, referred by Dr. J. D. Graber of Royersford, Pa. Previous treatment by plasters and the roentgen ray had been unsuccessful. The case was pronounced hopeless from a surgical standpoint by Dr. John Chalmers DaCosta of Philadelphia. One electrothermic coagulation treatment under ether anesthesia was given, March 1, 1916, and two slight recurrences were treated under local anesthesia by the desiccation method. *B*, final result, with no recurrence in two years and five months. *C*, reconstructed features by the sculpture method executed by Major R. Tait McKenzie of Philadelphia and Mrs. Alan Chesney of Baltimore. A plaster cast was made and the lost features built out in clay. A copper plate of suitable thickness was deposited on the cast by electrolysis and then silver plated. This plate was painted to match the tint of the skin, the mustache added and the plate attached to the rims of the glasses. A similar plate may be kept in place by means of spirit gum without the aid of the glass frames if desired. A plate is under construction to replace the hard palate and with artificial upper and lower teeth, in the hope that the patient may improve articulation and better masticate his food.

OPERATIVE SURGERY, THE ROENTGEN RAY AND RADIUM

When the antrum or other structures not easily accessible are involved, or when normal tissues cover the growths, operative surgery should be practiced as a preliminary to expose the lesion or to extirpate the gross mass of malignant tissue, followed immediately by the electrothermic treatment to check hemorrhage and to reach malignant tissue not possible to reach by the scalpel or bone-cutting instruments.

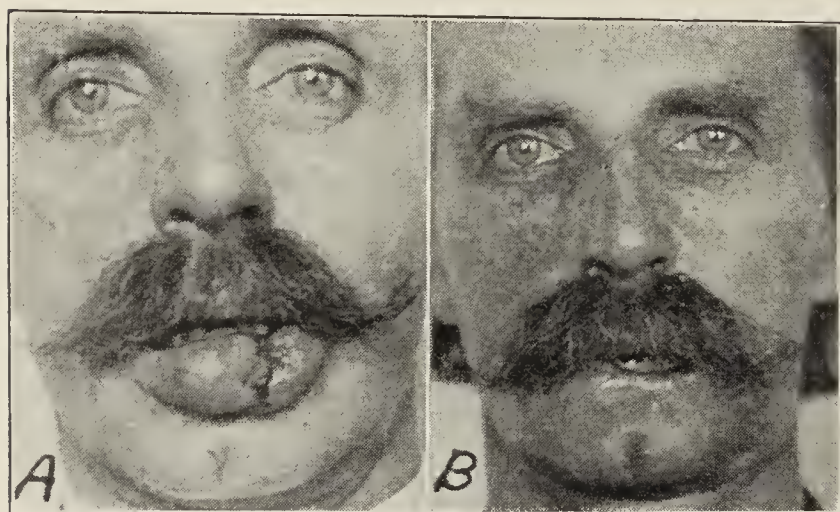


Fig. 4.—*A*, epithelioma involving the whole of the lower lip, in a man, aged 48, referred by Drs. G. C. Bird and J. F. Ulman of Philadelphia. One desiccation operation to the lip was performed under local anesthesia. *B*, result of desiccation treatment. Note absence of contracted cicatrix and regeneration of lost tissue. No recurrence in lip in four months.

When involved cervical glands are to be removed, excision must be practiced because it would be dangerous to work with the current near vital structures in the neck.

The irritation caused by excessive smoking is a contributory factor to the development of leukoplakia and mouth cancer, especially in those who fail to keep their mouth and teeth clean.

A striking number of mouth cancer patients are also syphilitic, and a combined tertiary lesion and cancer is not uncommon. This is true also of tuberculous lesions.

All papillomas or ulcers in the mouth showing a tendency to progress, unless the lesion is positively and purely syphilitic, should be treated just as though they were cancer, regardless of the pathologic finding, as all papillomas are potentially malignant.

A section should never be taken for pathologic examination except immediately before operation, if this seems necessary. A frozen section can be made and a diagnosis returned in ten minutes. By excising a piece of tissue for examination and waiting one or two weeks for a report, one will probably find that metastasis or rapid extension of the disease has taken place, owing to the opening of blood and lymph channels.

Before treatment is begun in any case of mouth cancer, a careful stereoscopic roentgenographic study should be made to detect possible bone or antrum

while attempting treatment except for palliation. In early diagnosis and treatment lies the only hope.

Lip cases and small lesions within the mouth may be treated under local anesthesia; but if the lesion is advanced, general anesthesia should be employed to insure thorough destruction.

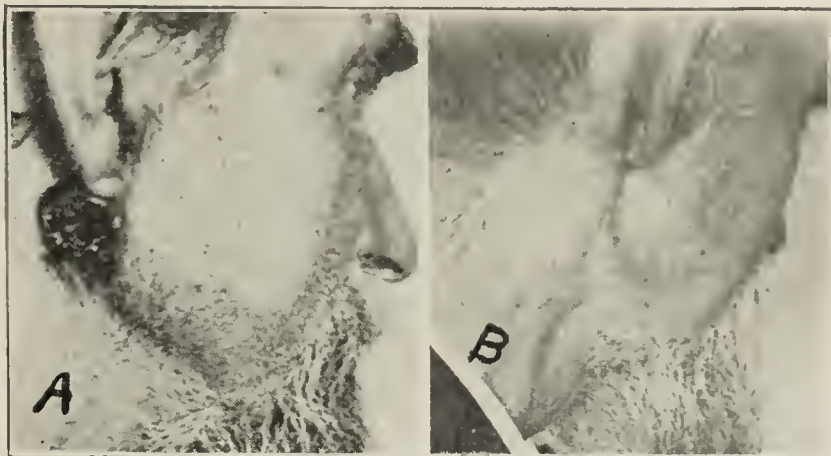


Fig. 6.—*A*, basal cell epithelioma, involving tissue and bone at angle of jaw, in a man, aged 73, referred by Dr. John Hedges of Philadelphia. The roentgen ray had previously been used without success. One desiccation treatment under local anesthesia was given in March, 1917. *B*, result of one treatment. Note absence of contracted scar. No recurrence in one year and a half.

ANALYSIS OF TWO HUNDRED CASES OF CANCER OF THE ORAL CAVITY, JAWS AND THROAT

Two hundred cases were treated by one or both of the electrothermic methods or in combination with surgery, the roentgen ray and radium. Surgery was used when the lesions were inaccessible to the current, when it required the incision of healthy tissue to expose the growth, or when it was necessary to excise the glands. In the majority of these cases the roentgen ray, radium or both had been used before without success, in which case these agents were not used again. When the roentgen ray or radium had not been employed before, one or both measures were used in combination with electrothermic methods, when judgment indicated the wisdom of so doing.

Two types of cases were selected for the series. First, those that were distinctly localized in which a guardedly favorable prognosis could be given, and



Fig. 5.—*A*, epithelioma involving nose, cheek, brow, eyelid, globe, and bones of orbit and antrum in a woman, aged 59, referred by Dr. T. L. Bradford of Philadelphia. Roentgen treatment had previously been used unsuccessfully. One intensive electrothermic coagulation treatment under ether anesthesia was given in March, 1917. *B*, result of one treatment. No recurrence in year and a half.

involvement. Transillumination tests also should be made as a confirmatory diagnostic measure.

Success in the treatment of cancer is obtained only by absolute eradication of the last vestige of disease, else it will surely recur, and will progress more rapidly than if left alone.

Malignant lesions occurring in the mucous membranes are usually of the squamous cell type. They progress rapidly and metastasize early, in contradistinction to the basal cell or rodent ulcer type occurring on cutaneous surfaces, which progress slowly and seldom metastasize. If the mouth cases are localized and treated by electrothermic destruction and the cervical glands treated by the roentgen ray, a fair percentage of cases will be clinically cured.

The prognosis of cancer of the mouth with cervical glandular metastasis is always bad, no matter how early seen, yet a small percentage of patients recover after appropriate treatment, and it is worth while to attempt treatment when the glands are movable and not adherent. When the glands are adherent and other structures in the neck are involved, it is not worth



Fig. 7.—*A*, rodent ulcer involving bone of maxilla and mandible, of three years' duration, in a man, aged 50, referred by Dr. William H. Schmidt of Philadelphia. One electrothermic coagulation treatment was given under ether anesthesia in April, 1915. *B*, result. No local recurrence in eight months, when patient died with what was diagnosed as abscess of the brain by the attending physician, but which may have been metastasis.

second, those which had metastasized to the cervical glands, but the glands were movable and not adherent to the tissue of the neck, in which the prognosis was

unfavorable, but judgment indicated there was a chance of success if treated by combined measures.

Numerous other very advanced cases, in which the primary lesion was very extensive, with adherent metastatic glands, and involvement of other structures in the neck, were either declined as absolutely hopeless or else treated palliatively with no thought of

vical gland became involved two years after treatment of the lip and was excised by Dr. Charles Nassau of Philadelphia, with no recurrence in two years.

Metastasis: Of the three lower lip cases with glandular involvement, the primary lesion was treated by desiccation, and the glands were excised under the same anesthesia and the roentgen ray employed. There was no local recurrence in the lip in any case, but there was recur-

rence in the neck in two cases from which patients died. There was no recurrence in the third case either in lip or neck in two years.

3. *Alveolus (Upper Jaw) and Hard Palate.*—The thirteen cases involving the alveolus and hard palate were treated by the coagulation method under general anesthesia. In eight there was no recurrence in from three months to three years. Four recurred and were lost track of, while the other one is now under treatment again.

4. *Alveolus (Lower Jaw) and Floor of Mouth.*—Localized: Of the twelve localized alveolus and floor of mouth cases treated by

electrocoagulation, six patients have remained well for periods of from three months to four years. Two had no local recurrence, but glands became involved, and four had both local recurrence and cervical metastasis.

CASES OF CANCER TREATED AND RESULTS OBTAINED

Anatomic Location	No.	Localized Result		No.	Cervical Metastasis Result	
		No Recurrence	Recurrence		No Recurrence	Recurrence
1. Upper lip	9	9	0	0	1	2
2. Lower lip	61	61	0	3	0	0
3. Alveolus (upper jaw) and hard palate...	13	8	5	0	0	0
4. Alveolus (lower jaw) and floor of mouth	12	6	6	10	1	9
5. Tongue	15	10	5	6	2	4
6. Buccal surface	14	8	6	7	0	7
7. Antrum	2	2	0	0	0	0
8. Tonsils	5	3	2	2	0	2
9. Pharynx	2	1	1	0	0	0
10. Epiglottis, larynx, base of tongue and esophagus	3	0	3	0	0	0
11. Advanced lesions involving several structures in mouth	13	5	8	23	5	18

Metastasis: Of the ten cases involving the alveolus and the floor of the mouth with metastasis, only one patient has remained free from recurrence, and he has been well three years. Three remained well for periods of from three months to one year, but finally there was recurrence in the neck. In the remaining six, recurrence followed in a short time, and were soon beyond the hope of benefit.

5. *Tongue.*—Localized: Of the fifteen localized tongue cases, seven were treated by the desiccation method under local anesthesia, and eight by the coagulation method under ether anesthesia. There was no recurrence in ten cases in from three months to five years. Two recurred locally, and the glands became involved. These patients were treated again, but unsuccessfully. In three there was no local recurrence, but the glands later became involved. These patients reported too late for further treatment.

Metastasis: The six tongue cases with cervical involvement were treated by combined coagulation, surgery or the roentgen ray. One patient remained well for four and one-half years, when he died of some stomach trouble (Fig. 9).

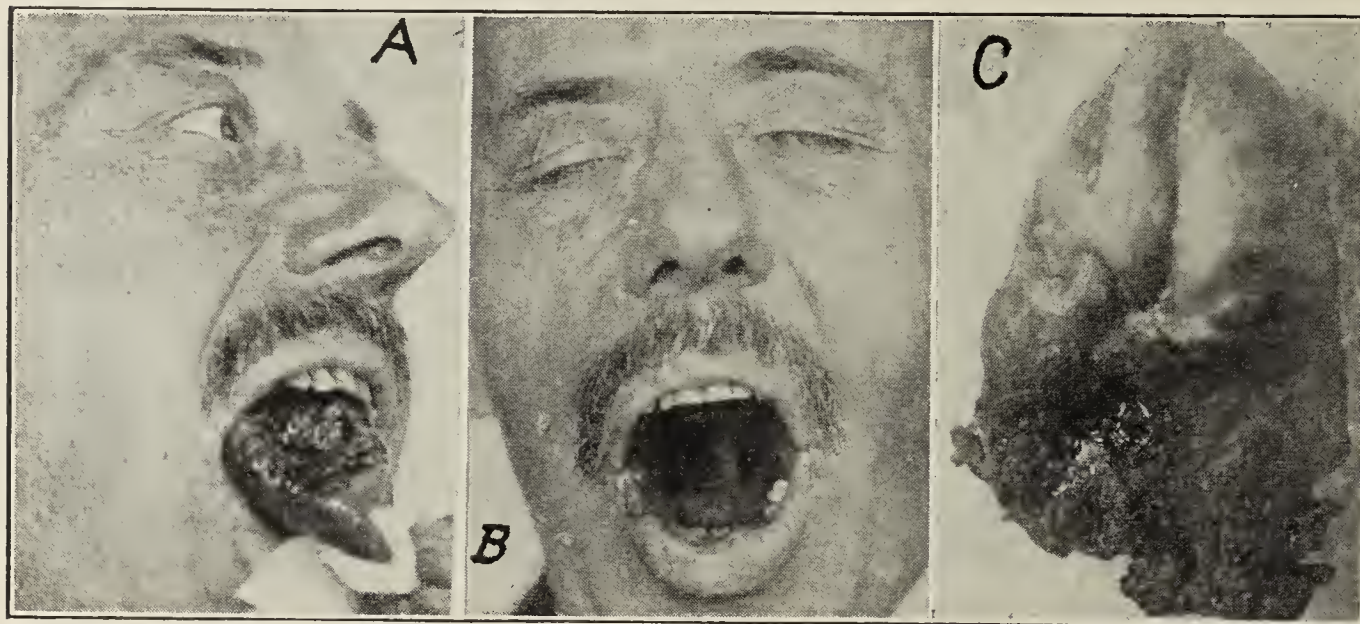


Fig. 8.—A, advanced squamous cell carcinoma of the tongue of four months' duration in a man, aged 46, referred by Drs. John B. Deaver and Walter Ziegler of Philadelphia. The cervical glands were involved and treated by the roentgen ray. The tongue was amputated at the line of the tonsils by the electrothermic coagulation method under general anesthesia, without hemorrhage. Little pain or discomfort followed the operation. B, result after electrothermic treatment. No local recurrence in two months. This photograph is shown to demonstrate the practicability of amputation of the tongue by the electrothermic method. C, tongue in another case immediately after amputation by this method. Note coagulated area at distal end.

cure, but sometimes to destroy a growth on the tongue or in the throat to ease temporarily the respiratory function or to render the intake of nourishment possible or more comfortable, and with the idea of alleviating pain and prolonging life.

The distribution of the cases treated and the results obtained are presented in the accompanying table. A brief outline is necessary to complete the presentation:

1. *Upper Lip.*—Localized: The nine cases of epithelioma of the upper lip, some of which were advanced, though without metastasis, were all treated once by the desiccation method, under procain-epinephrin anesthesia, and there has been no recurrence in from six months to four years.

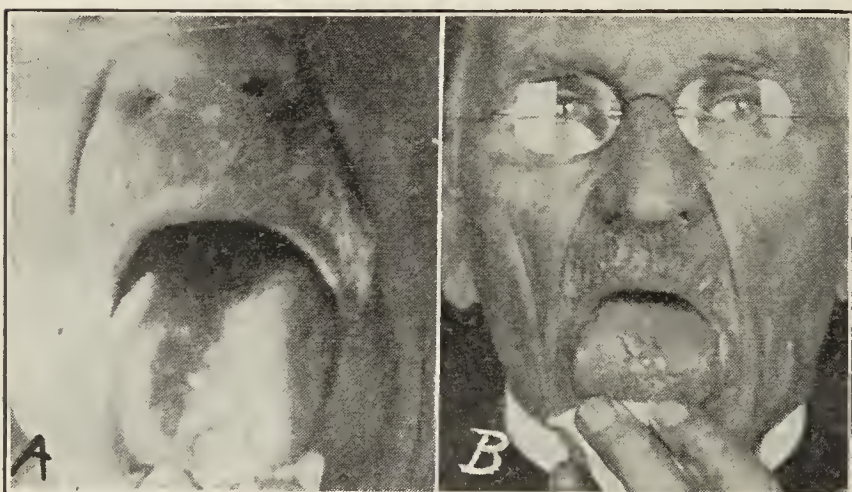


Fig. 9.—A, epithelioma of tongue of six months' duration in a man, aged 74, referred by Dr. J. C. Biddle of Fountain Springs, Pa. B, result of desiccation treatment under local anesthesia in May, 1911. There were enlarged glands on both sides of the neck in this case, which were probably inflammatory, since they disappeared after the treatment of the tongue lesion and the application of the roentgen ray to the neck. There was no recurrence in four and one-half years, when the patient died of some other disease.

2. *Lower Lip.*—Localized: The sixty-one localized lower lip cases were all treated under local anesthesia by the desiccation method. There has been no local recurrence in any case in from three months to eight years. In one case a cer-

Another has been well two years. Two had no local recurrence, but there was recurrence in the neck, and two had recurrence both in the tongue and in the neck. They were not treated again.

6. *Buccal Surface*.—Localized: Of the fourteen buccal surface localized cases, eight patients have remained well after electrothermic treatment for periods ranging from four months to four years. The other six cases recurred either locally or the glands became involved, and they were not treated again.

Metastasis: Of the seven buccal surface cases with glandular involvement, all recurred either locally or in the neck, and soon were beyond hope.

7. *Antrum*.—The two antrum cases were treated first surgically and then by electrocoagulation. There was no recurrence in one case in fifteen months and in the other in two years.

8. *Tonsils*.—Localized: Of the five localized tonsil cases, three have not recurred in from one to two years. Two had local recurrence and the glands became involved and could not be treated again.

Metastasis: Both cases recurred locally in the neck and were not treated again.

9. *Pharynx*.—One case soon recurred locally, but the patient is well three months after a second treatment. The other recurred locally and involved structures that were inaccessible and could not be treated again.

10. *Epiglottis, Larynx, Base of Tongue and Esophagus*.—These three cases were all unsuccessful. One patient died

and with bone involvement, is so satisfactorily treated by the desiccation and coagulation methods, that these lesions practically all recover when treated thoroughly.

It will be seen that the chances of success in cancer of the oral cavity vary with localization, the anatomic location and the presence or absence of glandular involvement.

The foregoing analysis of results obtained in 200 cases, and the illustrations, will serve to give an idea of the rôle the desiccation and electrothermic coagulation methods can be expected to play in the treatment of cancer of the oral cavity, jaws and throat, and in which types of cases the use of operative surgery, the roentgen ray and radium in combination is justifiable.

Medical Arts Building.

THE USE OF HEAT AND RADIUM IN THE TREATMENT OF CANCER OF THE JAWS AND CHEEKS*

G. B. NEW, M.D.

ROCHESTER, MINN.

Cancer of the jaws and cheeks is one of the most malignant forms of new growth. The type that is primary in the cheek is probably only exceeded in its malignancy by the melanopithelioma. Little is known regarding the causation of such growths except that chronic irritation of some sort is believed to be an important factor, and, this being true, every snag of tooth or any other source of irritation should be eliminated from the mouth as a prophylactic measure. While tobacco may be a cause in some cases, it probably has not so much importance as is usually attributed to it. The man with cancer of the cheek who chews tobacco has, as a rule, carried the tobacco on the unaffected side of the mouth. Syphilis is undoubtedly a factor in the production of cancer of the

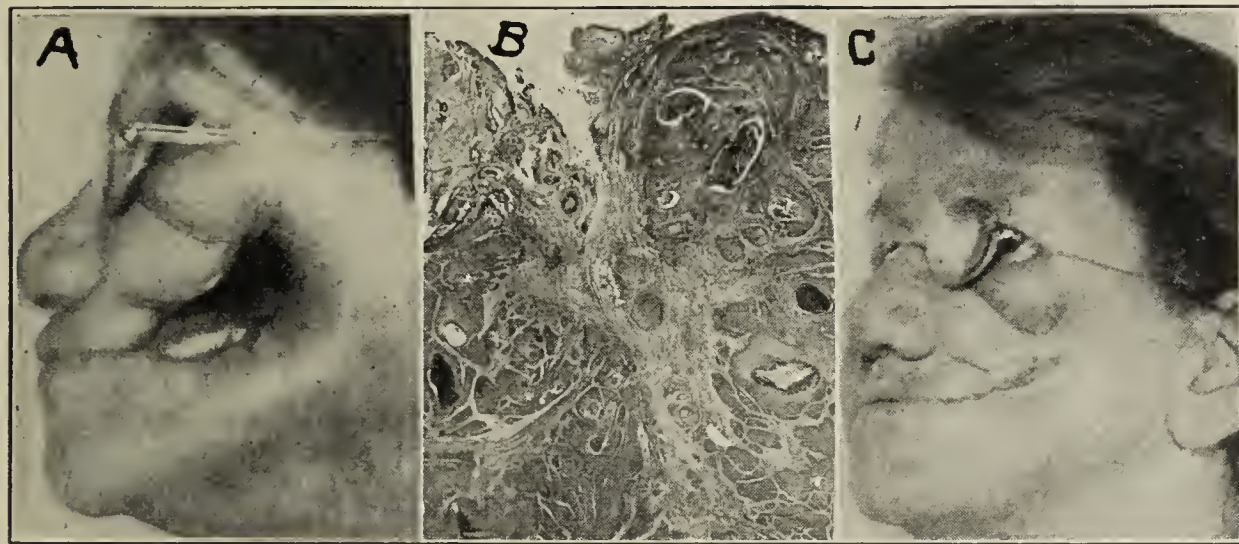


Fig. 10.—Squamous cell carcinoma involving antrum, alveolus, hard palate and buccal surface on left side in a woman, aged 60, referred by Dr. E. B. Miller of Philadelphia. Since involvement was extensive in this case and some of the diseased tissue was inaccessible, preliminary surgical removal was done by Dr. G. M. Dorrance, followed immediately by electrothermic treatment. A, result of this treatment. No recurrence in fifteen months; B, low power photomicrograph (showing prickle cells) on which diagnosis was based; C, result of plastic operation in which tissues were separated from bony attachments, and cheeks drawn together and sutured.

of pneumonia a few days after treatment, probably owing to aspiration of secretions, a preliminary tracheotomy not having been performed. The second patient died of secondary hemorrhage two weeks later. There was recurrence in the third case, and a second operation was not attempted.

11. *Advanced Lesions Involving Several Structures in Mouth*.—Localized: Five of these thirteen patients have remained well for periods ranging from three months to two years. In the remaining eight cases there was local recurrence, and the glands became involved, rendering them hopeless.

Metastasis: Of these twenty-three cases, five remained free from recurrence from three months to one year. The others all recurred and soon were beyond hope of benefit.

When the lesions recur only locally, there is a chance of success if the patient is treated a second or, indeed, a number of times; but if there is recurrence in the glands of the neck, further treatment is usually of no avail.

The basal cell, or rodent ulcer, type of epitheliomas occurring on cutaneous surfaces, even though advanced

tongue, but is of no demonstrable consequence in relation to cancer of the jaw and cheek. Papillary leukoplakia frequently develops into epithelioma, and it should be thoroughly treated with cautery and radium.

Fifty-seven cases of cancer of the jaws and cheeks were examined at the Mayo Clinic during 1917. Thirty-two of the patients were inoperable; four had glandular involvement, but operation was considered advisable and a block dissection was done in addition to the treatment of the local growth. Twenty-one had no glandular involvement and were treated with the cautery and radium. Data concerning these twenty-one patients form the basis of this paper. In most instances epitheliomas occurred in the fifth decade. There were two patients between 31 and 40 years of age; four between 41 and 50; twelve between 51 and 60, and three between 61 and 70. Nineteen were men

* From the Mayo Clinic.

* Read before the Section on Stomatology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

and two were women. The patients had first noticed the trouble from two weeks to four years before they came for examination, but it was difficult to determine the length of time the growth had been present or active. The tumor was located on the lower jaw in two cases, on the lower jaw and cheek in seven, on the upper jaw in two, on the upper jaw and cheek in seven, and on the cheek in three. Five of the twenty-one patients had been operated on before coming to the clinic. Seven of the epitheliomas were associated with, and apparently had originated in, a leukoplakia. In one case, the tumor developed on a pathologic fracture of a bone cyst of the jaw.

TREATMENT

In reviewing the literature, it is seen that the usual method employed in the treatment of cancer of the jaws and cheeks has been a complete or partial resection of the jaw with some type of plastic operation if the growth involved the cheek. Recently the cautery has been used in the treatment, but I have been unable to find any report in the literature of a group of cases treated in this manner. At the Mayo Clinic the cautery has been employed for several years in the treatment of such cancers, with a few exceptions, in preference to resection of the jaws. In many instances, the radium has been used following the cautery.

During the year 1917, all the patients operated on were treated by the slow heat cautery with soldering irons, and, in addition, radium was used. While a report of recently treated cases of cancer must necessarily be only preliminary, nevertheless the results have been very encouraging, and I feel that we have obtained better immediate results than were obtained previously in the treatment of cases of this type.

In cases of cancer of the jaw or cheek without glandular involvement, the decision as to whether or not they are surgical depends on individual judgment, but in any questionable case the patient should be given the chance an operation may afford, and everything possible should be done for him.

Before operation, patients are advised that they must return for observation at least once a month during a period of six months or more following operation, so that they may have immediate care, if there is any recurrence. When the seriousness of the condition and the necessity for cooperation is explained, it is usually not difficult to get patients to return at stated intervals.

TECHNIC

After the patient is anesthetized with ether, a mouth gag is inserted opposite the affected side. The tongue is drawn to one side out of the way, by the aid of a stomach clicker. The water-cooled speculum is inserted, and all the teeth in the area involved, or those that prevent good exposure of the growth are removed. If it is possible, the entire growth is excised from the jaw or cheek with a knife cautery, and the base is cauterized with soldering irons. If this is not possible, the irons are inserted into the tumor. The water-cooled speculum prevents the burning of the lips or cheeks except in the area being treated, and it affords good exposure. A wooden tongue depressor holds the tongue out of the way and prevents it from being burned. The cautery should be used longer than seems really necessary; at least for from twenty to forty-five minutes. If the growth is in the upper jaw

and involves the antrum, the soldering irons are carried up into the antrum and the entire growth is gradually burned away.

Soldering irons are found to be the most satisfactory type of cautery, as the heating element in the handle of the electric cautery usually interferes with a good view of the area that is being treated. If the irons are too hot, the surface cauterized becomes carbonized and prevents the penetration of the heat. A slow heat that gradually cooks the tumor is preferable.

Occasionally hemorrhage will occur during the first ten days or two weeks following the cauterization while the slough is clearing off and, if it is not readily controlled by packing, ligation of the external carotid with the lingual and facial branches is advisable.

About two weeks after the cauterization, most of the slough will have cleared off, and radium may be applied directly into this open area. It is directed into the ulcerating area on lead applicators, using a 50 or 100 mg. tube within a silver tube, for from fifteen to twenty hours, without screening. If the growth has involved the cheek, radium is applied with screening externally over the cheek, thus cross-firing. If the growth has involved the antrum, the radium is placed in the antrum, packed there with petrolatum gauze, and left in place for the period of hours required by the particular type of lesion.

In from a month to six weeks after the operation, large pieces of sequestrum usually come away from the jaw. These pieces are sometimes one-fourteenth to three-eighths inch thick. In a month from the time the first radium treatment is completed, further treatment is given and repeated as often as the condition indicates. If there is any recurrence noted a second cauterization is done, and this is followed by radium.

Epithelioma of the jaw does not, as a rule, metastasize early, unless there is considerable involvement of the cheek. In such a case, the submental and submaxillary glands on the affected side should be removed.

RESULTS

Of the twenty-one patients treated, twenty were traced; of these, fourteen have been free of local recurrence for from six to eighteen months. One patient recauterized three months previously, thus far has no recurrence. One died of lymphatic leukemia six months after operation; there was no recurrence. Two of the fourteen patients (one with epithelioma of the cheek and one with epithelioma of the upper jaw and cheek) have developed glands of the neck and have had block dissections. Thus twelve of the twenty patients have had no recurrence locally or in the glands for from six to eighteen months. One patient has a hopeless local recurrence. This patient was operated on before coming to the clinic. Two patients died of the cancer; one of these had been operated on before coming to the clinic; one consulted a plaster doctor, and his present condition cannot be learned from his letter. There was no operative mortality.

This group of cases shows that our immediate results in the treatment of epithelioma of the jaws and cheeks without glandular involvement, by the use of the cautery and radium, have been very encouraging. The end-results cannot be foreseen, but we believe that by the addition of radium to the treatment, much more is being accomplished than formerly.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. CLARK AND NEW

DR. A. J. OCHSNER, Chicago: I am not familiar with this method. My observations are based entirely on the treatment of these growths with the actual cautery. I have used this method most successfully. Many of my patients remain well for many years following the use of the soldering iron, whereas if the same growth is removed by the electric cautery or even the Paquelin cautery the result is not so good. I believe that is due to the fact that the heat of the soldering iron penetrates deeper and produces more destruction at a distance from the point of application of the soldering iron. It is quite possible that Dr. Clark's method accomplishes the same thing and in a much nicer way than the soldering irons do. The mortality among these patients when operated on early is practically nil; when operated on late, death in the earlier group of cases was either from shock or from pneumonia. We thought that our successful cases depended on the fact that we destroyed the growths to a very great distance from the originating point and that we held the red hot soldering iron in position for a considerable period of time, that is, we do not brush it back and forth, because in that way you do not reach the depth, so that boiling of the tissues has seemed to be of especial value, and especially so in the cases that are seen early. Of course, these patients do not come to the general surgeon as early as they do to the dentist, so that it is rare that we see a real early case of malignant growth of the jaw. In the last three years we have used the roentgen ray in all cases and radium in a considerable number of cases. In the cases of circumscribed osteosarcomas we have excised the jaw. In the carcinomas we have not done this, but we have cauterized very deeply. In malignant polypus of the antrum we have found many cases that have been treated for a long time on the supposition that they were due to infection of the antrum, and the patients have come late for that reason. In cases of that kind, in which we removed the eye at the primary operation, we have had permanent results. In cases in which we have tried to save the eye we have not succeeded.

DR. BERTHA VAN HOESSEN, Chicago: For three years I have had encouraging results from the use of emetin in the treatment of malignant disease. I have never seen a case of malignant disease of the jaw where the patient did not have pyorrhea or badly diseased gums. Emetin seems to produce a fibrosis. I have at present two patients who, without any operation, are practically cured of malignant disease. One has a squamous cell carcinoma of the labia. The other has a very extensive medullary carcinomatosis and has made wonderful improvement.

It seems to me that in the inoperable cases Dr. Clark might succeed in localizing the disease and making the surrounding tissues more healthy, by starting up a fibrosis, using at least 5 grains of emetin the week before his treatment is begun. Thus he might make it successful in every case instead of the small percentage reported.

DR. ROBERT ABBE, New York: It is not through the blood stream, except where the blood stream has been infected and the metastatic particles are carried in it, but through the lymph channels that we are bound to search for absorption. We have to reach the original infection, and heat, roentgen ray and radium seem to be the agents of choice. That the cells that are wandering away from the lymphatics are more sensitive than normal malignant cells has been proved by biologic study. By electronic action one can produce either a slight or a very marked arrest of growth, or a destruction of those cells. The heat method is one by which the cells in some definite area are arrested, destroyed or absorbed. The heat can be driven into these cells, if we go far enough. There is no question but that the lymphatics can be treated at a distance. In the cases of cancer of the mouth spoken of by Dr. New, it seems to me that the question of tobacco as a cause is absolutely proved in nine cases out of ten. If you ask the question of these patients you will find they have smoked to excess three to five cigars a day or a corresponding amount of tobacco in any form, and where the quid is carried in the cheek it is a

cause of carcinoma of the buccal site. Dr. G. H. Davis proved that in the Philippines chewing of the Betel leaf was the cause of carcinoma of the inside of the mouth. I believe we can state that tobacco is the cause of most cases of carcinoma inside of the mouth.

DR. WILLIAM L. CLARK, Philadelphia: The success obtained by the use of the desiccation and electrothermic coagulation methods in the treatment of cancer is explained by the fact that the malignant tissue was all destroyed, and when possible with one radical treatment, while at the same time blood and lymph channels were sealed. In cases in which, by error of judgment, some of the diseased tissue was not destroyed, recurrence was the rule; indeed, owing to the stimulation of the electric current, the disease often manifested greater activity than would have been the case if left untreated. In cases of recurrence, however, the electrothermic methods have often been applied twice, or even a number of times, before final success was attained, but the practice of intentionally treating a malignant lesion in a series of electrothermic operations is a reprehensible one, and must be discouraged in no uncertain manner. It is quite as irrational to do this as to excise a cancerous growth surgically in a series of operations with the hope of success. The term "fulguration" is applied in the United States to any type of high frequency spark that will cause the destruction or burning of tissue. Fulguration used in this sense is a misnomer, since the original deKeating-Hart fulguration method does not destroy tissue, but is applied to the field of operation after radical surgical ablation of cancer in the form of long high-tension sparks, not for the purpose of destroying tissue, but to alter local nutrition, and it is claimed by Hart, Bainbridge and other advocates, that recurrences are less frequent when fulguration is used in combination with surgery, than when surgery is used alone. I have had insufficient experience with this method to venture any comment on the truth or fallacy of this claim. I may say, however, that the pseudofulguration method employed in this country means little, as the destruction or burning of tissue by any sort of high frequency spark whatsoever is called "fulguration," hence, in the hands of different men, entirely different effects on the tissues may be produced.

The indiscriminate use of the high frequency spark in the treatment of cancer by frequent applications and incomplete destruction has justly brought the destructive fulguration method into disrepute. The term fulguration should be abandoned, except when used according to the technic of deKeating-Hart. On the other hand, desiccation and electrothermic coagulation are descriptive of the actual effects on the tissues, and these effects are produced by definite types of high tension electric currents of known strength, capacity, inductance and resistance, and the methods are so standardized that they may be duplicated over and over again by any physician possessing the requisite appliances and who has learned how to use them.

It is also desirable that the operator should have a good surgical training and a comprehensive knowledge of anatomy.

DR. GORDON B. NEW, Rochester, Minn.: In regard to the point concerning tobacco that Dr. Abbe has brought up: Too much stress has been put on the effect of tobacco as a cause of cancers of the mouth and lip, although undoubtedly there are a large number of cases of cancer in which tobacco is a factor. Among 196 patients with epitheliomas of the lip treated at the Mayo Clinic during the past twelve months, 33 per cent. did not use tobacco at all. Since this is about the percentage of men who do not smoke, it does not bear out the high percentage of cases in which tobacco is a factor.

Cold Conduces to Shock.—Exposure to cold has a marked effect in inducing or augmenting the state of shock. A badly wounded man leaves the front-line trenches in a fair condition, but during his journey to the rear he loses heat by sweating and exposure, and then passes into the shocked state. His condition is likely to be much improved when he is placed in a warm bed and supplied with sufficient heat to restore his normal temperature. It seems probable that cold, which is known to cause stagnation of blood capillaries, increases the "lost blood" by helping to induce capillary stagnation.—*Review of War Surgery and Medicine.*

TREATMENT OF VERTEBRAL TUBERCULOSIS BY FUSION OPERATION

REPORT OF TWO HUNDRED AND TEN CASES *

RUSSELL A. HIBBS, M.D.

NEW YORK

In these 210 cases of vertebral tuberculosis, the patients were operated on at the New York Orthopedic Hospital in the period of January, 1911, to January, 1915, so that at this date, June, 1918, seven years have elapsed since the earliest and three and one-half years since the latest patient was operated on. This is a sufficient length of time to make possible a fair estimate of the influence of the operation on the course of the disease.

The operation was designed and its technic perfected with the single object of eliminating motion of the diseased articulations, experience having proved that the limited motion obtained by various mechanical means, such as braces, corsets, etc., was beneficial. It was felt that absolute elimination would hasten the cure and perhaps prevent deformity. The absolute elimination of motion in any joint is accomplished only when the bones entering into its formation become fused. This is possible only when all tissue other than osseous is removed or destroyed from between their articular ends and new bone formation fills the gap. This is sometimes accomplished by nature without operative aid. In the case of a vertebral joint affected by tuberculosis, however, nature is too slow. The spinous processes, laminae and lateral articulations are rarely involved. Their easy accessibility and close approximation make them peculiarly well adapted for operative fusion.

OPERATION

An incision is made through the skin and subcutaneous tissue from above downward over the spinous processes of the segment to be fused, exposing the tips. The periosteum over the tips of the first two spines above is split and the interspinous ligament between. With a periosteal elevator these are bared of periosteum for about one half their length. Small packs of gauze are now inserted to prevent oozing. The periosteum of each tip and the interspinous ligament between is split in turn, and the periosteum is freed from the bone and treated as described and so on including each vertebra to be fused.

Beginning at the upper end again, with a dull periosteal elevator for children, and a sharp one for adults, the operator separates the periosteum farther forward from the spinous processes and laminae to the base of the transverse processes, exposing the lateral articulation. Each vertebra is treated in this manner from above downward and packings inserted as noted. These packs are very important, as they keep the operative field dry.

Beginning at the upper end again with a small curet, the operator curets the lateral articulations and removes the periosteum and ligament from the adjacent edges of the laminae and bases of the spinous processes. This is done with each vertebra in turn over the entire field, with packs inserted as described.

Beginning at the upper end again with a small chisel, the operator elevates a piece of bone from each

lamina and turns it from above downward, its free end resting on the one next below. Each in turn is so treated with packings inserted afterward.

With the operator beginning at the upper end again with a bone forceps, each spinous process is carefully cut and fractured, so that its tip rests on the bare bone next below. The periosteum and ligament which have been split and pushed to either side and lie in practically an unbroken sheet, are brought together in the middle and sutured with interrupted sutures of ten-day chromic catgut. The subcutaneous tissue is closed by a continuous suture of plain catgut. The skin wound is closed with a continuous suture of ten-day chromic catgut. Sterile dressings are applied and an immobilizing brace.

Summary: All tissue other than osseous has been removed from between the lateral articulations, the laminae and the spinous processes, and bone contact is secured at the lateral articulations, the laminae and the spinous processes, so that with the periosteum closed, we have practically a tube of periosteum filled with live, healthy bone, lying in continuous contact and insuring a perfect fusion.

Great care should be exercised in the removal of all tissue from the bones, as the area of fusion will be determined absolutely by the thoroughness and extent of the dissection. If the dissection is made subperiosteally, there is absolutely no difficulty from hemorrhage, and the whole operation may be done with practically a dry field.

The number of vertebrae to be fused in each case is determined by the extent of the disease. Great care should be exercised that two healthy vertebrae are included at either end. As will be seen later on, in some cases a sufficient number of vertebrae were not included, and it became necessary to perform a second operation.

The patient is kept quiet in bed for eight weeks after the operation and continues to wear a brace for from six months to a year. The form of brace used is the Taylor model, because it is accurate, and is the most efficient means of securing immobilization after operation. It is always fitted to the patient before operation, and is, therefore, perfectly comfortable.

In this group of cases, there has been no operative mortality and all the wounds have healed by first intention. There has been practically no shock in any case.

In dealing with these patients, we have always had in mind the fact that they were suffering from tuberculosis, and, when possible, every influence, such as good food and good air, has been brought to bear on them. An attempt has been made to keep every patient under constant observation, and in most instances this has been done by the visiting nurses and our dispensary department. The patients all come from among the poorer classes and most of them live in crowded tenements.

No attempt has been made to select cases. Every patient with Pott's disease who would consent to operation and whose general condition warranted the administration of an anesthetic, was operated on, regardless of other complications or the extent of the disease. I believed that the operation would hasten the cure of many and for those in whom cure could not be expected, it would at least contribute to their comfort. Most of these patients had had some form of brace or jacket treatment before operation.

* Read before the Section on Orthopedic Surgery at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

RESULTS OF OPERATIONS

The first patient was operated on Jan. 9, 1911, and during the intervening period 210 patients have been operated on. One hundred and fifty-seven, or 74.7 per cent., were cured. Twenty-two cases are doubtful cures, and thirty-one patients are dead. In the classification of the cured cases, every one concerning which there is the slightest doubt has been excluded and only those included which show no evidence of disease, as determined by the most careful examination, with complete knowledge of their history since operation. The patients have all been examined by the staff working as a group within the past month. Photographic, roentgen-ray and tracing records have been made of every case before operation and at frequent intervals since, and it is felt that among all those recording deformity, the most reliable records are carefully made tracings. The results are set forth in the accompanying tables.

In many of these cases, a definite fusion of the bodies also was shown by the roentgen ray. This would be expected only in the articulations of which the cartilage had been destroyed by disease.

Deformity.—In 139 cases there was no increase in deformity. In eighteen cases there was definite

TABLE 1.—AGE OF PATIENTS AT TIME OF OPERATION

No. Cases	Age*	No. Cases	Age*
2	between 1 and 2 years	6	between 15 and 20 years
27	between 2 and 4 years	5	between 20 and 30 years
22	between 4 and 6 years	3	between 30 and 40 years
47	between 6 and 10 years	2	between 40 and 50 years
43	between 10 and 15 years		

*The average age was 14 years plus.

TABLE 2.—DURATION OF DISEASE AT TIME OF OPERATION

No. Years*	No. Cases	No. Years*	No. Cases
Less than 1 year	38	From 6 to 10 years	28
From 1 to 2 years	17	From 10 to 15 years	18
From 2 to 4 years	30	From 15 to 20 years	1
From 4 to 6 years	25		

*The average duration of disease at the time of operation was 4.6 years.

increase. In all cases, there is an amount of diminution in the deformity from the operation, which is due to a transposition of the spinous processes. This is of some importance to the patient.

No attempt has been made to correct deformity by the exercise of force at the operation. The definite increase of deformity in these eighteen cases is certainly not due to destruction of bone, therefore it must be due to a developmental change, as they were all cases of disease among growing children.

Every patient in this group is living the normal life fitted to his age, either at school or at work.

There were five deaths of patients who were definitely cured of Pott's disease; two of these died of heart disease and three of pneumonia. These cases could be fairly classified as cured, but they are not included in the 157 cases.

Doubtful Cures.—There were twenty-two doubtful cures. These include every case in which the patient is not now in good condition, whether the local disease seemed cured or not, and also include two cases which had disease of the laminae at the time of the operation.

Three of these patients now have active lung tuberculosis. Two others are in school wearing braces. Two have remained paralyzed, although the fusion is complete and there is no evidence of active disease. In one case, the fusion is complete but the patient is not doing well. Three other patients are still under

treatment and doing well, and the remainder have not been seen recently.

Patients Who Have Died, and Causes of Death.—Of the thirty-one who are dead, twenty-six patients were definitely not cured. All but five, however, improved to a considerable degree for a time after operation. One worked a while, and seven went to school. The cause of death in thirteen cases was miliary tuberculosis. The average age of the patients

TABLE 3.—NUMBER OF VERTEBRAE INVOLVED.

No. Cases	No. Vertebrae	No. Cases	No. Vertebrae
19	2	14	7
35	3	7	8
23	4	3	9
32	5	2	10
20	6	1	11

TABLE 4.—REGION OF DISEASE INVOLVED

Cervicodorsal	6	Lumbar	28
Dorsal	71	Lumbosacral	2
Dorsolumbar	50		

was 6.7 years. The average duration of disease before operation was 3.8 years. The average time that elapsed after operation was 2.4 years. Four of the thirteen patients were in fairly good condition before operation, and nine were in poor condition. Fusion was perfect in all but three cases. One of these had a pseudarthrosis, and in two cases the fusion was short. In one, a necropsy was done and the fusion was found complete but short.

Five patients died of tuberculous meningitis. The average age of these patients was 7.6 years. The average duration of disease before operation was 3.9 years. The average time elapsed after operation was 1.3 years. One of the five patients was in fair condition before operation, and four were in poor condition. The fusion was complete in all but one case, and in that it was too short.

Four patients died of pulmonary tuberculosis. The average age of these patients was 12.7 years. The average duration of the disease before operation was 8.1 years. The average time which had elapsed after operation was 2.6 years. All were in poor condition before operation. The fusions were complete.

Three patients died of pneumonia. The average age of the patients was 5.3 years. The average duration

TABLE 5.—GENERAL CONDITION OF PATIENTS BEFORE OPERATION

Condition	No.	Condition	No.	Condition	No.
Poor	54	Fair	66	Good	37

TABLE 6.—DURATION OF TIME SINCE OPERATION

Time Elapsed,* Years	No. Cases	Time Elapsed,* Years	No. Cases
3½ to 4	40	6	51
5	46	7	20

*The average time was 5 years plus.

of disease before operation was 2.5 years. The average time that had elapsed after operation was four years. All were in good condition and the fusions perfect.

Three patients died of amyloidosis. The average age of these patients was 4.3 years. The average duration of disease before operation was 1.5 years. The average time which had elapsed after operation was 3.3 years. All were in poor condition at the time of operation. The fusions were complete. Two had abscesses which discharged until death. One closed before death.

Two patients died of heart disease. Their average age was 11½ years. The average duration of the Pott's disease before operation was six years. The average time which had elapsed after operation was four years. One was in good condition and the other in fair condition before operation. Fusion was complete in both cases.

One patient, aged 2 years, died of septic meningitis, following mastoid operation. The duration of Pott's disease before the operation was one year, and after operation, three years. The condition was good and the fusion perfect.

One died of miliary tuberculosis eight weeks after operation. This patient was in very poor condition before operation, having a large psoas abscess and pulmonary involvement. Three vertebrae were involved in the disease which had had a duration of one year. Necropsy showed a perfect fusion.

One other patient died of miliary tuberculosis four months after operation. This patient was also in very poor condition before operation. The duration of the disease had been one year and three vertebrae were involved. Two patients died six months after operation. One had tuberculous meningitis, and the other miliary tuberculosis. The remaining cases go to make up the general average of three years.

It will be interesting to note that the general average life of the patients who died after operation was three years, and it seems fair to suppose the operation may have prolonged their lives as it certainly contributed to their comfort.

Patients Still Living But Not Cured.—There are five patients living who are definitely not cured. Three have disease of the sacrum and two have fusions which are too short. Two of the sacral patients probably had the disease before operation as the fifth lumbar was partially destroyed, suggesting that the first sacral region was involved. According to our records, the third case showed involvement which included only the third lumbar region. Fusion was made to the fifth and symptoms did not clear up, so it is probable that the sacrum was involved at the time of the operation.

Patients with More than One Focus of Disease.—Three patients each had a double focus. One had both foci in the dorsal region, two had a focus each in the dorsal and the lumbar, and one developed a second focus in the lumbar region following operation for a focus in the dorsal. In two of the cases, both foci were included in the first operation, and the third patient was reoperated on for the second focus. Two of the patients were among the definitely cured. One is among the doubtful.

Cases Showing Cord Pressure Symptoms.—Of the total number of patients, thirty-five showed cord pressure symptoms. Of these twenty-six were completely paralyzed, and nine slightly spastic, with exaggerated reflexes. One was in the cervicodorsal region, twenty-two in the dorsal, eleven in the dorsolumbar, and one in the lumbar. Thirty of these cases were completely cured of their paralysis and Pott's disease, and are included among the cured cases. Of the five remaining, two are living and apparently cured of the disease, although still paralyzed. Three of them are dead, one of whom developed paralysis after operation, was reoperated on and died of amyloidosis. The other two died of miliary tuberculosis. Two of the dead had disease in the dorsal region, and the other in the lumbar. Of the two living, one patient had disease

in the dorsal and the other in the dorsolumbar region. The existence of paralysis is obviously no contraindication to operation.

Cases of Psoas Abscesses.—There were sixty-seven patients who had psoas abscesses. In fifty-six cases, the abscesses were single, and in eleven cases they were double. Twenty-three patients had dorsal disease, twenty-six had dorsolumbar, and seventeen lumbar. One had disease in the lumbosacral region.

Of these, forty-two patients were cured of the abscess, eleven of them being affected in the dorsal region, seventeen in the dorsolumbar, and twelve in the lumbar. Eight of the abscesses were double and thirty-six single.

Twenty-five patients were not cured. Ten were affected in the dorsal, nine in the dorsolumbar, five in the lumbar, and one in the lumbosacral region. In four cases in which the abscesses were double, one patient died of pulmonary tuberculosis, and three are among the doubtful cases. Nineteen were single. Ten of the single cases are among those classified as dead, and five among those classified as doubtful. Four patients remained the same.

The existence of abscess, whether open or closed, is no contraindication to operation, provided it is not in the field of operation.

Cases Complicated by Tuberculosis of Other Joints.—There were twenty-one cases complicated by tuberculosis of other joints. One patient had tuberculosis of the elbow, knee, and ankle. Pott's disease was apparently cured but the case is classified among the doubtful, the other joints being active. Three had involvement of the hip. One in whom the hip was not cured is classified among the doubtful. In the other two cases the hips were cured as well as the Pott's disease.

Twelve patients had knee joint involvement. In three patients the knees were not cured and in nine they were cured. In one case the disease developed after operation, the patient dying of miliary tuberculosis. In the other eleven cases, the Pott's disease was definitely cured and the patients are classified among the cured.

Two patients had involvement of the ankle. In one the ankle was cured and in the other it was not. In both cases the Pott's disease seemed cured, but only one is classified as such.

There were three cases of shoulder joint involvement. In neither patient was the shoulder cured, but in both, the Pott's disease was definitely cured and is so classified.

One patient had disease of the sternum. The Pott's disease was definitely cured and is so classified. The sternum was practically cured.

Cases of Fusion Found at Operation.—In thirty-four cases fusion of vertebrae was found at operation. The age of the patients in three cases was from 3 to 6 years; in ten cases from 6 to 9 years, in five cases from 9 to 12 years, in thirteen cases from 12 to 15 years, and in three cases more than 15 years. Four patients had dorsolumbar disease, six had lumbar, twenty-three dorsal, and one cervicodorsal. The duration of the disease at the time of operation was less than one year in two cases, from one to four years in two cases, from four to ten years in twenty-two cases; from ten to twenty years in eight cases. In five cases, fusion was found to include all the diseased vertebrae. In three of these cases, the disease was

dorsal, in one dorsolumbar, and in one lumbar. From two to eight vertebrae were involved. In eight cases fusion was found to include two vertebrae, in ten cases it included three, in two cases it included four, and in five cases it included five. In two cases six were included, in one case seven, and in another nine. Thirty of these patients are in excellent condition. One is in poor condition and is classified as not cured. Two have been lost track of, and another is still receiving treatment. These last three are classified as doubtful.

Postoperative Deformities.—In considering this aspect of the cases, we must remember that the transposition of the spinous processes immediately lessens the deformity in all cases. In seventeen of the cases, however, deformity has decreased more than can be explained by this fact. Six of these cases were in the lumbar region, and although the patients had definite deformity at the time of operation, they have absolutely none now. In 141 cases the deformity remained the same or was slightly less.

In thirty-six cases there was an increase of deformity. There was a slight increase in twenty-four of these cases. In fifteen of the twenty-four patients, the fusion was apparently short, though nine of the patients were definitely cured, and are so classified. Two of the nine were explored and the fusion found complete. One of the fifteen died of miliary tuberculosis. Three others were reoperated on, the fusion was extended and the symptoms subsided. The patients are classified as cured. The other two had disease of the laminae. The disease is probably still active and the cases are classified as doubtful. Nine patients showed a slight increase in deformity, although fusion was apparently complete. They are well and in school and classified as cured.

In twelve of the thirty-six patients, there was a marked increase in deformity. In eight the fusion was too short and in four there was a pseudarthrosis. Of these patients in whom the fusion was too short, five were reoperated on, and there has been no increase since. Of the remaining three, one is in bad shape and refuses reoperation. The other two were taken from the operating table without completion of the operative work. Both died later of miliary tuberculosis. In the four cases of pseudarthrosis, three of the patients were reoperated on and cured. The fourth was reoperated on but died later of amyloidosis.

A study of the region involved in these cases shows that nineteen were in the dorsal region, ten cases in the dorsolumbar, and three in the lumbar. Of the dorsolumbar cases three included involvement of the two lumbar vertebrae. The remaining seven included only the first. Two of the pseudarthroses were in the dorsal and two in the dorsolumbar. Those in the dorsolumbar region included involvement only of the first lumbar.

Eighty-three per cent. of the 210 cases showed less deformity or no increase.

Seventeen per cent. of the 210 showed an increase of deformity. Fifteen per cent. of these had fused areas that were too short and in 2 per cent. there was a failure of fusion at one point as evidenced by pseudarthrosis.

Results of Fusion Operation Where Duration of Disease Was Less Than Six Months.—It must be considered here, as in all the cases, that the parent's history as to duration is not entirely reliable. There

were seventeen cases. Thirteen patients are now in excellent condition although two had to be reoperated on for a short fusion. One was in excellent condition before he died of pneumonia. One we are unable to trace but was in fair condition when last seen. One is dead of miliary tuberculosis. One now has definite sacral disease. This gives a percentage of 82 cures as compared with the general average percentage of 75. It will be noted that eight of these seventeen patients had symptoms of cord pressure. All were cured. It is also interesting to note that one patient had a vertebral involvement of four. Eight cases had three, and eight had two vertebrae involved.

Patients in Very Poor Condition Before Operation.—In the 210 cases there were eighty-seven in poor condition before operation. Fifty-three of these are now in good condition and considered cured. Twenty are dead, two from pneumonia, both of whom were in good condition before death. Six have been lost track of. Two had pulmonary tuberculosis before operation and the disease is still active. Two are not in very good condition although one has apparently a perfect fusion and the other has a fusion that is short. One patient is still paralyzed but is in good condition. He is not considered cured. One has hip disease, and while the Pott's disease is apparently cured, it is not so considered. One has active disease of the sacrum and is counted among those not cured. The last one has heart disease, having been cured of Pott's disease.

Miscellaneous.—There were five patients with disease of the spinous processes and laminae. Two of these patients were affected in the dorsolumbar region. One of them is dead of miliary tuberculosis, with incomplete fusion, and the other is in good shape and has a perfect fusion. The other three patients were affected in the dorsal region. One patient is in fairly good condition with complete fusion. Another shows increased deformity and is not improved. The third has a short fusion. Only two of the patients are considered cured.

It is interesting to note here that disease of the spinous processes and laminae does not always prevent their fusion.

Patients Who Had Bone Graft.—Three patients in the series had had previous bone graft operations at other hospitals, one of which was done in the dorsal region, and the other two in the dorsolumbar. There was no fusion in any case, and all the patients had symptoms of active disease, one with six discharging sinuses from two psoas abscesses. In two cases, there was only a small piece of bone of the graft remaining in one spinous process. In one case there was a thin piece of continuous bone in the tips of three spinous processes. Perfect fusion was obtained in all three cases and the patients are among the cured.

The average age of patients of the whole group at the date of operation was 8.9 years. The average duration of disease before operation was 4.4 years.

CONCLUSION

This study gives convincing evidence that by this operation a fusion of the vertebrae may be obtained in every case in which a careful dissection is made, as in only four cases has fusion failed to take place at one point in the operated area, and in these it was undoubtedly due to imperfect operative technic. It seems equally convincing that the effect of fusion on these cases has been to hasten the cure of the dis-

ease and to limit the progress of the deformity. If this can be accomplished in a series of patients who had had the disease for an average of 4.4 years at the time of operation, is it not fair to conclude that had they been operated on earlier in the disease their cures would have been quicker and the deformity less, and does it not suggest that all cases of vertebral tuberculosis in any region of the spine should have a fusion operation at the earliest possible moment?

ABSTRACT OF DISCUSSION

DR. CHARLES M. JACOBS, Chicago: I have operated in only two cases of tuberculous spine disease by what I believed to be the Hibbs method. It then occurred to me that either there was something radically wrong with the method or with my technic. I went to New York, unfortunately finding Dr. Hibbs suffering from an attack of lumbago, and therefore was unable to see him operate. His assistant told me that to get an accurate idea of the technic of this operation it is necessary to see Dr. Hibbs operate, as there is as much difference between his "description of the operation and his technic as there is between darkness and daylight." Probably this is the reason why the Hibbs operation is not performed more often.

My surgical experience in tuberculous spine disease is based on the bone transplantation method. There can be no doubt that surgical measures for tuberculous spine disease are a great advance over conservative treatment, but they should be restricted to selected cases. Undoubtedly they shorten the period of disability. My own private patients seldom are operated on, because I believe that in children the length of time necessary to a cure plays no important part. If, however, treatment must be carried on beyond the average time, which is about four years, or if deformity continues to increase, then I advise operative procedure. My clinical patients are practically all subjected to operation, because they must regain health in the shortest possible time; therefore, conservative treatment in their case demands a sacrifice justified only by a necessity which I consider no longer exists.

In Dr. Hibbs' series of 210 cases taken from the New York Orthopedic Hospital and Dispensary, which, of course, are the poor class of patients, 157 patients were cured; in thirty-five cases there was paralysis and in a certain number cold abscesses occurred. Following his operation he stated that a brace was applied. I did not hear him state in what period of time a cure occurred, or how long the brace was applied.

I should like to ask Dr. Hibbs whether he operates in all cases of tuberculous spines—on private as well as dispensary patients—also, what effect his operation has on paralysis and abscesses. We know that children who are suffering from Pott's paraplegia usually get well on a Bradford frame without operation in an average period of one year.

DR. WILLIS C. CAMPBELL, Memphis, Tenn.: I have done only two of these operations. The trouble is in not seeing the operation after reading the description. It really is a difficult procedure, and one in which it is necessary to see the actual work before you can thoroughly understand it. One of my patients was a very poor risk, being quite old, and after operation I learned that he was a morphin habitué. He died of sepsis, of course, through no fault of the operation. In the other case, the laminae were diseased, also the spinous processes. In that case I obtained a good result. A plaster cast was applied and was worn six months. The patient has been without it now for over a year, without recurrence of symptoms. Of course, I do not class that patient as cured, because there has not been sufficient time.

There are five points of fusion in the Hibbs operation. I have often heard it said that the spinous processes will not unite; but even if they do not, there are the laminae on both sides, making two other points, and the articular processes, so that we have a chance of fusion at five points, with little chance of failure, if the work is done accurately.

DR. FRED J. GAENSLER, Milwaukee: Dr. Hibbs mentioned that in a number of his cases the lessening of the deformity

was greater than he could account for by the deflection of the posterior spinous process. I should like to know whether he thinks that growth was responsible for this improved appearance.

DR. HENRY B. THOMAS, Chicago: I have had a number of tuberculous spine cases in which I have operated according to the Hibbs method, guided by what Hibbs had written. I did not know his method thoroughly until I actually watched him operate. Now, after I have carefully studied nature's cure of tuberculous spines when not aided by operation, and seen in the skeleton how ankylosis probably began first around the laminae and the bases and tips of the spinous processes, and last about the necrotic bodies, I am convinced that what Dr. Hibbs does in his operation, in twenty or thirty minutes, is to prepare the field, the normal neighboring bone, for ankylosis, exactly as nature prepares it after the bodies of the vertebrae have given way so much by the decay as to allow the posterior parts of the spinal column to drop down so that they can rub off their periosteum and prepare for ankylosis. This is the beginning of fixation. Hibbs advocates a preparation in a few minutes' time which nature would require a year or so to complete. There is no doubt the first ankylosis which takes place is between good bone around the laminae posterior processes and in the articular processes. After nature gets that fixation by means of the good bone and removes the debris from the decayed bodies, these then, after a year or two, ankylose. In my judgment, if we have an operable case of Pott's disease, the Hibbs method is preferred.

DR. RUSSELL A. HIBBS, New York: In the first place, as to the question of whether the advice that I have given to the hospital patients applies to my private patients, let me say with all the emphasis possible, Yes. I have not a single private case of Pott's disease under my care today that has not been operated on in this way, and I do not want one. As to the effect of the operation on paralysis, of course, the operation, as such, has no effect on paralysis. The only effect it has is by its curative effect, if it has any, on the active tuberculous disease of the vertebrae. The operation has but one object, and that is the elimination of motion; and if by that it hastens the cure of the disease, it also hastens the cure of the paralysis and every other symptom of the disease; and if it does not hasten that, it does not hasten any of these things.

I have waited this long time before making a report of this work because it takes so long to see the final results, and only by and study of the final results can any fair estimate be made of the value of the operation.

Railroads and Malaria in the South.—R. C. Derivaux, of the United States Public Health Service, in *Public Health Reports*, Aug. 2, 1918, discusses the relation of the railroads in the South to the prevalence of malaria and its control. He shows that the railroads of the South have in many instances not only contributed to the spread of malaria by the promotion of conditions along the right-of-way which have fostered mosquito breeding, but they have also suffered economically from the morbidity from malaria among their employees. Recognizing this fact, many of the railroads have begun efforts to improve conditions in this respect. The St. Louis and South Western Railroad has taken up the matter of malaria prevention, and already has accomplished considerable in this direction. It was found that about 25 per cent. of all admissions to the hospital at Texarkana were for malaria. An average of 640 patients were treated for five days each year during the past four years. This was equivalent to about 4 per cent. of the total number of employees. Efforts at prevention were begun in 1917 at certain points along the line. In 1916, thirty-two malaria patients were admitted to the hospital at Texarkana; in 1917, following malaria work, only thirteen patients were admitted, a reduction of 59.4 per cent. The sale of quinin had decreased about 49 per cent. Among bridge and building gangs, whose bunk cars were screened, a reduction of 47.7 per cent. was obtained in the number of cases of malaria in 1917 over 1916. At one point in a small lumber community where malaria had been severe, after one year of work practically no malaria occurred, and the mill increased its output 20 per cent.

STATE RESPONSIBILITY AND AIMS IN
COUNTY HEALTH WORK *

J. N. HURTY, M.D.

INDIANAPOLIS

It is plain that most of the relations and responsibilities of states to counties are very different from the relations and responsibilities of the national government to states. In comparing national and state reciprocal responsibilities, therefore, we shall probably not find any facts or considerations to aid us. As counties are decreed, defined and empowered by states, we perforce recognize that state responsibilities are fundamental, and aims must be on high levels, not only in the matter of health, but in all ways.

Under our democratic form of government, the state should have a wise general health law, clearly prescribing duties and powers that counties should have for doing successful public health work. But the utmost possible freedom should be accorded to enable the inhabitants of counties to work out their own salvation according to their abilities. It would be necessary, for a state health law to secure live, progressive counties against the stupidity, blunders or inaction of those that might be slow or retrogressive. In other words, state responsibility requires that, under carefully defined conditions, the central power may proclaim for a county what is reasonable and necessary to protect the reasonable rights of other counties. All of this would truly be making democracy safe for the world, which is the first step in making the world safe for democracy. I believe the North Carolina health law very fully recognizes these principles, and under the present direction is achieving excellent results.

As speeding up is sometimes not only desirable but also necessary, I would consider it a responsibility for most states to command that counties or groups of counties should employ skilled all-time health officers, should follow a uniform outline or procedure in public health work, should give a fair living compensation, and provide a reasonable health fund, leaving open every reasonable opportunity for individual initiative. If these fundamentals are not secured, lopsided work for the whole state area would most probably result, and a state map showing results might be as spotted as a leopard.

It is not enough that, for their health work, counties should be held accountable only to themselves; the state, therefore, should command an accounting because of state responsibility. This accords with the accepted principle that "No man can live by himself alone." Undoubtedly, very full initiative and freedom should be accorded, but the limitations outlined are responsibilities which states surely carry.

I believe that a state's responsibility extends to providing for sloughing off incompetency in county officialdom, and therefore, if a county does not slough off its incompetent officials, then the state should attend to this important matter, which is essential to all successful government. Again, it is necessary that health officials, as well as all other officials, should keep up with the times. Present day statesmanship, therefore, recognizes as the first requirement of progress a constant reexamination of the entire structure of government to see if its fundamentals are correct and if the various parts are doing the work assigned

to them. Perhaps we heard in years past too much of freedom and liberty and independence, and not enough about fulfilment of duty and obligation of service. These momentous days have brought quickly the lessons of mutual dependence, and they must instil the idea of discipline.

Still, that is not enough. To a new degree we must be interested in each other. The parents who raise a family of sturdy defenders of the nation will be assured that other parents are doing as much, so that their own labor will not have been in vain.

These general thoughts have application to a set of facts brought to light in the public health administration of Ohio outside of the larger cities. The state health authorities say it is almost worse than nothing in rural districts, and the same authorities of Indiana have testified to almost like effect as to the same conditions in that state.

This is a new offense to be charged to the rural districts whose representatives are constantly ready to represent the cities as centers of evil. Perils of typhoid and other infections, perils of child neglect and of blighting disease, certainly come in no small degree from the country to the city. Here is a state responsibility in county health work. The larger cities are keenly interested in their health departments and in having trained health officials, and city people now loudly demand the ministrations of hygiene. On the other hand, it has been shown that the administrative health positions in the county areas go to those who have done political work or who are appointed because of political affiliations. It is plain that the larger cities with lower morbidity and mortality rates and better care of infants and children will not long submit to surrounding unhygienic conditions.

A method of this character cannot endure, and the wildest dream of liberty would not wish its continuance. Rural domination over cities has long been submitted to, but now things have come to such a pass that for self-protection in health affairs, cities will have an interest in and insist on better rural hygiene. Likewise, it is time to do away with a system that does harm to both city and country.

If counties will not, after instruction, do that which is necessary for their own and their neighbors' health and comfort, then it will be the state's responsibility to take up the work.

As to state aims in county health work, it has already been said that aims must be high and noble. The first principle is that the people must secure better health and still better health, mostly through individual hygiene. The submerged, the almost submerged, and those whose heads just protrude above the flood of incompetence and ignorance, must be forced to be virtuous and to keep in the narrow path of health. Those who are only waist deep in the same flood may be instructed and led, and those who ride on the flood will be doers, instructors and leaders. The strong man does not need looking after, for he looks after himself and others. At the same time the strong man is to blame for the ills of society, for he is the only hope for their prevention. And let us note here that custodial care of the victims of the neglect of hygiene will not make health for a people. The state aims in county health work are the same as for everywhere else, namely, to cease the fostering of the production of low-grade nonresisting stock, for the individuals of such stock cannot learn and will not conform to the laws of their well being.

* Read before the Section on Preventive Medicine and Public Health at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

ABSTRACT OF DISCUSSION

CAPTAIN RÉNÉ SAND, Belgium: One of the principal effects of the war is to have demonstrated to the authorities and to the nation at large how desirable, useful and even indispensable public health work is. Of course, I consider the problem differently from what you do because you have immediate necessities and we, in Belgium, look forward only to the situation as it will be after the war. Therefore our views are necessarily more general. After the war we will have to enlist in the public health service every physician of the country. I do not know, of course, exactly what the situation is here, but I think that finally if you consider every phase of the problem the best way to have good health service, to have hygiene entering into every household, would be to make every doctor in the country, at least every doctor who is willing to do so, an agent of the public health service and to give him some remuneration for his services. We see in our country, and it is the same in France and other continental countries, a certain amount I would not say of diffidence, but nevertheless the public health service goes along more or less indifferently with the general practitioner, while if you would put the general practitioner in direct touch with the public health service, give him a great amount of information, call him to meetings with the public health officials and give him a scientific, a civic and also a pecuniary interest in the work, I think you would have a much greater spreading effect than by many other methods. In some of your states you have a sort of house to house visit in order to convince the citizens of the necessity of improving the health of their dwellings and their general habits. Who can do that better than the general practitioner? If you ask him to do that for every one of his patients he will tell you he has not the time to do it, that he must earn his living. If you interest him by giving him some remuneration, then, of course, his argument will fall and he will be your helper. I think the two great defects of actual medical practice are, first, that the practitioner is able in many cases to have the experts at his disposition and, second, that we have not the organization at present on the large scale that it should be.

MR. F. L. HOFFMAN, Newark, N. J.: The question which has been raised by Captain Sand of the Belgian Industrial Commission is indeed a most important as well as practical one to the American people at the present time. It is quite probable that one of the unforeseen consequences of the war will be a restored Belgium, in which all matters of health and medical administration will be raised to a standard such as has heretofore been considered unattainable. The new Belgium will be confronted by the imperative necessity for the practically immediate solution of health problems which have given us such serious concern during recent years. New diseases will have been introduced in consequence of the war, not the last and least of which, malaria, may prove a future health problem of sufficient importance to demand the introduction of preventive measures, which have been found so successful in this and other countries where the disease prevails to a more or less serious degree. Belgium before the war had a reasonably satisfactory public health administration, but it is probably a foregone conclusion that with a depleted medical staff and diminished financial resources, a most rigid economy will be necessary in the medical and institutional care of the Belgian people. It is, therefore, quite readily conceivable that some plan of coordinated state health and medical administration may come into existence, under which the large majority of the people will be provided for as regards their medical and surgical needs at minimum expense. In England a similar tendency has developed in consequence of the war and urgent demands are being made for a ministry of health with its functions intelligently coordinated to the needs of the people for adequate and efficient medical and institutional treatment at minimum cost. Such a system of state medicine is, however, a question of taxation and not of insurance. The paramount duty is to eliminate at the outset all unnecessary bureaucratic organizations which have so largely become the means or methods of oppression and ruthless government control in the German empire. First and last, however, the question is one of prevention rather than of treatment and

cure. It is to be hoped that Belgium will be the first nation after the war to establish a really efficient state health administration, having for its main purpose the prevention of any and all diseases, as well as physical defects and deformities, which can be dealt with rationally and effectively by the state. It would be a calamity if such a worthy purpose were to be interfered with, or perhaps partially defeated by a continued imitation of the German fallacy of compulsory insurance. The more thoroughly the details of this aspect of the question are inquired into by those qualified to do so, the more convincing the conclusion that the problem is one of efficient administration on the one hand, and of equitable taxation on the other, and neither by direction or indirection one of insurance in the accepted sense of the term.

DR. JAMES A. HAYNE, Columbia, S. C.: In 1878 we endeavored in South Carolina to have the entire medical profession interested in public health work. We created a state board of health and that state board of health is the South Carolina Medical Association. It has about 700 members, practically every worth-while doctor in South Carolina. Our legislators at that time thought that that would certainly interest all the medical profession of the state in public health work, and it not only did that but it read into the constitution of the state these words, that the State Board of Health of South Carolina shall be the sole advisors of the citizens of the state in matters pertaining to health. It put the responsibility where it belongs, on the medical profession, and put the advice-giving authority where it belongs, with the medical profession. Of course, since that time a great many other agencies have sprung up to give advice to the people on public health that are not always confined to the medical profession. Whether they give good advice or not is a matter of a great deal of difference of opinion. In regard to state medicine the only opportunity I ever had to study that was when I was on the Isthmus of Panama where every doctor was employed by the United States government, and he was assigned to a certain district. A certain force was assigned to that district. Any visit made by the doctor was paid for by the United States government. The person he visited, if he was not an employee, signed a receipt for that visit. The money was collected out of that man's salary, and not paid to the physician who made the visit but it was paid back into the engineering fund to help the building of the canal. Now, you may say that the physician did not care whether he visited the patient or not or whether the patient got well or not, because the doctor got nothing more for it if he paid the patient ten visits than if he paid him one, so he would neglect his patients by paying only one visit. There was a check on that, however. Each district had to report to the chief sanitary officer every morning showing the health conditions in that district for the previous twenty-four hours, and if there was an increase of any disease, he was immediately called on the telephone to know why his district had gone above the normal rate. He was told that if he could not correct those conditions to ask for aid from the chief sanitary officer and help would be sent him and in that way the normal of disease or average amount of disease in his district would be kept down.

Results of the Children's Year Program in California.—In the weighing and measuring drive of the Children's Year national program in California, in June and July, between 40,000 and 50,000 record cards were distributed, and to September, 1918, 40,863 of these had been returned to the state chairman of the Children's Year Committee. These report on children of less than 6 years of age and it is said more are to be received. In a tabulated statement in the *California State Journal of Medicine* for September, 1918, Dr. Adelaide Brown, San Francisco, chairman of the committee, shows that of the total number of records received 32,167 have been analyzed. The number of children who had tonsils and adenoids requiring operation was 10,133, or 31 per cent. The total number of defects of all characters was 15,261, or 47 per cent. Of the 29,917 cards tabulated for height and weight, the number of children below normal height and weight was 8,731, or 29 per cent. The total for defective teeth was 1,678, or 6 per cent., of the 27,407 cards analyzed in that study.

Clinical Notes, Suggestions, and
New Instruments

THE USE OF OXALATED AND CITRATED BLOOD FOR
ROUTINE CLASS STUDY*

FREDERICK HOWARD FALLS, M.S., M.D., CHICAGO

The problem of presenting to students various pathologic blood specimens in connection with clinical laboratory work is often one of considerable difficulty. This is especially true of colleges which have a small teaching hospital or none at all, or which are far removed from the large medical centers. Ideally, of course, each student should come in contact with the various diseases studied and observe the blood picture in connection with the other symptoms of the disease. Even in the more fortunately located institutions with attached teaching hospitals, it is sometimes impossible to bring the students in contact with the patients having blood diseases, because of the size of the classes and because of the inconvenience afforded to patients who may be severely sick at the time of the examination.

These objections have been met in the past by obtaining blood smears in the usual way and passing them out stained or unstained to the student, or by means of loan collections owned and cared for by the department. Obviously a complete blood examination including red and white counts and hemoglobin estimation is impossible under these conditions. Besides, the student is deprived of the opportunity to make smears personally, which is an important technical point in routine blood examination.

Failing the ideal bedside study of the blood picture, an approximation may be sought by furnishing the blood to the student for examination in practically the same condition that it exists in the patient so that he can make his various smears and dilutions at some distance from the case. This can be very satisfactorily met by the following simple procedure: A few crystals of sodium citrate or sodium oxalate are placed in a 10 c.c. Luer syringe, and blood is withdrawn from the median basilic vein in the usual manner. On entering the barrel of the syringe the blood plasma dissolves the citrate, and this effectually prevents the clotting of the blood. The blood is then blown out into sterile tubes and kept in a cool place until ready for use. Blood may be kept for hours by this method without undergoing any appreciable change either in its cell count or in the staining reactions of the individual cells.

The blood is then studied in the routine way that the student has used in the study of normal blood, and such details as concern symptoms, the diagnostic significance of the blood picture or any others which in the opinion of the instructor will add to the value of the exercise are added.

By this method I have studied specimens from cases of pernicious anemia, leukemia, lymphatic and myelogenous, malaria, trichinosis, secondary anemia, and cases with varying grades of leukocytosis.

Red and white counts and hemoglobin estimations have been made both before and after treating the blood with oxalate. Differential counts were made on stained smears from oxalated or citrated blood, and no differences in the staining properties could be detected. One point is to be noted in making red and white counts: On standing even for a few minutes, there is a marked tendency for the corpuscles to settle out of the citrated plasma. If then a blood count pipet is introduced into the tube and blood from the upper layer is taken, the count will be found to be less than that of the uncitrated blood of the same patient. If, on the other hand, the pipet is introduced to the bottom of the tube, the blood count will be found to be above normal. It is necessary, therefore, to shake up the citrated blood thoroughly, immediately before making a red or white blood count, in order to get a uniform admixture of cells and to estimate the true number per cubic millimeter.

* From the Departments of Pathology and Bacteriology and of Obstetrics, University of Illinois College of Medicine.

It is considered advisable to use the crystals rather than solutions of sodium oxalate or citrate in order to minimize the changes in the quantitative determinations due to dilution of the sample, especially in making the red and white counts.

CONCLUSIONS

1. The use of oxalated or citrated blood for routine class study is practical and desirable.
2. No differences in staining reactions or in making red or white blood counts could be detected when using oxalated or citrated blood as compared with normal fresh blood.
3. These conclusions hold for the pathologic blood studied as well as for normal blood.

A CONVENIENT METHOD FOR FILING SURGICAL SECTIONS*

W. L. ROBINSON, B.A., M.B., TORONTO

We have experienced considerable difficulty in keeping our surgical sections properly filed in such manner that they might at all times be readily accessible, and at the same time have proper notes filed with them which could be indexed and cross-indexed.

The filing of the sections in one set of drawers and the cards, with notes on these sections, in other drawers is not

Toronto General Hospital. DEPARTMENT OF PATHOLOGY	
LAB. No.	DIAGNOSIS
MATERIAL	DATE
NAME	AGE
SURGEON	WARD
CLINICAL HISTORY	
GROSS SPECIMEN	
MICROSCOPIC REPORT	



Filing card with section.

only an inconvenience but also involves unnecessary work. To obviate this we have mounted the section on the back of the filing card, in which a hole has been punched, to enable one to examine the section under the microscope while it is still attached to the card. An ordinary filing card, 4 by 6 inches, is used, and a hole seven-eighths inch in diameter is made with a steel punch in the center of the lower margin. The section is then pasted to the back of the card with cover-slip side toward, and just under, the hole with two short pieces of passe-partout seven-eighths inch wide. This will hold the section firmly to the card, and it can be handled freely without danger of detaching the section.

MODE OF PROCEDURE

One of these cards is filled out and the specimen given a serial number just as soon as it is brought to the laboratory. A synopsis of the clinical history is written and a gross description made. When the section is through, the technician pastes it on the back of this card, using blank cards for any extra sections there might be. They are then brought in for histologic description and diagnosis. A complete report is made out from this, in triplicate, by the stenographer. The cards with sections attached are then filed, according to serial number, in ordinary filing cabinets. One copy of the report is then filed alphabetically in our laboratory, with cross-index

* From the Department of Pathology, Toronto General Hospital.

to the section. Another copy is sent to the ward and attached to the patient's chart; the third copy is sent to the attending surgeon.

We have been using this method for filing sections for some time and have found it entirely satisfactory.

REPORT OF A CASE OF FOREIGN BODY IN LEFT MAIN BRONCHUS FOR TEN YEARS

THOMAS HUBBARD, M.D., TOLEDO, OHIO

L. W. aspirated an old, somewhat irregular three-quarter inch staple when she was 9 years of age. At that time she was recovering from measles. She developed bronchopneumonia with subsequent abscesses and occasional hemorrhages. She was not able to attend school on account of feebleness and constant coughing of foul-smelling sputum. For ten years she passed a wretched existence.

For some unaccountable reason, no roentgen examination was made by any of the six physicians consulted during this ten-year period, and the patient was subjected to all kinds of consumption remedies in spite of the oft-told story of the accident. The family moved to Toledo, and at the Thalian Dispensary, Dr. Rabenoyich became suspicious that she was not tuberculous. Roentgenoscopy by Mr. Dachtler revealed the cause of the lung trouble. The staple was clearly outlined in the lower left bronchus, with the points upward. There was very little of the lung capable of function, and the left thorax was shrunk. The patient was anemic and underweight, and had clubbed fingers and subnormal temperature.

I treated her for two weeks by intratracheal injections of 2 per cent. menthol guaiacol in liquid petrolatum, with the object of evacuating the cavity containing foul mucopurulent accumulation. This treatment was of considerable benefit and made operation easier.

June 4, a preliminary tracheotomy under local anesthesia was done by Dr. Jacobson, and then I could evacuate the bronchial reservoir by direct aspiration through a catheter. Removal was not attempted at that time, as I considered it inadvisable to follow morphin-procain narcosis with ether. Even after cocainization, the bronchial tract was very sensitive, and in a patient so long habituated to coughing it was not possible to secure the quiet condition necessary to safe extraction.

Operation was performed two days later. Aspiration of mucopus was done prior to and during ether anesthesia to prevent the flooding of the sound lung—a not infrequent cause of death under anesthesia in patients having such a bronchorrhea.¹

Offensive pus and blood—half a pint or more, quite enough to flood the sound lung—was aspirated as anesthetization progressed, and then only did it seem safe to push narcosis in the supine posture to the point at which one could work in a quiet bronchus. Dr. Price skilfully pushed anesthesia to the limit of safety, and I was able to pass the tube to the region of the foreign body without the usual amount of coughing. The bronchus was strictured by granulations, and I could get only the baby-sized forceps through. I locked on the lower point of the staple, and in withdrawing it pulled out the granulation mass above it and that ingrown with the iron oxid and pyrites. It was extracted apparently intact, but later the patient coughed out one piece of the iron compound as large as a pea. The mass was cokelike, friable, and measured 1 cm. lateral by 0.5 cm. anteroposterior by 2 cm. in length. The outlines of the wire were visible in spots. I have no doubt that it would all crumble into fragments if a crushing forceps grasped it in the center with only the ingrown granulation tissue to hold it together.

1. It is necessary to have an aspiration apparatus that will give from 5 to 10 pounds negative pressure, as mucopus is liable to clog a tube. I prefer the suction syringe with wash bottle. Some negative pressure air gages are standardized to centimeters of mercury and not pounds, as often interpreted. For instance, such a gage reads "fifteen." That equals only 6 inches of mercury or 3 pounds pressure. A good aspiration syringe of 8 ounce capacity, leather washers lubricated by neat's foot oil (never by a hydrocarbon oil, as that hardens leather) and a pint wash bottle make a perfect aspirating outfit for any throat or lung work.

The points were thinned out and flexible. I mention this as the roentgenogram gave the impression that we had the problem of preventing the points from catching on extraction, and I planned to attempt turning if that happened. But in the case of an old staple, with the galvanized coating gone, melted away in rust and pyrites (ferric sulphid), and the points eaten away, properly grasped at the open end it was simply a matter of coaxing the mass out intact and without losing fragments in the sound bronchus.

The sputum gradually became odorless, and in a month the patient was coughing only once a day. Six weeks later there was very little expectoration; she had gained 6 pounds in weight, had only an inconspicuous scar, and the left lung was functioning fairly well, considering the area of lung tissue actually destroyed. There is no bronchial stenosis in evidence as yet.

COMMENT

Tracheotomy was indicated in this case to make easier the evacuation of the mucopus in the lung whereby the field was cleared and the foreign body properly grasped, and also as a protection to the operator. There was danger of losing the foreign body, or part of it, at the laryngeal isthmus, in which case it would probably have dropped back into the sound lung.

Perfect facilities for aspiration made ether narcosis safe, and in consideration of probable complications in extraction, such as necessity for turning, or a fibrous stricture of the bronchus, absence of tumultuous coughing was a factor in safety.

Without tracheotomy and direct aspiration of the accumulation of mucopus, general anesthesia would not have been safe, and I should add that by preliminary tracheotomy and repeated aspirations the anesthesia was made easy and the time very short.

The suspension method was considered; but here, again, the difficulty of preventing flooding of the sound lung made this impracticable.

A CASE OF TRAUMATIC RUPTURE OF THE KIDNEY WITH DELAYED HEMATURIA

ROBERT W. ANGEVINE, B.S., M.D., ROCHESTER, N. Y.
First Lieutenant, M. R. C., U. S. Army.

A case of traumatic kidney rupture, showing almost immediate abdominal signs but delayed urinary findings, was recently observed by the surgical service of the Rochester General Hospital.

A girl, aged 8 years, of Italian birth, was carried to the children's pavilion of the hospital, complaining of pain in the back. According to the history, the child had stepped into an open coal-hole and had fallen 12 feet into a cellar, striking on a dirt floor. The girl was unable to tell of the details as to whether or not she struck a protruding ledge or post. The history further states that she was stunned and had vomited once. She managed to walk home after the accident, but the mother noted that she became listless and complained more and more of pain in the lower part of the back.

On admission to the ward, eight hours after the fall, the child was restless and evidently in severe pain. There was no area of ecchymosis over the iliac crest on either side, but deep palpation in the kidney regions elicited tenderness only on the right side. There was no rigidity in the costo-vertebral region. Examination of the abdomen revealed a slight degree of distention, but there was no spasm or rigidity of the abdominal musculature. Flatness to percussion was evident in both flanks, and in the lower flank when the patient was rolled on either side. An indefinite fluid wave could be made out.

The leukocyte count gave a figure of 12,000. There were 4,400,000 red cells per cubic millimeter. The urinary findings were negative. No blood was noted in a microscopic examination of an apparently normal stool. The systolic blood pressure was taken as 105, and the diastolic as 60. Temperature was recorded as 101.4; pulse 120, and respirations 24.

At 9 o'clock in the evening the child was noted as being more restless than earlier in the day, and the pallor of the skin and mucous membranes and rising pulse suggested increase in hemorrhage. The pulse was taken as 140.

Laparotomy was decided on. At 10 p. m. Dr. Joseph W. McGill operated under ether anesthesia. A 4-inch incision was made outside of the right rectus muscle, liver or intestinal injury as well as perirenal trouble being suspected. Free blood, containing many large clots, was present in the abdominal cavity. Examination of the bladder, intestines and liver disclosed nothing. The posterior peritoneum of the right side was raised by the pressure of the blood and was loosely applied to the parietes. In the region of the cecum the posterior peritoneum was bulging over a large hematoma. Above this point there was a tear in the peritoneum.

After palpation of both kidneys, and swabbing out the major portion of the blood from the general abdominal cavity, the peritoneum of the right posterior wall was stitched in place and the abdomen closed, one drain being directed through a stab incision in the right lower quadrant to the retroperitoneal area, and the peritoneum sutured around it. The pelvis also was drained.

After operation the temperature rose slightly, reaching 102.6 on the following day. The urinary findings were still negative. On the sixth day after operation, after both drain tubes had been withdrawn, the pathologic report on the urine indicated some microscopic blood present in the sample. Macroscopic blood was noted the following day. The amount of blood increased daily until, on the tenth day after operation, the urinary specimen showed a large proportion of blood. The blood content then gradually decreased until the specimen was reported as negative on the twenty-second day. Hexamethylenamin was given in 3-grain doses on the first day of urinary signs, and was continued until the report was returned negative. The hematuria was not considered to warrant operation, as it was assumed that the contusion or laceration would heal spontaneously. A subsequent true nephritis was not considered probable in the prognosis.

The child coughed a little on entrance to the hospital, and the suggestion was made that this might be attributed to diaphragmatic irritation. This cough disappeared without special treatment during the stay in the hospital. The child sat up in a chair on the twenty-fourth day; was pushing herself around the ward in a wheel chair on the twenty-sixth day, and was up and around on the twenty-eighth day after operation. Since discharge the child has been doing well and no complications have been reported.

ACUTE POISONING BY FIVE GRAINS OF ACETYSALICYLIC ACID—"ASPIRIN"

EDMUND P. SHELBY, M.D., NEW YORK

Attending Physician, City Hospital

The following report shows that some persons are peculiarly susceptible to the effect of acetylsalicylic acid—"aspirin":

Miss A., a strong, vigorous woman, aged 32, weighing 140 pounds, consulted me about indefinite pains in the back and chest which followed a slight sore throat. I prescribed aspirin in 5-grain capsules. The first capsule, of the Bayer brand of acetylsalicylic acid, was taken at 12:15. Forty-five minutes later the patient felt an itching of the scalp, swelling of the hands, and white blotches appeared over the face and body. In a few minutes the eyes were swollen and closed and violent irritation of the larynx set in.

I was hastily summoned and found the patient unable to speak and with marked interference with breathing. The face was hardly recognizable, and the obstruction of the larynx was very alarming. The pulse was rapid and the breathing spasmodic. The question of tracheotomy for the relief of the laryngeal obstruction was considered.

Before my arrival the patient had taken half an ounce of Epsom salt. This soon brought on nausea and a small amount of liquid was vomited, after which the patient fainted. On her return to consciousness the rash began to fade, the breathing became less labored, and the swelling of the eyes subsided. By 3 o'clock, two hours and forty minutes from the time she had taken the acetylsalicylic acid, the patient was fairly comfortable, could open her eyes and speak. At that time the temperature was 98.6, respiration 20, pulse 92.

A rapid return to normal followed. The next day no ill effects were apparent.

That these symptoms were caused by the acetylsalicylic acid there can be no doubt, as the patient had not partaken of food or of other medicine since the night before. Unusual susceptibility to the action of salicylates has often been noted, but I do not recall a case in which so small a dose has produced such marked symptoms.

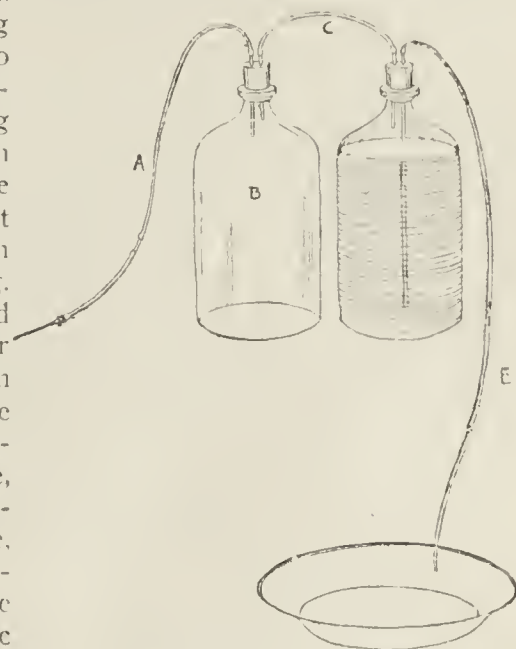
116 West Seventy-Fourth Street.

AN ASPIRATOR FOR PARACENTESIS

H. C. STEVENS, M.D., DUNNING, ILL.

Many forms of apparatus have been devised to create a vacuum sufficient to withdraw fluid from the pleural cavities. The Pétain system is effective when the parts are new. It has the disadvantage characteristic of all complicated mechanisms of easily getting out of order. The two chief difficulties, aside from expense, which we have experienced have been (1) in the valves of the pump, which have failed to close properly, and (2) in leakage about the hard rubber stopper of the bottle. The latter trouble is probably due to changes in the rubber incident to age. To obviate these difficulties, we have devised a simple apparatus which produces suction by means of a siphon.

Any hospital possessing two 2-liter bottles, two two-way rubber stoppers, some glass tubing and rubber tubing can assemble an effective aspirator in a very short time. The construction is shown in the drawing. A 2-liter bottle, provided with a two-way rubber stopper, is filled with water and serves as the siphon. In the illustration, *D*, with the tube, *E*, performs this function. A similar bottle, *B*, is sterilized by boiling, together with the tubes *A* and *C*. Bottle *B* is used to collect the effusion. Rubber tubing with an inside diameter of 4 mm. is used. A blunt trocar with a sharp obturator, or a smaller steel needle may be used. A "window" consisting of 2 cm. of glass tubing is inserted into tube *A*, a short distance from the needle. Tube *E* is filled with water and clamped, or allowed to kink from its own weight, at the point where it is connected with the glass tube. If the latter method is followed, simply raising tube *E* will cause the siphon to run; lowering it will stop it. In performing paracentesis, *A*, *B*, *C* and the needle are sterilized by boiling. The siphon is started and then stopped. Puncture is made in the manner, and at the site, preferred by the operator. An assistant starts the siphon as soon as the needle enters the pleural cavity.



Aspirator for paracentesis.

Chicago State Hospital.

The Human Thought Mechanism.—The intellect cannot examine any fact of matter or energy directly. The telephone mechanism of the senses is always in between. Like the fire officer in the war, we live in a dugout, the dark dugout of the cranial cavity. Our news comes in over the wires or afferent nerves. Our news is never complete, for our sense organs are not adapted to all the forces of nature. Our news is often faulty because the sense organs or the transmission is imperfect. Often we fail to get messages because our receiving operators are indolent, or doing other things. Moreover, if we get the news straight, we may not use it right; that is, make the right conclusion or judgment.—E. P. Lyon, *Texas State Journal of Medicine*.

MEDICAL STUDIES IN AVIATION*

[NOTE.—This series of papers represents the results of investigations made at the Medical Research Laboratory, Air Service, Mineola, L. I. It concerns particularly the protection of aviators against the effects of high altitudes, low barometric pressure and deficiency of oxygen.—Ed.]

I. ORGANIZATION AND OBJECTS OF THE
MEDICAL RESEARCH BOARD, AIR
SERVICE, U. S. ARMY†

YANDELL HENDERSON, PH.D. (NEW HAVEN, CONN.)

AND

E. G. SEIBERT, M.D. (WASHINGTON, D. C.)

Lieutenant-Colonel, M. C., N. A.

MINEOLA, L. I., N. Y.

The Medical Research Board was organized early in the autumn of 1917, "to investigate all conditions which affect the efficiency of pilots; to institute and carry out at flying schools or elsewhere such experiments and tests as will determine the ability of pilots to fly in high altitudes; to carry out experiments to provide suitable apparatus for the supply of oxygen to pilots in high altitudes; to act as a standing medical board for the consideration of all matters relating to the physical fitness of pilots." The equipment controlled by the board consists of a large and constantly expanding laboratory for research and teaching at one of the principal eastern flying fields, and of smaller branch laboratories for examining purposes already at work or being organized at twenty other flying fields and ground schools. In the main laboratory, departments have been organized in physiology, cardiovascular functions, psychology, ophthalmology, otology and psychiatry and neurology.

The general purpose of the organization is the study of the effects on the aviator of the peculiar conditions involved in flying. Among these the effect of altitude, that is, of altered barometric pressure, has presented itself as the one of most immediate importance. This series of papers will present a general oversight of the results on altitude thus far accomplished.

In this field four problems demand solution:

1. The cause and nature of the failure, physiologic or psychologic, or both, on the part of the pilot which frequently precedes a fall.

2. The development of a method for determining the maximum altitude to which each individual pilot can ascend without danger of such failure.

3. The development of forms of physical training for increasing the resistance of the pilot to the ill effects of altitude, and for maintaining him in a state, not of acclimatization to great altitude like the mountaineer, but rather in the perfect physical condition of the athlete.

4. A deeper knowledge of the nature of air staleness—a condition closely similar to athletic "overtraining," and to the so-called "irritable heart" or neurasthenia of the overstrained soldier.

We are now able to report an approximate solution of the first problem and a complete solution of the

second. The third and fourth remain for further investigation from the starting point defined by these studies.

The results of previous investigations, from those of Paul Bert down to those of the Pike's Peak Expedition, had demonstrated clearly that the essential element in the effects of low barometric pressure, that is, great altitudes, on men consists in the reduced partial pressure of oxygen. Mountain sickness had been shown to be fundamentally due, not to the merely mechanical effects of decreased air pressure in the ears and on the blood vessels, but to oxygen deficiency. It was a fair presumption, therefore, from which to start investigation that the same thing would hold true in general of the functional disturbances of the aviator, although some modification of the symptoms might arise from the differences between mountaineering and aviation. These differences evidently consist in the aviator's more rapid ascent and descent, in the greater altitudes reached, and in the briefer period for which he remains at the altitude.

Previous investigations, notably those of the Pike's Peak Expedition, were directed largely to discovering the nature of acclimatization to altitudes. The length of time during which the aviator remains at altitudes is, however, too brief for any appreciable degree of acclimatization to be developed. On the contrary, day by day the brief but repeated strain of oxygen deficiency—a strain much like that of athletic overexertion—produces a cumulative ill effect on the aviator of the higher levels, until, if his condition is not recognized and his flying stopped, he one day loses consciousness at a great height, and falls. For the aviator is essentially an unacclimatized man, and must depend on the capacities of the healthy body adjusted only to the level of his hangar and his quarters. Our investigations have dealt, therefore, not with acclimatization, but with a hitherto largely neglected problem, namely, the organism's immediate compensatory reactions to oxygen deficiency.

In another class of accidents and near-accidents, the pilot's failure occurs near the end of a rapid descent. Often he has no recollection of how the crash occurred; he had lost consciousness, was asleep. This is highly significant; for this is a state which is induced by an ample supply of oxygen, or fresh air at full pressure, after a period of deprivation. As yet undescribed in the literature, so far as we are aware, and largely unexplained, this interval of unconsciousness, or collapse, or sometimes of excitement and loss of balance physical and mental of alcoholic type, is nevertheless a phenomenon often met by students of the low oxygen problem. It occurs in a wide variety of conditions: in miners escaping from "after-damp," in city firemen after coming out of smoke, in the older types of submarines on opening the hatches after submergence, in persons who are given oxygen after overexertion on a

* Edited by Yandell Henderson, chairman, Medical Research Board.

† From the Medical Research Laboratory, Air Service, Mineola, L. I.

mountain, and after low oxygen experiments in the laboratory. But in none of these conditions are the consequences so serious as for the aviator, when, after remaining for a time at a height greater than he can safely withstand, he makes a rapid descent to denser air. Then, just as he is about to land and needs all his faculties at their best, he develops this oxygen intoxication as the rebound from oxygen deficiency.

Laboratory experience had shown that to produce the acute effects of oxygen deficiency it is not necessary to climb a mountain or to go up in a plane, or even to be exposed to low barometric pressure. The result is easily accomplished at sea level by breathing into an apparatus consisting of a spirometer and a canister containing alkali. The exhaled carbon dioxide is absorbed by the alkali, while the oxygen is gradually reduced by the continual re-breathing. An apparatus of this sort, the so-called rebreathing apparatus, has been in use for some years past in the physiologic laboratory at the Yale Medical School as a simple and ready method of studying what are virtually the effects of altitude.

Accordingly, as a preliminary to our work, the first step taken by the physiologic division was to perfect the rebreathing apparatus for routine use. Then followed several months of investigation to determine which of the autonomic functions of the body, e. g., the pulse and the arterial pressure, are most affected by low oxygen. Simultaneously the psychologic and ophthalmologic divisions perfected the apparatus and technic for observation, measurement, and record of motor and sensory disturbances.

Later, a steel chamber large enough to hold six or eight men at once and an air pump were installed, so that observations could be made under any desired reduction of air pressure. The effects observed at pressures equivalent to those attained in actual flying are described in the papers that follow. One experiment, however, deserves mention here. Two men were exposed to a minimum pressure equivalent to an altitude of 35,000 feet (barometer, 180 mm. of mercury). They were supplied with an oxygen apparatus, for air of this tenuity is incompatible with consciousness or even life, and they experienced no ill effects. In a word, these and similar observations have demonstrated that (1) the effects of altitude and low barometric pressure arise from deficiency of oxygen, and (2) in all essential features the conditions obtained

by means of the rebreathing apparatus are the physiologic equivalents of low pressure.

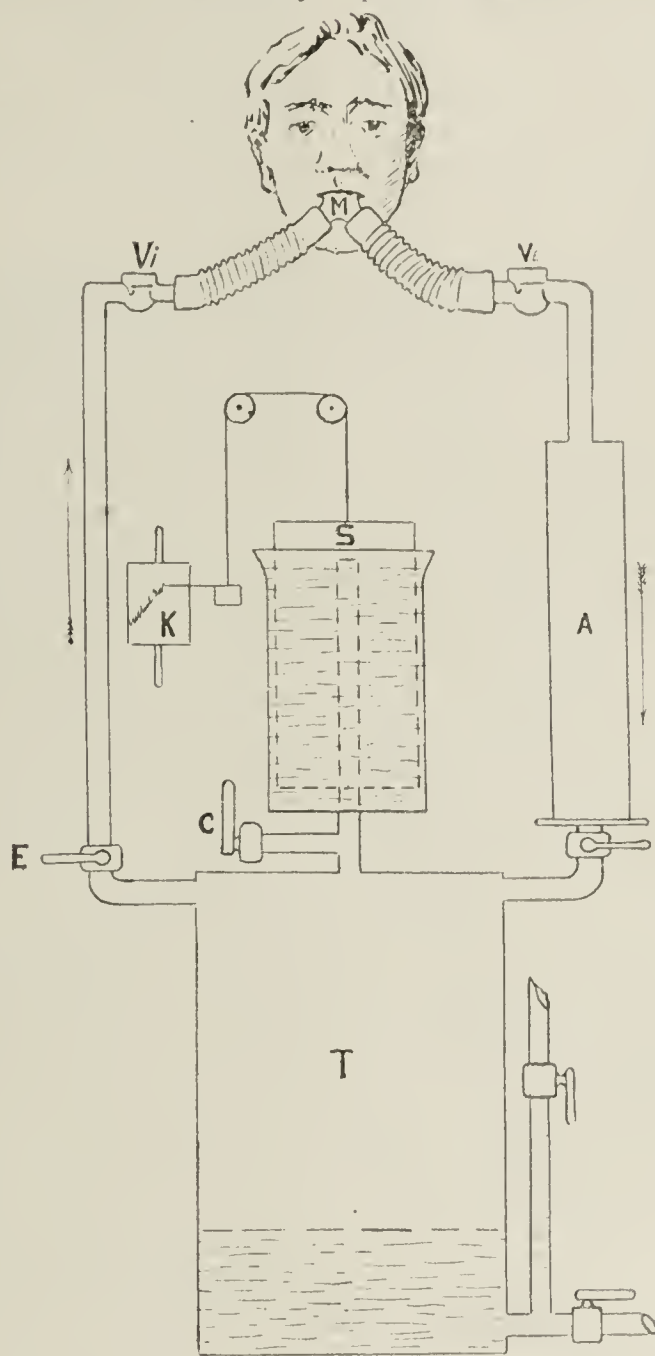
It had come to be a generally accepted doctrine that deficiency of oxygen for short periods of time and above a certain limit, say 13 or 14 per cent. of an atmosphere, induces practically no recognizable effects. The subject of an experiment in which the oxygen is progressively reduced is frequently entirely unaware of any alteration in his own condition down to the point at which consciousness is abolished. Even after

restoration he often refuses to believe that he has been through the glassy-eyed and wholly irresponsible condition from which the observer has revived him with fresh air.

Nevertheless, so far from moderate deficiency of oxygen being without effect, our observations have revealed the fact that in normal men characteristic alterations of function begin even with a slight lowering of the oxygen tension. Thus it appears that in flying the normal person begins to react almost from the moment that he leaves the ground. These reactions are found to be of a compensatory nature: the resistance of the healthy subject, the fact that up to a certain altitude he feels and shows no immediate ill effects, depends on the ability of his body automatically to effect alterations of breathing, pulse, and psychologic forces such that the net result is a practically normal individual. For all persons there are limits beyond which the body cannot compensate. In this respect there are the widest individual variations, forming a scale from the man with a "weak heart," who can withstand scarcely any reduction of oxygen, up to the man whose respiration and circulation are of such adaptability and power that he can go to 25,000 feet, and yet for a time be virtually normal.

The strain imposed by altitude is closely similar to that induced by extreme physical exertion. In both conditions, oxygen deficiency occurs; but at altitudes and in an aeroplane the effects are the more subtle and

dangerous because of the lack of the stimulation to breathing and other functions that the increased carbon dioxide production affords during muscular exertion. For the same reason low oxygen, used with discretion in the low pressure chamber or the rebreathing apparatus, affords a condition clear and simple above any of the conventional forms of physical exercise sometimes employed in internal medicine as aids to examination of the heart.



The rebreathing apparatus employed in all routine tests of the aviator's ability to withstand low oxygen. It consists of a tank, *T*, of about 120 liters capacity. The volume of air is determined by the amount of water that is run into it. The man under examination continually rebreathes the air of the tank (a clip is placed on his nose) through the inspiratory and expiratory valves, *Vi* and *Ve*. The oxygen is thus consumed and reduced. The exhaled carbon dioxide is taken up by sodium hydroxide in the absorber, *A*. The movements of respiration are recorded by the spirometer, *S*, connected to a smoked drum, *K*. As the oxygen is consumed and the air volume is thus reduced, the spirometer falls and the graphic record on the smoked drum rises. At the end of the test a sample of air is drawn from the tank and analyzed as a confirmation of the oxygen consumption and of the oxygen percentages (that is, altitudes) indicated by the graphic record.

The resistance and compensatory power of the normal man against low oxygen have been found to be practically the same qualities as "condition" or "training" in the athlete; and lack of compensatory power equivalent to being "out of training." In its more extreme forms it is identical with a "weak heart." From this it follows in theory, as the cardiovascular division in the Research Laboratory has in fact discovered, that the methods based on the rebreathing apparatus are not only applicable for measuring "fitness" and "staleness" in the aviator, but also offer hope for development into that long sought and greatly needed aid to cardiovascular diagnosis: a general test and measure of the "functional power of the heart."

It will be evident, however, that by the expression "functional power of the heart" we mean much more than merely the strength of that organ. We mean, rather, the totality of the processes of the body's gaseous exchanges with its atmospheric environment. These processes are the very essence of life. Low oxygen tests are thus fundamentally measurements of vitality.

In the following papers is contained a general description and a proximate analysis of the compensatory reactions and the forms of overstrain occurring under brief periods of partial oxygen deficiency in men who, having passed the ordinary medical examination, would generally be considered as normal. Among them our methods have revealed a considerable percentage unsuited to fly except at very moderate altitudes, and some unfit to fly at all. It is our hope that the institution of routine examinations by this technic will result in greatly reducing the number of pilots who may lose consciousness in the air and fall, whether because of inherent unfitness or because of otherwise unrecognized air staleness.

During the inception of our work and while our laboratory was being erected, we were allowed the privilege of laboratory space and facilities in the War Gas Experimental Laboratory, then under the U. S. Bureau of Mines. In this and in other matters this bureau has rendered us invaluable assistance. On behalf of the Medical Research Board it is a pleasant duty to express to Director Van H. Manning an acknowledgment of our debt.

New Sources of Quinin.—The extensive antimalarial campaign in India and the increased demand for the drug on account of the war have emphasized the necessity for finding new sources of quinin to keep up the world's supply. The *Indian Medical Gazette* for July describes the situation with reference to quinin in India. There are in that country a number of cinchona plantations in certain districts, under government supervision, which supply a considerable amount of quinin for the use of the government where quinin is a government monopoly. That country, however, like the rest of the world, is dependent for the greater portion of its quinin supply on Dutch Java, where quinin is also a government monopoly. The first plantations were started in India about 1864. On account of the largely increased demand for the drug, in 1900 a new plantation was begun containing about 9,000 acres. This now supplies bark for one of the large factories in India. In the past year the government, with the idea of still further increasing the cultivation of cinchona bark, directed a survey throughout India and Burma to locate cinchona plantations on a large scale. An area which seems to be suitable has been found near the Siam frontier covering about 400 square miles much of which, it is expected, will prove suitable for the successful growth of cinchona trees. The work of clearing and planting this territory will be begun as soon as possible.

II. PHYSIOLOGIC OBSERVATIONS AND METHODS *

EDWARD C. SCHNEIDER, PH.D.

(COLORADO SPRINGS, COLO.)

Major, S. C., N. A.

MINEOLA, L. I., N. Y.

In the Medical Research Laboratory of the Air Service the ability of the aviator to respond to a decreasing oxygen supply is tested by an experiment of from twenty-five to thirty minutes' duration with the Henderson rebreathing apparatus. As the oxygen in the air inhaled from the apparatus is reduced, the man is thereby virtually elevated to a corresponding altitude.

During the test, the rate and volume per minute of respiration, the pulse frequency, and the systolic and diastolic arterial pressures are studied and have been found to give valuable evidence as to the altitude at which the man first responds to oxygen deficiency and as to the efficacy of his compensatory reactions. These reactions consist chiefly in an increased ventilation of the lungs and a more rapid blood flow. In a few men a concentration of the blood also occurs.

Some men compensate so easily and so well that they endure, at least for brief periods, as low as 6 per cent. of oxygen, corresponding to 31,000 feet: an altitude greater than any heavier than air machine has yet reached. Others fail to compensate, or compensate inadequately, and therefore cannot endure even the slight oxygen deficiency of moderate altitudes. From the data obtained in the test on the rebreathing apparatus, it becomes possible to determine approximately the maximum altitude to which the aviator may safely ascend.

If the man is even slightly below the best of physical condition, the altitude to which he is safe is distinctly reduced. A cold, indigestion, late hours, or worry may reduce his resistance temporarily by many thousand feet. More serious indisposition affects him to a corresponding extent.

THE BREATHING UNDER PROGRESSIVE DECREASE OF OXYGEN

The character of the breathing is important. In shallow breathing, only a comparatively small amount of the fresh air gets past the so-called dead space—the nose, pharynx, trachea and bronchi—to mingle with the air in contact with the blood vessels of the lungs. The deeper the breathing the greater will be the amount of fresh air that reaches the alveoli of the lungs, and hence the greater will be the supply of oxygen for the body tissues.

As the percentage of oxygen gradually decreases during a rebreathing test, there occurs a marked respiratory response. In a few men this increase in the lung ventilation begins with the first decrease in the oxygen percentage of the air breathed, and is a gradual proportional increase in inverse ratio with the reduction in oxygen. More than 50 per cent. of the men examined, however, gave the first respiratory response between 16 and 14 per cent. of oxygen. Twenty-five per cent. responded first at a lower oxygen tension, while a small number gave no response. The increase in lung ventilation is for the higher percentages only slight, but it usually becomes more pronounced when the available oxygen has been decreased to between 12.5 and 9 per cent.

* From the Medical Research Laboratory, Air Service, Mineola, L. I.

The rate of breathing for many men remains unchanged throughout the rebreathing test. The majority, however, show an increase of from two to four breaths per minute at between 8 and 6 per cent. of oxygen. A few of the men examined, showed by other tests to be physically somewhat stale, increased the frequency of breathing enormously.

The increase of volume per minute in the breathing during a rebreathing test differs with individuals. At percentages of oxygen between 8 and 6, the majority show an increase of 5.5 liters over the volume breathed at the beginning of the experiment, when on the average it is about 8.5 liters per minute. This increase gives for the average man a total volume of breathing per minute of approximately 14 liters at oxygen tensions corresponding to an altitude of 25,000 feet. The total per minute volume of air breathed has, in exceptional cases, been as great as 26 and 37 liters of air at oxygen tensions corresponding to from 25,000 to 28,000 feet.

It is the depth of breathing that ordinarily is increased by low oxygen. The vast majority of subjects show an increase in depth of breathing of from 20 to 128 per cent. when under from 8.5 to 6 per cent. of oxygen. The volume of each breath in these men is found to range between 600 and 1,250 c.c., while for the same subjects when breathing air of normal oxygen content it is between 360 and 630 c.c.

A good respiratory reaction to the gradual decrease in the oxygen of a rebreathing test is manifest in a slight increase in the depth of breathing, which begins at 16 or 15 per cent. of oxygen and continues progressively to increase slightly and gradually until from 12.5 to 9 per cent. of oxygen is reached. From these percentages down to 8.5 and 6 per cent. of oxygen, the total volume per minute of breathing increases much more rapidly; and the frequency of breathing may also increase from two to five breaths per minute. A total per minute increase of at least 5.5 liters should occur at the lower percentages of oxygen.

When the volume per minute of the breathing fails to increase as the amount of oxygen inhaled decreases, or when it increases only slightly, 1 or 2 liters, the lung ventilation is insufficient, and the subject is found unable to tolerate as low a tension of oxygen as the

man whose breathing gradually deepens as the available oxygen decreases. Only a few men have failed to show a respiratory response to low oxygen, and none of these have tolerated well even such oxygen tensions as from 10 to 9 per cent. An occasional subject has been examined whose breathing responded well at first, but who later, when the percentage of oxygen was low, suddenly began to breathe less. When this happened, fainting or unconsciousness quickly followed.

THE HEART RATE UNDER DECREASING OXYGEN SUPPLY

In the active tissues the oxygen tension is always low. The higher the oxygen pressure in the blood, the greater therefore will be the amount of oxygen

passing from the blood of the capillaries into the tissues. The dissociation of oxygen from the hemoglobin occurs with great rapidity and is most rapid when the differences in pressure are greatest. (This is not dependent on blood pressure.) It follows, therefore, that when the blood flows more rapidly through the capillaries of a tissue, more oxygen will be made available than if it flows slowly. At high altitudes, or under low oxygen, the blood, at first at least, is less saturated with oxygen than at low altitudes. Therefore, if the blood contains less oxygen, an increase in the rate of blood flow through the capil-

laries would be a means of providing the tissues with the oxygen demanded for their activity.

An increased rate of the blood flow has been demonstrated in men living at high altitudes and is, undoubtedly, one of the first of the adaptive or compensatory changes occurring in the rapid ascents made by the aviator.

Circulatory observations made on Pike's Peak (14,110 feet) indicate that the increase in the rate of blood flow is largely the result of a greater frequency of heart beat. A study of the pulse rate during exposure to low oxygen should, therefore, give a definite indication of the sensitiveness of the organism. We have found the pulse rate to be a trustworthy indicator of oxygen want, provided care is taken at the beginning of a rebreathing experiment to have the subject calm and quiet.

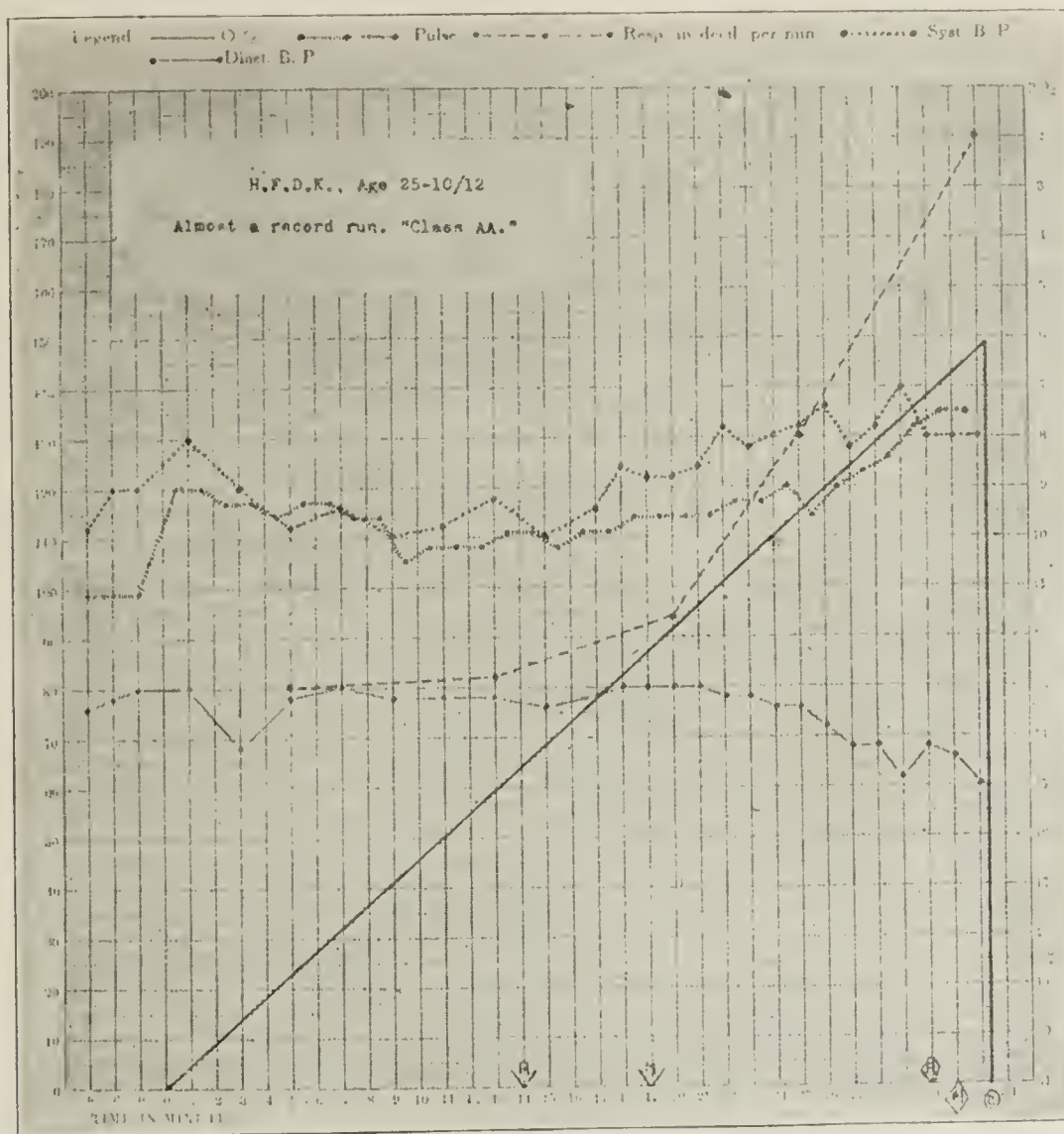


Chart 1.—Results obtained in the examination of an extra good man. The symbols at the bottom of the chart indicate his psychologic condition.

Throughout the rebreathing test the candidate's pulse rate is counted and the systolic and diastolic blood pressures are determined. The rate of heart beat has been found to accelerate in a few men at 17.5 per cent. of oxygen (5,000 feet). In one group of seventy men the accelerations began as follows:

Between 7,000 and 8,000 feet—from 16 to 15.5 per cent. of oxygen—1 per cent. began to react.

Between 8,000 and 9,000 feet—from 15.5 to 14.9 per cent. of oxygen—12 per cent.

Between 9,000 and 10,000 feet—from 14.9 to 14.2 per cent. of oxygen—20.

Between 10,000 and 11,000 feet—from 14.2 to 13.7 per cent. of oxygen—14.

Between 11,000 and 12,000 feet—from 13.7 to 13.2 per cent. of oxygen—23.

Between 12,000 and 13,000 feet—from 13.2 to 12.7 per cent. of oxygen—20.

Between 13,000 and 14,000 feet—from 12.7 to 12.2 per cent. of oxygen—6.

The increase in frequency of heart beat is at first slight, only from one to three beats; but as the oxygen percentage decreases, a greater increase in rate is likely to occur with each decrement in oxygen. A very marked acceleration usually occurs when the oxygen has fallen to between 13 and 9 per cent. Some men at first react with a good acceleration in rate, but soon reach a rate beyond which there is no further response, even though the oxygen percentage continues to be lowered. In such cases after holding at a fixed

rate for a while the heart suddenly begins to slow: a sure indication that the limit of endurance has been reached.

A total increase of from fifteen to forty beats in the heart rate during a rebreathing test, in which the oxygen is lowered in half an hour to between 7.5 and 6.5 per cent., constitutes a good reaction to oxygen want. A failure to respond by an acceleration of the heart rate to lowered oxygen means either inability to react to a low oxygen of high altitudes and early failure, or that sufficient compensation is secured by increased breathing or blood concentration or both. Our experience indicates that the failure to respond is associated with poor toleration of low oxygen. An acceleration in heart rate of more than forty beats—from 50 to 70 have been observed—throws too great a burden on the circulatory mechanism, and occurs only in men who do

not tolerate well low percentages of oxygen. In such men other compensatory reactions may fail to occur. So far as the response in pulse rate to decreasing oxygen is concerned it therefore becomes possible to rate the reactions poor, good and excessive. A poor or an excessive heart response should disqualify the candidate for very high altitudes; he should ascend to only moderate heights.

A delay in the first appearance of acceleration of the heart rate may be due to an insensitive cardiac brain center, while an early response may indicate a mechanism very sensitive and responsive to any decrease in available oxygen. It should be borne in mind, however, that while ordinarily there is an early acceleration in the heart rate, a delay may be due to the efficiency of other methods of compensating to the stimulus of oxygen want.

THE ARTERIAL PRESSURES UNDER DECREASING OXYGEN SUPPLY

The determinations of systolic and diastolic arterial blood pressures show whether the vasomotor mechanism responds to the stimulus of oxygen want in a manner adequate to maintain the increase in the rate of blood flow. At the same time they show whether the heart is compelled to work against an increased resistance. They also give an index, the pulse pressure, of the volume of ventricular output.

In the optimum type of response to the low oxygen of the rebreathing test the systolic

pressure remains unchanged, that is, it holds on a level, until the oxygen has been lowered to between 14 and 9 per cent., after which as the oxygen is further lowered it gradually rises. Occasionally there may occur a gradual rise in the systolic pressure beginning with the first increase in the heart rate. This rise in pressure is ordinarily from 15 to 20 mm. of mercury. Other subjects who appear to have tolerated low oxygen equally well, even down to 6.5 per cent., have had a systolic pressure which held at the normal.

A rise in the systolic pressure of more than 30 mm. of mercury—from 40 to 60 mm. have been observed—is very likely due to a vasomotor failure to respond with a dilatation of the arterioles. Such conditions overwork the heart and may result in early circulatory failure.

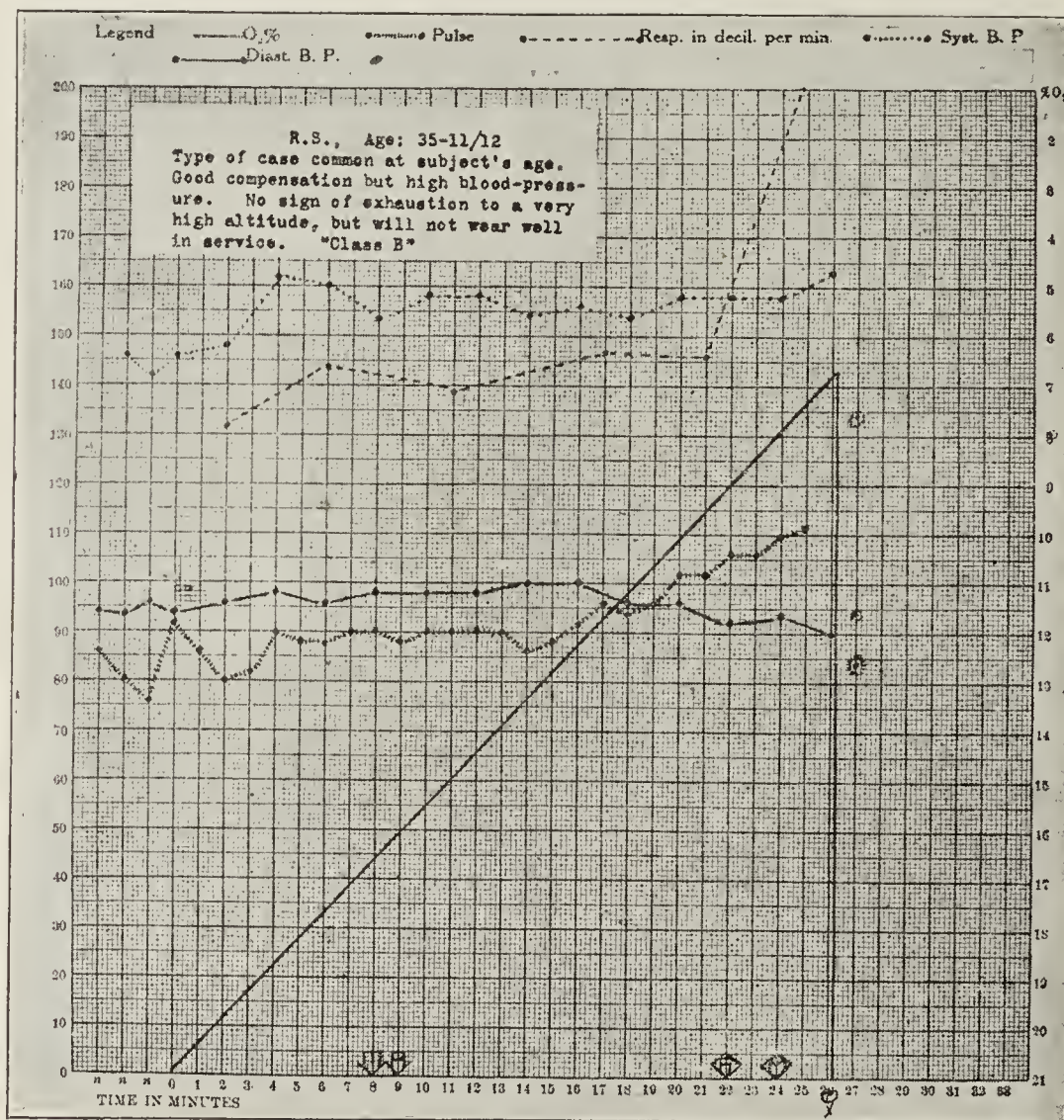


Chart 2.—Examination of a good man who is too old (note his arterial pressure) to be quite first class.

There are other conditions of systolic pressure that are occasionally found in men undergoing the rebreathing test. A small percentage have a fall in the systolic pressure which begins about the time the pulse rate starts to accelerate, and continues to decline throughout the test. Such men have not tolerated the extremely low percentages of oxygen that men of the optimum type of response have endured. A large number have shown a sharp and sudden fall in the systolic pressure at low percentages of oxygen. This fall, if allowed to continue, leads to fainting. The subject recovers his normal pressure at once if he is returned to atmospheric air.

The best condition in the response of the diastolic pressure to a decreasing oxygen supply consists in an unchanged or slightly increased pressure throughout the test. Many men show a gradual well controlled fall in the diastolic pressure during the terminal period when the systolic pressure is rising. Such a fall in the diastolic pressure, if it occurs slowly and is not great, constitutes a fairly good reaction to extreme oxygen want. It can be explained as a vasomotor dilatation which occurs in order to protect the heart against the rising systolic pressure. In the optimum type of response to low oxygen the terminal fall in the diastolic pressure may not occur. If present it is never very pronounced and comes only after the oxygen is reduced to 9.5 per cent. or less.

About 66 per cent. of all men examined have had a fall in the diastolic pressure. In at least half of these the fall has been sudden and great. It is always associated with fainting and usually precedes a systolic fall. If the two occur together, in the order just indicated, the experiment must be terminated at once. The pronounced and sudden fall in diastolic pressure may occur at a high oxygen percentage. It has been found to occur as early as 14 and 13 per cent. of oxygen (10,400 and 12,200 feet). Such sudden falls in the diastolic pressure appear to be due to an overcoming of the vasomotor center by oxygen shortage. A decided fall in the diastolic pressure, even if more or less definitely controlled, is an indication that the subject will not tolerate well the altitude corresponding to the oxygen percentage at which it appears.

Three types of circulatory reaction to oxygen want have been observed: The first, the optimum, in which the pulse rate accelerates moderately as the oxygen decreases, the systolic pressure is unchanged or shows a terminal rise of not more than from 20 to 30 mm. of mercury, and the diastolic pressure remains unchanged or rises slightly. The second, the controlled diastolic fall, in which the pulse rate accelerates moderately and the systolic pressure rises as the diastolic pressure gradually falls. The third, the fainting type, in which after a period of fair, good or excessive response in the rate of heart beat to low oxygen, the diastolic pressure suddenly falls, and soon thereafter the systolic pressure, and the pulse rate slows. The optimum type may tolerate as low an oxygen as 6 per cent. (equivalent to an altitude of 29,000 feet) and may lose consciousness without fainting. He recovers quickly when restored to air, while the heart rate and blood pressures are soon back to their normals. The fainting type rarely endures as low an oxygen. If allowed to run his course he faints completely; and as he revives he requires a considerable time, sometimes an hour or two, to regain his normal pulse rate and blood pressures. There are, of course, gradations between the types here described.

The pulse pressure during a rebreathing test remains fairly constant in most men until the oxygen has fallen to between 12 and 9 per cent. (from 14,500 to 22,000

feet), after which it increases in amount during the further reduction in oxygen. The rise in pulse pressure occurs when the systolic pressure is rising and the diastolic either remaining constant or slowly falling. This is also the period when the heart beat is accelerating most rapidly. The amplitude of the heart output, it is claimed, is shown by the pulse pressure. If the pulse pressure be multiplied by the pulse rate and the product be taken as a relative measure of the volume of the blood stream, an increase in the circulation rate will be indicated, beginning between 16 and 14 per cent. of oxygen and progressively increasing as the oxygen further decreases. The period of most rapid flow of blood would, therefore, be that when the pulse pressure is also increasing, that is, from between 12 and 9 per cent. of oxygen to the end of the test. Therefore,

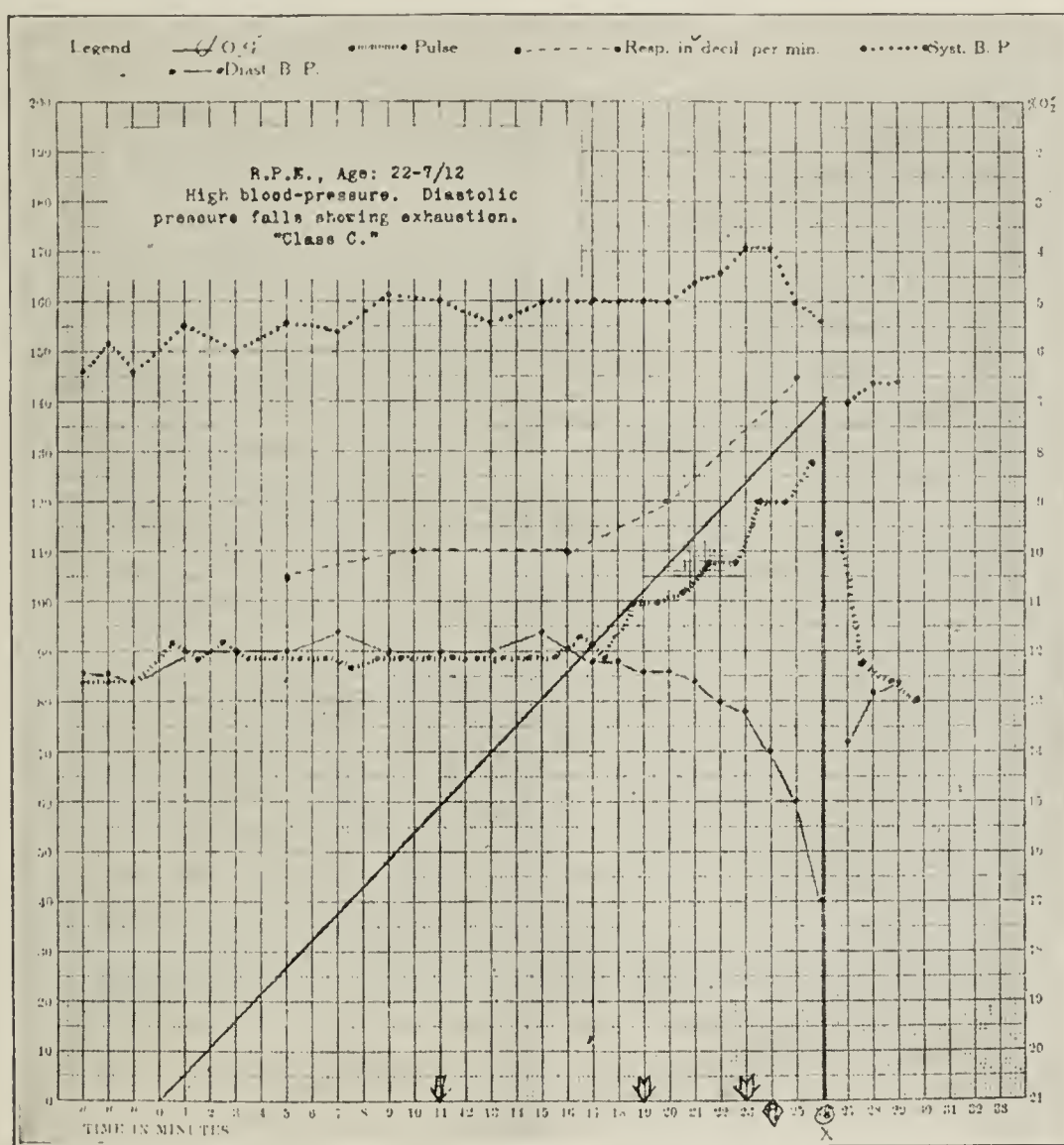


Chart 3.—Examination of a man unfit to ascend above moderate altitudes, unless supplied with oxygen apparatus.

feet), after which it increases in amount during the further reduction in oxygen. The rise in pulse pressure occurs when the systolic pressure is rising and the diastolic either remaining constant or slowly falling. This is also the period when the heart beat is accelerating most rapidly. The amplitude of the heart output, it is claimed, is shown by the pulse pressure. If the pulse pressure be multiplied by the pulse rate and the product be taken as a relative measure of the volume of the blood stream, an increase in the circulation rate will be indicated, beginning between 16 and 14 per cent. of oxygen and progressively increasing as the oxygen further decreases. The period of most rapid flow of blood would, therefore, be that when the pulse pressure is also increasing, that is, from between 12 and 9 per cent. of oxygen to the end of the test. Therefore,

a marked increase in the rate of the circulation of the blood during exposure to a low and decreasing oxygen is indicated. This increase in blood flow is, as shown earlier, an important and necessary compensatory reaction to low oxygen.

Incidentally a few venous blood pressure determinations made during exposure to a decreasing oxygen supply have shown a fall which becomes very pronounced when the oxygen is 10 per cent. or less. This fall in venous pressure calls to mind a similar fall reported by Schneider and Sisco in men on Pike's Peak and indicates that the reactions observed in the rebreathing tests are the result of the same cause, low oxygen.

THE HEMOGLOBIN UNDER A DECREASING OXYGEN SUPPLY

Since an increase in the percentage of hemoglobin in the blood is one of the most important of the low oxygen compensations found to occur in men and animals living at high altitudes, it is interesting to find that it may also occur during short exposures to low oxygen. The rebreathing test of not more than thirty minutes' duration is too short to permit a concentration of hemoglobin in the majority of men. In order to test the part that the blood changes may play as a compensatory factor for oxygen want in such a short period as the aviator spends in the air, a series of experiments are now being made in the pneumatic chamber and also under low oxygen.

In these the subject is held at a chosen pressure or a given percentage of oxygen for from forty to ninety minutes, the entire experiment lasting as much as two or two and a half hours. The hemoglobin has been determined with the Gower-Haldane hemoglobinometer on blood taken from a finger or an ear and also from a vein in the arm. At least 25 per cent. of all men examined have shown a well defined increase in the percentage of hemoglobin (from 4 to 9 per cent.) and the majority some evidence of concentration. It has been most clearly induced at pressures, and percentages of oxygen corresponding to between 18,000 and 20,000 feet. Almost all of the men have had to be held at the high altitudes twenty or more minutes before concentration began to be evident.

THE RELATIVE VALUE OF THE COMPENSATORY FACTORS

It is important to obtain a better understanding of the interplay of the compensatory factors when man ascends quickly to very high altitudes and remains

only a short time, a few hours at the most. A number of experiments have been made, therefore, with men in the pneumatic chamber, and also under low oxygen, in which they have been held for an hour or two under conditions corresponding to altitudes of from 15,000 to 20,000 feet. In all of these, two of the compensatory changes, those in breathing and circulation, have appeared almost simultaneously and increased steadily with the gradually increasing altitude. When the desired altitude was reached, the breathing either continued at the depth it had acquired during the period of progressive change or it became still deeper for a time. The pulse rate, which gives an index of the increase in the rate of blood flow, accelerated during the period corresponding to ascent and then, when the altitude was held, remained constant or, in some of the men, retarded slightly. The slowing of the pulse rate, when an altitude was thus maintained for a time, was so frequently observed that we sought for an explanation of it.

In a number of men it was found that the heart was being relieved by other compensatory factors. In such cases one or the other or both of two changes occurred. There occurred a further deepening of the breathing, or a concentration of the hemoglobin, or both of these changes took place together. Often the breathing, after increasing in amount during the ascent, held at a constant increased depth during the stay at a given altitude; but in such case the hemoglobin was found to be con-

centrating as the pulse rate slowed. An unusual but interesting case was found in a man whose breathing failed to respond to the changes in altitude. He did not tolerate the low pressure well at first, but felt better after some time had been spent at the chosen pressure. In this man the heart accelerated decidedly, and later his hemoglobin concentrated about 8 per cent. His improvement occurred when the hemoglobin showed concentration.

Our studies show that during short exposures to high altitudes or low oxygen, such as the aviator experiences, the compensatory reactions of the body to a decreased oxygen are made almost entirely by the circulation and by the breathing. A considerable number of men may, after the lapse of about an hour, secure some benefit from a slowly developing concentration of the hemoglobin. The order of response by the adaptive mechanisms is not that of the good reaction seen among mountaineers, in whom the breathing first responds while the other compensatory changes

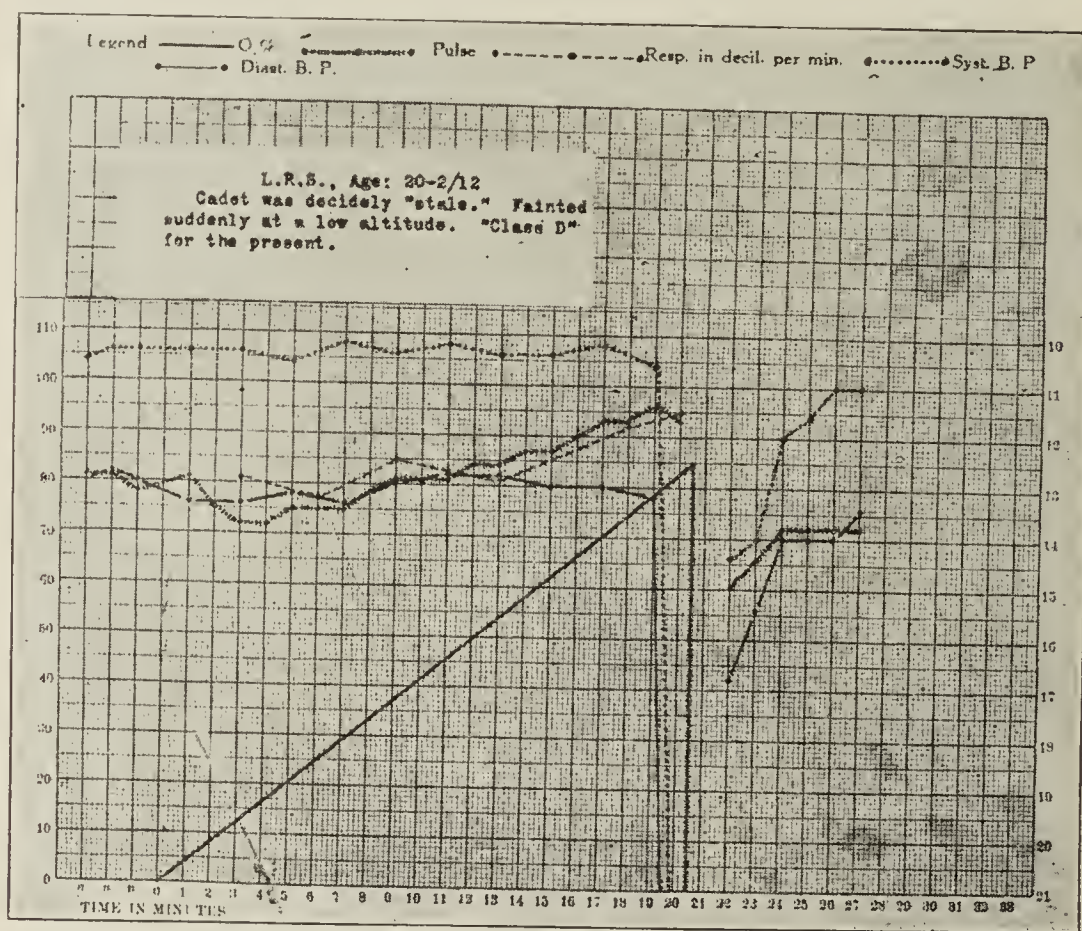


Chart 4.—Examination of a man unfit to fly at all until his physical condition improves.

take place more slowly. The reaction resembles more nearly that seen during an attack of mountain sickness among mountaineers. In such men the heart beat is greatly accelerated during the attack. The aviator, it appears, must depend largely on his heart and his breathing for compensation to the fall in oxygen that he encounters as he ascends.

III. CARDIOVASCULAR OBSERVATIONS*

JAMES L. WHITNEY, M.D. (SAN FRANCISCO)

Major, M. R. C., U. S. Army

MINEOLA, L. I., N. Y.

It has long been known that persons with defective hearts tolerate very badly such altitudes as those of Denver, Phoenix and Mexico City. Many instances have been quoted of serious and even fatal attacks of cardiac dilatation, pulmonary edema, etc., occurring within a few days after the arrival at these places. This popular view has, however, received up to the present very little confirmation from scientific work. Marked alterations in respiration have indeed been described; and the effects on the chemistry of the blood and tissues in reference to transport of oxygen have been studied in great detail. Beyond suggestions, however, that certain changes in blood flow might occur as the result of high altitudes, little evidence has been at hand that the effect on circulation is of great importance; especially there has been entire lack of proof of marked circulatory strain, or of the possibility of such disasters to the heart as have been popularly described.

The explanation is that the best type of organism makes its circulatory adjustments so smoothly and with so little strain that there is almost no evidence of anything of great importance going on. It is only by study of less normal types that we appreciate both the serious effects that may be due to failure of circulatory reaction, and the nature of this reaction itself.

Perhaps the most striking single fact brought to light by the present research is that heart failure following marked dilatation is exceedingly common as the result of reduction of atmospheric pressure. Dilatations of from 3 to 5 cm. have been not infrequently found, always followed by collapse and fainting if oxygen is not immediately given. The commonness of this syndrome may be judged from the experience of ten medical officers taken into the low-pressure chamber on two occasions for demonstration purposes. These were men of average constitution, though not of

athletic type. Five of them developed marked dilatation, one at 14,000, one at 16,000, two at 18,000 and one at 20,000 feet. It was interesting that in each case the dilatation was discovered by percussion before any subjective symptom was present; but in each case the individual began to feel very ill within a minute thereafter and would have fainted if oxygen had not been administered. It is our practice in using the low-pressure chamber for the observer to take oxygen even at the lower "altitudes."

COMPENSATION BY THE CIRCULATORY SYSTEM FOR LOW OXYGEN

The explanation of many physiologic events lies in the power of the organism to make readjustments to compensate for deleterious changes in the environment. In the compensation for low oxygen, the circulation appears to be the factor of first importance. Changes in respiration, in concentration or chemical constitution of the blood, or in the mechanism of gaseous exchange are important, but they are able to make good only partially for the deficiency. The factor of chief importance with a wide range of adaptability is the rate of blood flow, both in general and as regards special parts. If the blood carries less oxygen per unit, more blood must be sent to the organs that need it in order to furnish the sum total of the amount that is required.

This, of course, means increase in pulse rate, often increase of blood pressure (especially of pulse pressure) and delicate readjustments of blood distribution. All of this calls for accurate control of the vasomotor system and increased strain on the heart. This strain must be carried at a time when the oxygen supply of the heart muscle itself is precarious.

Not only is the maintenance of perfect circulation vitally important for efficient existence at high altitudes, but the heart is itself particularly vulnerable to direct effects of oxygen deficiency. There is the possibility of a vicious circle of a most dangerous kind. For if the circulation falters for a moment, not only will the nerve centers run the risk of subjection to a paralyzing anoxemia, but the nutrition of the heart muscle is impaired. Further interference with circulatory efficiency ensues, and total collapse is inevitable.

Add the fact that this collapse comes practically always without premonitory symptoms of any kind, and the very great danger to the aviator becomes apparent. There is a total reversal of conditions from those of heart strain from vigorous exercise, in which the intense discomfort caused by overexertion gives ample warning that one is approaching the limit, and in which at worst partial failure of the heart would do

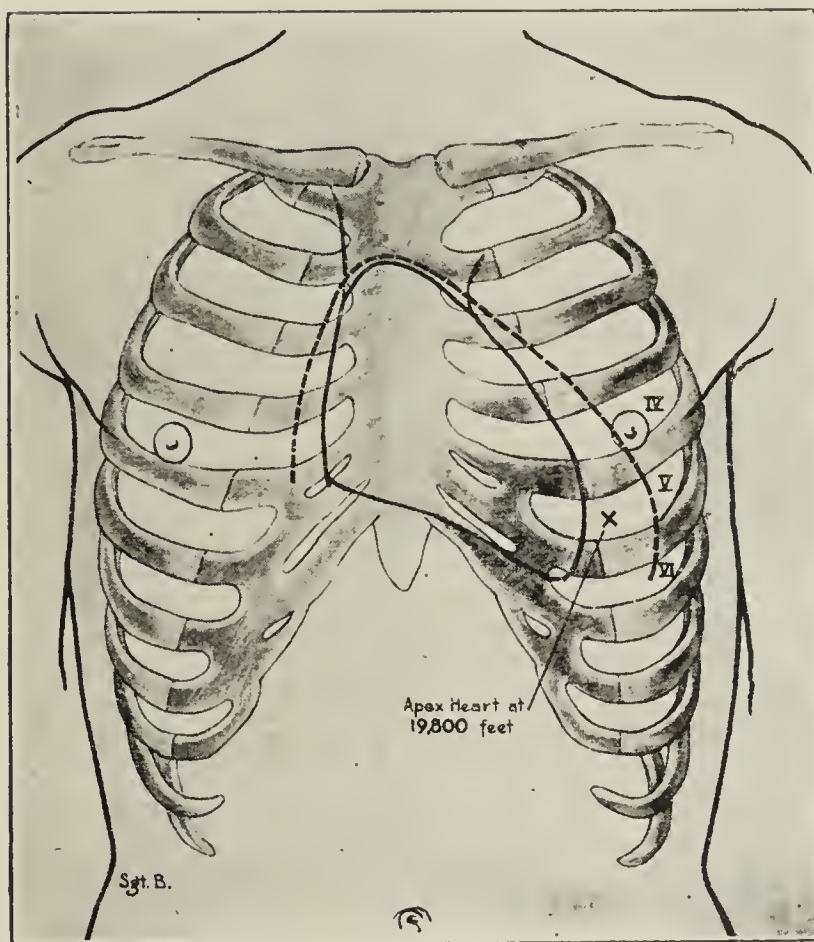


Fig. 1.—Dilatation of the heart under deficiency of oxygen beyond the individual's power of compensation: solid line, percussion outline of heart before and after experiment; broken line, outline at 19,800 feet elevation in low-pressure chamber.

* From the Medical Research Laboratory, Air Service, Mineola, L. I.

no more than make further exertion impossible, and so automatically terminate the strain.

This vicious circle may satisfactorily explain many cases of sudden fainting at low altitudes. For if there were a momentary failure of coronary circulation due perhaps primarily to a wholly neurotic influence on the vasomotors, a condition of undernourishment of the heart would be started that would be rapidly cumulative.

The elements of strength in meeting the situation are a strong heart muscle, efficient and accurately adjustable coronary circulation, and the ability of the peripheral vasomotors to allow increase of blood flow to the parts that need it without undue strain on the heart by increased blood pressure. These arterial reactions demand in the first line perfect anatomic condition of the vascular walls and perfect vasomotor control. As a consequence, two classes of cases are found that are most likely to react badly to lowered oxygen tension: men who have any arterial change in the way of sclerosis, and those with poor vasomotor control.

The latter class includes numerous individuals who are either overvigorous in their reactions and run a high blood pressure (often high strung, efficient people) or who have fluctuations of vasomotor tone which are manifested in a variety of ways but eventually lead to an identical result, namely, circulatory collapse and fainting, usually following marked dilatation of the heart.

The "optimum" type of individual will go to extreme heights with practically no signs of circulatory difficulty, and will at the end become unconscious from direct effect of oxygen want on cortical centers, giving quite a different picture from that of circulatory collapse.

FAILURE TO COMPENSATE

Paradoxically enough, the poorer types of organisms also fail to show heart strain and dilatation. Persons of poor physical and sluggish reactions, whether by nature or because of sedentary life and lack of exercise, ordinarily show a more or less marked failure of the compensations demanded for efficient existence under the altered conditions. They show little or no quickening of the pulse, and no change, or even a fall, in blood pressure. They simply become inefficient instead of making the strain.

Many types with defective hearts and blood vessels do not show heart strain because, having tried to meet the requirements, and having found it impossible, they give up the fight and fail.

Those who do show it, as previously suggested, are persons of vigorous reactions, especially high strung

types, but are often "out of condition" for one reason or another. The influence of factors of condition, which are too often underestimated, has been found to be very great. Dissipation, nerve strain, slight infections, may involve heart weakness or abnormal vasomotor reactions which overstrain or undernourish the heart, and thus cause the aviator's death.

CONDITION

The influence of "condition" is a point of the greatest practical importance, of course. One of our hardest subjects illustrated this. He had been in the low-pressure chamber on one occasion at an elevation of 23,000 feet for some minutes and remained in practically perfect condition. The following day the experiment was repeated; but on the evening between he had dined late with friends, with the usual but not excessive accompaniments. When the altitude of 18,000 feet was reached on the second test he was found to be completely inefficient; he was markedly cyanotic; his heart was dilated 3 cm., and the heart sounds were of very poor quality. He would have collapsed in another minute if oxygen had not been administered.

The question of just what is involved in "good condition" has received much consideration. On the basis of our present knowledge, the most important element seems to be normal vasomotor control, that is, adequate nourishment of the tissues with a minimum of strain on the heart. In this the coronary circulation is of first importance. Other factors are, doubtless, the strength and condition of the heart muscle and probably certain matters of general metabolism, for example, the ability to generate energy rapidly without

the accumulation of harmful waste products.

The practical result of this knowledge of the strain on the circulatory system involved in aviation, and the paramount importance of "condition," bear on both the selection and the maintenance of the flying personnel. Only those men should be allowed to fly who possess faultless circulatory systems; and once in the service, aviators deserve the most scrupulous oversight to keep them in as perfect condition as a well-trained football team, and to prevent them from going into the air when they are not in condition.

LOW OXYGEN AS A FUNCTIONAL HEART TEST

As far as the selection of men with perfect circulation is concerned, we possess fortunately a wonderful diagnostic agent in the low oxygen test, to which eventually all flyers will be subjected. We have come to

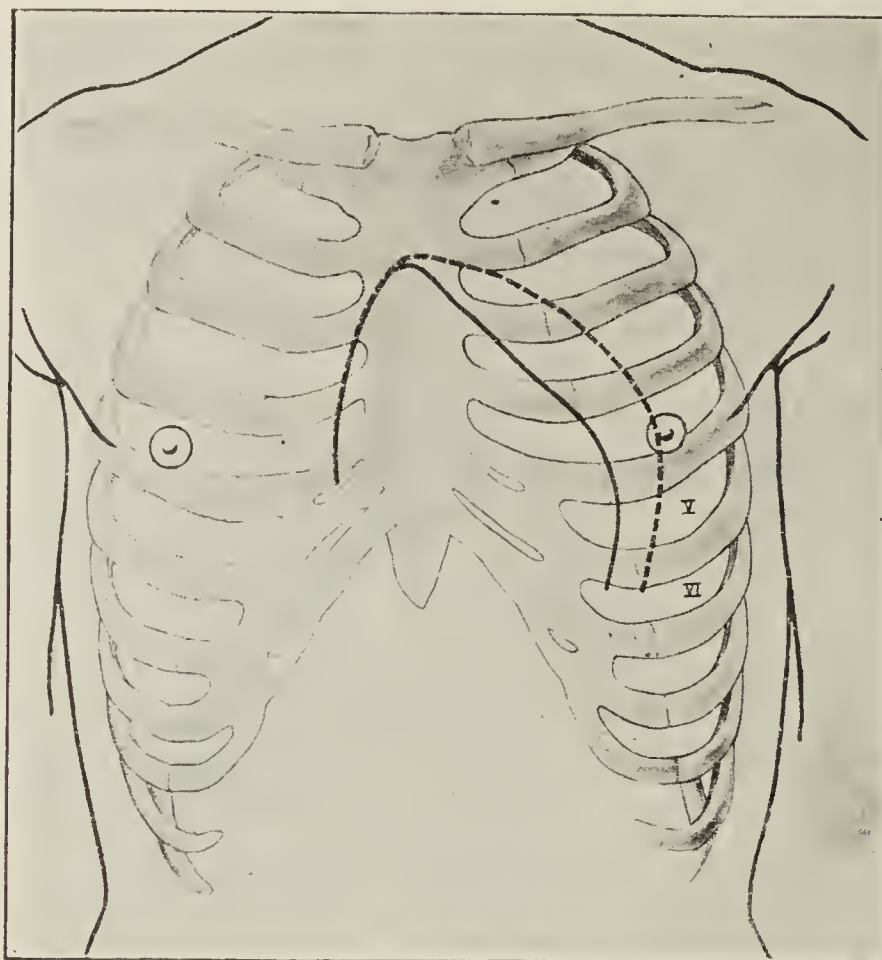


Fig. 2.—Dilatation of the heart at 18,000 feet when man was in poor condition; when feeling well, this man could go 5,000 feet higher without any ill effects: solid line, outline of heart before and after experiment; broken line, heart outline to percussion at elevation of 18,000 feet.

regard the Henderson rebreathing apparatus as affording by far the most efficient test of the heart, from both anatomic and functional points of view, that we possess.

The strain of making good for low oxygen tension in the atmosphere is so great that any latent defect, fully compensated and not to be discovered by ordinary methods of examination, becomes glaringly apparent during a rebreathing test.

The question of anatomic condition of the valves, however, is not the only consideration with regard to a heart. Many a damaged heart will compensate so well, as the result of the quality of the heart muscle, that its functional power may even be above normal. Clinicians have long been searching for a functional heart test which would tell them, not what the heart was anatomically, but what it could do. In the low oxygen methods we have just such a test, and it should be of great value in ordinary clinical work.

In the case of well compensated valvular disease, murmurs develop under low oxygen or become much stronger, and accentuation of heart sounds takes place, indicating hypertrophy of the left ventricle or back pressure through the lungs; the blood pressure is high and the heart is evidently overworking seriously. Often in young men such a heart will be fully as successful as a normal one in meeting the demands made on it in ordinary life; in fact, overcompensation is the rule rather than a failure to compensate. But under the low oxygen test the underlying defect is revealed.

In the case of valvular lesions that are less well compensated, the heart is more readily reduced to incompetence; after the period of overwork there is marked cyanosis, excessive discomfort, and insufficiency of the peripheral circulation, most delicately shown by inability to perform well on the psychologic apparatus that forms part of the rebreathing test.

In subjects with arterial disease there is a more or less marked rise in blood pressure owing to inability of the peripheral vessels to make way for the increase of blood flow without throwing a much increased strain on the heart. At the same time there is doubtless insufficiency of the coronary circulation as well, so that between high blood pressure and poor nutrition the heart muscle soon becomes incompetent; the heart sounds deteriorate rapidly in quality, and the peripheral circulation becomes insufficient.

Tendencies to arrhythmia are brought out in a remarkable way by the rebreathing apparatus: several hearts that showed at the start only an occasional extrasystole have become arrhythmic to a degree that was positively alarming. We suspect that there is the possibility of danger in this method of examination for hearts showing difficulty of conduction or in which there is a possibility of the development of ventricular fibrillation.

One of the most gratifying features of this work has been the direct bearing of the observations on fundamental questions of circulatory physiology and pathology. In this way they go far beyond the narrow field of aviation medicine in their scope. It is impossible here to discuss thoroughly the many side-lights thrown on clinical medicine. A few of these points may, however, be briefly mentioned.

One is the supreme importance of normal vasomotor control in connection with circulatory efficiency, which means general efficiency as well. Abnormal vasomotor reactions mean either high blood pressure with exces-

sive heart strain if the demands on the circulation are met, or inefficiency if the demands are not met.

The behavior in the test of subjects with more or less marked arteriosclerosis has been of the greatest value in understanding the effect of arterial change¹ under conditions of ordinary life. An interesting fact is brought out by the behavior in the test usually shown by subjects in their thirties, which suggests that arterial change at this age is commonly already considerable. This may account to a large degree for the well known fact that 20 is the best age for flyers, and that every year above this decreases the likelihood of their being able to stand the strain of hard service.

The relation of nerve tension to vasomotor control is a subject on which we have been able to throw some light, and our results fit in well with the demonstration by the British commissions of the intimate relation of the vasomotor system to shell shock, trench neuroses, irritable heart and allied conditions that have contributed so largely to the disabilities of this war. The frequency with which slight cardiac lesions have been demonstrated among presumably healthy men has been striking. Even among a class of men as carefully picked as American aviators we have found more than 5 per cent. These were usually cases that could hardly have been demonstrated by ordinary means of examination, and would have passed the most rigid inspection as "functional heart murmurs" or at worst as borderline cases with a wide margin of safety. Every one who has worked on the Army cardiovascular boards knows how common and how troublesome such cases are; and the British experience shows that men who genuinely have slight organic lesions will not stand up under modern war conditions. For this kind of work the low oxygen test should be of the greatest value.

Similar to this class of cases are "athletic hearts," which we have very frequently encountered among aviators, who are to a large extent drawn from the ranks of college athletes. Such hearts behave very badly under low oxygen. They show high blood pressure, marked heart strain, with exhaustion and eventual collapse. Without entering into any discussion of the question, it may be said that our evidence points strongly to the belief that the so-called "athletic heart" represents not a faulty involution of a normally hypertrophied heart, but a heart that has either been definitely injured by strain, or one with an underlying vascular lesion too slight or too well compensated to be discovered. We have demonstrated slight old mitral insufficiency in several men whose names are familiar on the sporting page of the papers.

1. See Chart 2 in the preceding paper of this series.

Quackery on Both Sides of the Ocean.—Under this heading Dr. Pinkhof comments in the *Nederlandsch Tijdschrift* on the efforts made by the osteopaths to get appointed to the medical corps of the United States Army. He says: "Dr. Gorgas and his staff are better antimonopolists in fact than the legislators in our land (the Netherlands). Our legislators would like to provide a monopoly for the quacks, that is, to confer on them the exceptional privilege of practicing medicine without fulfilling the conditions which every honest citizen has to fulfil. At a recent representative meeting of the organized pharmacists of the Netherlands, the chairman, H. L. Visser, gave a good definition of quackery which may well be taken to heart by every one. He said, 'Quackery, whatever its form, is a gambling game, with life for the stakes and health as the highest prize.'"

IV. PSYCHOLOGIC OBSERVATIONS AND METHODS *

KNIGHT DUNLAP (BALTIMORE)

Major, S. C., N. A.

MINEOLA, L. I., N. Y.

The psychologic tests now used in determining the ability of candidates for the aviation service to withstand altitude have been developed for use under the practical conditions of the Henderson rebreathing apparatus, in which the rate of oxygen decrease is rapid. The statements made here with regard to the course of the phenomena apply only to conditions of brief ascents, and do not necessarily hold in all particulars for cases in which the aviator is kept at corresponding altitudes for long periods of time.

The effects of oxygen insufficiency on the physiologic process were in the beginning of our work studied empirically, with the least possible hypothetic guidance. Our results square distinctly with the conception of psychologic processes as integrative, that is, as dependent on the working together of the central nervous system as a whole rather than on the action of any specific parts of the system.

The basic and important psychologic effects of oxygen deficiency are on voluntary sensorimotor coordination and attention. Until asphyxiation reaches the stage in which the integrative mechanism is rapidly approaching the condition of complete failure, no effects are demonstrable that are not clearly the failure of the one or the other, or both, of these two mental factors. In the prefinal stages perception is as efficient as the muscular control of the sense organs and organs of expression, and the power to attend to the stimuli, permit. Discriminative judgment, likewise, shows no falling off in rapidity or accuracy except as impaired motor control and attention produce it. Memory, both "immediate memory," as tested by the ability to reproduce what has been perceived or learned immediately before, and "true memory," as tested by the ability to reproduce something that has been "latent" for a certain interval after being learned, is apparently not affected, except as the inability to attend to the details in learning or in reproducing, or inability to control the muscular mechanism of expression, may enter. The efficiency of limited neuromuscular groups, as indicated by dynamometer tests, is not impaired in the prefinal stages of asphyxiation.

As instances of tests involving perception and discrimination, we may cite the copying of a list of words and the translation of words into code. In both of these cases, speed and accuracy are maintained up to the final stages of asphyxiation, provided the muscular mechanism of accommodation and convergence is not seriously affected; although the mechanism for handwriting may be so affected that the written results of the list are legible with difficulty.

In more complicated discrimination, in which rapid and accurate recognition and classification of material are required, the results are similar. Ability to locate correctly on a chart the positions of objects previously seen is unimpaired up to the point at which the individual's coordinations of movement become so much affected that the charting is defective on that account.

It is interesting to note that the sensitivity and acuity of the sense organs show no consistent impair-

ment, and that apparently the speed of simple reactions (the simple reactions do not, in general, require a high degree of integration) is not intrinsically diminished. More work remains to be done on simple reactions, however, before definite statements can be made. The distinctive effect on the nervous system, in short, seems to be a change in its integrative action, and not a change in the efficiency of any particular part or unit. The whole picture of progressive asphyxiation, from a psychologic point of view, is strongly suggestive of the picture of progressive alcoholic intoxication.

Under the practical requirements of rating, tests must be single and brief, during progressive depletion of the oxygen supply. If many individuals are to be examined it is not practicable to spend even several hours on each one. Hence it is not possible to hold the subject at a moderately high altitude, such that asphyxiation effects will eventually appear. Nor is it possible to repeat a briefer test a number of times. Hence, the subject must be allowed to rebreath himself rapidly (during not much over a half hour, at most) to a low point of oxygen tension, reaching his maximal "altitude" for that rate of "ascent." It follows that the method used must be one which is not approved for psychologic work under other conditions, and which, for want of a better term, is called clinical. That is, since the reactor's condition is rapidly changing from minute to minute, we must be able to determine at any minute his psychologic condition, and cannot use the method (more exact under other conditions) of determining the average speed and accuracy of work done during a period of several minutes.

It was early discovered that under asphyxiation, as under alcoholic intoxication, it is possible for a reactor to "pull himself together" for a brief span of time (a minute or even several minutes), during which his efficiency on a set task may be as high as in his normal condition, or even higher, sinking at the termination of the task to a relatively low level of efficiency. If given a series of tasks, with brief resting intervals between, the reactor may therefore accomplish a performance that is practically normal, even up to a minute or two before the point at which complete lapse of integration occurs. In this way, his real psychologic deterioration may be concealed. It is necessary, therefore, to set a task which, although minimally fatiguing, is practically continuous, allowing the reactor no expected periods in which no work will be demanded of him, and thus preventing him from making use of attention peaks, as the phases of "pulling himself together" may justly be called. In determining the sensitivity or acuity of sense organs, on the other hand, the "attention peaks" are precisely in order, and pause should be taken to present the stimuli at the highest peaks.

It is probable that in earlier work on the action of alcohol and other drugs, and of fatigue, many failures to find psychophysical effects were due to the evoking of attention peaks by brief or periodic tests, thus masking the real condition of the patient tested.

Many tests that otherwise would be applicable impel the reactor to hold his breath during the crucial moments. The conventional steadiness test is one of this sort. If the reactor, already suffering from oxygen deficiency, holds his breath for twenty seconds, or largely reduces his breathing during that period, he makes a large change in his oxygen supply. Hence

*From the Medical Research Laboratory, Air Service, Mineola, L. I.

the purpose of the test is largely defeated. The steadiness test, and others in this class, although some show marked effects of low oxygen tension, cannot be used.

The apparatus used in administering the psychologic test we have called the "L V F" apparatus. The principal parts of the apparatus are assembled on a table with a top adjustable in height and slope, supported on a single heavy post from a cast iron base. This table (the so-called Dunlap table) is designed to give the necessary rigid but convenient mounting.

APPARATUS AND METHOD OF TESTING

The apparatus mounted on the table is designed to require attention and reaction on the part of the man undergoing the test analogous to the conditions of the pilot in the air. It allows the slightest deviation of reaction or lapse of attention to be noted. It consists of three separate units:

1. A series of fourteen stimulus lamps (2 candle power) arranged in two rows of seven each, with two similarly arranged rows of contact buttons, each button surrounded by a metal washer; a green check lamp and a red error lamp, and a stylus with a hard rubber handle and metal tip. These parts of the unit are so wired electrically that when a stimulus lamp is lighted the corresponding contact button is "alive," and if touched with the metal tip of the stylus causes the check lamp to light. If the washer surrounding any of the buttons is touched with the stylus at any time, the error lamp is lighted.

2. Two ammeters, mounted on a metal arm above the table top. These are connected in series with two rheostats, one on the upper side of the table top at the edge nearer the reactor, the other underneath, at the edge nearer the observer. One ammeter faces the reactor, the other the observer. A change in the resistance made by the observer at his rheostat, causing a change in the ammeter reading, may be compensated for by a change in the reactor's rheostat, by which the original ammeter reading may be restored.

3. A small electric motor, mounted on the upper side of the table top. This motor is connected in series with a third rheostat underneath the table. A two-way lever switch mounted underneath the table at the observer's edge and a rocking pedal two-way switch on the floor under the table, connected with the rheostat, can be cut out (thus increasing the speed of the motor) by either switch, and again cut in (thus restoring the lower motor speed) by either switch.

In order to control the fourteen stimulus lamps, lighting them at the proper time, an accessory piece of apparatus is mounted on a small table in any convenient position, and electrically connected with the apparatus on the Dunlap table. At first, this accessory apparatus consisted of a button board, having fourteen buttons corresponding to the fourteen lights; and from these buttons an enlisted man controlled the lighting of the stimulus lamps, timing his actions by a stop-watch. For this button board an automatic distributor is now being substituted, which both times and selects the lights, being operated by a synchronous motor.

Before the rebreathing is commenced, the reactor is given carefully formulated instructions, and if necessary he is coached during the first three minutes of the work. His tasks are as follows: 1. As soon as a stimulus lamp lights he must touch with the stylus, held in the right hand (except in the case of left-handed subjects), the corresponding "button," touching it accurately and carefully. 2. Whenever the motor increases speed, as indicated by a change in its sound, he must bring the speed down to normal again by throwing his pedal switch. 3. When the hand of the ammeter is changed from its standard position, he must bring it back to standard by varying the position of the rheostat handle.

During the early part of the test, the psychologist notes the composure and attention of the reactor, and his comprehension of the instructions; also his motor tendencies, which are recorded in a fixed scale of types. Further, the psychologist

watches for the beginning of the effects of oxygen deficiency on attention and coordination; for the moments at which these effects attain a certain standardized importance, and for the final moment of "complete inefficiency," which will be followed very quickly by a complete breakdown and unconsciousness unless the reactor is given air. Since the change in the reactor's condition is very rapid at this phase, and the effects on the nervous system lag behind the respiratory conditions somewhat, prompt relief is necessary, or the reactor may become unconscious after being given air: before the renewed air supply "catches up" with the nervous system, as it were.

RESULTS

The various ways in which the effects on coordination and attention are manifested in different reactors have been carefully analyzed and studied, and, as a result, very satisfactory results are obtained.

In addition to the practical application of the tests to the rating of aviators, we have obtained results that have considerable scientific value for future psychologic work. The application of our general method (that is, involving a group of continuous tasks) to the study of problems of drug and fatigue action is an obvious possibility. Our specific apparatus and routine are adapted to the oxygen rating problem alone, but modifications to suit the purposes of research may be readily made. One such modification has been made already by Captain Dockeray, for work on fatigue and "staleness," and is being given thorough trial. Carefully worked out series of experiments on discrimination and judgment, code translation, mathematical operations, memory, auditory functions, etc., have been made under the supervision of Captains Dockeray and Johnson and myself for the purpose of checking my earlier results, and tests on handwriting have been made by Major Watson in the low pressure tank. These, in addition to their bearing on the rating tests, have produced important scientific results.

In working on the psychologic factors in blood pressure changes, striking indications of the presence of which appeared in the rating tests, we have found strong evidence that apprehension is uniformly accompanied by a rise in systolic pressure, which tends shortly to return to normal, but that when actual fear is present the rise is much more sustained. The conditions under which the rise due to apprehension occurs are somewhat complicated; we should have reason to expect it under practical conditions, for example, when the flying cadet is notified that he is to make a flight, with possibly entire subsidence a short time later when he actually gets into the machine.

Some Thrift Expedients in Germany.—P. Bonnette relates in the *Presse médicale* of recent date that the Germans are putting up fruits with tablets of sodium benzoate and sodium cinnamate, without sugar. The sugar can be added when they are to be served if desired. Milk to be transported any distance is frozen in large cakes kept in isolating containers. Fallen leaves are collected in large quantities, dried in ovens, ground, mixed with molasses and pressed into cakes which are fed to animals in the place of oats. He quotes a Munich paper to the effect that these dried leaves make excellent fodder for animals, especially the leaves of the elder. They are said to be richer in albumin than hay, and easier to digest as they do not contain so much cellulose. Visitors to the Leipzig fair were notified that they must bring their own tablecloths and napkins if they wanted any. Shrouds for the dead are made of paper, and he states that it is being debated whether to make it compulsory to exchange the clothes of the dead for paper substitutes.

V. THE EFFECT OF ALTITUDE ON OCULAR FUNCTIONS *

WILLIAM H. WILMER, M.D. (WASHINGTON, D. C.)

Colonel, M. C., N. A.

AND

CONRAD BERENS, JR., M.D. (NEW YORK)

Captain, M. R. C., U. S. Army

MINEOLA, L. I., N. Y.

The examination of the aviators for the Air Service of the United States is much more strict than that of any other nation. In spite of the careful examination that eliminates men with manifestly imperfect eyes, fliers sometimes exhibit marked derangement of the ocular functions under the stress of flying and the conditions connected with it.

In all articles pertaining to the selection of aviators, from the Allies or from alien countries, normal vision is considered to be the chief requisite. Surgeon H.

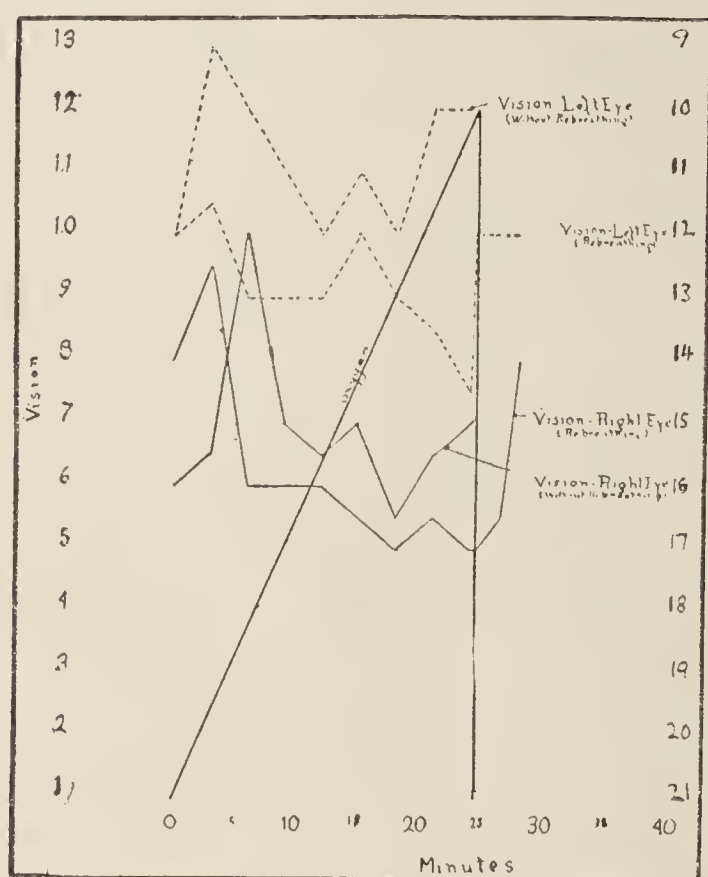


Fig. 1.—Effect of lack of oxygen on visual acuity, showing decrease during test on rebreathing apparatus.

Graeme Anderson of the Royal Naval Service and adviser to the British Air Medical Service, in a discussion of the physical qualifications of fliers, says, "Practically every one of the physicians and officers taking part in the discussion agreed that the function of vision was of the greatest importance."

With this in mind, visual acuity under oxygen depletion, as compared with the behavior of this function under normal oxygen supply, has been studied with the aid of the Ives visual acuity test object, Snellen's type and Johnson's apparatus.

It was soon found that Snellen's type and similar test objects were unsatisfactory for use with the rebreathing apparatus and that the observations thus made were inconclusive. The accompanying tabulation gives the results of visual tests made on thirty-three subjects on the rebreathing apparatus and in the low-pressure chamber, with the aid of the Ives instrument.

The subjects are classified as normal and subnormal, that is, those who, so far as the eyes are concerned, would pass the examination for the flying corps and those who would be ocularly disqualified.

RESULTS OF VISUAL TESTS

	No.	Normal Per Cent.	Subnormal. No. Per Cent.
Vision improved	3	12	..
Vision deteriorated	7	28	3
No change	15	60	5
			62.5

The eight subnormal cases were so classed because of defective vision due to errors of refraction.

As Dr. Guilbert of the French Air Service says that, "at 2,000 meters, in general, the visual acuity increases by a third by reason of the congestion of all the organs of the head, and in particular of the choroid and retina," we have tested the visual acuity of twelve subjects while inhaling 2 minims of amyl nitrite, thus causing congestion of the vessels of the head. In all of the cases but one (a myope) there was impairment of the vision during the period of maximum nitrite effect.

JUDGMENT OF DISTANCE AND STEREOSCOPIC VISION

In the judgment of distances there are many factors involved, practice and training play a great part. The power to stereotype accurately and quickly gives, according to our experience, most valuable aid in determining the flier's ability to judge distance.

The stereoscopic vision was tested, on the Henderson rebreathing apparatus and in the low-pressure chamber by the use of the ordinary stereoscope. The ability to maintain perfect stereoscopic vision at different altitudes was noted.

Six normal cases examined on the rebreathing apparatus showed change in only two. These manifested a confusion in this power at high altitudes.

One of the three subnormals examined in this way became confused at the time of his general break; the other two remained unchanged.

Three normals and three subnormals were taken in the low-pressure chamber. One out of each group showed a confusion at high altitudes. One of these manifesting confused stereoscopic vision was rapidly restored to normal by the administration of oxygen.

REACTION TIME

It is absolutely essential that the pilot think and act quickly and accurately, for the man with the quickest reaction usually lives to tell the tale. The French and Italians have placed great confidence in determining simple reaction time, that is, one possible reaction to one possible stimulus. This form of reaction is too apt to become a simple reflex and hence become independent of the higher processes. Therefore, this laboratory has chosen the Reeves visual discrimination reaction time experiment with four possible reactions and five possible stimuli. The subject sits facing a ground glass plate on which the stimuli appear, and he reacts to the various stimuli by pressing the key corresponding to the stimulus presented. The instant the stimulus appears, the Dunlap chronoscope begins recording time, and is stopped by the subject's reaction. All false reactions are recorded by means of a secondary circuit. The average discrimination reaction time for normal subjects has been found to be around half a second.

*From the Medical Research Laboratory, Air Service, Mineola, L. I.

COLOR VISION

Normal color vision is considered a requisite for a good pilot by all Allied air services. The object of our tests has been to determine the effect of low oxygen tension on color vision.

Stilling's plates were used in these tests. Five subjects were examined in the low-pressure tank and carried to 20,000 feet or above. Five subjects were examined on the rebreathing apparatus and carried above 20,000 feet. This series of subjects, during the entire experiment, showed no change in color vision. Threshold color vision will be considered under retinal sensitivity.

FIELD OF BINOCULAR FIXATION

It is important that the aviator be able to carry the eyes as far as possible in the various directions without seeing double. If a man has a contracted field of fixation, it necessarily impairs his ability in flying. The field of binocular fixation has been taken by means of the Schweiger perimeter modified for binocular use or by means of a large tangent screen, the Wilmer wand and Wilmer glasses being used. Of 122 men acceptable for the Aviation Section, Signal Corps, who have been examined and sixteen who were not acceptable, 7.37 per cent. of the normals showed contraction of the field of binocular fixation, and 50 per cent. of the subnormal men showed contraction. Narrowing of the field was most marked above.

MUSCLE BALANCE

Normal muscle balance should be insisted on, for even a small defect may be accentuated by the strain of flying and lack of oxygen, resulting in diplopia or at least a marked contraction of the field of binocular fixation at low altitudes. Exophoria and hyperphoria are more serious than esophoria. Twenty-five men,

feet. Adduction decreased 1.75 degrees at 15,000 feet and 1.90 degrees at 20,000 feet. Sursumvergence decreased 1.15 degrees at 15,000 and 1.25 degrees at 20,000 feet.

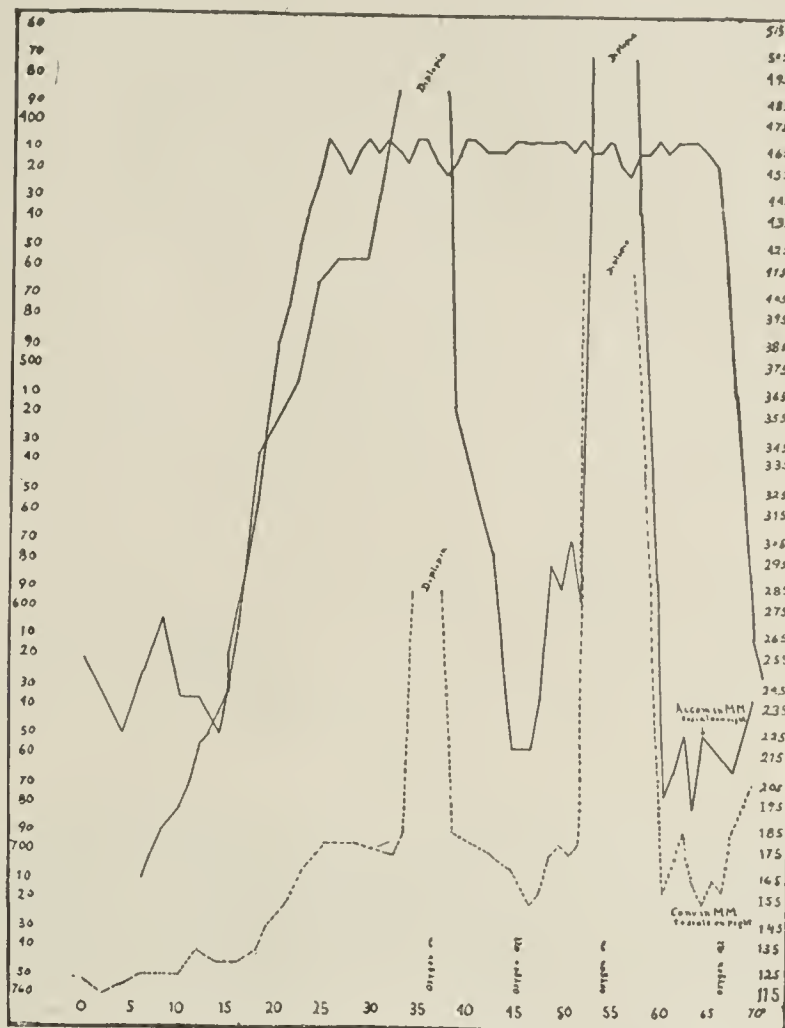


Fig. 3.—Falling off of accommodation and convergence in low-pressure chamber and return of strength on administration of oxygen.

FIELD OF VISION

Every aviator insists primarily on the broadest visual field obtainable; and in view of the fact that the research work done shows a contraction of the visual field under lowered oxygen tension, it is important to see that poorly constructed goggles do not further cut down the fields.

The fields for form and color have been taken in the low-pressure chamber at 5,000, 10,000, 15,000 and 20,000 feet; and when contraction is noted at 20,000 feet, oxygen is administered. To make sure that the changes are not due to fatigue, controls have been taken at sea level corresponding in time of day and in time interval to those taken in the low-pressure chamber. At 5,000 and 10,000 feet there is usually a slight enlargement of the fields for form and color, at 15,000 a slight contraction, and at 20,000 a marked contraction. Twenty men have been examined, and at 20,000 feet the fields for form have shown a contraction of 14 per cent. of their original size below, 3.5 per cent. in the temporal field, 4 per cent. above, and 8 per cent. in the nasal field. The red has lost 9 per cent. below, 6.5 per cent. temporally, 4 per cent. above, and 6 per cent. nasally. The green, 4.5 per cent. in the lower, 5 per cent. in the temporal, 5 per cent. above, and 25 per cent. in the nasal field. Five minutes after returning to sea level, fields are normal in size. Giving oxygen at 20,000 feet for four or five minutes causes a return of the field to normal. Several fields have been taken on the rebreathing apparatus, and the results are fairly comparable with those found in the low-pressure chamber.

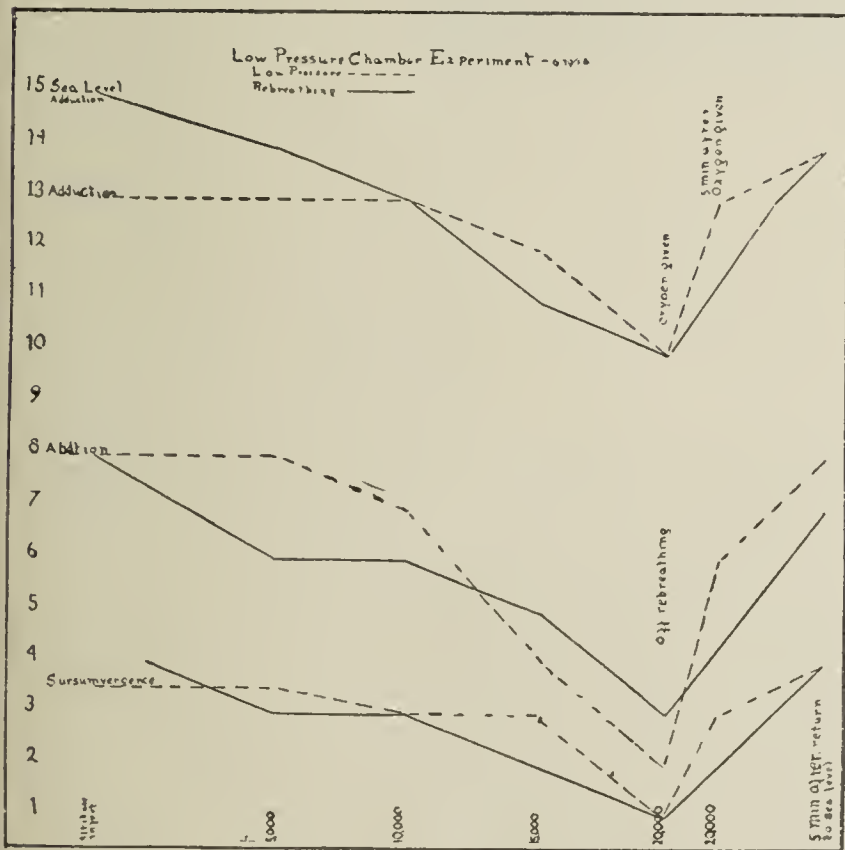


Fig. 2.—Effect of lack of oxygen on the strength of the ocular muscles. Rebreathing and low-pressure findings compared. Note return of strength on administration of oxygen, even when under low barometric pressure in the decompression chamber.

ocularly acceptable for the Aviation Section, Signal Corps, were examined in the low-pressure chamber and on the rebreathing apparatus. Abduction decreased 1.31 degrees at 15,000 feet and 1.55 degrees at 20,000

PERCEPTION OF MOTION AND ITS DIRECTION BY
THE RETINA

Perception of motion and its direction is of great importance to the aviator, and a test has been devised in this laboratory that will give some indication of the flier's power in this respect. The best pilots feel that by constant practice they may develop this important function to a marked degree. The test is performed with the subject seated 15 inches from a Bjerrum screen, fixing with both eyes a 3 mm. white pin placed in the screen on a level with the eye. A small light, which is visible through the cloth or neutral gray paper is used as the test object. The point at which the test object is first noted and where the direction of motion in three planes is first accurately described is recorded on a chart for use with the tangent screen. In the men examined so far, there is an average difference of 10 degrees between the time when the test object is first noted and the direction of motion

numerous enough to draw very definite conclusions. We have found, however, no correlation between the intra-ocular tension and the blood pressure, lowered oxygen tension and various cardiovascular changes. Later on, a detailed report on this subject will be possible.

ACCOMMODATION IN FLYING

It is important that the flier maintain his ability to accommodate under all conditions to which he is subjected, for his life may depend on his ability to see clearly. The near point of accommodation has been taken every minute in the low-pressure chamber and on the rebreathing apparatus, a Prince rule with Jaeger test type or the Duane disk being used as a test object. Normal runs have been made without the low oxygen tension effect for the purpose of comparison. One hundred and forty-eight men, acceptable for the Aviation Service as fliers, were examined on the rebreathing apparatus. Of these, 44.6 per cent. showed

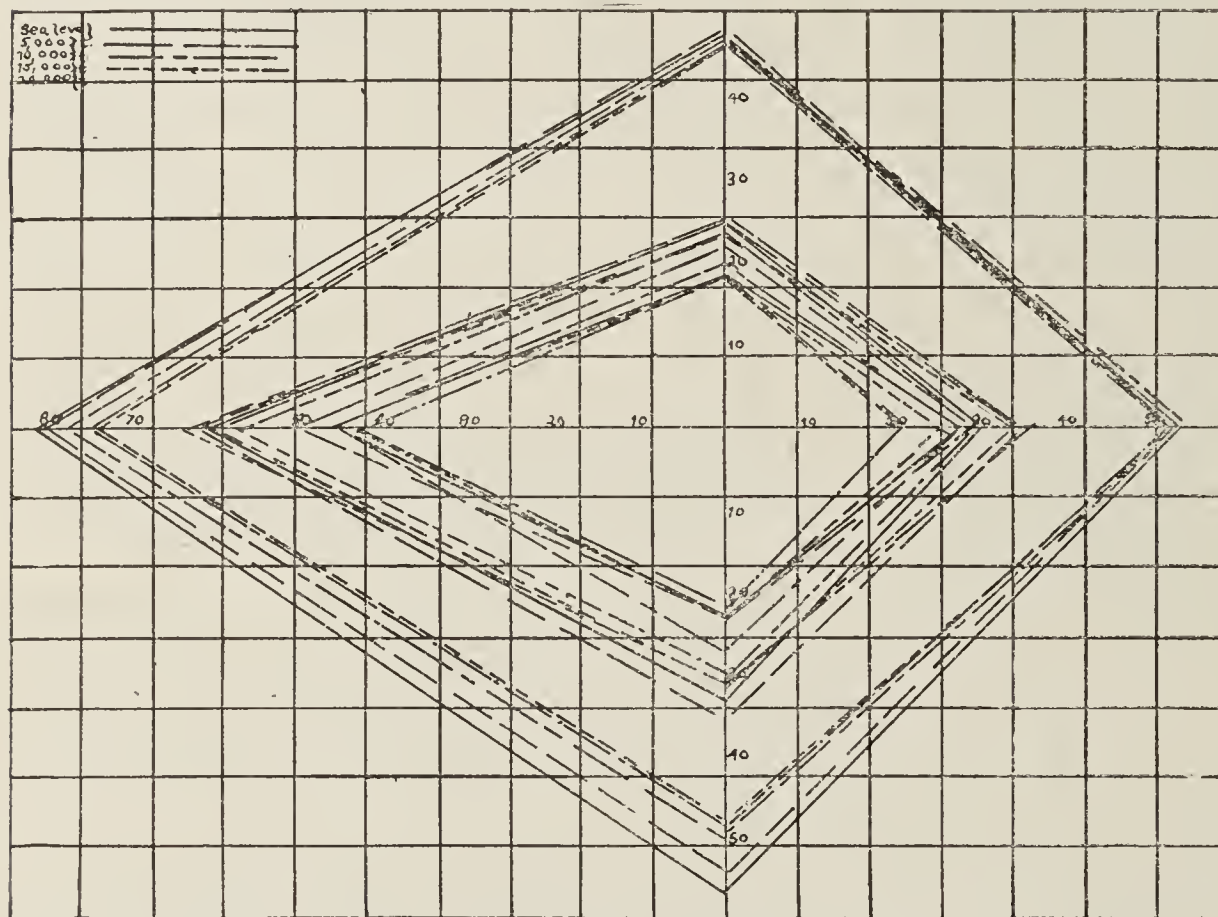


Fig. 4.—Contraction of field of vision in low-pressure chamber at pressures equivalent to 5,000, 10,000, 15,000 and 20,000 feet.

is accurately described. It is hoped that this test may prove of value in the selection of aviators for special work; for example, scouting and fighting.

THE EYE AND THE EQUILIBRIUM

The eye is one of the many factors in the complicated problem of maintaining equilibrium. That many aviators depend largely on their visual impressions in the maintenance of equilibrium is evidenced by the fact that many of them tie a piece of string as a streamer to one of the forward struts, thus to obtain the first sign of a side slip while flying in a cloud.

INTRA-OCULAR TENSION

In connection with the various aviation problems, where there is the factor of lowered barometric pressure as well as lowered oxygen tension, the intra-ocular tension has been taken at different altitudes. Fourteen men have been examined in the low-pressure chamber. The examinations so far have not been

a receding of the near point, and 18 per cent. showed improvement, fluctuating changes in accommodation were noticed in 14.4 per cent., and no change in 23 per cent. Eleven subnormal cases were examined, and 63.7 per cent. manifested a decrease in accommodative power, 18.3 per cent. an apparent increase, 9 per cent. no change, and 9 per cent. variable reactions. The low-pressure chamber findings were practically the same as those with the Henderson rebreathing apparatus. Of seventeen normal men examined, 47 per cent. showed decrease in accommodative power, 11.7 per cent. increase, 23 per cent. fluctuation, and 17.8 per cent. no change. Three subnormal subjects were examined in the low-pressure chamber; two showed a decrease in accommodative power, and the other gave a varying reaction. When the subject is brought to sea level the accommodation comes back rapidly in some and slowly in others. The inhalation of oxygen invariably causes a return to normal, even though the subject may be kept at 20,000 feet in the low-pressure chamber.

That these changes do not follow the cardiovascular reactions is shown by the fact that fifty-seven men, exhibiting acceleration of pulse rate and maintenance of pulse pressure, showed in 42.1 per cent. decrease in the power of accommodation, and 15.8 per cent. increase in power of accommodation, 15.8 per cent. fluctuation in accommodation, and 36.3 per cent. no change in accommodation. Our researches would lead us to believe that hyperopes and subjects with a marked amount of hyperopic astigmatism show the most marked changes in accommodation.

Fatigue of accommodation has been studied with Howe's ophthalmic ergograph as modified by Captain Berens. Normal three-minute runs were made without the low oxygen tension effect as controls; then

three-minute runs with the same time interval were made in the low-pressure chamber and on the rebreathing apparatus. The findings on the rebreathing apparatus and in the low-pressure chamber showed, at 15,000 feet, a more rapid onset of fatigue than was evidenced by the controls; and at 20,000 feet, the fatigue was marked. The administration of oxygen in the low-pressure chamber or rebreathing apparatus rapidly restored the normal tone of the ciliary muscle.

CONVERGENCE

The near point of convergence has been tested, because of the belief that the aviator should have binocular vision and that a weakness in convergence, which might lead to diplopia, would certainly impair his efficiency and could easily result in an accident. A U-shaped piece was cut out of the Prince rule to fit over the nose, and a 2 mm. black dot on a white background was used as a test object for making this determination. Readings were taken without low oxygen tension effect and with low oxygen tension effect, and the effect of the administration of oxygen was determined. Readings were taken every two minutes and charted. One hundred and forty-seven men with normal eyes were examined on the Henderson rebreathing apparatus, of whom 50.3 per cent. showed decrease in convergence power, 17.6 per cent. increase, 11.5 per cent. fluctuation, and 20.6 per cent. no change.

Of eleven subnormal men examined (six were disqualified for visual acuity and five for muscular imbalance), 45.7 per cent. showed decrease in power of convergence. Increased converging power, fluctuating changes and no change in the near point of convergence were each noted in 18.1 per cent. Of sixteen normal men examined in the low-pressure chamber, 50 per cent. showed falling off in power of convergence, none showed increase, fluctuating reactions were present in 12.5 per cent., and 37.5 per cent. remained unchanged. In the subnormal group the recession of the near point was very marked, sometimes resulting in diplopia.

It was attempted to show what relationship, if any, exists between the convergence and the cardiovascular reactions to low oxygen tension. Seventy-two subjects showing an increase in pulse rate and a maintenance in pulse pressure gave these convergence changes, which would seem to indicate the ocular changes cannot be predicted by the cardiovascular reaction and vice versa: 54.2 per cent., decrease in power of convergence; 15.3 per cent., increase; 9.7 per cent., fluctuation, and 20.8 per cent., no change. The results would indicate that the Henderson rebreathing apparatus and low-pressure tank give almost identical findings, and in each case the determining factor seems to be the lowering of oxygen tension, because the administration of oxygen soon causes the convergence near point to return to normal, irrespective of the barometric pressure.

Fatigue of convergence has been studied with Howe's ophthalmic ergograph. Normal three-minute runs as controls were made without the low oxygen tension effect; then three-minute runs with approximately the same time interval were made in the low-pressure chamber and on the rebreathing apparatus. The findings on the rebreathing apparatus and in the low-pressure chamber showed a more rapid onset of fatigue than occurred with the controls. At 15,000 feet and at 20,000 feet the fatigue was marked, as was the case with accommodation. Here also the administration of oxygen caused a rapid return of converging power.

RETINAL SENSITIVITY

It is important that the retina be normally sensitive to light impressions, especially for those men who must fly at night, notably bombers and fliers doing patrol duty. A test for the contrast sensitivity of the retina has proved most useful and practical for our work, and only men who have normal sensitivity in this respect will be selected for night flying.

In this laboratory, tests to determine the threshold sensitivity of white and colored lights and for contrast are conducted in the following manner:

The Reeves wedge is made of two pieces of glass at a known angle, between which is run a solution of

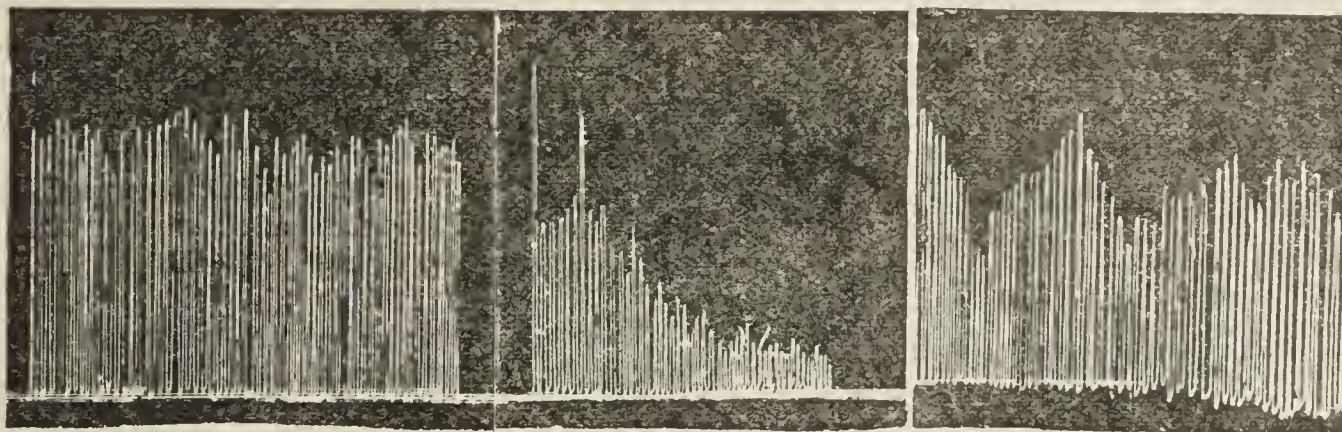


Fig. 5.—Fatigue of accommodation: Normal at sea level (left hand record); rapid fatigue at 22,000 feet in rebreathing test (middle record), and variations occurring 1.3 minutes later, subject breathing normal air (right hand record).

gelatin and neutral dye. The wedge is calibrated in millimeters, which is translatable into the percentage of light transmitted.

To test the threshold sensitivity to light, the subject is placed 20 feet from a spot of light, 3 mm. in diameter. Holding the wedge before the right eye, he slowly draws the slide from its cover, and as the light just disappears, a reading is taken. This reading is in millimeters and is then translated to percentage of transmission.

The threshold for color is taken the same as the foregoing, red and green lights, which are practically monochromatic, being employed.

The test of contrast sensitivity is made with a Reeves wedge and Reeves contrast square. The contrast square is made by placing a square of dark gray paper on a larger square of lighter gray, there being thirteen perceptible differences between the two papers. An illiterate "E" with the same perceptible differences is used as a check of the findings. This is lighted by a 75-watt nitrogen daylight lamp at a given angle and distance from the test object, and the subject is placed 20 feet in front of the object. The reading on the wedge is taken just as the contrast between the squares disappears. The average readings taken with the contrast sensitivity square gives 3.4 mm., and the illiterate

"E" 3.2 mm. To date, the normal for the light threshold of thirty-five subjects is 6.5 mm. The threshold for colors is: red, 4.4 mm., green, 3.7 mm.

Under the rebreathing test the threshold for light has shown an improvement in 25.9 per cent.; 44.5 per cent. show neither improvement nor falling off, and 29.6 per cent. show a falling off in sensitivity.

In the study of the threshold for colors, the red and green both show a falling off in 71.4 per cent., and neither a gain nor a loss in 28.6 per cent.

In former tests with a blue light, which was not absolutely monochromatic, there was improvement in 66.6 per cent. and falling off in 33.4 per cent.

CONCLUSION

In spite of the fact that the tests made in the laboratory are influenced somewhat by the psychologic elements of excitement, concentration, etc., still, we have found very sensitive and definite ocular reactions under the conditions to which the airman is subjected. The changes in the eye (one of the most delicate of the peripheral sense organs) are due mainly to the want of oxygen, and not to the many other suggested conditions, such as lowered blood pressure, decreased atmospheric pressure, carbon monoxid, nervous strain, and vibration of the motor. In our experience, the administration of oxygen prevents the occurrence of the untoward symptoms; but when these symptoms have occurred through its want, oxygen quickly restores the functions to normal.

VI. INFLUENCE OF ALTITUDE ON THE HEARING AND THE MOTION-SENSING APPARATUS OF THE EAR*

E. R. LEWIS, M.D. (DUBUQUE, IOWA)

Lieutenant-Colonel, M. C., N. A.

MINEOLA, L. I., N. Y.

The middle ear mechanism is normally adjusted to transmit sound vibrations in either direction. Ordinarily this apparatus is largely occupied in transmitting sound vibrations from without inward. The membrana tympani is set into vibration by impact of vibrations transmitted by the air in the external auditory canal, and the ossicular chain carries the vibrations across the tympanic cavity to the footplate of the stapes, which, with its annular ligament, fills the oval window. The perilymph there receives the impact, and owing to the venting action of the internal drumhead of the round window, this incompressible fluid is enabled to take up the vibrations and distribute them by way of the sacculus and cochlea in such a manner as to bring about interaction between the sensory cells of Corti and the tectorial membrane. This stimulation causes these cells to emit nerve impulses which are translated in the sensorium into hearing.

Whereas the conformation of the auditory canal, tympanic cavity, sacculus, scala tympani, and scala vestibuli is such as to facilitate delivery of most of the incoming vibrations to the cells of Corti, the petrous bone conducts a certain amount of the incoming vibrations away from their ultimate cochlear distribution.

Any obstruction in the path of these vibrations determines an increase in the conduction of sound vibrations away from the Corti cells, and the volume of such

afferent vibrations is directly proportionate to the amount of obstruction.

Sound vibrations are also conducted to the tympanic cavity by way of the bony structures of the skull, and a certain amount of such vibrations are conducted away from Corti's cells by way of the ossicular chain, membrana tympani and thence the air in the external auditory canal.

By utilizing certain uniform sound stimuli applied in the form of standard tests and observing responses, it is possible to determine the normality of sound conduction and sound perception; also the general character of certain abnormalities of sound conduction and sound perception.

The motion-sensing mechanism of the internal ear is situated within an intricate physical instrument, the utricles and semicircular canals; one half of this physical instrument is housed in the right petrous bone, the other half in the left. Motion to which this instrument is subjected is immediately participated in by the fluid contained within it and brings about an interaction between the hairs of the sensory cells of the cristae and the cupula surmounting them, causing stimulation of these sensory cells and emission of nerve impulses, which are translated in the sensorium as sense of the body being in motion. A certain quatum of these impulses originating in the cells of the cristae are distributed as motor impulses to the extra-ocular muscles, causing involuntary movement of the eyes.

By utilizing certain uniform motion stimuli applied in the form of standard tests, and observing responses in a certain standard manner, it is possible to determine the normality of motion perception of this apparatus, and of eye movements resulting from stimulation of the cells of the cristae; also the general character of certain abnormalities of motion sensing and of eye movements.

Without going into the details of standard tests of the cochlear and vestibular (or motion-sensing) portions of the ear, which would entail a discussion too voluminous for presentation in this connection, it may be briefly stated that experiments have been conducted with a view to determining the effects of altitudes on each of these ear functions. In these experiments, both the Henderson rebreathing apparatus and the decompression tank types of artificial altitude have been utilized.

It has been determined that the hearing function shows no deterioration attributable to impairment of the perceptive element (stimulability of the Corti cells) prior to attaining a degree of altitude that causes acute general functional impairment of all the higher cerebral sensory and psychic centers. This condition is signalized by the onset of semiconsciousness or unconsciousness.

During ascent from a denser to a rarer atmosphere, the sound-conducting apparatus may show transitory interference with function attributable to expansion of air incarcerated within the eustachian tube, tympanic cavity or air spaces of the mastoid resulting in inequality of intratympanic and extratympanic air pressures. As adjustment of these air pressures occurs by venting through the eustachian tube, interference with function of the sound-conduction apparatus ceases.

Such disturbances are much more marked during rapid descent, when the discrepancy between intratympanic and extratympanic air pressure becomes very marked. Cases have been observed in which the extra-

*From the Medical Research Laboratory, Air Service, Mineola, L. I.

tympanic pressure was so great as to cause perforation of the drumhead. Practically all cases showed congestion of the drumhead following rapid descent. Occasionally the irritation and congestion resulting from rapid changes of altitude have been observed to cause acute otitis media.

Observations on the effects of altitude on the motion-sensing function of the ear have revealed nothing in the nature of obtunded ability to perceive motion or alterations in eye reactions to motion stimulus. Certain individuals showed greater inability to tolerate motion stimulus at 16,000 to 18,000 feet than they had shown at the accustomed altitude, as evidenced by the onset of nausea and vomiting. This, however, may be regarded as indicative of the onset of altitude sickness (ordinary "mountain sickness") rather than of altered vestibular function.

VII. EFFECTS OF LOW OXYGEN PRESSURE ON THE PERSONALITY OF THE AVIATOR *

STEWART PATON, M.D. (PRINCETON, N. J.)

Major, M. R. C., U. S. Army

MINEOLA, L. I., N. Y.

The effects of diminished oxygen supply on the personality cannot be explained until the results of the reduction on the functions of different organs have been made known. Until this information is gathered, our views on this subject are based to a great extent on a review of clinical data, illustrating some of the changes of temperament and character of the aviator taking place in the effort to adjust the organism to high altitudes.

Before reference is made to a few of the symptoms already noted, it is desirable to remind the reader of the fact that the problems involved in the study of any personality are not merely psychologic, but should include the biologic analysis of the reactions of the entire organism, considered as a living unit. It is extremely important that this point of view should be appreciated and accepted by the investigator. A personality study is a great deal more than a mere psychologic analysis, and often the correct interpretation of emotional and mental reactions is to be sought in the solution of some complex biologic problem.

Among the more frequent phenomena associated with reduced oxygen pressure is an increased irritability of the reflexes, particularly noticeable in very active knee-jerks. Sometimes there is a reduction of the knee-jerk, due to an apparent hypertension of the muscles and an inability to relax them. In these cases reinforcement is necessary in order to bring out the knee-jerk. This evidence of increased muscular tension in connection with the aviator is an interesting phenomenon, and deserves careful consideration. Probably impulses from the higher cortical centers are responsible for this interference with the tendon reflexes. In order to facilitate the study of these reactions it is desirable that the capacity of the aviator to relax his muscles should be tested before as well as after flying. The muscles to be tested should include those of the face, head and neck as well as the arms, legs, hands and feet. In some cases the increased tension seems to be localized. An aviator who is capa-

ble of relaxing his limb muscles may show a very tense condition of his facial muscles, or vice versa. The mental tension is reflected in many different ways. Those who suffer from the effects of reduced oxygen supply generally give some indication of this trouble in their facial expression. Varying degrees of anxiety may be represented, ranging all the way from the indefinite expression, accompanying the ill defined consciousness that some impossible task or unpleasant experience is impending, to a state of mind indicating that well formulated ideas play an important rôle in the disturbance, causing not merely apprehensiveness but also an anxiety in which intellectual processes have become active determining factors. In the indefinite states of apprehensiveness and ill defined anxiety the reactions correspond to the conditions described by the French as *angoisse*, a condition in marked contrast to the one described as *anxiété*, in which the disturbances of the higher mental responses are more strikingly in evidence than are the bulbar symptoms, marked by disorders of the circulatory, respiratory and other physiologic systems.

The occurrence of specific sensations of pain are indicative of local disorders, but the evidences of bodily and mental distress and the varying degrees of discomfort and unpleasantness evoke a variety of symptoms. Not infrequently these signs of imperfect adjustment to life in the air are intensified by conflicting trends: one a desire to continue in the Air Service and the other a consciousness of not being equal to the task. The failure of the aviator to face the dilemma squarely and settle the conflict definitely invariably leads to complications often ending in a serious loss of nerve and morale.

Mental disturbances of this character occurring as the result of lowered oxygen supply at times become sufficiently accentuated to suggest the beginning complex associated with an anxiety psychosis. In addition to the emotional disorders there is generally a very slight incoordination of the finer muscular movements, and often a marked fine tremor of the fingers and tongue.

It is interesting to note that from time to time clinicians have suspected the occurrence of some defect in the amount of oxygen supplied in connection with the various forms of anxiety neuroses. Using a form of treatment based on empiricism, attempts have been made to remedy this condition. The French clinicians for some time have recommended that oxygen be administered in these neuroses; and one or two different forms of apparatus for giving the oxygen by subcutaneous injections have been used with varying degrees of success.¹ The amount of pain accompanying the injections and the difficulty in perfecting the technic have been the chief objections to the use of this method of treatment. Heckel¹ says the method of administration that he has devised obviates these defects.

Unquestionably the administration of oxygen to a person who has been subjected to an experimental test or has ascended to a high altitude in a plane is followed by a number of interesting reactions, which have not received the attention they deserve.

We have noted that the character of the dermagraphia in a person who has been deprived of oxygen changes completely after oxygen has been inhaled for

1. Heckel, F.: *La neuroses d'angoisse*, Paris, Masson & cie, 1917, p. 496.

* From the Medical Research Laboratory, Air Service, Mineola, L. I.

one or two minutes. The blotching character of the red line noticeable in states of fatigue, as well as following a period of reduced oxygen supply, disappears after the inhalation, and the puckering of the skin and clear edges of the line suggest that a decided improvement in the vascular tone has taken place.

THE OCCURRENCE AND SIGNIFICANCE OF *B. WELCHII* IN CERTAIN WOUNDS *

JAMES L. STODDARD, M.D. (BOSTON)

Captain, M. R. C., U. S. Army

FRANCE

It is well known that *B. welchii* is usually very common in early wounds. Studies by Fleming¹ in 1914-1915 showed its presence in 81 per cent. of 127 wounds from one to seven days old; in 34 per cent. of fifty-six wounds of from eight to twenty days, and in 18.5 per cent. of wounds more than twenty days old. Goadby² presents figures for the occurrence of anaerobes in wounds, but none for the incidence of *B. welchii* in particular. He found a markedly less percentage of saccharolytic and ensporing anaerobes in excised than in nonexcised wounds. Plisson³ found harmless persistence of *B. welchii* until the tenth day in twenty-two of 186 cases, and in three beyond the fifteenth day. Taylor⁴ proved the presence of gas-forming bacilli on sequestrums in 14 per cent. of a series of wounds with sequestrums aged from forty-five to 300 days.

Taylor's figures show that *B. welchii* can occur and persist for a very long time on bone and in deep parts of wounds. Whether cultures from the exudate would be positive in these cases is a different question. Taylor considers the persistence to depend on the protection of the bacteria from the body fluids; hence it seems improbable that the bacilli would appear in the exudate taken by the usual cultural methods.

Since the observations recorded here were made partly to discover as far as possible the significance of the usual cultural examination of wounds for *B. welchii*, cultures were taken by the routine methods, which consisted in (1) taking specimens of the exudate on cotton swabs; (2) planting in recently boiled and cooled milk of neutral reaction, and (3) anaerobiosis by the pyrosoda method of Wright or by the hydrogen and palladium asbestos method. Milk is not quite so good a cultural medium for *B. welchii* as glucose bouillon, for it takes a slightly heavy inoculation to get growth. It is used, however, because it is the only practicable method of getting a characteristic culture in twenty-four hours, and hence is the usual routine test. No culture method gives growth with doses under a certain size; hence the absolute presence or absence cannot be ascertained in any event.

The points especially considered here are: (1) the occurrence of *B. welchii* (as determined by the usual culture test) in wounds at a base hospital during a quiet period when casualty clearing station treatment

is thorough; (2) the occurrence of gas infection in the same series and its relation to the occurrence of *B. welchii*; (3) the persistence of *B. welchii* after gas infection, compared with its persistence in wounds in which no gas infection has occurred; (4) the value of examination for *B. welchii* in regard to the diagnosis of cases of gas infection occurring in excised wounds, and (5) the relation of *B. welchii* to suture.

THE OCCURRENCE OF *B. WELCHII* IN WOUNDS AFTER THOROUGH CASUALTY CLEARING STATION TREATMENT

It seemed probable that a quiet period would afford an opportunity to determine the effectiveness of casualty clearing station treatment, when at its best, in reducing the occurrence of *B. welchii* in wounds. During the time of the study, a culture was taken of each wound at the first dressing or soon after, of patients arriving at the hospital. Only wounds involving muscles were included. Trivial wounds and clean bullet wounds were eliminated. A consecutive series of 137 cases was thus obtained.

B. welchii was proved present by culture in 23 per cent. of the cases. Of nineteen wounds of one day, *B. welchii* occurred in 26 per cent. Of forty-four wounds of two days, it was found in 20 per cent.; in twenty-seven wounds of three days, in 19 per cent.; in thirty-five wounds of from four to seven days, in 25 per cent., and of four wounds of from eight to ten days, in 50 per cent. Eliminating the figures for eight to ten days as based on too few cases, the occurrence is markedly uniform in wounds of the different ages.

The occurrence of the same or a higher incidence in older cases is explicable by the fact that these patients came late to the hospital, largely because they had unusually severe wounds or had had a previous gas infection at the casualty clearing station. In view of the persistence of *B. welchii* after gas infection (described later), the incidence was calculated in wounds that had not had a previous gas infection. The incidence for wounds up to four days remained the same, but for wounds of from four to seven days it fell from 25 to 16 per cent., and for the whole series from 23 to 19 per cent.

Smear examination was done merely to obtain a rough idea of the numbers of *B. welchii* present. As a rule, only two distinctions were made: (a) those having no *B. welchii* or extremely few, so that a considerable search was necessary to find them; these are called negative; (b) those having more; these are called positive.

The incidence of cases with positive smear and culture (eliminating cases with previous gas infections) was: in one day wounds, 18 per cent.; in wounds of two days, 18.6 per cent.; in wounds of three days, 8 per cent.; in wounds of from four to seven days, 11 per cent., and in the series as a whole, 14.5 per cent.

These low percentages for the occurrence of *B. welchii* seem to indicate extremely effective previous treatment. The influence of excision at first seems to be absent, for of the cases in which excision was performed, according to the field medical card, *B. welchii* was present in 23.5 per cent., while of those not stated to be excised it was present in 19.4 per cent. The explanation lies in the fact that the more severe wounds are the ones that are excised and are also the ones in which *B. welchii* is most likely to occur. Eliminating cases with previous gas infection, the occur-

*From U. S. Army Base Hospital No. 5.

1. Fleming, Alexander: The Bacteriology of Septic Wounds, Lancet, London, 1915, 2, 638.

2. Goadby, K.: The Bacterial Flora of War Wounds, Brit. Med. Jour., 1918, 1, 581.

3. Plisson, L.; Ramond, and Vergelet, C.: The Bacterial Flora of War Wounds, Bull. Soc. Méd. d. Hôp. de Paris, Dec. 21, 1917, p. 1302.

4. Taylor, K.: Persistence of Bacteria within Sequestra, Ann. Surg., 1917, 66, 522.

rence of *B. welchii* in the excised wounds is not lower than in the nonexcised. These results suggest, at least, that good judgment was used in performing excision, giving a very uniform output of cases.

Goadby's finding of a higher percentage of saccharolytic anaerobes in nonexcised than in excised wounds has only the appearance of differing from these figures. His nonexcised cases included nearly all cases at a period when excisions were little done, while his excised wounds occurred at a different period when the percentage of excisions was high. Consequently each of his series included wounds of all sorts, while in this series the nonexcised were merely the lighter wounds left over after the severe ones had been done.

INCIDENCE OF GAS INFECTION IN THE SERIES

Definite muscle gas infection after arrival occurred in the series in 2.9 per cent. of the cases. If a few slightly doubtful cases are included, the total is 5.1 per cent. Of the cases with *B. welchii* on culture, unquestionable gas infection occurred in 13 per cent.; including slightly doubtful cases, the figure becomes 22.5 per cent.

THE PERSISTENCE OF *B. WELCHII* IN THE WOUNDS

The cases in which *B. welchii* was found were followed, as far as possible, until the cultures became negative. Usually more than one negative examination was obtained. Besides the cases in this series, records are included from a previous series of 200 nonconsecutive cases.

In the cases without gas infection, a fairly marked change from positive to negative was evident by the eighth day of the wound. Before this, 30 per cent. had become negative; but after this day, only 17 per cent. remained positive, and these for a short time, as a rule.

Of the cases with gas infection, the period of change from positive to negative cultures was not evident until about the twelfth day of the wound; before this, only 12 per cent. had become negative; while afterward, 36 per cent. remained positive.

Thus there is evidently a greater tendency for the persistence of *B. welchii* in wounds having muscle infection. This is in spite of the fact that each case of gas infection had thorough removal of débris and excision, and in each case the symptoms of an active infection stopped immediately after the operation. Even if the reckoning is made from the time of the operation as a starting point, the period of change comes on the tenth or eleventh day. The persistence was remarkable on casual observation before the figures were obtained.

A persistence in noticeable numbers in smears occurred in the gas infection series until about the eighth day of the wound. There seemed to be a fairly regular diminution in numbers until the eighth day, and 43 per cent. had become negative by that time, while 20 per cent. remained positive beyond the eighth day. In the cases without gas infection, more than 75 per cent. had become negative before the eighth day, and only 15 per cent. remained positive beyond it.

These figures indicate the tendency to persist longer in moderate numbers when a gas infection has pre-existed. In fact, in wounds without gas infection the tendency is strong for bacilli to become very few early in the history of the wound. Half of the smears had become negative by the fifth day, while by that time only 18 per cent. had become negative on culture.

Of the gas-infected cases, however, only 12 per cent. of the smears had become negative by the fifth day, and none by culture.

These results suggest that *B. welchii* does not flourish long in surface exudate. The time of persistence in gas infection cases, with the gradual diminution in numbers, suggests either foci of infection, gradually overcome, superficial growth in the exudate, or a gradual exudation of the bacteria from the previously infected tissues. Local foci of active infection seem extremely unlikely in view of the thorough operation in each case, and the entire absence of clinical evidence of infection. A superficial growth in the exudate might account for the early persistence in considerable numbers; but the long, late persistence in numbers practically imperceptible in the smear suggests rather gradual riddance of the bacteria from the infected muscle. Such a process would also account for the large numbers soon after operation. Pathologic studies show the presence of *B. welchii* beyond the area of apparent infection, and it is often easy in cases of heavily infected wounds to demonstrate the passage of bacteria from within the infected wall.

The marked tendency to early dying out in numbers in cases not infected is additional evidence of the difficulty of the continued growth of *B. welchii* in surface exudate in open wounds. There are always a certain number of cases of slight local gas infections which are not noted clinically. It seems probable that this must account for a certain number of the instances of persistence in the cases classified as not infected. This makes the probable true persistence in moderate numbers very small. The later persistence in very small numbers is probably to be explained by the presence of small foci, such as pockets, in which favorable anaerobic conditions are obtained; it is most noticeable in very large wounds which are apparently quite open, but in which, on account of the magnitude of operation, it is difficult to carry out a complete excision or removal of débris.

THE VALUE OF EXAMINATION FOR *B. WELCHII*

It is apparent on examination of the slides that in cases of active gas infection, bacilli are usually present in much larger numbers than in wounds of the same age without gas infection. Thus, of the wounds of from one to three days with *B. welchii* on culture but without gas infection, 40 per cent. showed negative smears; 46 per cent. showed very moderate numbers, and only 4 per cent. showed fairly large numbers. Of the gas-infected cases (twenty in number), 5 per cent. showed negative smears, 40 per cent. moderate numbers, and 55 per cent. large numbers. Thus the finding of large numbers of *B. welchii* in well excised wounds of from one to three days seems strong presumptive evidence of active gas infection. (It may be remarked that of these particular gas-infected wounds, practically all had been excised.) The older the wound, the stronger the evidence.

If the cultures are positive but the smears negative, or if the cultures are negative, it is somewhat strong evidence against gas infection. It is not at all conclusive evidence, for in certain cases of gas infection, *B. welchii* may be absent altogether. In other cases, in which *B. welchii* is a factor, the infection may begin about a foreign body deep in the wound and the culture be negative. It does not seem likely that these cases make as much as one fifth of the cases of gas infection.

If moderate numbers occur, the evidence is of little more value than is obtained by culture alone.

The presence by culture alone reduces the chances from 1:30 against a given wound in this series being gas infected to 1:7, and hence is so slight evidence as to be hardly worth considering.

It should be emphasized that these figures apply only to wounds of the special character described. It seems probable that in wounds before excision or when excision is not carefully done, neither smear nor culture can afford very valuable evidence on account of the common occurrence of *B. welchii*.

RELATION TO SUTURE

Of nine cases with *B. welchii* on culture at time of suture, two were failures, developing gas infection, and one a part failure. Of the remainder, *B. welchii* persisted, with positive smears, harmlessly for various periods after the suture; in two cases it persisted for three days; in one, for four days, and in two, from one to two days. One case of positive culture was obtained five days after suture. The two cases of failure were in wounds of from one to two days, and large numbers of *B. welchii* were present in each case. In no successful case were more than very moderate numbers present at the time of suture. As far as the evidence of this small number of cases goes, it does not seem that the mere presence of *B. welchii* is a contraindication for suture, but that its presence in large numbers is. In none of the cases were streptococci present. The significance of the presence of *B. welchii* may be entirely different when associated with various organisms.

SUMMARY AND CONCLUSIONS

1. In a consecutive series of 137 wounds aged from one to eleven days, in patients arriving at a base hospital during a quiet period after thorough casualty clearing station treatment, *B. welchii* was obtained by culture in 23 per cent. Cases with more than extremely few *B. welchii* organisms on smear made 14 per cent. of the series. These figures are much lower than for wounds during rush periods, or for wounds before excision was common.

2. The small difference in the occurrence of *B. welchii* in the series in the excised, compared with the nonexcised, is due to good judgment in excising especially the wounds in which *B. welchii* is most apt to be present.

3. Definite muscle gas infection occurred in 2.9 per cent. of the series. Including slightly doubtful cases, the incidence is 5.1 per cent. Of the cases with *B. welchii* on culture, the cases with unquestionable infection number 13 per cent., and including the slightly doubtful cases, 22.5 per cent.

4. For further studies, cases of gas infection were included from a previous nonconsecutive series. These cases were practically all in excised wounds. It was found that the cultures for *B. welchii* tend to become negative by the eighth day when no gas infection has occurred, but to last until the twelfth day or later in the cases with gas infection. Even reckoning the day of operation as the starting point, persistence is distinctly greater in the gas-infected wounds. This is in spite of complete lack of evidence of active infection after the thorough operation performed in each case.

5. There is a definite tendency to persist in greater numbers until the eighth day in the gas-infected cases than in those not infected.

6. In cases without gas infection, the numbers of bacilli tended to become very small early in the history of the wound.

7. The results suggest that *B. welchii* does not flourish long in surface exudate. Persistence in cases without gas infection is probably due largely to previously unrecognized local infection, or to small anaerobic foci in large wounds in which a thorough excision was impracticable. The persistence after gas infection may be explained by a gradual riddance of the bacilli from invaded but not definitely altered tissues.

8. In wounds of the character of this series, the presence of *B. welchii* in large numbers is good evidence of an active gas infection. The evidence is stronger, the older the wound. Its absence is strong but not conclusive evidence of lack of infection, for negative cultures are occasionally obtained when *B. welchii* is not a factor in the infection, or when the infection begins deep about a foreign body.

9. If moderate numbers of *B. welchii* are present, the evidence is of about the same value as is given by culture alone. The value of culture alone is so slight as scarcely to be worth considering.

These facts with regard to the value of smear and culture with reference to the diagnosis of gas infection in these wounds appear to rest on the inability of *B. welchii* to grow luxuriantly for a long period on the surface of surgically cleaned wounds, thus preventing the occurrence of large numbers when no infection is present; and on the occurrence of large numbers of *B. welchii* in the exuded serum of the infected cases, thus causing the highly positive smears.

10. The statements made here probably do not apply to wounds that have not had thorough previous surgical treatment.

11. The presence of *B. welchii* in large numbers was a contraindication to sutures in the small series observed. Its presence in small numbers is not necessarily a contraindication. There are points here in connection with the association of bacteria that need investigation. *B. welchii* may persist harmlessly as long as five days after suture.

"Team Work" by the Medical Profession.—In a summary of that portion of the Cavendish lecture by Sir Bertrand Dawson relating to the future of the medical profession, the *Medical Officer* quotes him as having said that the growth of knowledge makes measures for the prevention and cure of disease more and more complex, so that the full exercise of these powers no longer lies within the scope of individual effort but requires for its accomplishment well organized "team work." In the future, investigation will become more and more technical and collective treatment correspondingly specialized. This renders the patient's home less suited for his treatment and the need for institutional facilities all the greater. Sketching the scheme which he would consider best for fostering a closer union between the health organization of the community and the intellectual and professional life of the doctors, he said that the nucleus of this system of medical service would be the hospital. Local hospitals and clinics would be grouped in relation to central and teaching hospitals in the larger towns, and there would be corresponding relationship between the local practitioner and the consultant of the district. From this it would follow that the practitioner's source of income would be more in the nature of a salary than of fees, but this would not mean the extinction of private practice. A full-time salaried service for all medical men he regarded as detrimental to the best interests of both doctor and patient, for medicine stereotyped under such a system would become a "soulless machine."

BLOOD TRANSFUSION AT THE
FRONT AREA *

BENJAMIN I. HARRISON, M.D. (CLEVELAND)

Lieutenant, M. R. C., U. S. Army

FRANCE

This paper is based on observations of transfusions of blood performed at advanced hospitals. The patients were those having but little prospect of recovery otherwise.

Donors.—Arrangements were made through the medical officer, with the sergeant in charge of the walking wounded, to supply lightly wounded men for donors. As the occasion required, those selected were sent to the resuscitation ward for grouping and charting. A grouped list of all donors was available at a minute's notice, day or night. A list of about ten donors, usually assigned to light duty around nearby wards, was kept at all times. As economy we used Group II, III and IV men. Some casualty clearing stations use only Group IV donors, and do not group

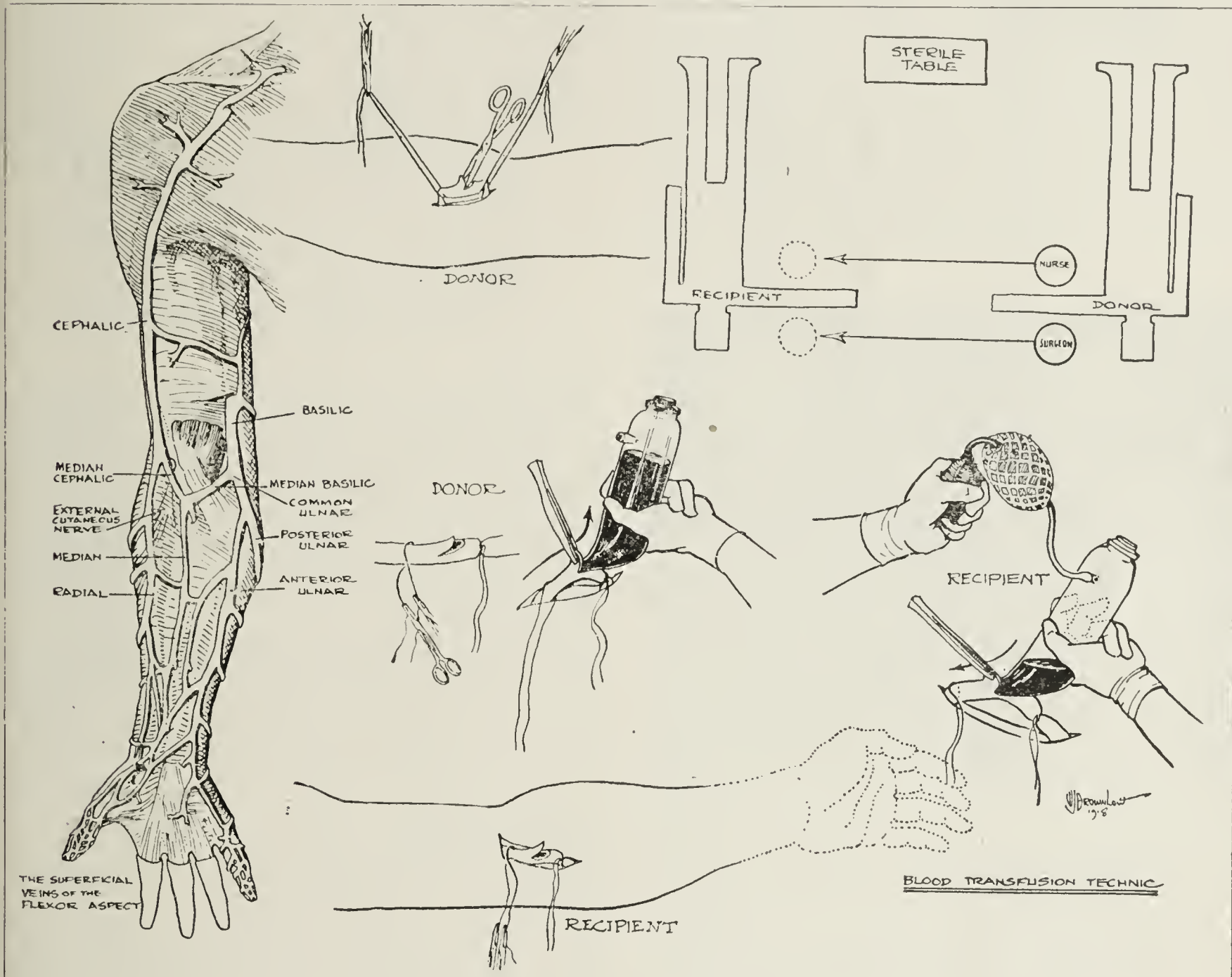


Fig. 1.—Technic of blood transfusion.

Grouping.—The selection of donors and the grouping of recipients was done by the method described by Lee,¹ with serums and necessary equipment furnished by Captain Karsner.² By holding the slide over a candle, the reactions were judged with the naked eye. All cases were classified without difficulty. The technic was so simple that it could be carried out in the resuscitation ward, proving very practical from all points of view.

* From No. 9 (Lakeside, U. S. Army) General Hospital.

1. Lee, R. I.: A Simple and Rapid Method for the Selection of Suitable Donors for Transfusion by the Determination of Blood Groups, *British Medical Journal*, 1917, 2, 684.

2. Karsner, H. T.: Transfusion with Tested Bloods, Including the Grouping of One Thousand Bloods and a Method for Use at Advanced Hospitals, *THE JOURNAL A. M. A.*, March 16, 1918, p. 769.

their patients; however, we found that it required about ten minutes to group a patient, and thus, we were able to use all donors excepting the group I men.

Technic of Transfusion.—The indirect method of transfusion was used, with the technic as shown in Figure 1. The tubes were coated with ordinary hard paraffin obtained from the pharmacy at the casualty clearing station.

A vein of the flexor aspect of the arm was used, 3 c.c. of 1 per cent. procain being used for infiltration anesthesia. The proximal end of the donor's vein was tied, and the distal end of the recipient's, a ligature loop being placed around the distal end of the donor's vein and the proximal end of the recipient's. Traction by means of a hemostat closed the veins.

In our series of cases, there was not an instance of coagulation in the tube. The average time for filling each tube of 300 c.c. capacity was three minutes; for the entire transfusion, approximately thirty minutes.

Differential Diagnosis—Hemorrhage and Shock.—From a clinical point of view, it is very difficult, in some cases, to know whether a patient is suffering from

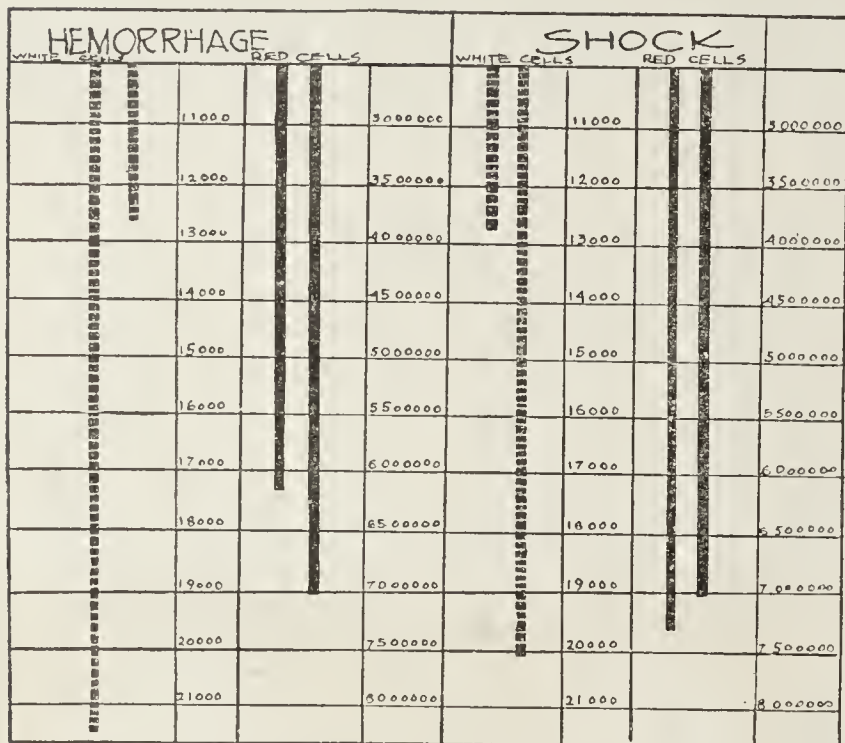


Fig. 2.—Blood counts* in shock and hemorrhage. (Crile, G. W.: Hemorrhage and Transfusion, p. 111.)

hemorrhage, from shock, or from both. In the three conditions, the pulse, the blood pressure and the collapse are not dissimilar. In hemorrhage, however, the patient is generally restless and anxious or worried about his condition. A shock patient, on the other hand, is inclined to be listless and apathetic. In extreme cases of shock, the patient is almost invariably

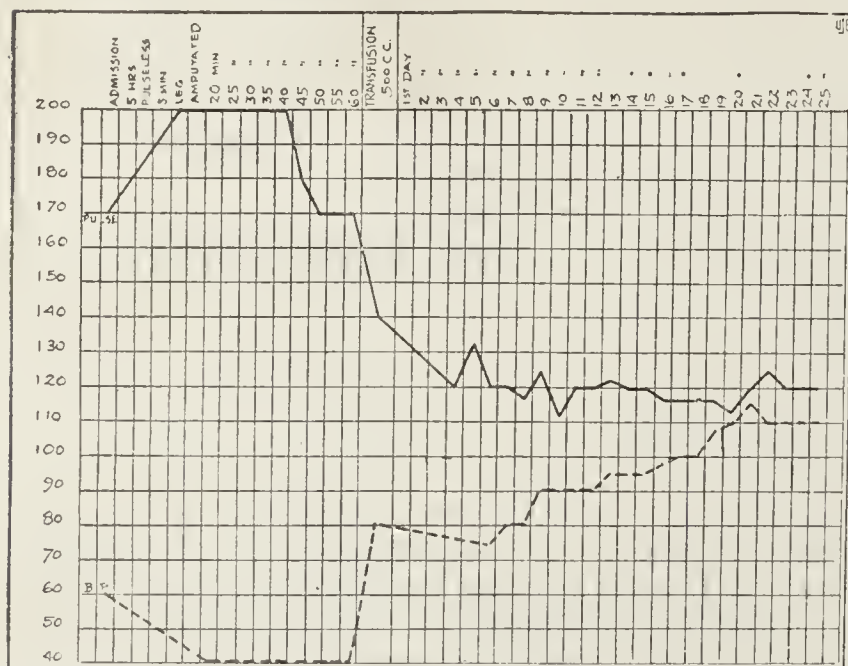


Fig. 3.—Curve of pulse and blood pressure in transfusion for hemorrhage.

of a grayish-blue color, this symptom being attributed by Crile to a failure of internal respiration.

As a practical measure, I would suggest that a note be made on the field card by the medical officer at the field ambulance, indicating the amount of hemorrhage.

Increase of White Blood Cells in Hemorrhage.—In hemorrhage, we found a definite increase in the white

blood count, confirming the observation of Crile.³ However, our series showed a blood count, in severe cases, amounting to 45,000. In shock, on the other hand, we found no increase in the white blood count. Nearly all our cases were examined under eight hours after injury (Fig. 2).

Transfusion for Hemorrhage.—In acute hemorrhage, transfusion of blood is specific, provided the patient has not been in an exsanguinated state long enough to cause irreparable injury to the brain. The effects generally are striking, immediate and permanent. In our series, we had only one case in which transfusion was useless, owing to this fact.

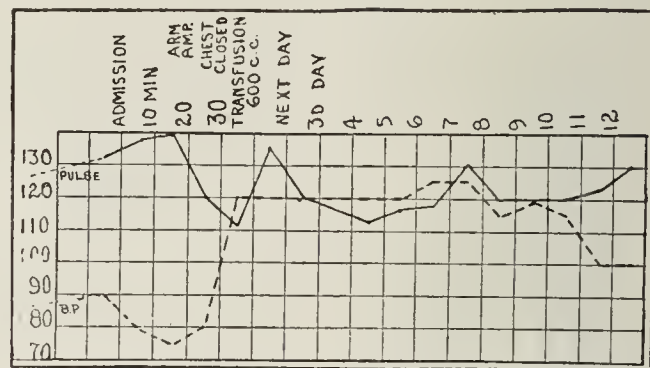


Fig. 4.—Curve of pulse and blood pressure in transfusion for shock and hemorrhage.

Transfusion of blood is followed by a marked rise of blood pressure, increase in pulse volume with slowing of rate, while respiration returns to normal (Fig. 3).

Transfusion for Hemorrhage and Shock.—In cases in which there was both hemorrhage and shock, transfusion proved effective, but the results were not as good as those following transfusion for hemorrhage alone (Fig. 4).

Transfusion for Shock.—In shock without hemorrhage, if the patient had not yet reached the gray-blue stage, a certain amount of benefit followed transfusion of blood—a change often sufficient to carry through operation to recovery. If, however, the patient had reached the gray-blue stage, no benefit resulted from transfusion (Fig. 5).

In a series of fifty transfusions, in cases in which recovery by the usual course was not expected, 55 per cent. of the patients recovered. Two of the patients died of pneumonia. In several, with gunshot wounds of the abdomen, transfusion was of no avail. In a few of the most severe cases of gunshot wounds of the abdomen we gave 200 c.c. of blood three days in succession, following the primary transfusion. However, this treatment showed no more improvement than in those cases in which transfusion was performed at one séance, provided sufficient blood had been given at the primary transfusion.

Only once was there a slight reaction. This man underwent transfusion for hemorrhage from a severed

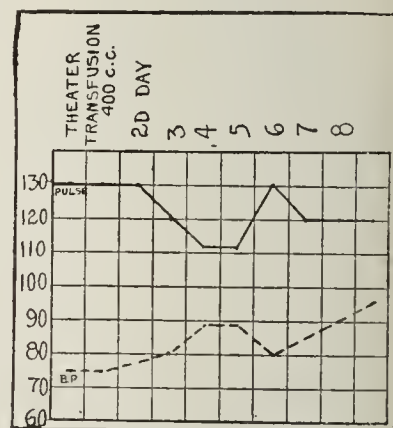


Fig. 5.—Curve of pulse and blood pressure in transfusion for shock.

3. Crile, G. W.: Hemorrhage and Transfusion, New York, D. Appleton & Co., 1909, p. 111.

popliteal artery. Fourteen days later the leg was amputated. A severe hemorrhage followed the operation, so that the man was again transfused. On the third day, a slight rash, not unlike serum rash, had developed, accompanied by a temperature of 101 F. The following day the temperature was down to normal, and the rash cleared up without further disturbance.

CONCLUSIONS

1. Timely blood transfusion for hemorrhage is a specific cure.
2. For hemorrhage and shock, results are good, but not specific.
3. For pure shock early transfusion, that is, transfusion before the "gray-blue" stage is reached, is useful, and is the most efficient treatment. Transfusion in the gray-blue stage is of little use. In this class, no other treatment has been useful.

FURTHER EXPERIENCE WITH FACE MASKS *

GEORGE H. WEAVER, M.D.

CHICAGO

When the Durand Hospital of the John McCormick Institute for Infectious Diseases was opened, rigid aseptic technic was adopted and the nurses were specially instructed in measures calculated to protect them from infections. From March 12, 1913, to Nov. 1, 1914, nine out of sixty-nine nurses, or 13 per cent., acquired clinical diphtheria. From this time on, all nurses giving a positive Schick test were immunized with diphtheria antitoxin. This practically eliminated active diphtheria; but from Nov. 1, 1914, to June 1, 1916, weekly throat cultures disclosed ten diphtheria bacillus carriers among forty-three nurses, or 23.25 per cent.

Up to June 1, 1916, nine cases of scarlet fever occurred among 112 nurses who were on duty, or in 8 per cent.

As we were unable to explain so many instances of infection through faulty technic, an effort was made to eliminate a possible factor of danger that had previously been largely ignored, namely, infection through mouth spray. Since June 1, 1916, gauze masks have been used by the nurses, and up to Oct. 1, 1918, six diphtheria bacillus carriers have been detected among seventy-three nurses, or 5.2 per cent.¹ No case of scarlet fever has occurred since masks were worn. The nurses are instructed to change the mask as soon as it has been known to be grossly contaminated, and never to put the hands to the mask to adjust it, etc., until the hands have been thoroughly washed.

Early in 1918, bacteriologic tests showed that the masks we were using did not remove all the bacteria thrown out in mouth spray. The masks consisted of two layers of gauze, 28 by 24 mesh; but as they were worn only once before washing and re-sterilizing, shrinkage soon made the openings in the gauze much closer than they were in the new masks.

Studies were instituted to learn how the masks could be made most efficient. The results that we have obtained agree very well with those recently reported by Haller and Colwell² and Doust and Lyon.³ They are here presented as serving further to emphasize the importance of gauze masks of proper composition. When the probable importance of droplet infection in the dissemination of human tuberculosis attracted attention, gauze masks to be worn by the patient were advocated. Hamilton, in 1905, advised the use of gauze masks to cover the mouth of patients with scarlet fever when there were severe streptococcal complications and when the individual could not be properly isolated. In 1916, Meltzer advocated the use of a fine mesh net over the faces of patients with infantile paralysis and also over the faces of attendants. Various mechanical protections of the face were formerly used by physicians when swabbing throats and doing tracheotomy in cases of diphtheria. Gauze masks have been long used by many surgeons and their assistants with the purpose of protecting wounds from infection by mouth droplets.



Durand hospital mask, devised by Miss Charlotte Johnson, superintendent: The gauze (44 by 40 mesh) is cut 8 inches wide and 23 inches long. The sides and one end are turned down one-quarter inch. It is folded twice, the unturned end first, making a $7\frac{1}{2}$ -inch square. The opposite diagonal corners are cut off 1 inch and the raw edge is turned in one-half inch. It is stitched firmly all around. A 1-inch dart $1\frac{1}{2}$ inches long is taken up at the middle of each side of the mask. A 14-inch tape is sewed on the opposite uncut corners. This mask has the advantage of covering the nose and mouth and in making the traction on the chin and not drawing on the nose and lips.

Our experiments were performed in a quiet room with no currents of air. It was assumed that the power of various gauzes to filter moist spray from air would increase with closeness of mesh and with the number of layers employed. In the first tests a spray of carbolfuchsin was employed, the dye being susceptible of fairly accurate measurements. It was thrown as spray by a hand atomizer. Briefly, these tests showed that the percentage of fuchsin passing through the gauze becomes progressively less as the mesh of the gauze becomes closer and as the number of layers of gauze is multiplied.

* From the John McCormick Institute for Infectious Diseases.

1. Our experiences up to Dec. 1, 1917, were reported by Weaver, G. H.: The Value of the Face Mask and Other Measures in Prevention of Diphtheria, Meningitis, Pneumonia, etc., *THE JOURNAL A. M. A.*, Jan. 12, 1918, p. 76.

2. Haller, D. A., and Colwell, R. C.: The Protective Qualities of the Gauze Face Mask, *THE JOURNAL A. M. A.*, Oct. 12, 1918, p. 1213.

3. Doust, B. C., and Lyon, A. B.: Face Masks in Infections of the Respiratory Tract, *THE JOURNAL A. M. A.*, Oct. 12, 1918, p. 1216.

Similar tests were made by throwing a spray of a suspension of *Bacillus prodigiosus* in salt solution against gauze and estimating the number of colonies developing on plates exposed on the opposite side. It was found that the number of colonies became progressively less as the mesh of the gauze became finer and as the number of layers of gauze increased. It was noted that at a distance of from 3 to 5 feet from the spray, the proportion of the bacteria reaching that point which passed through the gauze barriers was greater than at shorter or greater distances. This is probably to be explained by the more rapid precipitation of the larger particles as regards the nearer distances and by the failing force at greater distances. These results demonstrated that gauze will remove bacteria from air when carried in a moist spray. The efficiency of the gauze as a filter is in direct ratio to the fineness of mesh and the number of layers used.

Further tests were now made to determine the efficiency of gauzes of various meshes and in different numbers of layers as filters for mouth spray. A suitable subject for these tests was found in an adult who was affected by a chronic antrum and ethmoid sup-

TABLE 1.—NUMBER OF COLONIES OF STREPTOCOCCUS VIRIDANS DEVELOPING ON BLOOD-AGAR PLATES EXPOSED AT 6 INCHES TO TWO EXPLOSIVE EXPIRATORY EFFORTS IN WHICH THE CHEEKS WERE FIRST DISTENDED WITH AIR AND THEN THE LIPS FORCED SLIGHTLY APART WITH A PUFF

Number of Layers of Gauze	Mesh of Gauze									
	20 by 14		24 by 20		28 by 24		32 by 28		44 by 40	
	No.	%	No.	%	No.	%	No.	%	No.	%
0	2,000	...	2,000	...	2,000	..	2,000	..	2,000	..
1	2,000	100	2,000	100	1,500	75	1,500	75	1,500	75
2	1,500	75	1,500	75	1,500	75	800	40	800	40
4	800	40	800	40	1,000	50	500	25	80	4
6	500	25	200	10	50	2.5	5	0.25	0	0.0
8	100	5	15	0.75	0	0.0	1	0.05	0	0.0

uration with constant purulent discharge, in whose throat and mouth *Streptococcus viridans* in abundance was constantly present. It was found that a mouth spray very rich in bacteria was discharged by this patient when the cheeks were distended with air and then, the lips being suddenly opened a little, the air was forced out with an explosive puff. The spray produced in this way was more abundant than that following coughing, and the driving force was greater, thus furnishing a very severe test as to the filtering power of obstructing gauze. Tests were made by having the patient direct such forcible expiratory efforts toward vertically placed Petri dishes containing blood agar at a distance of 6 inches, the face being uncovered and covered by various gauzes in different multiples. The results shown in Table 1 were obtained on a day when the streptococci were especially abundant. The colonies developing on the plates after twenty-four hours in the incubator were practically all of *Streptococcus viridans*. It will be noted that the coarser gauze allowed a large proportion of the bacteria to pass through, even when six layers were interposed. On the contrary, the finer gauzes removed many more of the bacteria, and when six and eight layers were used, almost all the bacteria were held back.

Similar results were secured when a culture of *B. prodigiosus* had been smeared on the pharynx and tongue shortly before the test; in this case only the colonies of *B. prodigiosus* were counted.

TABLE 2.—NUMBER OF COLONIES OF STREPTOCOCCUS VIRIDANS DEVELOPING ON BLOOD-AGAR PLATES WHEN EXPOSED TO TWO EXPLOSIVE COUGHS WITH LIPS SLIGHTLY PARTED

Distance from Mouth to Plate	No. Gauze	Three Layers of Gauze (44 by 40)		Colonies	Per Cent. Passing Through	Per Cent. Excluded
		Over Face	Over Plate			
6 inches.....	+	150	....	....
6 inches.....	+	20	13.3	86.7
6 inches.....	+	16	10.6	89.4
1 foot.....	+	150	....	....
1 foot.....	+	8	5.3	94.7
1 foot.....	+	12	8.0	92.0
2 feet.....	+	2	....	....
2 feet.....	+	1	50.0	50.0
2 feet.....	+	1	50.0	50.0
3 feet.....	+	1	....	....
3 feet.....	+	0	0.0	100.0
3 feet.....	+	0	0.0	100.0

There appeared to be no appreciable difference between dry and moist gauze in filtering properties. Since three or four layers of gauze with a mesh of 44 by 40 removed most of the bacterial spray thrown with unusual force at a short distance, further tests were carried out to learn how efficient as filters of mouth spray three layers of this gauze would be when placed over the mouth of the person discharging the spray and over the exposed plate at varying distances, corresponding to the face of the person in the neighborhood. The plates were placed vertically as in the preceding experiment. The expiratory effort consisted of two strong coughs with the lips slightly parted.

Tables 2 and 3 show the results of two such experiments, similar ones with slight variation being secured many times. The same person served in these tests

TABLE 3.—NUMBER OF COLONIES OF BACILLUS PRODIGIOSUS DEVELOPING ON AGAR PLATES WHEN EXPOSED TO TWO EXPLOSIVE COUGHS WITH LIPS SLIGHTLY PARTED, THE PHARYNX AND TONGUE BEING PREVIOUSLY SMEARED WITH A CULTURE OF BACILLUS PRODIGIOSUS

Distance from Mouth to Plate	No. Gauze	Three Layers of Gauze (44 by 40)		Colonies	Per Cent. Passing Through	Per Cent. Excluded
		Over Face	Over Plate			
6 inches.....	+	35	....	....
6 inches.....	+	0	0.0	100.0
6 inches.....	+	1	2.9	97.1
1 foot.....	+	32	....	....
1 foot.....	+	1	3.1	96.9
1 foot.....	+	1	3.1	96.9
2 feet.....	+	9	....	....
2 feet.....	+	2	22.2	77.8
2 feet.....	+	1	11.1	88.9
3 feet.....	+	2	....	....
3 feet.....	+	1	50.0	50.0
3 feet.....	+	1	50.0	50.0

as those reported above. When the gauze mask was over the face, very few colonies developed in the plates. When the gauze was over the plates, the proportion of colonies as compared to unobstructed plates was also small, but slightly larger because here the

finer particles are dealt with. At a distance of 2 or 3 feet, relatively more of the particles reaching that distance pass through because here only very fine particles are projected. In the cases in which *B. prodigiosus* was smeared over the pharynx and tongue, fewer colonies developed in plates placed behind gauze obstruction. This is probably because the bacteria were less thoroughly distributed in the saliva. If the colonies that develop on unobstructed plates placed near the mouth are examined under magnification, it is noticed that many are compound colonies; and many of those that develop from the larger particles of saliva are the result of the growth of clumps of bacteria. Thus the number of bacteria removed is greater than the number of colonies would indicate. These larger particles of saliva are probably more dangerous, not only because they contain more bacteria but also because the toxic substances contained in the projected mucus may act on the mucous membrane where they lodge so as to favor the growth and penetration of the associated bacteria. Since the completion of these studies, the masks used in Durand Hospital have been made of three layers of gauze with a mesh of 44 by 40. The nurses are instructed to wear two superimposed masks, making six layers of gauze, when caring for cases of virulent infections in which secretions are abundant. The gauze that we have used is absorbent. It is probably preferable to buttercloth, which is treated to make the material nonabsorbent. Particles of mucus will adhere more quickly and firmly to the absorbent material, as the rapid removal of the water leaves a thicker and more sticky residue. So far we have been able to secure but one weave of buttercloth, about 28 by 30, and this is not as fine a mesh as is desirable. Even this is very difficult to find, most large dealers having none in stock and usually not knowing where it can be secured. In any case the dressing is removed in washing. Our experience with masks has been principally confined to their use to protect attendants on the sick from infection. They have been used not only by nurses, but also by physicians in their work while taking cultures from throats, doing intubations and examining chests. The mask on the face interferes with putting the hands to the mouth and nose, and so indirectly becomes a source of safety to the individual, whose hands are apt to be contaminated in her work and who thoughtlessly may put them to the face. We have also used masks over the faces of mothers while nursing their babies, when either one has been infected by diphtheria or has been a diphtheria carrier.

The employment of gauze masks over the face to prevent the transfer of infections to others was thoroughly worked out and practically applied by Capps⁴ at Camp Grant. He used masks to prevent cross-infections in ambulances and in the admission rooms and wards of the hospital. Similar use of masks has since been generally adopted in Army and Navy camps and in many civil hospitals. The intelligent use of gauze masks and other measures may be instituted equally well in private families. Many family epidemics might be limited by such means. In all instances in which infections locate in the respiratory

tract and in which the infectious agent is discharged in mouth spray, it is reasonable to protect those about the patient by masks of gauze.

The present concentration of effort to limit droplet infection should not prevent an equally energetic effort to close other channels of spread of infectious materials. The use of face masks may serve to give an unwarranted feeling of security to those employing them if they neglect the measures that prevent carriage of infectious materials through other agents. Emphasis must still be placed on proper sterilization of eating utensils, destruction of all infectious discharges, avoiding all contamination of foods, and special care regarding the washing of the hands every time the sick are handled.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, SECRETARY.

PNEUMOCOCCUS VACCINE (See N. N. R., 1918, p. 337-8).

A vaccine or "antigen" is prepared by E. C. Rosenow (THE JOURNAL, March 16, 1918, p. 759) by digesting a suspension of pneumococci at 37 C. until about 95 per cent. of the organisms have become gram-negative and the mixture is relatively nontoxic to guinea-pigs.

Actions and Uses.—(See N. N. R., 1918, p. 337-8.)

E. C. Rosenow believes that the protective power against pneumococcus infection is greater with a vaccine prepared according to his method than that of a vaccine made according to the usual method.

Eli Lilly & Co., Indianapolis.

Pneumococcus Antigen (Rosenow), Lilly.—Marketed in 5 Cc. vials, each Cc. containing 20 million partially autolyzed pneumococci.

Bacterial Examination of Green Vegetables.—Kurk (*Am. Jour. Pub. Health*, September, 1918) undertook an investigation to determine the presence of the coli-typhoid group of organisms, streptococci and anaerobic organisms on green vegetables. Samples were purchased at various stores about Chicago, one sample of watercress being obtained from a glass bowl containing water from a free lunch counter in a saloon. The culture mediums were made according to the standard methods of water examination of the American Public Health Association. Five organisms superficially resembling paratyphoid bacilli were isolated, but in no case did complete cultural and agglutination reactions determine that they belonged to this group. *B. coli* were found in twenty-two out of twenty-nine samples. Of samples from twelve stores classed as clean, eleven showed *B. coli*; of ten samples from stores classed as fair, six showed *B. coli*, and of six from dirty stores five contained *B. coli*. Streptococci were found on three samples—two from clean stores and one from a store classed as fair. *B. cloacae* were found on five samples, three from dirty stores and two from fair stores. A sample of green onions contained a great number of *B. cloacae*, as did a later sample of onions obtained from the same store. Mold spores were found on thirteen of twenty-nine samples; twenty-eight out of twenty-nine samples contained gas formers on lactose broth. The total bacterial count at 37 C. and 20 C. varied widely, the former from 6,000 to 4,300,000, and at the latter temperature from 18,000 to 25,800,000, the latter count being obtained from the sample of watercress from the saloon free lunch. Other than this the sanitary condition of the store did not seem materially to influence the bacterial count.

4. Capps, J. A.: Measures for the Prevention and Control of Respiratory Infections in Military Camps, THE JOURNAL A. M. A., Aug. 10, 1918, p. 448.

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SATURDAY, OCTOBER 26, 1918

SERUMS AND VACCINES IN INFLUENZA

With respect to serums and vaccines in influenza, there are certain simple facts and considerations that physicians will do well to keep in mind at this time. The main point to keep always in sight is that unfortunately we as yet have no specific serum or other specific means for the cure of influenza, and no specific vaccine or vaccines for its prevention. Such is the fact, all claims and propagandist statements in the newspapers and elsewhere to the contrary notwithstanding. This being the case, efforts at treatment and prevention by serums and vaccines, now hurriedly undertaken, are simply experiments in a new field, and the true value of the results cannot be predicted by any one. Indeed, the exact results can be determined if at all only after a time, in most cases probably not until the epidemic is past and all the returns fully canvassed. Consequently the physician must keep his head level and not allow himself to be led into making more promises than the facts warrant. This warning applies especially to health officers in their public relations.

As to serum treatment, the only noteworthy new method so far is the injection in severe cases of influenzal pneumonia of the serum of patients who have recovered from such pneumonia.¹ The principle of this method is rational; analogous procedures have given seemingly good results in scarlet fever and other diseases; and the results reported in influenzal pneumonia appear promising. Further trial of this treatment under proper conditions consequently seems to be warranted. It should be borne in mind, however, that McGuire and Redden¹ made their observations in the declining phase of the epidemic when the organism or organisms concerned appeared to be losing virulence. For this and other reasons the expectations as to what may be accomplished by this method must be kept within reasonable bounds. Influenza is a self-limited disease with variable complications and of variable severity in different places, thus offering

great difficulties in the way of evaluation of different methods of treatment.

At least two kinds of vaccine are in use in the hope that they may have preventive effects. One consists solely of killed influenza bacilli, and it is being extensively used in the East. We have as yet no decisive figures as to its effects, but there is an impression that it may have some value. The other vaccine is a mixed vaccine of the more important bacteria in the respiratory tract in influenza, principally pneumococci, streptococci and influenza bacilli. It appears that vaccines of this nature are in extensive use, but we have no evidence that any benefit will be derived from them. To say that thousands have been vaccinated with apparently good results means nothing at all simply because we are still in the midst of the outbreak, in many places even in the earlier stages. How slender the basis for this anti-influenzal vaccination when it is considered that the real nature of influenza is still unknown! In any event, it will require many carefully elaborated and controlled observations before anything definite may be learned in regard to the effect of these vaccines, and it is probably safe to say that nothing on which to rely in the future can be learned from the indiscriminate vaccination now going on. There is, therefore, no basis on which promise of protection from vaccines may be made. They may be harmless, and they may or may not be of preventive value.

MEDICAL ASPECTS OF AVIATION

The subject of rotation tests employed in examining aviators for their sense of balance has recently been debated¹ in THE JOURNAL by the critics and the supporters. Whether or not these tests are too strict, it is at least clear that the flying men should have not only good general health, but also keen vision, quick reactions, coolness, and normal or more than normal capacity for maintaining their equilibrium.

In this issue appears a series of papers² showing the work that is being done to protect aviators against the effects of altitude, low barometric pressure, and deficiency of oxygen. This is a matter that has steadily increased in importance from both the medical and the military standpoints. The rapid improvements in aeroplanes under the stimulus of military needs have made it possible to carry aerial fighting to greater and greater altitudes. Speed and its equivalent, the ability to climb above the opponent, is to air fighting very much what the windward position, or weather gage,

1. McGuire, L. W., and Redden, W. R.: Treatment of Influenza Pneumonia by the Use of Convalescent Human Serum: Preliminary Report, THE JOURNAL A. M. A., Oct. 19, 1918, p. 1311.

1. Small, C. P.: Equilibrium Tests for Aviation Recruits, THE JOURNAL A. M. A., Sept. 29, 1917, p. 1078. Jones, I. H.: The Ear and Aviation, Nov. 10, 1917, p. 1607. Fridenberg, Percy: Visual Factors in Equilibration, Especially Aviation, April 6, 1918, p. 991. Parsons, R. P., and Segar, L. H.: Bárány Chair Tests and Flying Ability, April 13, 1918, p. 1064. The Bárány Tests in the Examination of Aviators, editorial, April 13, 1918, p. 1096. The Physical Qualities of Aviators, April 27, 1918, p. 1229. Bárány Chair Tests and Flying Ability, Correspondence, May 25, 1918, p. 1559; June 15, 1918, p. 1879.

2. Medical Studies in Aviation, pp. 1382-1400.

was in naval warfare in the days of sailing ships. Accordingly, even the bombing and observation planes are now able to fly for hours at altitudes of 12,000 and 15,000 feet, as they must do in crossing the enemy line; while the pursuit or battle planes fly at the enormous altitudes of 18,000 and 20,000 feet and even more. Everything depends on these hawks of the battle field, and it is they that protect their own observation planes, or in a swift swoop drop down on and destroy the observation planes of the enemy.

With the increase in the altitudes at which flying is common, there has been a corresponding increase in the development of so-called air staleness among pilots. It is particularly the most experienced aviators who succumb to this disorder and become unable to fly longer at the necessary altitude. This is, of course, a matter of the utmost military importance, as it deprives the service of its best aviators. Air staleness is a condition in some respects like the irritable heart of the overstrained soldier, or like overtraining in the athlete. To what extent such conditions are functional or neurotic or dependent on some abnormality of chemical balance is a problem that is now under active investigation both in America and in England in military hospitals for cardiac patients. Individual predisposition toward air staleness is subject to wide variations, and it is a matter of great importance, therefore, both for the avoidance of loss of life among the men in training for our air service, and for the development of the highest military efficiency among those selected, that the capacity of every candidate to withstand the effects of altitude and deficiency of oxygen should be determined.

The investigators at the Medical Research Laboratory at Mineola have found not only the theoretical but also a highly practical solution for this problem. By means of the rebreathing apparatus introduced by Henderson for this purpose, the subject breathes a closed volume of air and thus consumes the oxygen. The exhaled carbon dioxide is absorbed by alkali. By the reduction in the amount of oxygen, the subject is exposed to progressively lower tensions of oxygen, and thus to the physiologic equivalents of greater and greater altitudes until the limit of his endurance is reached.

During the low oxygen test, continuous observations are made on the arterial pressure, pulse and breathing, on the sounds and size of the heart, on alterations of vision, particularly stereoscopic and peripheral, and on the development of mental instability and muscular incoordination. The peculiar response of the cutaneous blood vessels known as the *tache cérébrale* (a concomitant of various nervous and cerebral diseases) likewise occurs in a considerable proportion of the men undergoing the test, and tends to indicate unsuitability.

The results obtained show that a considerable percentage of the men who pass even the exacting medi-

cal examination required by the Aviation Service are unable to withstand altitudes even as low as 10,000 feet without exhibiting such physical or mental depreciation as would seriously endanger a man piloting a plane. On the other hand, these tests reveal a small percentage of men who are naturally so resistant to low oxygen that they can withstand the equivalent of 20,000 feet or more for a half hour or longer without serious depreciation, either mental or physical. Evidently such men are specially fitted for work at high altitudes.

Nor is the usefulness of these tests ended by the enlistment and grading of the pilot. The Medical Corps is assigning to each aviation unit one or more flight surgeons, assisted by physical directors selected from among the men who were formerly trainers of college athletic teams. It is their duty to keep the aviators in as perfect physical condition as if they were so many football players. The flight surgeons are all given a special course of training at the Medical Research Laboratory of the Air Service in the physiology, or as it has now become, the medicine of altitude.

Previous investigations, such as those of the Pike's Peak Expedition,³ have demonstrated that the acclimatization of persons living at various altitudes involves certain functional readjustments, especially an increased number of red corpuscles, a decreased alkali reserve in the blood, and a larger volume of breathing, that is, a lowered alveolar carbon dioxide. These readjustments, however, require days or even weeks to develop, and the study of the condition of aviators has demonstrated that unfortunately the brief periods during which they are exposed to low oxygen result in no appreciable degree of acclimatization. On the contrary, repeated flights at altitudes above those which the individual's unacclimatized (i. e., sea level) functional capacity can easily compensate act like repeated nervous and cardiac overstrains. If too often repeated, air staleness results, and the pilot is either incapacitated to fly at all or, if he persists, he is liable to lose consciousness in the air and fall.

The rebreathing test finds its use, therefore, as a means of diagnosis, for it now becomes possible, whenever the flight surgeon suspects that air staleness is developing in one of the men in his charge, to determine accurately the degree of overtraining. Furthermore, it appears⁴ that the use of this low oxygen test may have a broader application in internal medicine as a measure of the functional power of the heart and circulation.

The application of physiologic knowledge to this problem appears likely to prove one of the most valuable contributions to the efficiency of the American Air Service.

3. Douglas, C. G.; Haldane, J. S.; Henderson, Y., and Schneider, E. C.: *Physiological Observations made on Pike's Peak, Colo., with Special Reference to Adaptation to Low Barometric Pressures*, Phil. Tr. Roy. Soc., London, 1913, B, 203, p. 185.

4. Whitney, J. L.: *Medical Studies in Aviation, III, Cardiovascular Observations*, THE JOURNAL A. M. A., this issue, p. 1389.

THE CONGENIAL CALORIES OF THE CANDY SHOP

At a time when conservation of foodstuffs, and especially of sugar, is one of the vital necessities of our country and the fundamental duty of every one of us, the soda-guzzling youngsters and the candy-nibbling *matinée* followers are properly looked on with suspicion. There is no doubt that before the war our consumption of soda water, ice cream and confectionery was growing at a rapid rate, and there is every reason to believe that when the restrictions are removed and the prices abate, these typically American habits will continue as before, or increase. Just how large an amount of nutriment is taken in this way by many people is probably not generally appreciated, and formerly we had no definite information on which to base an estimate. This has now been furnished in a reliable and exact form from the Nutrition Laboratory of the Carnegie Institution.¹ By aid of the method of direct determination of the heat of combustion in the calorimetric bomb, the total calories furnished by numerous popular sweets and beverages have been ascertained. These analyses reveal that an ordinary six-cent (war price) bar of sweet chocolate will furnish ordinarily 200 or 300 calories. Taking most of these chocolate candies sold in bar form, whether sweet, milk or nut chocolate, ten cents will purchase as high as 735 calories in some brands, ordinarily from 300 to 600 calories, and in only a few cases less than 200 calories. As 500 calories is nearly one-third of the basal caloric requirement of normal man, and may represent from one fifth to one sixth of the total daily requirements of the average man not at severe muscular labor, a bar of chocolate candy, or its equivalent from the bonbon box, means a very considerable addition to the food supply which is usually a between-meals addition that does not materially curtail the food eaten at each meal. No wonder there are so many fat women at the *matinée*.

America's most prominent inventions in the line of beverages are undoubtedly the cocktail and the ice cream soda. What amount of fire the former provides, the Benedicts do not state; probably the calorimetric bomb could not do it justice anyway, for a calorimetric bomb is a soulless thing, without a particle of poetry or imagination. But a cold and clammy ice cream soda apparently digests readily in the alimentary apparatus of the bomb, and registers from 202 to 467 calories, depending on the liberality of the soda clerk. There seems to be some honesty in the soda trade, for the fifteen centers give more calories than the ten centers. The "sundaes" or "college ices" furnish a large fraction of a full meal, yielding generally from 300 to 500 calories. When you order a nut sundae you get from 4 to 6 gm. of protein to help

balance the ration. And the children's favorite, the ice cream cone, comes through with about 100 calories for a nickel. So it isn't surprising or undesirable if Willie doesn't eat all of his dinner when he has had two ice cream cones, a bar of chocolate almonds and an ice cream soda. He has had about a thousand calories in the mess, which is about one third as many calories as father needs for a day's work.

Even the simpler beverages furnish numerous calories. Ginger ale gives about 150 calories to the pint, and grape juice about twice as much. The plain vanilla or chocolate soda without cream averages about 200 calories. Ordinary "crackers" furnish about 4.5 to 5 calories per gram, which means that the usual soda cracker gives about 30 calories, or about one-tenth to one-fifteenth as much as ten cents' worth of chocolate candy, although it does provide much more protein. So the afternoon tea, with candies and fancy crackers, furnishes not a few calories, usually to people who do not seem to need them very much. At a boys' school it was found that the between-meals candies, sodas, etc., amounted to about 640 calories, which is a mere trifle in the nutrition of the adolescent male. We are tantalized by the statement that at Vassar these extras totaled 10 per cent. of the daily intake—we long for the details. Physicians will see in these figures reason for careful inquiry into the sweet-tooth requirements of his patients, as well as the meal-time consumption of foods—especially in the fat ones.

PEANUTS AND SOY BEANS AS HUMAN FOODS

The evolution of food products from animal sources—the production of meat, milk, eggs, pork, bacon, poultry, etc.—involves the conversion of plant products, many of which may serve directly as human nutriment. This transformation of cereals, for example, into meat and milk, is an expensive one from the standpoint of the energy exchange that is necessitated. To build up one pound of food in the form of animal tissues calls for the feeding of many pounds of nutrients from plant sources. It has therefore become a serious problem in the face of a possible shortage to determine to what extent it is permissible, not to say profitable, to convert edible cereals into animal products prior to using them rather than to consume the corn, barley, wheat, etc., directly in the human ration. Milk must be had at all events; but it seems probable that both Americans and Europeans will tend more and more in the next few years to displace meat and related animal food materials to a considerable degree with vegetable foods. The trend toward a more extensively vegetarian regimen is almost certain to follow as a consequence of the altered conditions of animal husbandry enforced by the high cost of feeds.

The prospect thus presented brings the cereals into prominence at once. Among a large group of the pop-

1. Benedict, Cornelia G., and Benedict, F. G.: *The Energy Content of Extra Foods*, Boston Med. and Surg. Jour., 1918, **179**, 153.

ulation in France, bread constitutes more than half of the energy intake per day. The cereals are essentially alike in being comparatively low in their content of protein as contrasted with animal foods. Any plan to supplant the latter to any extent in the dietary therefore calls for the introduction of products from vegetable sources that can be classed as protein-rich. These must be available to supplement in some degree the already indispensable cereals, just as meats and other animal foods do at present.

The protein problem is not, however, merely a quantitative one. There is considerable justification for the belief that the proteins supplied by meat, eggs and milk are of high biologic value. In replacing them as the status of the pocketbook and the economics of agriculture seem to demand, attention must be centered on the possibility of securing proteins that represent a suitable amino-acid make-up, the nutritive significance of which has repeatedly been pointed out in *THE JOURNAL*. The legumes, particularly the ordinary garden peas and beans, come foremost into mind as protein-rich vegetable food materials. But there is no lack of evidence to show that while the proteins of the more widely used legumes are quite well utilized by the human body, comparing very favorably in this respect with the cereal proteins, they are not as completely utilized as the proteins supplied by such animal foods as meats, eggs and milk.

Two leguminous seeds have lately made better claims for more popular recognition in human nutrition. The soy bean has been a staple for generations among the people of China and Japan. It forms a prominent source of protein in their diet, supplementing rice, which is so extensively used and contains a great excess of carbohydrates. These people keep few live stock and eat little meat. Apparently they believe it is the part of economy to eat vegetables rather than to feed them to animals and then eat the animals. In this country a beginning in the use of soy beans in the human dietary has scarcely yet been made. The second legume, the peanut, is popularly known, though its prominence dates back to scarcely more than half a century. It is eaten in a casual way, rather than as a staple in the diet; and it would not be difficult to gather "impressions" as to the poor digestibility of the peanut.

We have already presented some reasons for believing that both the soy bean and the peanut may represent unusually desirable sources of protein. In reporting the feeding experiments of Osborne and Mendel¹ and Daniels and collaborators,² the favorable

prospect offered by an increased use of both products was intimated. Further studies conducted by Johns and his co-workers at the Bureau of Chemistry in Washington show that from both soy beans and peanuts it is possible to isolate a liberal quantity of proteins relatively rich in their yield of the amino-acids lysin and tryptophan—a partial index of presumable nutritive superiority.

An added test of dietary value—that of digestibility—has been furnished anew by the Office of Home Economics in the United States Department of Agriculture. Holmes³ has conducted this investigation on men in whose diet soy bean and peanut flours contributed a liberal proportion of the entire protein intake. They were eaten in the form of a well-known type of "quick bread" or "biscuit" as a part of a simple mixed diet. None of the subjects reported any digestive or other physiologic disturbances. Holmes is justified in believing that the figures, 85 per cent. for the digestibility of soy bean protein and 86 per cent. for the digestibility of peanut protein, indicate a very satisfactory utilization of these proteins by the human body. No attempt was made to ascertain the limit of tolerance for soy bean and peanut flours when included in a simple mixed diet; but since in seven experiments with soy beans the subjects ate an average of 70 gm. daily of soy bean protein, and in four experiments with peanut flour the subjects ate an average of 65 gm. of peanut protein daily without any observed symptoms of physiologic disturbance, it should be evident that these proteins are tolerated by the human body in amounts in excess of those that are likely to be found in the ordinary mixed diet. At any rate, the figures obtained for the digestibility of the proteins supplied by soy bean and peanut press-cake flours compare favorably with those obtained for cereal proteins, and are somewhat higher than those obtained for some other legume proteins. Perhaps, therefore, we shall not go amiss for the present in classing dietary articles suitably prepared from either the soy bean or the peanut as substitutes for both wheat and meat. The success of such substitution, however, becomes a problem of the culinary art rather than of physiology.

3. Holmes, A. D.: Digestibility of Protein Supplied by Soy Bean and Peanut Press-Cake Flours, *Bull. 717, U. S. Dept. Agric.*, 1918.

1. Osborne, T. B., and Mendel, L. B.: The Use of Soy Bean as Food, *Jour. Biol. Chem.*, 1917, **32**, 369.

2. Daniels, Amy L., and Nichols, Nell B.: The Nutritive Value of the Soy Bean, *Jour. Biol. Chem.*, 1917, **32**, 91. Daniels, Amy L., and Loughlin, Rosemary: Feeding Experiments with Peanuts, *ibid.*, 1918, **33**, 295. The Soy Bean, Its Enzymes and Carbohydrates, editorial, *THE JOURNAL A. M. A.*, Oct. 16, 1915, p. 1372; Peanuts as Food, March 23, 1918, p. 850.

Points on Treatment of Bone and Joint Injuries at the Front.—Early splinting; early definitive surgery; early closure; early function through voluntary movements; early appreciation of the best functional position for stiffened joints: shoulder should be fixed in 70 degrees of abduction; elbow at a right angle or even a little less; wrist dorsally flexed; hip abducted 5 degrees, outwardly rotated 10 degrees, flexed 20 degrees; knee, for standing occupation, flexed 20 degrees; for sitting, 30 degrees; ankle with the foot at right angles with the lower leg. Joints in these positions, though completely ankylosed, can be counted on to preserve much useful function for the limb. Immobilization in these favorable positions should be insisted on in the presence of any process or lesion which threatens ankylosis.—*Review of War Surgery and Medicine.*

Current Comment

THE PROBLEM OF ESSENTIAL TEACHERS IN MEDICAL SCHOOLS

Since the entrance of the United States into the world war, several problems have arisen, the solution of which was necessary in order that the medical schools might be kept going and the regular supply of physicians maintained. First came the necessity of keeping medical students at their studies, which was met by establishing the medical enlisted reserve corps. Next came the question of the premedical students, for whom, as noted last week,¹ provision is now made in connection with the Students' Army Training Corps. A third and more serious problem, however, was how to hold at their teaching duties an adequate number of teachers. When the appeal for medical officers was made, many teachers patriotically responded who might better have remained at their college work. In some medical schools the proportion of teachers who entered the government medical services was so great as to endanger the very existence of the institution. This problem has been met by establishing in the Office of the Surgeon-General a list of essential teachers based on lists furnished by the deans of the well-recognized medical colleges. The policy of the Surgeon-General is not to issue commissions to a physician who is on the essential list unless notified by the dean that he has been released. There has been much discussion regarding some form of government recognition of those on the essential list, but no satisfactory method has been found. However, the fact that a physician is listed by the War Department as an essential teacher is a recognition of his teaching ability. Furthermore, the reservation of a physician as an essential teacher is equivalent to assignment to military duty. This is especially so now that medical schools are largely under government control and since the teachers are training students who, as members of the Students' Army Training Corps, are soldiers on active duty in the United States Army. Meanwhile, with this understanding it is believed that essential teachers will be willing to remain loyally at their teaching duties to which they have been assigned. If the student soldiers are to become well-trained medical officers, it is necessary that efficient methods of teaching in the medical school shall be maintained.

THE IMPOSSIBILITIES OF STRAW BREAD AS FOOD

As the indigestible parts of plants are to a large degree composed of complex carbohydrates, the best known of this group being cellulose, it has often been proposed to attempt to convert them into simpler carbohydrate compounds, like the sugars, which are more readily assimilated by the organism. Cattle and other food-producing animals can apparently utilize the "crude fiber" of plants to some extent, possibly through the intervention of the microbiotic agencies in the large gastro-enteric tract of the herbivora; but

it would unquestionably be a nutritive gain if a more available product could be prepared from the resistant food residues. As cellulose, pentosans, etc., they serve primarily as "roughage" in the diet; once transformed into absorbable products, they might function just as starch and sugars do. The chemical possibilities here concerned have appealed to conservation enthusiasts in war time to the extent of suggesting the inclusion of chemically treated fibrous products like straw even into the ration of men. Fortunately we are in a position to profit in dietetics as well as in warfare by the mistakes of our enemies. It is reported on the authority of Professor Rubner,¹ the Berlin physiologist, that efforts were made in Germany during the hard winter of 1916-1917 to introduce the chemically treated straw, which experiment had shown to be well utilized by horses and cattle, as a diluent into the bread of the population. Rubner's investigations burst the bubble of possibility in this direction. Whatever may be the value of chemically treated straw in the alimentary tracts of herbivora, it is of inferior use in those species, such as the pig and the dog, with a less complexly constituted digestive canal. The further obviously probable indication of the unsuitability of the treated straw for the purposes of human nutrition has also been verified by Rubner. In the case of the dog, at least three quarters of the straw product remained unabsorbed. In the experiments on man, the addition of such straw to bread led to an increased waste, which was actually greater, in calories, than the energy value of the straw ingested. The straw bread was inferior in every way. Its palatability and texture were bad; it tended to develop distress in the bowel. These were the observations on healthy persons. What the less vigorous might have experienced can only be conjectured. Straw bread was "made in Germany," and we want none of it in America.

VOLUNTEERS FOR U. S. PUBLIC HEALTH WORK

The present epidemic of influenza has made it necessary for the United States Public Health Service to make an urgent call on physicians for help in localities in which the epidemic is unusually severe. A notice of this appeal appeared in *THE JOURNAL* two weeks ago and has been accorded gratifying response. That notice, however, was for more or less permanent position with the Public Health Service. On another page² is an appeal to physicians for temporary service. While those who volunteer for such service will not be in uniform, and while they will have no rank, this service is just as definite a patriotic privilege as is that of serving in the Medical Corps of the Army or Navy. This is especially true at this time when the need of the civilian population for a mobile supply of physicians is so great—for physicians who can be sent from place to place as exigencies require. Physicians who are able to serve in one of the proposed temporary appointments should waste no time in responding to this appeal of the United States Public Health Service.

1. Information for Medical Schools and Program for Premedical Students, *THE JOURNAL A. M. A.*, Oct. 19, 1918, p. 1319.

1. Rubner, M.: Die Verwertung aufgeschlossenen Strohes für die Ernährung des Menschen, *Arch. f. Physiol.*, 1917, p. 74.
2. This issue, p. 1413.

RESPONSIBILITY FOR TYPHOID FEVER

The owners of steamers on the Great Lakes are warned by a recent decision of the federal district court that heavy money penalties may be exacted for illness caused by polluted water.¹ The damages awarded in eleven cases range from \$305 to \$16,045, totaling \$50,462. In the case in question a lake steamer sailing from Detroit used impure water for drinking purposes after the water in the tanks aboard had been exhausted. The evidence submitted was held to prove beyond question that the typhoid cases were contracted by the drinking of this polluted water. The increasing rarity of typhoid fever in this country focuses attention on instances of this sort, so that more attention will doubtless be paid to safeguarding travelers against typhoid infection through oversight or negligence.

THE AMERICAN RED CROSS AND PUERICULTURE IN FRANCE

A goodly portion of the October issue of the *American Journal of Diseases of Children* is concerned with what M. Paul Strauss of Paris has designated as puericulture in France.² It bears witness to the splendid service in which the Children's Bureau of the American Red Cross is engaged. Any one who reads at all must have formed some conception of the serious situations created among mothers and children through the displacement of the population of northern France, the lack of medical attention owing to the scarcity of physicians, and the food and fuel crisis, added to the innumerable other deprivations that a country so cruelly invaded has experienced. In the city of St. Etienne, with a population of 180,000 before the war, there were 120 physicians; at present the 250,000 inhabitants depend on the medical services of fourteen physicians. Most villages have been without any since the mobilization. The Red Cross has shared in the management of the child *rapatrié*; it has devoted its best efforts to the reduction of infant mortality; it has promoted the clinics for prenatal care; it has not only given aid to prospective and present mothers and their nurslings, but also has facilitated the plans for protecting young women and promoting social hygiene. Educational work has been no small feature of the campaign. We should have difficulty in rivaling an exhibit of child welfare work such as was staged at Lyons with an attendance of more than 170,000 persons in three weeks. The story of the efforts of the American Red Cross to aid French agencies in uniting all available forces, governmental, philanthropic and medical, in a preventive educational program is inspiring. For us a more immediate lesson has been expressed by the chief of the Children's Bureau of the American Red Cross in France, Pro-

fessor Lucas of the University of California. He says:

What I have seen not only in France, but also in England and in this country since returning, has convinced me that now is the psychologic time to develop and coordinate all our child welfare work in this country. I feel that all the different associations which represent the best medical thought in child welfare should certainly get together on a definite coordinated program for this country, and back up our governmental bureaus dealing with child welfare problems. This year in America has already been proclaimed by President Wilson as the "children's year," and it will be a great lost opportunity unless some national program which coordinates all the best efforts both private and governmental is worked out and put on a very sound basis.

This is the psychologic time for many reforms.

Medical Mobilization and the War

Medical Women's Hospital Established

The American Women's Hospitals No. 1, cooperating with the American Committee for Devastated France and working with the Sixth French Army in the advanced area, is now established in a XV Century chateau near the front. Dr. Barbara Hunt, Bangor, Me., is the director of this unit.

More Units for American Women's Hospitals

The American Women's Hospitals has recently received from Mr. Gibson, special commissioner of the American Red Cross in France, a request for six units, each unit to contain ten medical women, ten nurses' aides, one dentist and four chauffeurs. The Red Cross will supply the nurses required for these units some of which will be placed, under a special arrangement with the French Service de Santé, in French military hospitals where they will care for the American and French wounded soldiers, while other of these groups will be used for refugee work. The first unit, composed of Chicago medical women, which will be known as the Chicago Unit, is already assembled, and one unit will be sent over every month until the entire six are accounted for.

Volunteer Physicians for U. S. Public Health Service Work

Two weeks ago we published an announcement asking for volunteers for permanent work as Acting Assistant Surgeons in the Public Health Service. In addition at the present time the Public Health Service is in urgent need of physicians for temporary duty in connection with the influenza epidemic. The service is organizing this work along state lines in connection with state boards of health. The Surgeon-General of the Public Health Service is anxious to have available physicians in various parts of the country on whom he can call for this temporary emergency work. The salary is \$200 a month and \$4 per diem allowance in lieu of subsistence. In responding, physicians should furnish the following information:

1. Will serve in his own locality?
2. Will serve in his own state?
3. Will serve in his adjoining states?
4. Will serve anywhere?

As the call is immediate and urgent, it is suggested that any physician who feels that he can do some of this work telegraph to the Surgeon-General, U. S. P. H. S., Washington, D. C., indicating by number, as above, whether he will serve in his own locality, in his own state, in the adjoining state, or anywhere in the country. Or, if he desires to serve only in his own state he should telegraph to "Public Health Service Officer, care State Board of Health." The U. S. Public Health Service has such an officer in each state except Nevada.

1. Engin. News, Sept. 26, 1918, p. 581.

2. Strauss, M. P.: Puericulture in France, *Am. Jour. Dis. Child.*, October, 1918, p. 207. Lucas, W. P.: Red Cross Infant Mortality Campaign in France, *ibid.*, p. 212. Grulee, C. G.: The Work of the Children's Bureau of the American Red Cross in Lyons, *ibid.*, p. 220. Gelston, C. F.: A Public Health Problem in France, *ibid.*, p. 226. Ladd, Maynard: The American Red Cross in the Meurthe-et-Moselle, *ibid.*, p. 236. Knox, J. H. M.: America's Debt to France, *ibid.*, p. 242.

Public Health Problems

A sixth course of lectures and discussions on "Public Health Problems Under War and After War Conditions," is being held in the Lecture Hall of the Royal Institute of Public Health, London, on Wednesday in October, November and December. The topics and speakers are as follows:

- October 9.—"Anthropometry and National Health." By Professor Arthur Keith, M.D., F.R.C.S.
- October 16.—"Racial Reconstruction and the Proposed Ministry of Health." By C. W. Saleeby, Esq., M.D., F.R.S.Ed.
- October 23.—"The Obviation of Ship-borne Infections." By W. M. Willoughby Esq., M.D.
- October 30.—"The Prevention and Abortive Treatment of Venereal Disease." By Lt.-Col. L. W. Harrison, M.B., D.S.O.
- November 6.—"Infection and Disinfection in War Time." By Professor J. M. Beattie, M.D.
- November 13.—"The Tuberculous Soldier." By Miss Jane Walker, M.D.
- November 20.—"The Care of Pensioners and Disabled Combatants in Relation to National Health and Wealth." By Sir John Collie, M.D., C.M.G.
- November 27.—"National Kitchens and the National Health." By Alderman C. Spencer, Director of National Kitchens.
- December 4.—"The Role of the Ports in the Protection of the Health of the Nation." By Professor E. W. Hopc, M.D., D.Sc.
- December 11.—"The Organisation and Administration of Child Welfare Centres." By G. Eric Pritchard, Esq., M.D., M.R.C.P.
- December 18.—"The Proposed Ministry of Health." By Professor William R. Smith, M.D., D.Sc., LL.D., F.R.S.Ed., Sheriff of the City of London.

American Expeditionary Forces' Weekly
Bulletin of Disease

The following paragraphs are taken from the *Weekly Bulletin of Disease*, dated September 23, issued for circulation among American medical officers in France:

Why Wait! Pneumonia Won't

Thin out billets and barracks before instead of after an epidemic has broken out. Whenever a command is thoroughly shot through with gripe or bronchitis or there has been an outbreak of diphtheria and simple sore throats, it is found possible as well as desirable to get more space for the men in barracks, even to the extent of putting them under canvas, and in every instance with most favorable results. Shelter tent existence beats a sick bed. Men living in the open in the bitterest weather are uniformly healthier and especially freer from respiratory infections than are men housed in the same climate. See if you can recognize any of the quarters of the men of your command in this description of billets copied from an inspection of a divisional training area.

The Experience of the American Expeditionary Forces
with Respiratory Infections

By respiratory infections are understood to be those diseases which are passed by the moist discharges from the bronchi or trachea, the throat and the nose and mouth, namely, the spit, the saliva and spray. Of the diseases included in the nomenclature of the Sick and Wounded Reports of the American Expeditionary Forces the following eleven diseases are considered respiratory infections:

A	B
1. Mumps	1. Bronchitis (acute)
2. Measles	2. Influenza
3. Scarlet fever	3. Pneumonia (lobar)
4. Diphtheria	4. Tonsillitis (acute)
5. Meningitis (meningococcus)	5. Pneumonia (broncho)
	6. Pharyngitis (acute)

The order in which the two groups are listed above is the order for each group according to the number of days lost from hospitalization of each disease. The incidence rate for pneumonia per 100,000 troops parallels so closely the rate of the other diseases under consideration that the rate of this disease can best be used as a basis of comparison between the experience of the British Armies in France and that of the American Expeditionary Forces.

A.E.F.	1917	B.E.F.	A.E.F.	1918	B.E.F.
	January	8.67	392.3	January	17.18
	February	25.27	155.3	February	6.65
	March	14.58	163.9	March	10.11
	April	10.40	59.0	April	11.80
	May	8.93	16.5	May	7.65
	June	6.23	82.2	June	10.24
66.6	July	7.35	44.6	July	
26.9	August	4.88	40.7	August	
20.4	September	3.49			
70.21	October	5.88			
66.0	November	6.65			
213.3	December	7.55			

For pneumonia as for the other respiratory infections, here as in civilian experience at home, crowding and close personal contact and exposure while suffering from lowered resistance due to a variety of unfavorable conditions of occupation and environment are apparently the dominant and in many instances the sole determining factors in causing the serious increase of respiratory infections among our troops in France.

Of the 1,613,500 days lost in the American Expeditionary Forces up to June 1, 1918, from all causes, sickness, accident, injury in action and other traumatisms, 1,481,000 days, or 91.78 per cent., were lost because of sickness.

Of the total loss of days due to hospitalization from sickness, 631,226 days, or 42.61 per cent., were due to the eleven respiratory infections under consideration. The total case incidence of these eleven diseases by months from June, 1917, to August, 1918, has been as follows (A) and the rate per 100,000 troops with the American Expeditionary Forces as shown in B.

	1917	A.	B.	1918	A.	B.
June	31	221		January	16,843	8,637
July	752	5,013		February	14,412	6,185
August	913	3,226		March	10,135	3,519
September	1,203	2,455		April	6,145	1,634
October	2,798	3,781		May	3,102	571
November	6,925	6,328		June	12,999	1,708
December	12,749	8,499		July	11,096	1,131
				August	12,457	969

The striking effect of the epidemic of influenza coming at a time of year when other respiratory infections are usually at their minimum is shown in the sudden increase in rate in June.

Memorandum for Battalion Surgeons

Never forget, that in the final analysis, the prime and ultimate object of the Medical Department is to assist in the conservation and maintenance at the highest possible point of the fighting efficiency of the line troops. If the men become sick get them well by the best possible means and in the shortest possible time; if wounded, speed their evacuation to hospitals, where definite treatment may be given. Prepare them in every way, by every means available, in the front line stations for evacuation, get them back in the best possible condition. Hold malingerers to their work, but exercise judgment with the slightly ailing men; frequently two or three days' rest treatment in a field hospital will save to the service men with slight indisposition who, if held in the trenches might go on to a severe illness, or to a total loss. The condition in which men are received in the field hospitals from the front lines is always indicative of the efficiency of the men in the advance sectors. It has been noted that some of the diagnosis tags are not being properly made out and that even in the back areas they are often signed by enlisted personnel of the sanitary units. This is, of course, permissible in emergencies, but whenever possible diagnosis tags should be carefully looked over and signed by the medical officer.

Salvaging and Washing Gauze, as Practiced at a
Base Hospital

The following method of salvaging and washing gauze, modified from methods in use in civil hospitals in the states, will save 65 to 70 per cent. of used gauze and bandages for reuse. By this method dressings and bandages can be rewashed many times. The process can be handled entirely by convalescent patients, with the supervision of one or two noncommissioned officers or enlisted men of the Medical Detachment who can also run the portable sterilizer:

(a) All dressings removed from wounds are saved, in G. I. cans, on surgical wards in dressing rooms, and in operating rooms. These are collected daily and taken to gauze salvage stations which stations should house a portable sterilizer to furnish steam for washing. (b) *Sorting.* On receipt at salvage station, dressings are sorted, gauze and bandages separated from cotton and other foreign bodies, all bandages and gauze are saved for washing, except gauze heavily loaded with boric ointment or picric acid. (c) *Rinsing.* The gauze and bandages, after sorting, are placed in a large concrete tank of cold water, which is frequently agitated, and changed twice in 24 hours. This is for the purpose of rinsing blood and pus from the dressings. (d) *Washing.* After rinsing for 24 hours, gauze is separated from bandages and washed, separately in an ordinary steam washer. If the revolving type is used, the gauze will have

to be placed in cord bags, commonly used by steam laundries in washing collars. If the gauze is washed in a small washer of the "Dolly" type, it will not be necessary to place in cord bags. Wash each load one hour with live steam from sterilizers. (e) *Second Rinsing and Drying.* On removal from washer, they are carefully rinsed in tepid water and wrung through hand wringers by patients. They are then hung on lines out of doors to dry, or, in wet weather, are dried in a closed room that is heated by a stove. When nearly dry they are picked over and spread out in piles of equal size. (f) *Bulk Sterilization.* They are then sterilized in bulk for one hour, sent to the surgical supply room, sorted into small packages, and resterilized in autoclaves for use in operating rooms, dressing rooms, and for ward dressings. In civil hospital practice, in addition to the above, gauze is usually passed through a hypochlorite bleaching solution. In the present emergency, this step can be omitted without detriment.

Distinguished Service Crosses for Medical Officers

Announcement is made of the award of the Distinguished Service Cross to the following medical officers for the acts of gallantry described:

Capt. C. M. WILLIAMS, Medical Corps, Infantry (cannot identify) "For exceptional heroism in action on the Ourcq River, July 31 and August 1, 1918; northwest of Coulonges, France, August 2, 1918, and on the Heights, overlooking the Vesle River, August 3 to 7, 1918. During these three periods of severe fighting, Captain Williams maintained a dressing station close to the advanced lines and worked continuously night and day under heavy artillery and machine-gun fire."

First Lieut. HARRY S. WHEAT, Medical Corps, Infantry (Harry R. Wheat, Mrs. Mary L. Wheat, mother, 1911 Massachusetts Avenue, North Cambridge).—"For extraordinary heroism in action, August 16, 1918, from Serpy to Mont St. Martin, France, between the Ourcq and Vesle Rivers. During the attack on August 1, 1918, he went forward with the first wave and established a dressing station in an advanced position to render immediate aid to the wounded. On August 5, at St. Martin, after having been knocked down by the explosion of a shell and while under severe fire and machine-gun fire, he displayed exceptional coolness and devotion to duty in rendering surgical attention to others who had been wounded by the same shell."

Sergeant LEROY MORNINGSTAR, Medical Department Infantry, has been awarded the Distinguished Service Cross. "Sick, gassed and stunned by shells, he remained at his post of duty under heavy fire and bravely assisted the succoring of soldiers who had been injured near Vaux, France, July 1, 1918."

Private JAY LER ANTES, Medical Department, Infantry, has been awarded the Distinguished Service Cross, posthumously. "He fearlessly exposed himself to barrage and machine gun fire at Cantigny, France, May 28 and 29, 1918, to perform his duties as stretcher bearer in order that the sufferings of wounded might be relieved and lives saved with unselfish heroism. He left the security of the trench to go to wounded in a machine gun emplacement and while performing his noble duty was killed."

Captain CLAUDE A. MARTIN, Welsh, La., Medical Department, Infantry, has been awarded the Distinguished Service Cross. "He operated a battalion dressing station near Vaux, France, July 1, 1918, although the station was practically destroyed by shell fire."

Assistant Surgeon O. D. KING, attached to U. S. M. C.—"For extraordinary heroism in action near the Bois de Belleau, June 19, 1918. On two successive days the regimental aid station in which Surgeon King was working was struck by heavy shells and in each case demolished. Ten men were killed and a number of wounded were badly hurt by falling timbers and stone. Under these harassing conditions this officer continued without cessation his treatment of the wounded, assisting in their evacuation and setting an inspiring example of devotion and courage to the officers and men serving under him."

Passed Assistant Surgeon JOEL T. BOONE, U. S. M. C.—"For extraordinary heroism in action in the Bois de Belleau, France, June 19, 1918. On two successive days the regimental aid station in which Surgeon Boone was working was struck by heavy shells and in each case demolished. Ten men were killed and a number of wounded were badly hurt by falling timbers and stone. Under these harassing conditions this officer continued without cessation his treatment of the wounded, superintending their evacuation, and setting an inspiring example of heroism to the officers and men serving under him. On June 25, 1918, Surgeon Boone followed the attack by one battalion against enemy machine-gun positions in the Bois de Belleau, establishing advanced dressing stations under continuous shell fire."

Passed Assistant Surgeon WILLIAM T. GILL, attached to U. S. M. C.—"For extraordinary heroism in action near Vierzy, France, July 19, 1918. He established a forward dressing station behind the advanced lines and for fifteen hours treated the wounded and directed their evacuation while subjected to intense front and flank fire and in the absence of adequate shelter. His fearlessness under these conditions saved the lives of many wounded who would otherwise have been lost to the service. He disregarded personal danger and remained in an exposed position in order to give immediate care to the unfortunate."

COMMISSIONS OFFERED AND ORDERS TO DUTY ON ACCEPTANCE

Alabama

To Fort Oglethorpe for instruction, Lieuts. V. J. CRAGG, Clanton; T. DUNCAN, Sellers.

To Fort Sam Houston, Texas, Lieut. W. W. ROWAN, Alabama City.

Arizona

To Fort Riley for instruction, Lieuts. A. KIRMSE, Globe; G. E. GOODRICH, Phoenix.

To report to the commanding general, Western Department, Lieut. J. G. WILSON, Willcox.

Arkansas

To Camp Travis, Texas, Lieut. R. H. WILLETT, Jonesboro.

To Fort Oglethorpe for instruction, Lieut. S. HARRIS, Wilmar.

To Fort Riley for instruction, Capt. L. L. PURIFOY, Eldorado; Lieuts. T. HENDERSON, Argenta; P. A. RIDDLE, Fort Smith; C. R. CHESNUTT, Little Rock; E. W. BLACKBURN, Ozark; W. H. MOCK, Prairie Grove.

To Fort Worth, Texas, base hospital, for instruction, Capt. E. F. DAY, Arkansas City.

To Hoboken, N. J., Capt. J. N. CLIATT, Millwood.

To report to the commanding general, Southeastern Department, Lieut. T. E. JEFFERY, Fort Smith.

California

To Camp Cody, N. M., base hospital, for instruction, Capt. W. H. SMITH, Lieut. C. E. EARLY, Los Angeles.

To Camp Fremont, Calif., Capt. D. P. FLAGG, Los Angeles. Base hospital, Capt. C. L. LOWMAN, Los Angeles. Base hospital, for instruction, Capt. A. B. McCONNELL, Fresno; L. P. ADAMS, Oakland.

To Camp Kearney, Calif., Capt. J. H. TURNER, Huntington Park; Lieut. D. N. RICHARDS, Berkeley. Base hospital, Capt. C. P. PROUDFOOT, San Louis Obispo. Base hospital, for instruction, Capt. A. C. THORPE, Los Angeles; J. C. ROBERTSON, Modesto; C. G. HILLIARD, Redlands.

To Camp Lewis, Wash., Capt. J. E. HILL, Azusa; L. C. GREGORY, Fort Bragg; Lieuts. N. A. LEAKE, Gardena; T. H. TRINWORTH, Los Angeles. Base hospital, Capt. R. W. HARTWELL, Santa Barbara.

To Fort Oglethorpe for instruction, Capt. R. C. DUNDAS, J. A. GARLAND, Los Angeles; H. R. PAINTON, Lieut. J. N. TAVLOPOULOS, San Francisco.

To Fort Riley for instruction, Lieuts. J. A. DOUGHERTY, K. C. GUMMESS, San Francisco; F. H. KOEPKE, Watsonville.

To Fort Sam Houston, Texas, Capt. O. F. KONANTZ, Los Angeles. To San Francisco, Calif., Letterman General Hospital, Lieut. J. SCHWARZ, San Francisco.

Colorado

To Camp Pike, Ark., base hospital, Capt. W. J. CHURCHILL, Longmont.

To Dallas, Texas, Love Field, Lieut. W. G. MUDD, Denver.

To Denver, Colo., Capt. J. H. ALLEN, Lieut. R. LEWIS, Denver. To Fort Riley for instruction, Lieuts. K. F. ROEHRIG, L. H. RUEGNITZ, Denver.

To report to the commanding general, Southern Department, Lieut. W. W. YATES, Loveland.

Connecticut

To Camp Joseph E. Johnston, Fla., Lieut. T. E. PARKER, Waterbury.

To Fort Oglethorpe for instruction, Lieut. J. W. FRUIN, Waterbury. To Hoboken, N. J., Lieuts. C. V. CALVIN, Bridgeport; L. F. HERZ, New Haven.

To New Haven, Conn., Yale Army Laboratory School, Capt. L. F. COCHEU, Hampton.

To Plattsburg Barracks, N. Y., Capt. L. A. NOTKINS, New Haven.

District of Columbia

To Camp Greene, N. C., base hospital, Lieut. E. A. TAYLOR, Washington.

Florida

To Camp Joseph E. Johnston, Fla., Capt. J. L. WEEKS, Perry; Lieut. S. E. DRISKELL, Raiford.

To Fort Oglethorpe for instruction, Capt. B. J. BOND, Tallahassee.

Georgia

To Camp Gordon, Ga., base hospital, Major F. P. CALHOUN, Atlanta.

To Camp McClellan, Ala., Lieut. W. A. NORTON, Savannah.

To Camp Wadsworth, S. C., Lieut. S. W. JOHNS, Doles.

To Camp Wheeler, Ga., Lieut. J. W. ODEN, Milledgeville.

To Fort Oglethorpe for instruction, Capt. L. C. ROUGHLIN, J. D. THOMSON; Lieuts. F. C. BIVINGS, Atlanta; B. S. BRANHAM, Sandersville; J. O. BALDWIN, Fort Gaines; J. F. SIGAFOOS, Honey Creek.

Hawaii

To report to the commanding general, Hawaiian Department, Capt. I. J. SHEPHERD, Honolulu.

To San Francisco, Calif., Letterman General Hospital, for instruction, Capt. H. H. BLODGETT, Honolulu.

Idaho

To Fort Riley, base hospital, for instruction, Lieut. D. E. CORNWALL, St. Maries. For instruction, Capt. J. FREMSTAD, Burley; J. D. SHINNICK, Cottonwood; C. B. ALLEN, Parma; Lieuts. E. L. HARGIS, Ashton; H. H. DUTTON, Hailey; E. E. HARDY, Kellogg; J. N. DAVIS, Kimberly; E. H. ELMORE, Rupert.

Illinois

To Camp Custer, Mich., Lieut. J. M. DURIN, Chicago. Base hospital, Capt. H. P. BAGLEY, E. P. NORCROSS, Chicago.

To Camp Grant, Ill., Capt. L. H. FRIEDRICH, C. B. KING, U. G. WINDELL; Lieut. J. E. KOONS, Chicago. To examine the command for nervous and mental diseases, Lieut. T. G. McLIN, Jacksonville.

To Camp McClellan, Ala., Lieut. A. J. PROMINSKI, Chicago.

To Camp Shelby, Miss., base hospital, for instruction, Capt. F. G. MORRILL, Havana.

To Camp Sherman, Ohio, base hospital, for instruction, Capt. R. S. BARNSBACK, Edwardsville; W. R. PARKES, Evanston.

To Camp Zachary Taylor, Ky., Lieut. H. A. LONG, Effingham.

To Fort Benjamin Harrison, Ind., Lieut. C. R. BATES, Roodhouse.
To Fort Oglethorpe for instruction, Capt. G. A. ALMFELT, C. E. BODDIGER, Chicago; F. P. HORAN, Evanston; L. A. BURHANS, Peoria; Lieuts. A. J. KLINT, C. W. LENHART, Danville; W. F. BOWMAN, Fishhook; R. G. DAKIN, Sandwich.

To Fort Riley for instruction, Capt. W. A. UEHREN, Aurora; W. T. ZIEGLER, Canton; A. PECH, Chicago; W. N. MACCHESNEY, Chicago Heights; O. P. GRANT, Easton; W. A. GOTT, Washington; Lieuts. O. F. REINHARDT, Aviston; E. A. BEHRENDT, Bloomington; W. R. ABBOTT, G. L. APPELBACH, M. L. ARKIN, N. L. BLITZSTEN, E. J. COHN, C. C. COOLEY, C. F. GOETZINGER, L. CROTOWSKI, F. C. KLOOS, C. A. KROGH, T. F. LEATHERWOOD, J. G. WIEDDER, J. B. WILCOX, E. F. WINTERBERGER, Chicago; O. J. CULBERTSON, East St. Louis; C. S. WILLIAMSON, Fairmount; R. M. HATHAWAY, Farmer City; C. H. FOOTE, Girard; C. L. VANATTA, Hidalgo; A. C. MOORHEAD, Leland; W. M. CATON, Mason City; B. H. HARDINGER, Mattoon; F. E. INKS, Polo; M. A. NIX, Princeton; C. V. WINSETT, Prophetstown; J. C. MURPHY, Ridgeway; A. J. DALTON, St. Joseph.

To Roland Park, Md., Lieut. W. T. MORFETT, Blue Mound.

Indiana

To Ann Arbor, Mich., State Psychopathic Hospital, for intensive training, Capt. H. B. SHACKLETT, New Albany.

To Camp Meade, Md., Lieut. G. R. HAYS, Richmond.

To Camp Sevier, S. C., Lieut. J. P. WOLF, New Market. Base hospital, Capt. J. R. SICKLER, Frankfort.

To Camp Zachary Taylor, Ky., base hospital, Capt. C. E. DUFFIN, Richmond. Base hospital, for instruction, Capt. C. E. VARIER, South Bend.

To Colonia, N. J., Capt. W. C. WINSTANDLEY, New Albany.

To Denver, Colo., Capt. B. ERDMAN, Indianapolis.

To Fort Benjamin Harrison, Ind., Lieuts. J. C. KINCAID, Indianapolis; J. A. MEINER, Kokomo.

To Fort Oglethorpe for instruction, Capt. J. W. LITTLE, C. W. MARNER, Indianapolis; C. E. GILLESPIE, Seymour; O. S. TAYLOR, Whitestown; Lieuts. G. ALEXANDER, Bedford; I. J. GILL, Dugger; E. B. FLAVIEN, Logansport.

To Fort Riley, Capt. F. RODENBECK, Arcadia. For instruction, Capt. W. G. CULLODEN, F. P. REID, Indianapolis; J. D. STURDEVANT, Noblesville; Lieuts. C. M. JACKSON, Elizabethtown; W. A. HODGES, Emison; I. T. OLIPHANT, Farmersburg; E. D. SKEEN, Gary; C. R. PRICE, Geneva; C. U. THRALLS, Hymers; H. S. LEONARD, A. L. WALTERS, Indianapolis; C. M. WRAY, New Richmond; V. A. SHANKLIN, West Terre Haute.

Iowa

To Camp Dodge, Iowa, Lieuts. N. S. BEVINS, Fort Atkinson; F. E. E. ST. CLAIR, Hampton. Base hospital, for instruction, Lieut. G. B. BROWN, Clairion.

To Camp Grant, Ill., Capt. J. H. SCHRUP, Dubuque. Base hospital, for instruction, Lieut. P. M. DAY, Jr., Barnes City.

To Fort Oglethorpe for instruction, Capt. E. RICE, Ames; I. W. TRAVERSE, Fort Mediann; B. COURSHON, Sioux City; Lieuts. R. R. HARRIS, Dubuque; R. E. BRISBINE, Mason City; H. M. HUSTON, Ruthven; F. L. NICHOLS, Sutherland.

To Fort Riley for instruction, Capt. O. KREISA, Cedar Rapids; Lieuts. S. M. FERGUSON, Avoca; C. E. LOWREY, Centerville; B. F. McNEILL, Charles City; L. W. WARD, Fairbank; A. A. ROSE, Gilbert; A. J. MEYER, Hawarden; A. F. WATTS, Iowa City; J. J. PITCHER, Mt. Pleasant; V. O. MUENCH, Nichols; I. A. SNYDER, Roland; C. C. COLLESTER, Spencer; F. S. BOWEN, Woodburn.

Kansas

To Camp Grant, Ill., Lieut. R. M. TROUP, Garden City.

To Fort Oglethorpe for instruction, Capt. J. G. KENNEDY, Altoona; J. L. GROVE, Newton; Lieut. E. L. KALBFLEISCH, Newton.

To Fort Riley for instruction, Capt. B. R. RIEY, Benedict; H. A. BROWNE, Galena; F. K. MEADE, Hays; Lieuts. L. M. HINSHAW, Bennington; C. R. McFARLAND, Blue Rapids; A. JOHNSON, Clyde; R. P. PIERCE, Dunkirk; W. R. MORTON, Green; C. N. JOHNSON, Wichita.

Kentucky

To Ann Arbor, Mich., State Psychopathic Hospital, for training, Lieut. W. E. RENDER, Lakeland.

To Camp Greene, N. C., Lieuts. S. M. LINVILLE, Centerville; O. D. BROCK, London; J. S. WHITSON, Slaughters; D. J. THOMPSON, Webbville.

To Camp Jackson, S. C., base hospital, for instruction, Capt. J. A. DAVIS, Covington.

To Camp Joseph E. Johnston, Fla., Capt. J. M. FERGUSON, Central City; Lieut. C. L. NICHOLS, Louisville.

To Camp Meade, Md., Lieut. M. COMBS, Pineville.

To Camp Sevier, S. C., Lieut. B. C. OVERBOY, La Center.

To Fort Benjamin Harrison, Capt. W. T. BARNETTE, Springfield; B. J. NEARY, Waverly.

To Fort Oglethorpe for instruction, Capt. J. M. SALMON, Ashland; J. D. JACKSON, V. RAWSON, Danville; C. H. STRUBLE, Dayton; C. A. VANCE, Lexington; G. S. BROCK, London; D. A. PENICK, Nicholasville; E. B. SMITH, Shelbyville; W. A. BUSH, Winchester; Lieuts. H. S. HARNED, Boston; E. L. GOWDY, Campbellsville; J. N. SMITH, Christianburg; A. G. CALDWELL, Covington; A. P. DOWDEN, Eminence; S. W. COHN, Fulton; C. R. MORTON, Hanson; A. E. POPHAM, Kottsville; H. F. POHLMEYER, Lexington; C. W. KASH, Forefield; P. K. McKENNA, Mount Sterling; A. R. KEMPF, Olmstead; H. V. USHER, Oscar; M. H. WALKER, Panther; O. P. CHAPMAN, Port Royal; D. G. SKAGGS, Prospect; E. BARR, Rome; H. B. ANDERSON, Shawhan; W. L. MORSE, St. Charles.

To Fort Riley for instruction, Lieuts. J. N. BAILEY, Fredonia; J. W. FITCH, Louisville.

To Newport News, Va., Lieut. E. E. LINVILLE, Mount Olivet.

Louisiana

To Camp Beauregard, La., Lieut. J. F. POLK, Slidell. Base hospital, Lieut. E. MCCARTHY, New Orleans.

To Camp Joseph E. Johnston, Fla., Lieuts. J. W. A. SMITH, New Orleans; T. BUTLER, St. Francisville.

To Fort Oglethorpe for instruction, Lieuts. A. B. CHILDS, Eunice; J. G. HIRSCH, Harvey; C. A. BEATLE, J. B. HARNEY, H. B. SEEBOLD, New Orleans; M. S. PICARD, Shreveport; A. M. PETERS, Winnfield.

To New York, Neurological Institute, for instruction, Lieut. J. I. PETERS, Alexandria.

Maine

To Newport News, Va., Capt. E. CAPLAN, Portland.

Maryland

To Camp Jackson, S. C., base hospital, for instruction, Lieut. W. N. PALMER, Easton.

To Camp Meade, Md., base hospital, Capt. H. K. FLECKENSTEIN, Baltimore.

To Fort Oglethorpe for instruction, Lieuts. I. C. DICKSON, E. C. LEHNERT, Baltimore; J. H. BAY, Harve de Grace; F. A. MILLER, Salisbury.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. H. FRIED, Baltimore.

To Newport News, Va., Capt. B. S. HANNA; Lieuts. A. G. WEBSTER, Baltimore; W. H. COULBOURN, Crisfield; F. T. BROOKS, Federalsburg.

Massachusetts

To Camp Abraham Eustis, Va., Lieut. W. W. MARSTON, Newton.

To Camp Devens, Mass., base hospital, Major F. H. VERHOEFF, Boston. Base hospital, for instruction, Capt. J. P. GRAHAM, Springfield; Lieut. A. E. DARLING, Lynn.

To Camp Dix, N. J., base hospital, for instruction, Lieut. G. J. CONNOR, Haverhill.

To Camp Meade, Md., Lieut. H. M. KEMP, Greenfield.

To Fort Oglethorpe for instruction, Capt. F. E. DRAPER, J. S. MAY, Boston; T. F. BRASSIL, Cambridge; R. A. RICE, Fitchburg; W. L. HALE, North Attleboro; A. L. BROWN, Winchester; Lieuts. C. E. MEYER, Chicopee; P. J. SULLIVAN, Dalton; G. A. CONNOR, East Cambridge; F. F. DEXTER, Longmeadow; E. L. HILL, Millis; A. O. METIVIER, Springfield; T. M. CONNELL, Walpole; R. M. MARR, Westfield; M. BAFF, Worcester.

To Hoboken, N. J., Lieuts. L. LAKE, Cambridge; R. N. BROWN, Malden.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. F. D. JONES, Springfield.

To Newport News, Va., Lieut. M. M. MURPHY, Brockton.

Michigan

To Camp Custer, Mich., base hospital, for instruction, Lieuts. R. S. LONEY, Detroit; E. S. THORNTON, Muskegon.

To Camp Zachary Taylor, Ky., Lieuts. G. SEWELL, Detroit; J. J. O'MEARA, Jackson.

To Fort Benjamin Harrison, Lieut. L. E. WESTCOTT, Cobleville.

To Fort Oglethorpe for instruction, Capt. G. A. SEYBOLD, Jackson; Lieut. H. L. MECK, Petersburg.

To Fort Riley for instruction, Lieuts. L. E. WERRY, Calumet; F. C. MUSSER, C. M. TURRELL, Detroit; E. T. BRUNSON, Ganges.

To Washington, D. C., Lieut. C. W. HEALD, Battle Creek.

Minnesota

To Camp Dodge, Iowa, base hospital, Capt. G. E. BENSON, Minneapolis. Base hospital, for instruction, Capt. A. N. COLLINS, Duluth.

To Camp Grant, Ill., base hospital, for instruction, Lieut. C. LEMBKE, St. Paul.

To Camp Lee, Va., base hospital, Capt. P. A. HIGBEE, Minneapolis.

To Fort Riley for instruction, Lieuts. C. F. CARSTENS, Hibbing; D. M. O'DONNELL, Ortonville; B. W. JARVIS, St. Paul.

To Newport News, Va., Capt. J. L. CRENSHAW, Rochester.

Mississippi

To Camp Beauregard, La., Lieut. J. M. Smith, Magnolia.

To Camp Joseph E. Johnston, Fla., Capt. H. L. McKINNON, Hattiesburg; W. D. McCALIP, Yazoo City; Lieuts. O. H. OLSEN, Hattiesburg; B. C. CRISLER, Itta Bena; B. F. McARTHUR, Lizelia; D. T. BROOK, McComb; H. B. OLIVER, Sledge.

To Camp McClellan, Ala., Lieut. J. C. BUCKLEY, Poplarville.

To Fort Oglethorpe for instruction, Capt. M. WATKINS, Natchez; Lieuts. R. E. HONNOLL, Ashland; D. W. MAGEE, Caseyville; R. S. PEARCE, Falkner; O. O. AUSTIN, Harpersville.

To Fort Riley for instruction, Lieut. L. H. BREVARD, Eudora.

Missouri

To Camp Beauregard, La., base hospital, for instruction, Lieut. E. BOEHM, St. Louis.

To Camp Dodge, Iowa, base hospital, Capt. S. L. GETTYS, St. Louis.

To Camp Grant, Ill., base hospital, Lieut. C. D. SCOTT, St. Louis.

To Camp Logan, Texas, base hospital, Lieut. H. G. PIEPER, St. Louis.

To Camp Pike, Ark., base hospital, Capt. O. A. SMITH, Farmington.

To Camp Zachary Taylor, Ky., base hospital, for instruction, Capt. W. H. GENTRY, Carthage.

To Fort Oglethorpe for instruction, Capt. J. H. FULBRIGHT, Springfield; Lieuts. U. G. STREIBY, Brownington; J. W. L. BRENNAN, St. Louis; J. L. HORN, Williamsville.

To Fort Riley for instruction, Capt. T. P. FORE, Brookfield; W. J. CLARK, Maysville; E. W. SHRADER, Moberly; A. L. McNAY, Pacific; B. B. SIMMONS, St. Joseph; C. E. DUDLEY, E. LOEW, J. A. LOTZ, C. H. POPE, St. Louis; Lieuts. G. H. SHIRLEY, Argyle; J. BEST, High Hill; J. A. BEEBE, H. CZARLINSKY, C. F. MARTIN, Kansas City; J. F. GULIC, Koshkonong; H. W. OYLER, Mill Grove; E. E. EVANS, New Florence; C. H. CULLERS, Spickard; R. L. BYRD, H. B. DEPEW, J. E. DOLL, M. J. GLASER, C. F. HENKE, C. R. REIDER, P. H. SCHERER, F. J. SMITH, W. F. STEIN, O. VIERLING, St. Louis; A. TRAUBITZ, Vanduser; A. J. COURSON, Williamsburg.

Montana

To Camp Dodge, Iowa, base hospital, for instruction, Capt. W. V. KINGSBURY, Butte.
To Camp Grant, Ill., base hospital, for instruction, Capt. J. G. THOMPSON, Helena.
To Fort Riley for instruction, Lieuts. R. B. DURNIN, F. E. KEENAN, Great Falls.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. J. C. F. SIEGFREIDT, Bearcreek.

Nebraska

To Camp Bowie, Texas, base hospital, for instruction, Lieut. C. C. HICKMAN, Lincoln.
To Camp Dodge, Iowa, base hospital, for instruction, Lieut. R. L. IVINS, Crawford.
To Camp Gordon, Ga., base hospital, Capt. I. S. CUTTER, Omaha.
To Fort Oglethorpe for instruction, Lieuts. T. T. HARRIS, B. A. McDERMOTT, Omaha.
To Fort Riley for instruction, Capt. F. J. KALAL, Clarkson; Lieuts. G. W. BRIGGS, Arthur; C. E. KIDDER, Holstein.

New Hampshire

To Fort Oglethorpe for instruction, Lieuts. L. B. MARCOU, Berlin; F. H. LOVEJOY, Milford.
To report to the commanding general, Southeastern Department, Capt. J. E. BLAKE, Lisbon.

New Jersey

To Bound Brook, N. J., Lieut. J. T. LEAHY, Bound Brook.
To Camp A. A. Humphreys, Va., Capts. H. D. McCORMICK, Kenil; F. A. ROBERTS, Newark.
To Camp Colt, Pa., Lieut. G. H. LEBRET, Secaucus.
To Camp Crane, Pa., Lieuts. G. R. WRIGHT, Landing; H. H. RICH, Newark.
To Camp Devens, Mass., base hospital, Capt. E. A. CURTIS, Newark.
To Camp Dix, N. J., base hospital, Capt. S. W. CLARK, Atlantic City; Lieut. J. F. BOWMAN, Irvington.
To Camp Jackson, base hospital, for instruction, Lieut. W. SPICKERS, Paterson.
To Camp Lee, Va., to examine the command for nervous and mental diseases, Lieut. G. B. McMURRAY, Greystone Park.
To Camp McClellan, Ala., base hospital, Lieut. H. G. HOLLER, Newark.
To Camp Meade, Md., Lieut. A. W. BOWKER, Atlantic City.
To Camp Sevier, S. C., to examine the command for nervous and mental diseases, Lieut. G. W. DAVIES, Cedargrove.
To Camp Wadsworth, S. C., to examine the command for nervous and mental diseases, Lieut. G. R. HAMPTON, Greystone Park.
To Fort Oglethorpe for instruction, Capts. W. H. AXFORD, Bayonne; T. P. BOYLE, Newark; H. D. WEBB, Orange; Lieuts. M. S. FRANK, C. J. LARKEY, Bayonne; H. C. UPCHURCH, Dover; A. V. SIMMONS, Irvington; E. L. CREVELING, N. L. ROWE, Jr., Jersey City; R. M. COHN, L. R. DAVIS, Newark; H. C. CASSINI, Orange; H. B. HESS, C. J. KANE, Paterson; W. COTTRELL, Rutherford; J. M. DANE, South Orange; W. S. McDANNALD, Tenafly; A. UREVITZ, West Hoboken; W. FESSLER, West New York.
To Hoboken, N. J., Capt. W. GAUCH, Newark; Lieuts. J. J. HUNT, Bayonne; J. P. COLL, Newark; J. G. COTTRELL, Perth Amboy.
To Lakewood, N. J., Capt. T. ALSOP, Atlantic City.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. H. A. SCHEPPACH, Newark.
To Newport News, Va., Lieut. H. J. GILBERT, Newark.
To Washington, D. C., St. Elizabeth's Hospital, for intensive training, Lieut. N. W. LAWLESS, Morristown.

New Mexico

To Fort Riley for instruction, Lieut. W. M. LANCASTER, Plain.
To report to the commanding general, Southern Department, Capt. R. L. BRADLEY, Roswell.

New York

To Camp Crane, Pa., Lieuts. A. W. WAGNER, Buffalo; L. H. SMITH, New York.
To Camp Devens, Mass., Lieuts. J. W. W. DIMON, Utica. Base hospital, Capt. E. R. LEWIS, Rochester. Base hospital, for instruction, Capts. H. G. BENTZ, J. H. CARR, Buffalo.
To Camp Dix, N. J., base hospital, Lieuts. C. W. BETHUNE, Buffalo; D. A. LUBARSKY, New York. Base hospital, for instruction, Capt. C. H. GOODRICH, Brooklyn; Lieut. B. W. SEAMAN, Rockville Center.
To Camp Hancock, Ga., base hospital, for instruction, Capt. H. D. FURNISS, New York.
To Camp Jackson, S. C., Lieut. F. X. MARINARO, Brooklyn.
To Camp Logan, Texas, base hospital, Lieut. M. T. SIEGEL, New York.
To Camp McClellan, Ala., base hospital, Capt. S. H. DeCOSTE, Brooklyn.
To Camp Meade, Md., Lieuts. N. J. McCaul, Brooklyn; J. SAFIAN, New York. Base hospital, for instruction, Lieuts. H. F. VAN LOON, Albany; H. M. KALVIN, Brooklyn.
To Camp Sheridan, Ala., base hospital, Capt. M. J. TIERNEY, Hamaroneck.
To Camp Wadsworth, S. C., base hospital, for instruction, Lieut. S. O. SHUMWAY, Brooklyn.
To Camp Wheeler, Ga., base hospital, for instruction, Lieut. A. H. SCHMITT, New York.
To Camp Zachary Taylor, Ky., base hospital, Capt. S. R. FOWLER, Syracuse.
To Colonia, N. J., Lieut. A. J. WESTLAKE, Elmira.
To Fort Oglethorpe for instruction, Capts. P. W. COSTELLO, Brooklyn; A. E. BRENNAN, F. ST. J. HOFFMAN, F. B. WILLARD, Buffalo; W. B. BROOKS, Mohawk; A. H. MOORE, New Rochelle; M. BRANNER, E. BRUNOR, New York; A. C. KLINE, Prospect; G. A. MARION, Rochester; P. S. YOUNG, Sidney; W. P. PINSONEAULT, Watertown; Lieuts. H. B. BROWNELL, J. M. FLANNERY, J. N. KIEFFER, S. A. MOORE, A. G. OSTWALD, F. H. PALMER, V. REINSTEIN, Buffalo; L. C. BROUGHTON, Castle; W. BRADY, Elmira; L. A. BOUTON, Fonda; W. G. PHIPPS, Mount Vernon; D. G. EWART, S. KUTSCHER, E. W. MacADAM,

H. H. SHIRAS, New York; C. G. SMITH, Port Jefferson; A. V. WALKER, Rochester; R. K. ROSENBERGER, Schenectady; G. MOUNT, South Butler; R. W. RENWICK, Staten Island; C. H. EVANS, Syracuse; A. E. RICHMOND, Wayland.

To Fort Porter, N. Y., Capt. P. SMITH, New York.
To Hoboken, N. J., Capts. J. E. GOLDING, Brooklyn; F. A. TEEPELL, Russell; Lieuts. R. H. GRAY, Brooklyn; P. C. CAMPBELL, J. L. GALLAGHER, E. P. REIMANN, Buffalo; R. H. DUNNING, Eastwood; G. H. LEADER, Penn Yan; J. A. BURNS, Wilson.
To New Haven, Conn., Lieut. M. NORMAN, Bedford Hills.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Capt. W. B. STONE, Schenectady; Lieuts. F. D. CARR, Batavia; J. M. TAMRAZ, Brooklyn.
To Newport News, Va., Lieuts. A. E. GREENWOOD, R. C. WEITHAS, Brooklyn; J. G. McGILLICUDDY, Little Falls; E. C. DOUGLAS, New York; H. MacDONALD, Schenectady.
To New York, Cornell Medical College, for instruction in roentgenology, Lieut. A. S. UNGER, New York. Neurological Institute, for intensive training, Capt. G. C. FISK, Buffalo.
To Plattsburg, N. Y., Capt. W. TIMME, New York.
To report to the commanding general, Southeastern Department, Capts. J. P. BARR, B. H. BRADY, Buffalo.
To Rockefeller Institute, Capts. T. S. GITHENS, J. P. HOGUET, New York.
To Syracuse, N. Y., Lieut. D. BRUMBERG, Buffalo.
To Washington, D. C., St. Elizabeth's Hospital, Capt. D. C. MAIN, Alfred; for intensive training, Capt. J. F. SHANAHAN, Buffalo; Lieut. H. C. BURGESS, Canandaigua.
To Williamsbridge, N. Y., Major E. S. THOMSON, New York; Lieut. L. BROOKS, Rome.

North Carolina

To Fort Oglethorpe for instruction, Capt. W. J. McANALLY, High Point; Lieut. S. F. TILLOTTSON, King.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. H. B. HIATT, High Point.
To Newport News, Va., Lieut. B. K. BLALOCK, North Charlotte.

North Dakota

To Fort Riley, base hospital, Lieut. R. C. HERON, Tolma. For instruction, Lieut. F. E. EWING, Kennare.

Ohio

To Ann Arbor, Mich., State Psychopathic Hospital, Lieut. J. H. BERRY, Lima.
To Camp Custer, Mich., Lieuts. O. P. ULRICH, Orrville. Base hospital, for instruction, Lieut. R. H. McKAY, Akron.
To Camp Meade, Md., Lieuts. P. E. BEACH, Cleveland; F. C. DUCKWALL, Scott.
To Camp Sevier, S. C., Lieut. H. D. SCHELL, Hamilton.
To Camp Sherman, Ohio, base hospital, Capt. E. H. STONE, Cleveland.
To Camp Zachary Taylor, Ky., base hospital, for instruction, Capt. A. CROTTI, Columbus; Lieut. O. BEHMAN, Cincinnati.
To Fort Benjamin Harrison, Lieuts. L. L. McHENRY, Cheviot; L. C. KINTZLER, Cleveland.
To Fort Oglethorpe for instruction, Capts. O. M. SHIREY, Cleveland; H. H. FISHER, Columbus; W. SHIPE, Middletown; Lieuts. V. E. KAUFMAN, J. F. O'HARA, Canton; J. A. BLACK, E. M. DEACON, W. R. GOFF, A. W. WARREN, Cleveland; S. M. BECK, Dayton; C. G. HISSONG, Hamler; J. M. COLEMAN, Loveland; E. R. ALEXANDER, Rittman; J. B. KLINGENSMITH, Sebring; J. E. FURRY, Springfield; C. W. MONTGOMERY, Sycamore; E. F. TODHUNTER, Washington; E. E. COBURN, West Milton; R. G. MOSSMAN, Youngstown.
To Hoboken, N. J., Lieut. H. B. LARIMORE, Sparta.
To New Haven, Conn., Lieut. C. C. KENNEDY, Bethel.
To New York, Cornell Medical College, for instruction, Lieut. G. F. THOMAS, Cleveland.
To report to the commanding general, Southeastern Department, Lieut. J. R. JAMESON, Apple Creek.

Oklahoma

To Camp Kelly, South Antonio, Texas, Lieut. H. C. SCHENCK, Muskogee.
To Fort Oglethorpe for instruction, Lieuts. J. J. BARBER, Laverne; E. B. MILLER, Wakita.
To Fort Riley for instruction, Lieuts. H. A. HOWELL, Holdenville; J. S. McFADIN, Hollis; W. G. PHILLIPS, Skistook; J. M. BUCHANAN, Tulsa; F. D. MARTIN, Vinita.

Oregon

To Camp Lewis, Wash., Capt. R. V. MOORE; Lieuts. J. H. CARRICO, Portland; E. H. HOBSON, Scio. Base hospital, for instruction, Capt. M. K. HALL, LaGrande.
To Fort Riley for instruction, Lieuts. M. M. LEVY, W. A. TRIMBLE, Portland.

Pennsylvania

To Camp Crane, Pa., Lieut. A. SOFFEL, Pittsburgh.
To Camp Devens, Mass., base hospital, Lieut. G. J. FELDSTEIN, Pittsburgh.
To Camp Gordon, Ga., base hospital, Capt. S. S. BROWN, Pittsburgh.
To Camp Hancock, Ga., base hospital, Lieut. A. H. MURRAY, Sayre.
To Camp Leach, D. C., Lieut. C. L. BOWMAN, Pittsburgh.
To Camp McClellan, Ala., base hospital, for instruction, Capt. H. S. FISH, Sayre.
To Camp Meade, Md., Lieuts. W. J. STEIN, Armore; A. H. BUNSHAW, Erie; V. A. WILLIAMS, Pittsburgh. Base hospital, for instruction, Capt. S. D. MOLYNEAUX, Philadelphia.
To Camp Pike, Ark., base hospital, Lieut. E. S. WALLS, Pittsburgh.
To Camp Sevier, S. C., Lieut. F. W. RUDOLPH, Pittsburgh.
To Camp Shelby, Miss., base hospital, Capt. C. S. REBUCK, Harrisburg.
To Camp Sheridan, Ala., base hospital, Capt. F. P. STECK, Shamokin. Base hospital, for instruction, Lieut. T. E. TEACH, Lock Haven.
To Camp Sherman, Ohio, base hospital, for instruction, Lieut. G. S. HACKETT, Belle Vernon.
To Camp Wheeler, Ga., base hospital, for instruction, Capt. T. L. CHASE, Philadelphia.
To Fort Oglethorpe for instruction, Capts. F. M. SUMMERVILLE, Oil City; G. M. FERGUSON, C. P. KATZENSTEIN, Philadelphia;

B. A. BOOTH, C. C. MARSHALL, Pittsburgh; Lieuts. J. C. ATWELL, Butler; P. A. LONERGAN, Dickson City; H. N. THISSELL, C. V. VEDDER, Philadelphia; J. J. KVATSAK, T. F. MOORE, Pittsburgh; M. E. GRUVER, Reading; A. P. GARDNER, E. A. McLAINE, Scranton; S. A. RUBEN, Washington; A. E. TORRENS, West View; H. S. FLOYD, Wilkesburg; H. B. JONES, Woodlawn.

To Mineola, N. Y., Hazelhurst Field, for instruction, Capt. S. H. HORNE, Philadelphia.

To Hoboken, N. J., Lieuts. H. E. MOORE, Ambridge; W. P. GEMMILL, Monessen; W. J. DAVIDSON, New Castle.

To Newport News, Va., Lieuts. J. P. DOUGHERTY, Ashley; R. O. BLACKLOCK, McKeesport; W. T. DODDS, Pittsburgh; P. E. BIGGINS, Sharpsville; J. H. CORWIN, Washington.

South Carolina

To Camp Lee, Va., Lieut. J. E. LUCAS, Great Falls.

To Camp Sevier, S. C., base hospital, for instruction, Capt. J. H. HUNTER, Spartanburg.

To Fort Oglethorpe for instruction, Lieuts. H. J. STUCKY, Bamberg; J. C. SEASE, Charleston; J. L. MARSHALL, Greenwood; C. H. ESDORN, Walterboro.

South Dakota

To Fort Riley for instruction, Lieut. W. S. CHAPMAN, Mellette.

Tennessee

To Camp Sevier, S. C., base hospital, Capt. F. L. YOUNG, Knoxville.

To Fort Oglethorpe for instruction, Capt. R. O. KIBLER, Cleveland; W. O. FLOYD, Nashville; Lieuts. W. J. HEWSON, Ducktown; E. H. BAIRD, J. B. BERRY, D. L. FLANARY, Dyersburg; G. C. HUTSON, Knoxville; J. W. MASON, C. W. ROBINSON, Memphis; E. A. GILBERT, St. Elmo; R. H. RUBLE, Washington College.

To Newport News, Va., Lieut. R. B. FLANIKEN, Brunswick.

Texas

To Camp Bowie, Texas, base hospital, Capt. W. G. COOK, Fort Worth.

To Camp Cody, N. M., base hospital, Capt. J. W. McLAUGHLIN, Austin.

To Camp Kelly, Texas, Capt. S. C. GAGE, Waco; Lieuts. D. A. MOHLER, Dallas; E. A. MONTENYOHL, El Paso.

To Camp Shelby, Miss., base hospital, Lieut. M. H. BOERNER, Austin.

To Camp Travis, Texas, Lieut. P. A. BAZE, Mason.

To Denver, Colo., Lieuts. J. W. POULTER, Dallas; J. L. McKNIGHT, El Paso.

To Fort Oglethorpe for instruction, Capt. T. R. BLACK, Paris; R. Y. LACY, Pittsburgh; M. W. SHERWOOD, Temple; Lieuts. W. J. JINKINS, Galveston; J. H. BURNETT, Kopperl; S. C. BALL, New Boston.

To Fort Riley for instruction, Capt. J. T. LAWSON, Bowie; Lieuts. C. G. STRICKLIN, Clarendon; H. ROWE, Denton; L. O. FOSTER, Fort Worth; T. F. YATER, Godley; J. M. DOSS, Pharr; E. W. MOSS, Quail; J. M. VAN NESS, San Marcos; W. P. DINGLE, Valley Mills.

To Fort Sam Houston, Texas, Lieut. E. V. DICKEY, Dallas.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Capt. L. YATER, Cleburne.

To report to the commanding general, Southern Department, Lieut. W. F. HOLLAND, Santa Ana.

Utah

To Fort Riley for instruction, Capt. S. W. BADCON, Ogden.

Vermont

To Camp Devens, Mass., base hospital, Capt. L. A. NEWCOMB, Montpelier.

To Fort Oglethorpe for instruction, Lieut. C. E. WARD, Hartland.

To Hoboken, N. J., Lieut. H. P. GREENE, Brattleboro.

Virginia

To Camp Greene, N. C., Capt. C. R. ANDERSON, Winchester; Lieut. G. G. HANKINS, Phoebus.

To Camp Sevier, S. C., base hospital, Lieut. E. L. RAWLS, Suffolk.

To Fort Oglethorpe for instruction, Capt. J. A. RICE, Heathsville; O. H. McCLUNG, Lexington; J. D. OSBORNE, Petersburg; Lieut. L. P. MILLIGAN, Hopewell.

To Newport News, Va., Capt. J. T. BUXTON, Newport News; W. P. JONES, Urbanna; Lieut. S. L. STALLARD, Newport News.

To report to the commanding general, Southeastern Department, Lieut. C. P. OBENSCHAIN, Kerrs Creek.

Washington

To Camp Lewis, Wash., Capt. W. A. SMITH, Centralia; Lieuts. A. POSKA, Seattle; F. H. CARVER, Waitsburg. Base hospital for instruction, Capt. W. S. DURAND, Everett.

West Virginia

To Camp Colt, Pa., Lieut. C. N. REGER, Vandalia.

To Camp Meade, Md., Lieuts. A. H. HOGE, Bluefield; G. C. BLAKE, Tunnelton.

To Camp Sevier, S. C., Lieut. H. S. KEISTER, Fairmont.

To Fort Oglethorpe for instruction, Capt. A. M. FREDLOCK, Elkins; L. A. WILLIAMS, Huntington; Lieuts. D. V. SMITH, Letart; M. W. VIEWEG, Wheeling.

To Newport News, Va., Capt. E. T. W. HALL, Freemansburg; Lieut. A. A. SCHERR, Eglon.

Wisconsin

To Fort Oglethorpe for instruction, Capt. I. G. THOMPSON, Eau Claire.

To Fort Riley for instruction, Capt. L. P. A. VALENTINE, Milwaukee; Lieuts. R. CAHOON, Baraboo; A. J. WIESENDER, Berlin; C. E. MYERS, Milladore; R. F. BRAUN, P. J. MERTEN, Milwaukee; J. M. CONWAY, Spring Valley.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. L. R. FOWSER, Manawa.

Wyoming

To Fort Riley for instruction, Lieut. B. SHIPMAN, Rock Springs.

ORDERS TO OFFICERS OF THE MEDICAL CORPS, U. S. ARMY

Alabama

To Camp Custer, Mich., to examine the command for cardiovascular diseases, from Lakewood, Capt. H. W. BASS, Gadsden.

To Camp Hancock, Ga., base hospital, for instruction, from Fort Oglethorpe, Capt. G. H. WINTHROP, Mobile.

To Camp Jackson, S. C., base hospital, for instruction, from Fort Oglethorpe, Capt. N. P. COCKE, Birmingham.

To Camp Joseph E. Johnston, Fla., base hospital, for instruction, from Fort Oglethorpe, Lieut. J. R. CHISOLM, Marion Junction.

To Fort Bliss, Texas, from Fort Oglethorpe, Lieut. W. F. HAMILTON, Pell City.

Arkansas

To Camp Crane, Pa., mobile hospital, from Fort Oglethorpe, Lieut. R. R. DALE, Texarkana.

To Camp Hancock, Ga., base hospital, from Fort Oglethorpe, Capt. W. D. JUDKINS, Little Rock.

To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Lieut. F. L. WILSON, Hermitage.

To Hoboken, N. J., from Camp Upton, Capt. C. P. WILSON, JR., Fort Smith.

California

To Camp A. A. Humphreys, Va., from Newport News, Capt. J. H. PARKINSON, Sacramento.

To Camp Crane, Pa., evacuation hospital, from San Francisco, Major C. G. TOLAND, Los Angeles.

To Camp Fremont, Calif., to examine the command for nervous and mental diseases, from Mendocine, Capt. J. A. COLLIE, La Manda Park.

To Camp Meade, Md., evacuation hospital, from Fort Oglethorpe, Lieut. D. E. SHEA, Los Angeles.

To Fort Benjamin Harrison, base hospital, from Camp Lewis, Lieut. W. A. REED, Covina.

To Fort Leavenworth, Kan., Lieut. C. E. EARLY, Los Angeles.

To Pittsburgh, Pa., from Camp Lewis, Capt. H. J. PRUETT, San Francisco.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion to Camp Pike, Ark., base hospital, for instruction, from Fort Riley, Capt. R. SMART, Coronado.

Canal Zone

To Camp Jackson, S. C., base hospital, from Camp Beauregard, Major W. M. JAMES, Ancon.

To Camp Shelby, Miss., base hospital, for instruction, Lieut. L. M. DRENNAN, Ancon City.

Colorado

To Camp Sherman, Ohio, base hospital, for instruction, Lieut. G. L. SHARP, Colorado Springs.

Connecticut

To Camp Hancock, Ga., base hospital, from Fort Oglethorpe, Lieut. P. H. ROGERS, New Haven.

District of Columbia

To Camp McClellan, Ala., from Washington, Lieut.-Col. A. W. SCHOENLEBER.

To Camp Meade, Md., from Walter Reed General Hospital, Capt. W. J. MANNING, Washington.

To Camp Shelby, Miss., from Washington, Lieut.-Col. J. T. AYDELOTTE.

To Camp Sherman, Ohio, base hospital, for instruction, from Fort Oglethorpe, Lieut. J. B. G. CUSTIS, Washington.

To Fort Oglethorpe for instruction, Lieut. W. N. LIPSCOMB, Washington.

To Fort Sam Houston, Texas, as department surgeon, Col. W. H. WILSON.

To Hoboken, N. J., from the Surgeon-General's Office, Major-Gen. R. E. NOBLE, Lieut.-Cols. J. S. COULTER, W. L. HART.

To Walter Reed General Hospital, D. C., from Fort Oglethorpe, Lieut. D. B. MOFFETT, Washington.

Florida

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Camp Sherman, Ohio, base hospital, for instruction, from Fort Oglethorpe, Capt. E. S. ESTES, St. Augustine.

Georgia

To Fort Des Moines, Iowa, base hospital, for instruction, from Fort Oglethorpe, Capt. W. L. COOKE, Columbus.

To Fort Oglethorpe for instruction, Lieuts. T. STARR, Calhoun; J. R. McMICHAEL, Quitman.

To Fort Sam Houston, Texas, base hospital, for instruction, from Fort Oglethorpe, Capt. J. D. MAGNET, Atlanta.

To French Lick, Ind., from Camp Wheeler, Lieut.-Col. R. W. BLISS.

To Hampton, Va., Langley Field, Lieuts. J. P. KENNEDY, Atlanta; W. H. WHITTENDALE, Norman Park.

To report to the commanding general, Southern Department, Lieut. T. M. VORBRINCK, Savannah.

The following order has been revoked: *To Camp Wheeler, Ga., from Fort Oglethorpe, Lieut. T. M. STEWART, Atlanta.*

Illinois

To Camp Abraham Eustis, Va., from Camp Jessup, Lieut. L. B. CLINTON, Chicago.

To Camp Crane, Pa., from Camp Pike, Capt. A. H. CURTIS, Chicago. Mobile hospital, from Fort Oglethorpe, Lieut. E. J. BURKE, LaSalle.

To Camp Custer, Mich., base hospital, Lieut. D. HOLDEN, Chicago.

To Camp Grant, Ill., base hospital, for instruction, Lieut. M. B. KARATZ, Chicago.

To Camp Greene, N. C., to examine the command for cardiovascular diseases, from Edgewood, Md., Lieut. A. SUMMERS, Oak Forest.

To Camp Hancock, Ga., base hospital, from Camp Logan, Capt. H. A. WARE, Chicago; from Fort Oglethorpe, Capt. R. L. TRUITT, Naperville; W. E. POTTER, Oak Park; Lieuts. J. R. SMITH, Chicago; J. A. BOZARTH, East St. Louis.

To Camp Jackson, S. C., base hospital, Capt. W. H. BUHLIG, Chicago.

To Camp Joseph E. Johnston, Fla., base hospital, from Fort Oglethorpe, Capt. W. R. FRINGER, Rockford.

To Camp Logan, Texas, base hospital, for instruction, from Fort Oglethorpe, Capt. L. P. KUHN; Lieut. H. HOFMAN, Chicago.

To Camp MacArthur, Texas, base hospital, for instruction, from Fort Oglethorpe, Capt. J. E. STANTON, Chicago.

To Camp Meade, Md., evacuation hospital, from Fort Oglethorpe, Capt. C. B. RIPLEY, Galesburg.

To Camp Pike, Ark., base hospital, from Camp Beauregard, Capt. C. W. COMPTON, Springfield.

To Camp Shelby, Miss., base hospital, for instruction, from Fort Oglethorpe, Capt. W. A. PLICE, Chicago.

To Camp Sheridan, Ala., from Camp Forrest, Major T. P. FOLEY, Chicago.

To Camp Sherman, Ohio, base hospital, for instruction, Lieuts. J. W. KELLY, Chicago; E. A. WELDEN, Wheaton.

To Camp Zachary Taylor, Ky., base hospital, for instruction, Capt. R. T. VAUGHAN, Chicago; from Fort Riley, Lieut. P. S. CLARK, Chicago.

To Columbus Barracks, Ohio, from Camp Meade, Lieut. A. C. PRUNER, Chicago.

To Dansville, N. Y., from Fort Oglethorpe, Capt. A. ALGUIRE, Belvidere.

To Fort Des Moines, Iowa, from Fort Oglethorpe, Lieut. J. MITCHELL, Chicago. Base hospital, for instruction, Lieut. G. W. COX, Litchfield.

To Hoboken, N. J., Lieut. J. H. CAMPBELL, Collison. Base hospital, from Camp Hancock, Lieut. A. J. WEIRICK, Marseilles; from Camp McClellan, Lieut. J. A. DE FREITAS, Springfield.

To Kiser, Va., from Camp Meade, Capt. H. WOOD, Batchtown.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Camp Lee, Va., base hospital, for instruction, Fort Oglethorpe, Capt. H. D. HULL, Crystal Lake. On completion to Camp Meade, Md., base hospital, for instruction, Lieuts. P. E. GREENLEAF, Bloomington; O. L. EDWARDS, Roodhouse.

To Waynesville, N. C., from New Haven, Capt. W. H. WATTERSON, Chicago.

The following orders have been revoked: To Camp Crane, Pa., evacuation hospital, Lieut. C. F. HARRIS, Chicago. To Camp Joseph E. Johnston, Fla., from Fort Oglethorpe, Capt. S. ROSENBLATT, Chicago.

Indiana

To Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieut. R. S. KEMP, Kentland.

To Camp Crane, Pa., evacuation hospital, from Fort Oglethorpe, Lieut. C. R. BASSLER, Elkhart.

To Camp Grant, Ill., base hospital, for instruction, Major D. C. PEYTON, Jefferson.

To Camp Meade, Md., from Fort Oglethorpe, Capt. H. N. SWEZEY, Lafayette. Base hospital, from Fort Oglethorpe, Lieut. E. L. SCHAIBLE, Gary.

To Camp Upton, N. Y., from Fort Oglethorpe, Lieut. A. R. KERR, Attica.

To Fort Oglethorpe, as instructor, from Fort Benjamin Harrison, Capt. F. M. WHISLER, Wabash. For instruction, from Ann Arbor, Capt. C. C. FUNK, New Albany.

To Hampton, Va., Langley Field, Capt. A. W. WARMAN, Clinton.

To New York, Bellevue Hospital, for instruction, from Fort Oglethorpe, Capt. B. W. CHIDLAW, Hammond.

To Pittsburgh, Pa., from Camp Sevier, Capt. W. E. GEORGE, Indianapolis.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Camp A. A. Humphreys, Va., base hospital, for instruction, from Fort Oglethorpe, Capt. F. R. CLAPP, South Bend. On completion to Camp Lee, Va., base hospital, for instruction, C. H. McCULLY, Logansport.

To Walter Reed General Hospital, D. C., Lieut. H. L. BELL, Knox.

The following order has been revoked: To Fort Oglethorpe, base hospital, from Camp Dodge, Lieut. E. N. BENNETT, Kokomo.

Iowa

To Camp Crane, Pa., mobile hospital, from Camp Jackson, Major P. B. McLAUGHLIN, Sioux City.

To Camp Greene, N. C., base hospital, from Southern Department, Capt. E. M. P. SWARD, Glenwood.

To Camp Hancock, Ga., base hospital, from Fort Oglethorpe, Capt. J. C. MURPHY, Davenport.

To Camp Upton, N. Y., base hospital, from Fort Oglethorpe, Lieut. W. H. JOHNSTON, Muscatine.

To Lansing, Mich., Michigan Agriculture College, Lieut. H. L. BRIDGMAN, Columbia.

To Fort Oglethorpe, base hospital, from Camp Wheeler, Lieut. H. L. von LACKUM, Iowa City. For instruction, Lieut. J. O. MURPHY, Eldon.

To Garden City, N. Y., from Fort Sill, Major T. L. LONG, Woodward.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion to Camp Grant, Ill., base hospital, for instruction, from Fort Riley, Lieut. F. P. WINKLER, Sibley. On completion to Camp Zachary Taylor, Ky., base hospital, for instruction, from Fort Riley, Capt. W. RUMML, Cedar Rapids.

To Washington, D. C., St. Elizabeth's Hospital, for instruction, from Camp Travis, Lieut. J. I. MARKER, Centerville.

Kansas

To Camp Crane, Pa., mobile hospital from Walter Reed General Hospital, Capt. H. WILKINSON, Kansas City.

To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Capt. W. H. CARTER, Wichita.

To Fort Oglethorpe, evacuation hospital, from Fort Riley, Capt. H. ATKINS, Pratt. For instruction, from Fort Riley, Lieut. W. S. PROUT, Concordia.

To Fort Riley for instruction, Lieut. J. E. GRAF, Salina.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion to Camp Dodge, Iowa, base hospital, for instruction, from Fort Riley, Lieut. R. B. EARP, Eldorado.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Camp Sherman, Ohio, base hospital, for instruction, from Fort Oglethorpe, Lieut. A. E. GARDNER, Wichita.

Kentucky

To Hoboken, N. J., Lieut. P. T. SKAGGS, Louisville.

Louisiana

To Camp Crane, Pa., from Fort Oglethorpe, Capt. W. B. CHAMBERLIN, Baton Rouge. From the Surgeon-General's Office, Major S. M. D. CLARK, New Orleans.

To Camp Greene, N. C., base hospital, from Fort Oglethorpe, Capt. E. HOLLOWAY, Plaquemine.

To Fort McPherson, Ga., for instruction, Lieut. C. L. GAULDEN, Elizabeth.

To Fort Oglethorpe for instruction, Lieut. O. P. DALY, JR., Lafayette.

To New Orleans, La., Quartermaster's Department, Major F. W. FARHAM, New Orleans.

Maine

To Camp Devens, Mass., to examine the command for nervous and mental diseases, from Boston, Lieut. F. E. ROWE, Augusta.

To Camp Hancock, Ga., base hospital, from Fort Oglethorpe, Lieut. O. C. MOULTON, South Windham.

Maryland

To Camp Meade, Md., base hospital, from Camp Leach, Lieut. W. P. FINNEY, Baltimore.

To Edgewood, Md., Edgewood Arsenal, from Camp Meade, Lieut. Col. G. E. LEWIS, Rockville.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion to his proper station, from Fort Riley, Capt. W. B. PERRY, Baltimore.

Massachusetts

To Boston, Mass., Parker Hill, Lieut. L. M. SPEAR, Boston.

To Brockton, Mass., and on completion to Camp Devens, Mass., from Fort Oglethorpe, Capt. J. F. CALLAHAN, J. J. McNAMARA, Lieut. J. L. MARA, Brockton.

To Camp Beauregard, La., base hospital, from Fort Bliss, Lieut. A. N. FREGEAU, Fitchburg.

To Camp Crane, Pa., from New York, Lieut. L. S. KEMP, Canton; from Richmond, Capt. G. L. TOBEY, Boston. Mobile hospital, from Fort Oglethorpe, Capt. W. E. HUNT, Malden; from Williamsbridge, Lieut. H. J. LUPIEN, Brockton.

To Camp Devens, Mass., base hospital, from Camp Cody, Lieut. W. H. MERRILL, Lawrence; from Fort Oglethorpe, Capt. H. H. FITZSIMMONS, Boston. Base hospital, for instruction, Lieut. D. S. ADAMS, Boston.

To Camp Dix, N. J., base hospital, from Lakewood, Capt. J. A. CECONI, Boston.

To Camp Gordon, Ga., base hospital, from Camp Hancock, Lieut. F. W. HODGDON, JR., Boston.

To Camp Greene, N. C., base hospital, from Camp Gordon, Capt. G. A. PIERCE, Tewksbury.

To Camp Hancock, Ga., base hospital, from Fort Oglethorpe, Lieuts. H. E. DIEHL, Quincy; G. L. STEELE, West Springfield.

To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Lieuts. C. F. WILCOX, JR., East Boston; C. G. YERBURY, Springfield.

To Minneapolis, Minn., University of Minnesota, from Rantoul, Capt. J. G. JENNINGS, Boston.

To New York, Cornell Medical College, for instruction, Capt. C. WHELAN, Hingham.

Michigan

To Camp Crane, Pa., mobile hospital, from Fort Oglethorpe, Lieut. A. C. HALL, Detroit.

To Camp Greene, N. C., base hospital, from Boston, Capt. H. W. LONG, Escanaba.

To Camp Hancock, Ga., base hospital, from Fort Oglethorpe, Capt. G. P. MYERS, Detroit.

To Camp Lee, Va., base hospital, from Camp A. A. Humphreys, Capt. C. L. BARBER, Lansing.

Minnesota

To Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieut. E. O. SWANSON, St. Paul; from Fort Riley, Lieut. F. H. NEHER, St. Paul.

To Camp Crane, Pa., mobile hospital, from Camp Wadsworth, Lieut. S. O. BLACK, Rochester.

To Camp Dodge, Iowa, base hospital, from Fort Riley, Capt. W. W. LEWIS, St. Paul. Base hospital, for instruction, Capt. A. H. PARKS, Minneapolis.

To Camp Grant, Ill., base hospital, for instruction, Capt. C. I. OLIVER, Graceville.

To Camp Hancock, Ga., base hospital, from Fort Oglethorpe, Lieut. G. McCREIGHT, Albert Lea.

To Camp Lewis, Wash., to examine the command for nervous and mental diseases, from San Francisco, Lieut. A. F. STRICKLER, Sleepy Eye.

To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Capt. C. A. LESTER, Winona.

To Fort McPherson, Ga., for instruction, Capt. A. W. SHALEEN, Hallock.

To Fort Oglethorpe for instruction, Lieuts. C. M. CLARK, P. A. O'LEARY, Rochester.

To Mineola, N. Y., Hazelhurst Field, from St. Paul, Capt. A. S. FLEMING, Minneapolis.

Mississippi

To Camp Greene, N. C., base hospital, from Fort Oglethorpe, Capt. J. B. STONE, Belen.

To Camp Pike, Ark., evacuation hospital, from Fort Oglethorpe, Capt. G. G. ASH, Lexington.

To Camp Sheridan, Ala., Lieut. G. W. BOUNDS, Meehan Junction.

To Camp Sherman, Ohio, base hospital, from Fort Oglethorpe, Lieut. D. C. MONTGOMERY, Greenville.

To Fort Oglethorpe for instruction, Lieut. T. R. McCARLEY, Okolona.

Missouri

To Camp Crane, Pa., mobile hospital, from Fort Oglethorpe, Lieut. O. F. FLADER, St. Louis.

To Camp Greene, N. C., base hospital, from Fort Oglethorpe, Capt. C. S. CAPELL, Kansas City.

To *Camp McClellan, Ala.*, base hospital, for instruction, Lieut. R. W. JANSON, St. Louis.

To *Camp Zachary Taylor, Ky.*, base hospital, from Fort Oglethorpe, Capt. W. M. WHEELER, Sedalia; from Jefferson Barracks, Lieut. J. C. DONAHUE, St. Louis.

To *Fort Benjamin Harrison*, base hospital, from Camp Dodge, Capt. D. E. SINGLETON, Clarence.

To *Fort Leavenworth, Kan.*, Lieut. B. R. TREASURE, McFall.

To *Fort McPherson, Ga.*, for instruction, Capt. C. D. CANTRELL, Kansas City.

To *Fort Oglethorpe*, evacuation hospital, from Camp MacArthur, Capt. S. S. BURNS, St. Louis; from Camp Shelby, Lieut. A. L. HERTEL, St. Louis. For instruction, Capt. P. I. LEONARD, St. Joseph; from Boston, Lieut. A. M. GOLDMAN, Kansas City.

To *Fort Riley* for instruction, Lieut. D. L. ROBESON, Kansas City. To examine the command for nervous and mental diseases, from Central Department, Capt. S. D. REYNOLDS, Gouler.

To *Fort Sam Houston, Texas*, base hospital, for instruction, from Fort Oglethorpe, Lieut. A. M. GREGG, Joplin.

To *Fort Sheridan, Ill.*, base hospital, from Camp MacArthur, Major J. C. MORFIT, St. Louis.

To *Jefferson Barracks, Mo.*, from St. Louis, Major H. W. LOEB, St. Louis.

To *Pittsburgh, Pa.*, from Camp Lewis, Lieut. H. A. CALVERT, Smithville.

To *Rochester, Minn.*, Mayo Clinic, for instruction, and on completion to *Camp Dodge, Iowa*, base hospital, for instruction, from Fort Riley, Capt. P. S. TATE, Farmington.

To *Rockefeller Institute* for instruction in the treatment of infected wounds, and on completion to *Camp Devens, Mass.*, base hospital, for instruction, from Fort Oglethorpe, Lieut. C. S. STRATTON, Roscoe.

Montana

To *Camp Cranc, Pa.*, base hospital, from Camp Lewis, Capt. E. F. DODDS, Missoula. Evacuation hospital, from Camp Fremont, Lieut. W. G. PALM, Joplin.

To *Rockefeller Institute* for instruction in the treatment of infected wounds, and on completion to *Camp Dix, N. J.*, base hospital, for instruction, from Fort Oglethorpe, Capt. O. T. STRATTON, Cascade.

Nebraska

To *Camp Dodge, Iowa*, base hospital, Lieut. B. M. KULLY, Omaha. To *Fort Des Moines, Iowa*, from Fort Crook, Major E. L. DELANNEY, Omaha.

To *Fort Oglethorpe* for instruction, Lieut. O. R. PLATT, Helbron.

To *Fort Riley*, base hospital, from Fort Oglethorpe, Capt. J. J. SNIPES, Lincoln.

To *Hoboken, N. J.*, base hospital, from Camp Zachary Taylor, Capt. C. H. CAMPBELL, Columbus.

To *Rochester, Minn.*, Mayo Clinic, for instruction, and on completion to *Camp Grant, Ill.*, base hospital, for instruction, from Fort Riley, Capt. C. L. FAHNESTOCK, McCook.

To *Rockefeller Institute* for instruction in the treatment of infected wounds, and on completion to *Camp Greene, N. C.*, from Fort Oglethorpe, Capt. W. T. CARSON, Hastings.

Nevada

To *Camp Crane, Pa.*, evacuation hospital, from Camp Kearney, Capt. E. K. SMITH, Lovelock.

New Hampshire

To *Camp Devens, Mass.*, from Fort Oglethorpe, Lieut. G. A. TREDICK, Portsmouth.

To *Rockefeller Institute* for instruction in the treatment of infected wounds, and on completion to *Camp Devens, Mass.*, base hospital, for instruction, from Fort Oglethorpe, Lieut. E. H. THOMPSON, Hampton.

To *Walter Reed General Hospital, D. C.*, from Fort Oglethorpe, Lieut. F. B. CLOW, Wolfeboro.

New Jersey

To *Camp Abraham Eustis, Va.*, to examine the command for nervous and mental diseases, from Washington, Lieut. E. H. SNAVELY, Cedar Grove.

To *Camp Greene, N. C.*, base hospital, from Camp Jackson, Major C. E. SUTPHEN, Newark; from Fort Oglethorpe, Lieut. M. E. STREEN, Newark.

To *Camp Hancock, Ga.*, base hospital, from Fort Oglethorpe, Capt. C. R. NEARE, East Orange; Lieut. R. D. VREELAND, Passaic.

To *Fort Oglethorpe*, base hospital, from Camp Jackson, Lieut. I. S. INGBER, Secaucus.

New York

To *Army Medical School* for instruction, from Hoboken, Lieut. T. M. CALLADINE, Perry.

To *Camp Cody, N. M.*, for instruction, from Fort Slocum, Major R. E. PARRISH.

To *Camp Crane, Pa.*, base hospital, from Camp Lewis, Capt. R. M. JONES, New York. Mobile hospital, from Fort Oglethorpe, Lieut. A. B. BRUNER, R. V. FUNSTEN, New York.

To *Camp Devens, Mass.*, base hospital, for instruction, Lieut. H. HARRIS, New York.

To *Camp Hancock, Ga.*, base hospital, from Camp Jackson, Capt. J. H. EVANS, Virgil; from Fort Oglethorpe, Lieuts. C. A. LEE, Brooklyn; E. W. PRESLEY, Staten Island. Base hospital, for instruction, Lieut. N. H. GOLDBERG, New York.

To *Camp Jackson, S. C.*, base hospital, Lieut. M. GLEICH, New York.

To *Camp Lee, Va.*, base hospital, Lieut. J. RYBACK, Brooklyn.

To *Camp Logan, Texas*, from Fort Oglethorpe, Lieut. O. J. COOK, New York.

To *Camp MacArthur, Texas*, base hospital, for instruction, from Fort Oglethorpe, Lieut. I. E. SUMNER, Brooklyn.

To *Camp McClellan, Ala.*, base hospital, for instruction, from Fort Oglethorpe, Lieut. E. W. WILKINS, Albany.

To *Camp Meade, Md.*, from Syracuse, Capt. D. E. BRACE, New York. Base hospital, for instruction, Lieut. D. M. FULLER, New York. Evacuation hospital, from Camp Laurel, Lieut. D. G. DUDLEY, Endicott; from Fort Oglethorpe, Lieut. C. L. LARKIN, New York.

To *Camp Wheeler, Ga.*, from Washington, Major H. R. GAYLORD, Buffalo.

To *Camp Zachary Taylor, Ky.*, base hospital, from Camp Greene, Capt. J. R. SWANICK, Saratoga Springs.

To *Chanute Field, Rantoul, Ill.*, as flight surgeon, from Hazelhurst Field, Capt. W. A. SCRUTON, New York.

To *Fort Benjamin Harrison*, from Southern Department, Capt. A. C. CALISCH, Oswego.

To *Fort Oglethorpe*, from Knoxville, Tenn., Lieut. L. JACOBS, Brooklyn. Base hospital, from Camp Wheeler, Lieut. R. G. BLOOD, New York. For instruction, Lieuts. J. BECKENSTEIN, Brooklyn; I. GREENBERG, J. G. J. GRIMLEY, New York.

To *Hoboken, N. J.*, from Fort Porter, Capt. A. J. CAPRON, Oswego; from Washington, Lieut. T. J. VOSBURGH, Warwick. Base hospital, from Camp McClellan, Lieut. S. S. ARLUCK, New York.

To *Lakewood, N. J.*, Lieuts. L. T. MANN, New York; P. J. WHITE, Jr., Staten Island; from New Haven, Capt. C. W. FIELD, New York.

To *New York*, Neurological Institute, for instruction, Lieut. J. RESNIK, New York.

To *Otisville, N. J.*, from Fort McPherson, Capt. R. E. PLUNKETT, Whitehall.

To *Pittsburgh, Pa.*, Lieut. A. VALENSI, New York.

To *Rahway, N. J.*, from Boston, Lieut. H. F. MORRISON, Tuxedo Park.

To *Rochester, Minn.*, Mayo Clinic, for instruction, and on completion to *Camp Sherman, Ohio*, base hospital, for instruction, from Fort Riley, Lieut. F. A. SHARPE, New York.

To *Rockefeller Institute* for instruction in the treatment of infected wounds, and on completion to *Camp Meade, Md.*, base hospital, for instruction, from Fort Oglethorpe, Lieut. J. L. KINNER, Elmira.

To *Walter Reed General Hospital, D. C.*, from Fort Oglethorpe, Lieut. H. L. PRINCE, Rochester.

To *Washington, D. C.*, from Camp MacArthur, Major J. T. SPRAGUE, Staten Island; from Walter Reed General Hospital, Lieut. H. P. SAWYER, Troy.

To *West Point, N. Y.*, to give orthopedic instruction, and on completion to *Fort Hancock, N. J.*, from Plattsburg Barracks, Major B. H. WHITBECK, New York.

To *Williamsbridge, N. Y.*, from Camp Sheridan, Capt. S. W. ROOF, New York.

The following order has been revoked: To *Fort Oglethorpe* for instruction, Lieut. A. WINKELSTEIN, Syracuse.

North Carolina

To *Camp Sherman, Ohio*, from Fort Oglethorpe, Lieut. R. B. WILKINS, Raeford.

To *Lakewood, N. J.*, Lieut. D. H. NISBET, Charlotte.

North Dakota

To *Camp Lewis, Wash.*, for instruction, from Camp Dodge, Capt. A. M. FISHER, Bismark.

Ohio

To *Austin, Texas*, State University, from Fort Sill, Lieut. F. S. VAN DYKE, Columbus.

To *Camp A. A. Humphreys, Va.*, from New Haven, Lieut. A. J. FOX, Cincinnati.

To *Camp Abraham Eustis, Va.*, for instruction, from Columbus Barracks, Major L. J. REGAN.

To *Camp Crane, Pa.*, mobile hospital, from Fort Oglethorpe, Capt. E. W. FISHER, Portage; Lieut. F. F. DAVIS, East Liverpool.

To *Camp Custer, Mich.*, as camp surgeon, from Camp Pike, Lieut. Col. E. F. McCAMPBELL, Columbus.

To *Camp Greene, N. C.*, base hospital, from Camp Shelby, Lieut. C. V. DAVIS, Cleveland.

To *Camp Hancock, Ga.*, base hospital, from Camp Bowie, Capt. H. M. OSBORNE, Youngstown; from Fort Oglethorpe, Lieut. T. HULICK, Cincinnati.

To *Camp Jackson, S. C.*, base hospital, for instruction, from Fort Oglethorpe, Lieut. J. K. HAMILTON, Youngstown.

To *Camp McClellan, Ala.*, base hospital, for instruction, Lieut. H. A. BAUGHN, Washington C. H.

To *Camp Sherman, Ohio*, from Army Medical School, Lieut. V. R. TURNER, Newark. Base hospital, from Fort Oglethorpe, Lieut. P. M. SPURNEY, Cleveland. Base hospital, for instruction, Lieut. O. G. GRADY, Orrville.

To *Camp Zachary Taylor, Ky.*, base hospital, for instruction, Lieut. F. J. GALLAGHER, Cleveland.

To *Fort Oglethorpe*, base hospital, from Army Medical School, Major R. D. MADDUX, Cincinnati.

To *Hampton, Va.*, Langley Field, Lieut. J. W. CAINES, Cuyahoga Falls.

To *Hoboken, N. J.*, Lieut. F. H. MIKETTA, Cincinnati.

To *Marshall, Texas*, Bishop and Wiley College, Lieut. J. R. FINLEY, Dayton.

To *Philadelphia, Pa.*, Spring Garden Institute, from Camp Meade, Lieut. C. B. TANNER, Columbus.

To *Springfield, Mo.*, Drury College, from Madison, Wis., Lieut. B. J. SAWICKI, Cleveland.

Oklahoma

To *Camp Beauregard, La.*, base hospital, for instruction, Capt. J. M. ALFORD, Oklahoma City.

Pennsylvania

To *Biltmore, N. C.*, from Lakewood, Major J. B. McCREARY, Shippensburg.

To *Camp Crane, Pa.*, mobile hospital, from Fort Oglethorpe, Capt. E. V. KYLE, Christiana.

To *Camp Greene, N. C.*, base hospital, from Camp Wadsworth, Lieut. J. P. HARLEY, Williamsport; from Fort Oglethorpe, Major T. B. CARROLL, Pittsburgh; Lieuts. G. W. CONRAD, Johnstown; A. S. SICKMAN, Lock. Base hospital, for instruction, Lieut. J. M. HIGGINS, Sayre.

To *Camp Hancock, Ga.*, base hospital, from Fort Oglethorpe, Capt. J. A. BROOKE, Philadelphia. Evacuation hospital, from Fort Oglethorpe, Lieut. C. J. McCULLOUGH, Washington.

To *Camp Jackson, S. C.*, base hospital, for instruction, from Fort Oglethorpe, Lieut. J. D. KEIPER, Johnstown.

To *Camp Joseph E. Johnston, Fla.*, base hospital, for instruction, from Fort Oglethorpe, Lieut. K. A. BOWMAN, Johnstown.

To *Camp Kearney, Calif.*, from Southern Department, Major W. H. THOMAS, Philadelphia.

To *Camp Lee, Va.*, base hospital, Lieut. J. C. KNOX, Washington. Base hospital, for instruction, Lieut. O. R. CLOVIS, Jollytown.

To *Camp Meade, Md.*, from Fort Oglethorpe, Lieut. E. P. KITCHEN, Philadelphia. Base hospital, for instruction, Lieut. C. E. CHASE, Doylestown. Evacuation hospital, from Fort Oglethorpe, Major J. S. RODMAN, Philadelphia.

To *Camp Shelby, Miss.*, base hospital, for instruction, Lieut. S. G. BIDDLE, Philadelphia; from Fort Oglethorpe, Lieut. M. PLATT, Philadelphia.

To *Camp Sheridan, Ala.*, base hospital, for instruction, Lieut. P. C. EISEMAN, Latrobe.

To *Camp Sherman, Ohio*, base hospital, for instruction, from Fort Oglethorpe, Capt. W. L. CAMPBELL, New Castle.

To *Camp Zachary Taylor, Ky.*, base hospital, Major W. PEPPER, Philadelphia; from Camp Gordon, Capt. H. B. CORNELL, Scranton; from Fort Oglethorpe, Lieut. R. J. ASKIN, Pittsburgh.

To *Detroit, Mich.*, Capt. R. W. WATTERSON, Darlington.

To *Fort Oglethorpe*, evacuation hospital, from Camp Gordon, Capt. A. R. MATHENY, Pittsburgh; from Walter Reed General Hospital, Capt. R. BRENNEMAN, Pittsburgh.

To *Fort Riley*, base hospital, from Boston, Capt. W. M. HOLTZ, Pittsburgh.

To *Fort Slocum, N. Y.*, as orthopedic surgeon, from Boston, Lieut. C. N. SILMAN, Pittsburgh.

To *Hoboken, N. J.*, base hospital, from Fort Oglethorpe, Lieut. C. T. FARIES, Narbeth.

To *Newport News, Va.*, from Camp Sevier, Capt. M. J. SHIELDS, Scranton.

To *Rockefeller Institute* for instruction in the treatment of infected wounds, and on completion to *Camp Lee, Va.*, base hospital, for instruction, from Fort Oglethorpe, Capt. L. VAN HORN, Philadelphia. On completion to *Camp Wadsworth, S. C.*, base hospital, for instruction, from Fort Oglethorpe, Capt. J. M. GELWIX, Chambersburg.

Rhode Island

To *Camp Zachary Taylor, Ky.*, base hospital, from Fort Oglethorpe, Capt. A. B. BRADSHAW, Providence.

To *New Haven, Conn.*, Yale Army Laboratory School, for instruction, from Hoboken, Major J. HAMILTON, JR., Providence.

South Carolina

To *Camp Crane, Pa.*, mobile hospital, from Fort Oglethorpe, Capt. H. W. DESAUSSURE, Charleston.

To *Camp Greene, N. C.*, base hospital, for instruction, Lieut. B. H. BAGGOTT, Columbia.

To *Camp Hancock, Ga.*, base hospital, from Fort Oglethorpe, Lieut. D. H. SMITH, Glenn Springs.

To *Fort Oglethorpe*, evacuation hospital, from Fort Riley, Lieut. C. B. MILLS, Cross Hill.

To *Ithaca, N. Y.*, Cornell University, from Everman, Texas, Lieut. J. L. BLAIR, Sharon.

To *San Antonio, Texas*, Kelly Field, as flight surgeon, from Mineola, Major C. W. KOLLOCK, Charleston.

To *Williamsbridge, N. Y.*, for observation and treatment, from Fort Riley, Lieut. E. W. RICHIE, Abbeville.

South Dakota

To *Camp Crane, Pa.*, mobile hospital, from Fort Oglethorpe, Capt. W. D. FARRELL, Aberdeen.

To *Fort Oglethorpe* for instruction, Lieut. M. C. JOHNSTON, Aberdeen.

Tennessee

To *Camp Shelby, Miss.*, base hospital, for instruction, Lieut. H. D. MILLER, Johnson City.

To *Hoboken, N. J.*, from the Surgeon-General's Office, Lieut.-Col. W. D. HAGGARD, Nashville.

To *Lakewood, N. J.*, Major M. HAASE, Memphis.

Texas

To *Camp A. A. Humphreys, Va.*, base hospital, for instruction, from Fort Oglethorpe, Capt. W. P. CONNALLY, McGregor.

To *Camp Beauregard, La.*, from Camp Zachary Taylor, Capt. J. P. GIBBS, Houston. Base hospital, from Camp Greene, Capt. R. T. MORRIS, Houston.

To *Camp Crane, Pa.*, from Camp Greene, Capt. C. C. GREEN, Houston. Mobile hospital, from Fort Oglethorpe, Lieut. W. C. WEDEMEYER, Galveston; from Fort Sam Houston, Lieut. E. J. BURNS, Carrizo Spring.

To *Camp Gordon, Ga.*, base hospital, for instruction, from Fort Oglethorpe, Capt. D. A. MANN, Beaumont.

To *Camp Greene, N. C.*, base hospital, from Fort Oglethorpe, Lieut. F. J. STANISLAV, Waco.

To *Camp Hancock, Ga.*, base hospital, from Camp MacArthur, Capt. H. R. DUDGEON, Waco; from Fort Oglethorpe, Capt. F. A. PIERCE, Dallas. Base hospital, for instruction, from Fort Oglethorpe, Lieut. W. L. ASKEW, Amarillo.

To *Camp Lee, Va.*, base hospital, for instruction, from Richmond, Lieut. W. L. JACKSON, Dallas.

To *Camp MacArthur, Texas*, base hospital, for instruction, Major W. M. WOLF, San Antonio.

To *Camp McClellan, Ala.*, base hospital, for instruction, from Fort Oglethorpe, Capt. I. A. WITHERS, Fort Worth.

To *Camp Sevier, S. C.*, base hospital, from Fort Oglethorpe, Lieut. M. M. LANDRUM, Lampasas.

To *Camp Shelby, Miss.*, from Camp Zachary Taylor, Lieut. H. E. BAYLIS, Huntsville.

To *Camp Travis, Texas*, Lieut. V. M. LONGMIRE, Temple.

To *Fort Oglethorpe*, base hospital, from Fort Bliss, Lieut. E. TOOMIN, Waco. Evacuation hospital, from Camp Dodge, Lieut. E. C. BRANNON, Waco; from Camp Travis, Capt. M. J. DUNCAN, Dallas. For instruction, Lieut. G. A. PAGENSTECHE, San Antonio.

To *Fort Riley* for instruction, Lieut. W. L. PARKER, Temple.

To *Walter Reed General Hospital, D. C.*, for observation and treatment, from Fort Sam Houston, Lieut. R. L. AIGUIER, Dallas.

Virginia

To *Camp Abraham Eustis, Va.*, from Syracuse, Major A. C. COUMBE, Vienna.

To *Camp Crane, Pa.*, from Southern Department, Capt. J. M. LOVE, Norfolk.

To *Camp Devens, Mass.*, from Camp Forrest, Capt. H. J. HAGAN, Roanoke.

To *Camp Hancock, Ga.*, base hospital, from Fort Oglethorpe, Capt. C. T. PIERCE, Litwalton; Lieuts. J. W. TURMAN, Richmond; W. S. SLICER, Roanoke.

To *Camp Lee, Va.*, base hospital, for instruction, Lieut. H. D. HOWE, Hampton.

To *Camp Sevier, S. C.*, base hospital, for instruction, Lieut. C. E. PEERY, Burke's Garden.

To *Camp Zachary Taylor, Ky.*, base hospital, from Fort Oglethorpe, Lieut. B. O. WIRE, Hurley.

To *Hoboken, N. J.*, Capt. R. R. HOSKINS, Mathews.

To *Rockefeller Institute* for instruction in the treatment of infected wounds, and on completion to *Camp Devens, Mass.*, base hospital, for instruction, from Fort Oglethorpe, Lieut. J. W. DEVINE, Lynchburg. On completion to *Camp Zachary Taylor, Ky.*, base hospital, for instruction, from Fort Oglethorpe, Capt. W. F. HARTMAN, Swoope.

The following order has been revoked: To *Rockefeller Institute* for instruction, Lieut. H. W. BLANTON, Richmond.

Washington

To *Camp Crane, Pa.*, from Camp Lewis, Capt. C. R. MCCREERY, Tacoma.

To *Camp Custer, Mich.*, base hospital, for instruction, Capt. J. C. HENDERSON, Seattle.

West Virginia

To *Camp Gordon, Ga.*, base hospital, for instruction, Capt. W. S. FULTON, Wheeling.

To *Camp Greene, N. C.*, base hospital, from Fort Oglethorpe, Lieut. C. H. TRIPPETT, Buckhannon.

To *Camp Zachary Taylor, Ky.*, base hospital, from Fort Oglethorpe, Capt. W. W. ORR, Worthington.

To *Pittsburgh, Pa.*, University of Pennsylvania and Carnegie Institute, Lieut. T. E. ROMINE, Charleston.

Wisconsin

To *Camp Hancock, Ga.*, base hospital, from Fort Oglethorpe, Capt. W. S. DARLING, Milwaukee; Lieut. C. W. LOCKHART, Mellen.

To *Fort Oglethorpe*, evacuation hospital, from Camp Joseph E. Johnston, Capt. V. F. MARSHALL, Appleton.

To *Rahway, N. J.*, from Boston, Lieut. H. E. BUNDY, Milwaukee.

To *Rochester, Minn.*, Mayo Clinic, for instruction, and on completion to *Fort Des Moines, Iowa*, for instruction, from Fort Riley, Lieut. J. M. ROSS, Bloom City.

ORDERS TO OFFICERS OF THE UNITED STATES PUBLIC HEALTH SERVICE

Surg. B. W. BROWN, directed to attend conventions of social service council of Canada at various places and also local city conventions in the State of Washington, to deliver addresses on venereal disease control.

Surg. L. P. H. BAHRENBERG, proceed to Jefferson City, Mo., for conference with state authorities on venereal disease control.

Surg. G. W. MCCOY, proceed to Boston, Mass., and other places deemed advisable for laboratory studies relative to the etiology of influenza and other infectious diseases.

P. A. Surg. W. L. TREADWAY, proceed to Trenton, N. J., and assume charge in connection with state and local authorities of the control of the influenza epidemic.

Asst. Surg. P. M. STEWART, proceed to Boston, Mass., to duty in connection with the control of the spread of influenza.

Asst. Surg. R. R. SAYERS, proceed to Boston, Mass., for duty in connection with the control of the spread of influenza.

Asst. Surg. R. L. DESAUSSURE, proceed to Boston, Mass., for duty in connection with the control of the spread of influenza.

Asst. Surg. H. S. MUSTARD, assume charge of service operations in the District of Columbia in order to properly safeguard the health of the military forces and the government employees.

Asst. Surg. C. E. GIBBS, proceed to Washington, D. C., for duty in measures for the control of influenza.

Pharmacist F. J. HERTY, proceed to Boston, Mass., for duty in connection with the control of the epidemic of influenza.

A. A. Surg. PERCY AHRONS, relieved at Atlanta, Ga., proceed to Raleigh, N. C., for duty in extra-cantonment sanitation.

A. A. Surg. EDWARD B. HELFRICH, proceed to Newport News, Va., for duty in extracantonment sanitation.

A. A. Surg. J. M. BIEDLER, proceed to Richmond, Va., and assume charge of the sanitary work at the government loading plant.

A. A. Surg. EUGENE MATTICE, proceed to Newport News, Va., for duty in extracantonment sanitation.

A. A. Surg. JAMES W. RICHARDS, proceed to Wilmington, Del., for duty in venereal disease control measures.

A. A. Surg. B. F. ROBERTS, relieved at Newport News, Va., proceed to Washington, D. C., for duty in measures for the control of influenza.

A. A. Surg. A. L. SMEDLEY, proceed to Alexandria, Va., for duty in extracantonment sanitation.

Asst. Educational Director DAVID ROBINSON, proceed to necessary points in the states of New York, Ohio, Illinois, Minnesota, Iowa, Nebraska, Wyoming, and Colorado for conference relative to the instructions to drafted men to be carried out under service supervision.

Scientific Asst. W. H. PRICE, relieved at Anniston, Ala., proceed to Augusta, Ga., to assume charge of service operations.

Scientific Asst. SAMUEL SAUNDERS, relieved at Brunswick, Ga., proceed to Washington, D. C., for duty in measures for the control of influenza.

Asst. Epidemiologist C. C. APPLEWHITE, relieved at Englewood, N. J., proceed to Atlanta, Ga., and assume charge of service operations.

Asst. San. Engineer J. G. FOSTER, relieved at Gulfport, Miss., proceed to Fayetteville, N. C., for duty in extracantonment sanitation.

San. Inspector HARRY S. LUCAS, proceed to Washington, D. C., for duty in measures for the control of influenza.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Tribute to Former Surgeon-General Gorgas and Major-General Noble.—In a discussion in the House of Representatives, Oct. 2, 1918, on a bill to provide an additional building for the United States Public Health Service, Representative Bankhead paid the following tribute to Surgeon-General Gorgas:

And, in this connection, Mr. Chairman, it just occurred to me that in a very few weeks, on account of reaching the age limit, the great Surgeon-General of the United States, Gen. William C. Gorgas, will be retired from his present position. I want to say that the people of my native State of Alabama took a great pride in the achievements of that great medical man. His usefulness not only reflects itself in the gratitude of the people of Alabama, but the people of the United States and of foreign countries are under everlasting obligations to that man, whose genius and skill have accomplished so much in the conservation of human life.

As was suggested a few moments ago, he made it possible by the sanitation that he perfected in the Panama Canal Zone to make that great interoceanic canal a reality, and inasmuch as it is largely conceded it was a dream of that great old Alabaman, Senator John T. Morgan, to construct that canal, in just as large measure General Gorgas played a part in the fruition of that enterprise. I feel sure that the Government itself, that the Members of Congress and those who are familiar with his service, will regret the retirement from his present official position of Gen. William C. Gorgas, Surgeon-General.

Following this statement Representative Burnett of Alabama paid the following tribute to General Noble:

In addition to what my colleague from Alabama has said about General Gorgas, I desire to call the attention of the committee to the fact that there is another great Alabaman that stands perhaps second to him in rank and ability in the Surgeon-General's Office, and that is General Noble, of Anniston, Ala., who was with General Gorgas all through his wonderful career in Panama. Alabamans had hoped that when General Gorgas retired, General Noble would be promoted to the position of Surgeon-General. The press carries a report, however, that perhaps another great surgeon, who is now in France, will probably be transferred to this great work on this side, and that General Noble will be assigned to the duties now being performed by that other great surgeon, General Ireland.

I desire to say that those of us who know General Noble believe that there can be no more efficient man assigned to either one of the duties. I know him; I know his family; I know his ancestry, and I believe that to whatever field of operation he may be assigned he will perform the work with the same efficiency that has accompanied every work that he has been assigned to by the Government since he has been in its service.

ARKANSAS

Influenza.—October 8, a statewide quarantine was declared against places where influenza had occurred, and all places of public assemblage were closed. Public travel was not prohibited. According to the report of Dr. J. C. Geiger, representative of the Public Health Service in the state, there had been 1,800 cases of influenza in Little Rock and vicinity, of which 65 per cent. had recovered. Thirty per cent. of the new cases were in children. The pneumonia cases were 1.7 per cent. of the total number of cases and the deaths resulting from complications amounted to 0.2 per cent. An isolation hospital was opened in Little Rock, October 9; the city was divided into districts and a nursing service provided by the Public Health Service.

CALIFORNIA

Health Center.—A health center for the examination of children under 6 years of age was opened at Santa Rosa, October 5. The center will be open daily between 10 and 12 a. m. Dr. Elizabeth M. Yates was in charge on the opening day. All children of less than 6 years will be examined free, and advice will be given as to diet, etc. It is hoped that all babies examined during Better Baby Week will be brought for reexamination so that improvement may be noted, and further advice given if necessary.

ILLINOIS

Physical Defects Removed.—Major John M. Dodson, Chicago, medical aide to Governor Lowden has perfected a

plan whereby selective draft men in Class B, which is the remediable group will be able to secure treatment before being inducted into service.

Museum as War Hospital.—It is announced that the new Field Columbian Museum, Grant Park, Chicago, has been offered to the government as a war hospital, and that the offer has been accepted. The building is to be remodeled so as to accommodate 4,300 sick and wounded soldiers, and the construction of a number of buildings for the use of nurses is to be begun at once. The building is on a site 6 acres in extent.

Illegal Practitioners Fined.—G. B. Black, Norris City, White County, was arrested by the Department of Registration and Education of the State of Illinois and fined \$450 for practicing medicine without a license. The fine and costs in the case amounted to \$725. Black has been practicing medicine in White County for twenty years and has openly defied the authorities to prosecute him. Thomas Deschauer, 702 East Sixty-Third Street, Chicago, was also arrested by the department for practicing medicine without a license and was fined \$50 and costs by the court. The department caused the arrest of Mrs. J. McPhee of Joliet, who was found practicing medicine without a license. She was fined \$100 and costs.

Tuberculosis at Camp Grant.—The examination of men who have had influenza for possible tuberculous infection is now engaging the attention of Major Clarence L. Wheaton and his corps of assistants who have the matter of camp tuberculosis in their charge. Up to the beginning of the epidemic of influenza, measles had been the special matter of interest to those engaged in the tuberculosis department. Through the efforts of this department tuberculosis in the camp has been kept as low as 1 per cent., and sometimes not a case was on hand. Since the clearing house for examinations of suspects of this sort was established 800 men have been examined. Those suspected of being tuberculous have been placed in the tuberculosis ward of the base hospital for observation and treatment and until final disposition of their cases, which means that they are either returned to their homes or are sent to some government sanatorium for further treatment.

Chicago

Personal.—Dr. H. I. Davis, Chicago, left Wednesday for New York to sail at once for France for service with the American Red Cross.—Dr. James J. McGuinn, Chicago, has been appointed assistant commander of the medical zone in charge of the reconstruction of wounded soldiers in France, by the American Red Cross and has started for his new post of duty.

MARYLAND

Medical Library Closed.—It has been decided that the library of the Medical and Chirurgical Faculty of Maryland will close at 6 p. m. excepting on Fridays. This change is in order to save light and service.

Sanitary Work in Military Zones.—The state department of health has asked the Maryland Council of Defense for an appropriation of \$15,000 to continue the sanitary work in military zones in Maryland. Zones have already been established at Fort Howard, Holabird, Edgewood, Aberdeen, Indian Head, and Solomons Island, Curtis Bay, Ordinance Depot, and the Camp Meade area. To supervise these zones ten inspectors will be needed in addition to the number furnished by the board of health. The department has also asked for an appropriation of \$6,000 for the control of venereal disease in the state.

Personal.—Lieut.-Col. William H. Welch, Baltimore, attached to the Surgeon-General's staff at Washington, D. C., is recovering from an attack of influenza.—Lieut.-Col. Thomas R. Boggs, Baltimore, has been made chief medical consultant for the air service of the American Expeditionary Forces, attached to general headquarters.—Lieut. Walter L. Denny of Baltimore, who has been ill at Fort Oglethorpe with influenza, is reported improving.—Dr. Benjamin F. Grove, Baltimore, 60 years old, is at St. Joseph's Hospital suffering from contusions of the head and probably a fractured skull as the result of a fall.

MINNESOTA

Regulations Regarding Burial of Influenza Victims.—The state board of health has made an announcement in regard to handling the bodies and burial of victims of influenza. In the case of deaths occurring in the state, public funerals will not be permitted. In the case of bodies of soldiers returned

to Minnesota, public funerals will be permitted on condition that the casket be not opened, and that any escort returning with the body may not attend such funerals or mingle with the public.

Report on Venereal Diseases.—The report of the Division on Venereal Diseases of the Minnesota State Board of Health shows that during the quarter ending September 30 the average monthly expenditure per month was about \$2,700 in the administration of the venereal disease regulations. A regulation by the state board prohibiting the sale of venereal disease remedies by pharmacists was endorsed in about fifty replies to a circular letter addressed to them. There have been some violations of the regulation, and a number of druggists will be cited before the state board before prosecution in the courts. An inventory of venereal disease remedies in the stores is being taken. Clinics have been organized, one for women in Minneapolis run by the City Health Department, and a men's clinic at the university for two evenings a week which is being partially financed by the state board. An evening dispensary for men and women was arranged for in St. Paul, and a clinic for both sexes was opened, October 1, in Duluth. During the quarter there were distributed to various departments, dispensaries and institutions, 408 doses of arsenobenzol, 152 Wassermann tests were made and fifty-seven examinations for gonorrhea. Much educational work was done and literature was distributed. A system of reporting cases was inaugurated, August 1, and during that month 620 cases were reported by 137 physicians, of which there were 356 of syphilis, 249 of gonorrhea and fifteen of chancroid. In September, 438 cases were reported, 225 of syphilis, 199 of gonorrhea and fourteen of chancroid. Forty-four physicians were added to the list of those reporting. Through the social service department many sources of infection have been located and the patients placed under treatment. A total of 305 cases have been handled for the quarter. This work is being inaugurated in the towns throughout the state. The quarantine power of the board in venereal cases has been upheld in the district court in Minneapolis.

MISSOURI

Banquet to Society.—Dr. Charles R. Woodson, St. Joseph, was host at the sixth annual dinner of Buchanan County Medical Society, which was held at the Woodson Sanatorium, South Park, St. Joseph.

Tuberculosis Cottage Ready.—The new cottage erected by the health board of St. Joseph, on a site near the City Isolation Hospital, for the treatment of patients with tuberculosis has been completed and is ready for occupancy. The building is a one-story structure, 42 by 16 feet, and is divided into two large rooms for patients, a hallway and living room combined, and a bathroom and diet kitchen. The building will accommodate ten patients.

Personal.—Dr. Ellsworth H. Trowbridge, Kansas City, formerly in charge of medical inspection in the public schools, has been appointed acting assistant surgeon, U. S. P. H. S., and assigned to duty in the Kansas City district.—Dr. Milton P. Overholser, Harrisonville, who has been ill with septicemia in St. Mary's Hospital, Kansas City, is reported to be convalescent.—Dr. William J. Hunt, St. Joseph, has resigned as physician of Buchanan County to enter the military service.

NEW YORK

Infantile Paralysis.—It is reported that there are seventy-seven mild cases of infantile paralysis in the village of Alfred. None of the cases are said to be serious.—Hornell reports fourteen cases of the disease.

First District Branch Elects.—The First District Branch of the Medical Society of the State of New York held its twelfth annual meeting at Tuxedo, October 17, and elected the following officers: president, Dr. Joseph B. Hulett, Middletown; first vice president, Dr. George A. Leitner, Piermont; second vice president, Dr. Edward C. Rushmore, Tuxedo Park; secretary, Dr. Charles Ellery Denison, New York, and treasurer, Dr. John A. Card, Poughkeepsie.

New York Infirmary for Women and Children Appeals for Funds.—This institution is making renewed efforts to secure the \$200,000 which is required to enable it to go on with its work. It is sixty-five years since the institution was established, and it has never before been compelled to appeal to the general public for aid. During the last year the infirmary has cared for more than 700 mothers and new-born infants, has performed 643 operations, and has treated 53,000 cases in its clinic.

Personal.—Dr. Bertis R. Wakeman, Hornell, has been appointed city health officer of Hornell, to succeed Dr. John A. Conway, Hornell, who has resigned to accept a commission in the Medical Corps.—Dr. Henry S. Stillwell, Ogdensburg, who has been ill with pneumonia, is reported to be convalescent.—Dr. Abram W. Stoutenberg, Binghamton, has been appointed physician and manager of the Boone County Tuberculosis Hospital, to succeed Dr. William A. Behan, Binghamton, who has resigned to enter the government service.

Loses License.—The board of regents of the University of the State of New York filed in the office of the clerk of Bronx County, October 2, a certificate stating that at the meeting held Sept. 19, 1918, the medical license of Dr. Edgar S. Bullis, Albany, and his registration as a practitioner was annulled. The certificate states that Dr. Bullis "was charged with and found guilty of unlawfully accepting \$220, and asking for \$2,880 and a diamond ring to influence his decision on a matter pending before him in his place of trust, he being at the time a captain in the United States Army, in violation of the provisions of Section 117 of the Federal Penal Code."

New York City

Clinical Meeting on Deformities.—The clinical meeting of the Hospital for Deformities and Joint Diseases was held, October 22, and Dr. Frederick Tilney discussed, "Gait and Reflexes in Cord Lesions."

Personal.—Dr. Julius Lewis Amster, former health commissioner, is suffering from blood poisoning contracted while operating a few days ago. He is reported to be out of danger.—Dr. William H. Park is seriously ill with influenza.

New Health Zone for Mothers.—A new branch of the Maternity Center Association has been opened at 412 West Forty-Seventh Street, in Health Zone No. 5, which includes that part of Manhattan between Twenty-Sixth and One Hundred and Fifth streets.

School Lunches Approved.—The plan of the board of education to provide luncheons in the public schools of the city has been approved by William Guggenheim, chairman of the Teachers' Loyalty Committee of the American Defense Society. In his letter of approval he states that "The physical health of the children is most essential for their complete mental and moral development. The custom of providing them with luncheons at the schools, therefore, will further very materially so desired an end."

Influenza Situation Serious.—The reports of the New York Health Department show that, October 19, there were 4,930 cases of influenza reported which was about 200 more than on the preceding day. It is believed that about one half the actual number of cases are being reported. While the number of cases of influenza has increased, the number of cases of pneumonia has decreased during the past few days. There has, however, been an increased number of deaths from both diseases. The hospitals of the city are sorely in need of physicians and nurses and are so overcrowded that a number of vacant residences are used for the care of victims of the epidemic. The New York Infirmary for Women and Children has turned over its building to the health department for the care of influenza patients. The Health Commissioner's Emergency Advisory Committee announces the opening of district quarters in different neighborhoods in Manhattan. Forty-two of these centers have been put in operation. This committee issued a statement, October 18, declaring that the epidemic up to that moment was under control and that there is no occasion for public alarm. They have also issued a circular of instructions. Admiral Usher, commandant of the Brooklyn Navy Yards, has issued an order forbidding Navy men to ride on the subway. An investigation by the War Department Industries Board shows that in the factories in Queens where government work is being done and where more than 25,000 persons are employed, approximately 12 per cent. of the employees were absent from work and in some of the plants the absentees ran as high as 35 per cent.

OHIO

Personal.—Dr. A. Irving Ludlow, Seoul, Chosen, Korea, formerly of the surgical staff of the Lakeside Hospital, Cleveland, has gone to Harbin, Manchuria, as a member of the American Red Cross Unit to form a hospital base for the Japanese, Czecho-Slovak forces operating along the line of the Trans-Siberian Railway.—Lieut. Daniel H. Bowman, M. C., U. S. Army, Kenton, is reported to be seriously ill at Camp Greenleaf, Ga.

District Tuberculosis Hospitals.—District tuberculosis hospitals now provide for tuberculous persons from twenty-seven counties of the state, and twenty-two other counties have taken steps to establish districts, and following that, hospitals. Preliminary steps have been taken recently by Fairfield, Licking, Coshoccon, Muskingum and Perry counties to establish a hospital, making the third new district formed this year. The importance of establishing the hospitals is emphasized by the fact that already nearly 750 discharged tuberculous soldiers from Ohio have been reported to the state department of health, and of this number only twenty-seven have been admitted to sanatoriums. The number of cases among soldiers will no doubt increase as the war goes on.

PENNSYLVANIA

Tax Opposed by Physicians.—The physicians in attendance at the meeting of the Medical Society of the State of Pennsylvania are said to have gone on record as unanimously opposing a bill before Congress classing medicine as a luxury and subjecting it to a tax of 10 per cent.

Personal.—Dr. Thomas S. Blair, Harrisburg, has been appointed chief of the new Division of Control of Narcotics in the state department of health.—Dr. Aaron D. Weaver, Old Zionsville, who has been ill with influenza, is reported to be convalescent.—Dr. Conrad J. Becker, Wilkes-Barre, was run down and seriously injured by an automobile, October 1.

Ruling on License Revocation.—The attorney-general's department of the state has notified Dr. John M. Baldy, Philadelphia, chairman of the State Bureau of Medical Education and Licensure, that the bureau "has no power to revoke the license of a physician whose right to practice was obtained prior to the Act of June 3, 1911, if the offense was prior to the Act of May 24, 1912."

Influenza.—Eight Army surgeons have been sent into Dauphin County to help fight the epidemic, replacing physicians smitten with the disease, and four senior medical students have been sent to Williamstown. Members of the reserve militia are acting as orderlies in emergency hospitals at Bristol, Paoli, Nanticoke and Homestead. October 15, the Red Cross ran a truckload of drugs from Philadelphia to Pottsville. October 17, Dr. B. Franklin Royer, Harrisburg, acting commissioner of health, refused to rescind his action (closing the wholesale and retail liquor houses) or to give any date when the ban would be lifted. Richard Wood of Allan Wood Iron Company, Conshohocken, gave \$5,000 for the maintenance of an emergency hospital in that town for the care of the needy influenza patients.

Philadelphia

New Dean.—Dr. Allan J. Smith has been appointed dean of the Medical Department of the University of Pennsylvania to fill the post of Dr. William Pepper.

Influenza Mortality High.—While the number of new cases of influenza has somewhat decreased, the death rate for the week ending at noon, October 19, was much higher than the previous week. The number of new cases for the week was 14,566 as compared with 20,854 for the week preceding. The death rate, however, was 4,596 as compared with 2,635. The death rate for the week from all causes reached 5,270, representing a mortality rate of 156.01 per thousand, as compared with 95.74 the week ending October 12, when Philadelphia showed the highest death rate that had ever been recorded. The total number of deaths for the three weeks during the height of the epidemic reached 10,301, of these influenza and pneumonia cases 8,578. A number of emergency hospitals have been opened. The entire main building of the Woman's Hospital at Twenty-Second Street and North College Avenue, both surgical and medical, has been turned over to caring for emergency influenza cases and all the available space has been occupied by patients. Thirty nurses have been stricken with the epidemic and two have died, but the work of caring for the suffering has not been hampered as a number of women have volunteered as nurses. One is serving as an ambulance driver in place of the regular driver who is ill. Red Cross group No. 9 has opened an emergency hospital in St. Stephen's parish house, Wissahickon. Supplies have been sent to the building from the Red Cross headquarters but the upkeep of the hospital will depend on the support of the residents of the twenty-first ward. The members of the North Philadelphia Business Men's Association rented a building at 4015 Germantown Avenue and have 100 beds. Dr. Edward H. Wiggins is the physician in charge; in South Philadelphia, where the conditions were most distressing, the South Philadelphia Republican Club at

Broad Street and Snyder Avenue, was transformed into an emergency hospital capable of caring for seventy-five patients; \$4,000 was contributed by the South Philadelphia business men and the patients were taken care of by a few doctors assisted by twenty fourth-year medical students. An old horse-driven ambulance was resurrected and a fireman volunteered as driver and many of the poor not only received medical attention but were supplied with food. Problems of all sorts have resulted from the epidemic: the task of feeding many families of influenza patients; of fumigating the houses where patients have died and caring for the hundreds of children left helpless by death of parents. The Division of Child Hygiene in the bureau of health is grappling with the problem of the orphaned children; the College Settlement has organized numerous squads for inspecting, cleaning and disinfecting houses, and twelve emergency food service centers have been established. The city opened an emergency hospital in the old Medico-Chirurgical Hospital and a number of physicians volunteered their services.

CANAL ZONE

Report of Health Officer on Venereal Diseases.—In his report for the quarter, April, May and June, 1918, Arthur T. McCormack, chief health officer of the Canal Zone, discusses the situation with reference to venereal diseases in the zone and offers some plans for the improvement of conditions, which he says is the greatest problem that has been presented. The matter has been the subject of conference between the health and the military authorities. Panama and Colon are within the exclusive jurisdiction of the sanitary authorities of the United States and the police jurisdiction of the Republic of Panama. Neglect of the Panama authorities to enforce any sort of regulation resulted in a great increase in venereal diseases among our soldiers and forced the commanding general of the department to issue a general order which was, in effect, a quarantine against the two cities named with reference to venereal diseases, habit forming drugs and alcohol, and to protest against the graft and incompetence which always accompany these evils. The uncertain effect of land quarantines and the undesirability of an indefinite quarantine along a boundary line between two friendly states finally resulted in the acceptance by the Panama authorities of a plan proposed by the chief health officer by which the former retained their police authority and the latter the sanitary responsibility. Prostitution is forbidden in the zone itself, prostitutes are deported, and employees contracting venereal diseases are heavily penalized, yet the chief health officer says these diseases have alternated with tuberculosis as the most common cause of hospital admission since malaria has been under control. In Panama and Colon segregated districts have existed almost since the American occupation, but there are more prostitutes outside of these districts than in them, and it is said about 90 per cent. of the patrons of the prostitutes are American soldiers, sailors and civilians. General Order No. 20, the order referred to, greatly reduced the evil, but, July 15, a decree was to become effective that every woman remaining in the segregated district, as well as the clandestines, must be examined and all those infected treated in the Santo Tomas Hospital at the expense of the Republic of Panama. Every man applying for admission to the segregated district was to be examined by a physician, and if diseased, required to submit to treatment in or out of the hospital, at the discretion of the health officer. Ten per cent. of the men so far examined, it is said, have been found infected and treated, the indigent at the public expense. About one-third of those examined in the laboratories were found to be syphilitic, and this is said to indicate about the ratio of those infected in the population of the two cities. Under the decree house owners renting to prostitutes are fined by the health officer, and thus placing the burden of enforcement on them forces the clandestines to come to the segregated district where they are examined and treated by qualified physicians only. Druggists are forbidden to have in their possession patent medicines or other remedies for venereal diseases except such as are prescribed by physicians. Physicians are required to report all cases treated by them. The health officer suggests three plans for handling the matter: The abrogation of this decree and the issuance of a police decree enforceable in the Panama courts making all vice criminal. On account of the acceptance of illicit intercourse as a necessary evil by the Panamaians, such a decree would be even more negligible as a factor in disease prevention than it is in the United States. A second plan would be to increase the personnel of

the health department by twelve physicians, four of whom should be gynecologists, and three inspectors, together with an appropriation of about \$2,000 per month to Santo Tomaso Hospital to increase the force of nurses and orderlies. This, it is said, would cost between \$50,000 and \$75,000 a year, but would rapidly decrease venereal diseases. The third plan, and the one which the health officer at present thinks would be least satisfactory, would be to allow the old conditions to return, only increasing the personnel of the health departments of the two cities, and depending on the education of the public to hasten the elimination of these diseases. This it is said would take many years, whereas only months would be required by a more radical plan, such as the second plan outlined. The health officer fears, however, that the third plan will have to be adopted unless the money is forthcoming speedily to carry out the more radical plan.

CANADA

Hospital Opened.—The formal opening exercises of the Laval Hospital of Quebec were held at St. Foy, October 13.

Hospital News.—Fifteen municipalities throughout Alberta are taking advantage of the rural hospital legislation, and the largest hospital yet arranged for is to be at Wainwright. Vermillion, Mannville and Lacombe are also getting their organizations under way.—Soldiers discharged on account of tuberculosis are to have increased provision for their care in the western provinces, and a new sanatorium is to be erected at Bowness. Accommodation is to be arranged for from 300 to 400 patients.—Winnipeg is to erect a smallpox hospital on the grounds of the King Edward and King George hospitals.

Society Meetings.—At the annual meeting of the College of Physicians and Surgeons of the Province of Quebec, held recently in Quebec, the following officers were elected: president, Dr. Rudolphe Boulet, Montreal; vice presidents, Drs. Albert Laurendeau, St. Gabriel de Brandon; Louis Ph. Normand, Trois-Rivieres, and Arthur A. Simard, Quebec, and secretary, Dr. Joseph Gauvreau, Montreal.—At the annual meeting of the Manitoba Medical Association held in Winnipeg, recently, the following officers were elected: honorary president, Dr. Francis-X. Demers, Ste. Anne des Chenes; president, Dr. Louis S. Gendreau, St. Norbert; vice president, Dr. Fortunat LaChance, Winnipeg, and secretary-treasurer, Dr. J. Prendergast, St. Boniface.

Personal.—Major Frederick A. Cleland, Toronto, has left for the Pacific Coast where the Canadian-Siberian Force is mobilizing. He is to be medical officer to the contingent.—Capt. A. S. Hayche, R. A. M. C., has been wounded three times, and has been awarded the Military Cross.—Capt. Frank Muir Walker, M. B., R. A. M. C., received the Military Cross when Prince Arthur of Connaught recently visited Toronto.—The following officers are reported wounded: Lieut.-Col. David Donald, Victoria, B. C., C. A. M. C.; Major George S. Mothersill, D.S.O., Winnipeg, Man., C. A. M. C.; Capt. J. C. Eager, C. A. M. C., Watertown, Ont.; W. J. Sobey, C. A. M. C., les Gatlos, Ont.; D. S. Campbell, C. A. M. C., Woodside, N. S.; A. E. McCusker, C. A. M. C., Regina, Sask.; F. B. Lobb, C. A. M. C., St. John, N. B.—Capt. Edgar Douglas, Vancouver, B. C., has been awarded the Military Cross.—Dr. Arthur A. Simard, Quebec, has been appointed president of the Superior Council of Hygiene, to succeed the late Prof. E. P. Lachapelle.

GENERAL

Society Meeting Postponed.—The ninth annual meeting of the American Association for Study and Prevention of Infant Mortality which was to have been held at Asheville, N. C., November 11 to 14, has been postponed until further notice on account of the epidemic of influenza.

Bequests and Donations.—The following bequests and donations have recently been announced:

Lebanon, Pa., Hospital, \$2,000, Eaglesville Sanatorium for Consumptives, and Jewish Hospital, Philadelphia, each \$500, by the will of Solomon Asher.

College of Physicians and Surgeons, in the City of New York, \$9,000 to be applied toward work in tuberculosis, from the trustees of the East River Homes Foundation; \$5,000 from an anonymous donor to be used in surgical research; \$1,000 each, to the funds to provide for the admission of women to the medical school, William H. Moore, Arthur Curtiss James, Elizabeth Waterbury, Forrest S. Bryden, J. M. Wallace, D. G. Reid, and F. L. Hines.

Chicago Winfield Tuberculosis Sanatorium, and Chicago Lying-In Hospital and Dispensary each \$2,000, by the will of Ferdinand Silverman, Chicago.

Children's Free Hospital, Louisville, \$1,500; St. Joseph Infirmary, \$500, by the will of Dr. James Morrison Ray, Louisville.

Welfare Committee for Tuberculosis.—At the closing of the annual convention of the Northwest Tuberculosis Conference in Seattle, a committee was appointed to care for the welfare of victims of tuberculosis who move from state to state. This committee consists of Drs. Bolivar J. Lloyd, Seattle; Albert E. Stuht, Spokane; Mrs. Bethesda Beals Buchanan, Seattle; Major Ralph C. Matson, Camp Lewis, Portland, Ore.; Mrs. Katherine Athey, Boise, Idaho; Judge J. F. Ailshie, Boise; Frank Leclere, Salt Lake City; Mrs. R. A. Morton, Cheyenne, Wyo., and Mrs. John Fulton, Reno, Nev.

Influenza.—For the week ending October 12, according to the report of the United States Census Bureau, statements received from forty-six cities showed that there were 6,122 deaths from influenza and pneumonia. Philadelphia led with 1,697; New York had 979; Boston, 850; Chicago, 571, and Washington, 387. Only forty deaths were reported from St. Louis and thirty-seven from Minneapolis. Of pneumonia cases there were 1,642 in New York, 938 in Philadelphia, 476 in Chicago, and 101 in Washington. The total number of cases since September 13 was, on October 12, 262,186. A report from Washington, October 15, showed improvement in the influenza situation in the army camps and the peak of the epidemic, it was hoped, had been passed. This is probably also true with reference to the civilian population of the cities of the eastern part of the country. The disease is now prevalent in every state in the Union. In Washington, D. C., the War Department and other departments have directed that no new employees be brought to the city during the epidemic. Congress has passed a bill establishing a reserve corps in the Public Health Service. If this is signed by the President, it is expected to assist in promoting the work of the Service in handling the influenza epidemic. Charge is being taken by the Public Health Service of the situation in all the large centers. A million dollars has been voted by Congress to the service to aid in carrying out measures against the disease. In Philadelphia the director of Health and Charities, Dr. Wilmer Krusen, has suggested the zoning system in employing physicians to treat influenza. This means that each patient will call a physician nearest to him in his district. October 13, the Louisiana State Board of Health estimated that there were 250,000 cases in the state. New cases reported on that date were 594. In Virginia it was estimated, October 16, that there were 200,000 cases in the state; in Connecticut, 110,000; in California 6,500 cases had been reported to October 14. October 16, new cases among the troops in camp numbered 5,680, against 6,498 the day before. Pneumonia cases were 1,895 as compared with 1,916 for the previous day. The deaths were 710, a decrease of 179. Improvement in the situation was noted in Vermont and New Jersey and in parts of Tennessee. At Davenport, Iowa, the Manufacturers' Association met with the Red Cross and arranged to equip an emergency hospital with from twenty-five to fifty beds with graduate and volunteer nurses in attendance. Ohio reported October 21, that there had been 100,000 cases in the state to that date. The state authorities were cooperating with the Public Health Service and volunteer physicians and nurses are being provided where needed. A quarter of a million circulars and leaflets on influenza have been distributed. Improvement is reported from some cities where the situation had been serious. October 22, based on reports for the previous forty-eight hours, in Chicago it was thought that the epidemic had decreased to the extent of 30 or 40 per cent. and that the peak of the epidemic had been passed, but efforts were not relaxed and everything was kept closed. For the period of forty-eight hours there were 2,700 new cases, 680 of which were of pneumonia.

FOREIGN

Italian Military Hospital at Grenoble.—The *Policlinico* states that the most important sanitary formation for the Italian troops in France has just been equipped by private gifts with a radiologic cabinet.

In Honor of Golgi.—As Prof. C. Golgi of the chair of general pathology at the University of Pavia is retiring this year on account of having reached the age limit, a committee has been formed to do him honor. It has been decided that the testimonial should take the form of a scholarship in the medical department of the University of Pavia, to be awarded preferably to the orphans of physicians, and in particular to victims of the present war. The committee includes representatives of the medical department, and the

local and provincial medical organizations. Subscriptions are received by the treasurer of the Ordine dei medici della provincia di Pavia.

SOUTH AND CENTRAL AMERICA, MEXICO AND WEST INDIES

Deaths on a Liner.—October 7, the Spanish liner, *Alfonso XII*, arrived at a Cuban port reporting twenty-four deaths during the voyage from a malady not diagnosed, but which it is thought must be influenza. It is said that two persons among the 1,200 passengers, crazed by suffering, committed suicide. Sixty persons were ill on the arrival of the ship, forty of whom were in a serious condition.

Personal.—Dr. F. M. Fernandez, editor of the *Cronica Medico-Quirurgica* of Havana, was recently awarded the Cañongo prize by the Academia de Ciencias Medicas, Fisicas y Naturales for his work on the etiology and treatment of strabismus.—Dr. B. Saenz has been appointed to the chair of dermatology at the University of Havana after competitive examination, and Dr. M. Dominguez has been appointed chief of the National Laboratory.

MEXICO LETTER

MEXICO CITY, Oct. 9, 1918.

Free Dispensary for Venereal Diseases

The Sociedad de Profilaxia de las Enfermedades Venereas has opened in Tacuba St., No. 78, a free evening dispensary to care for the poor with venereal disease. The work is to be done by several of the medical members of the society. Besides treating the gonorrheal and syphilitic, they will instruct in the indispensable ideas of sexual hygiene and in the evil consequences of trusting treatment to charlatans and of attempts at self treatment with the so-called specifics. A group of philanthropic persons contributed the funds to organize this dispensary, a total of 1,000 pesos, and others have offered to pay a monthly quota for its support. The society intends to give the treatments entirely free of charge with the possible exception of injections of arsphenamin and neoarsphenamin—especially the first mentioned—the price of which at present is almost prohibitive.

New Laboratory

When the public health service was reorganized last year into the Departamento de Salubridad Publica, the bacteriologic laboratory, which was one of the features of the old Consejo de Salubridad, was suppressed. This laboratory was due to the initiative of Dr. E. Liceaga, at that time president of the Consejo de Salubridad and it aided in the diagnosis of typhoid fever, malaria, diphtheria and tuberculosis, besides its other work, all free of charge to the public. As the effects of the lack of such an institution are being felt, it is now proposed to reopen it, and henceforth the laboratory will make pathologic, bacteriologic and chemical analyses as before and in addition the Wassermann fixation test. The directors of the laboratory are to be Drs. Amerena and Garduño Soto.

"Allied Notes"

As at present there are no papers published in English in Mexico City, the *Universal*, the daily with the largest circulation in Mexico, which has always been friendly to the Allies, has commenced to publish a section entitled "Allied Notes" or "Comments," in which items of interest for the members of the North American and British colonies here are published in English, and the philanthropic and welfare work which they are doing is recorded. Lately the ladies of these colonies have been making clothing for Belgian and French orphans whose fathers have sacrificed their lives on the altars of progress and human civilization.

The French colonies are not mentioned in these "Notes," as they already have a daily and biweekly, published in French. Until 1915, the *Mexican Herald* was published here by Señor P. Hudson.

Typhus in Uruapan

It has been reported that the city of Uruapan, in the state just west of the capital, is being scourged with *tabardillo*. The federal sanitary authorities have taken the necessary steps to stamp out the disease.

Antirabies Institutes

The public health authorities are contemplating the establishment of several antirabies institutes throughout the country as the one in the capital is unable to care for all who require treatment, especially in remote districts not con-

nected by railroad with the capital. In such cases it is extremely difficult for persons who have been bitten by a rabid animal to get treatment in time, especially the indigent. During August, ninety-one persons were given treatment at the institute here. Since then the brains from several rabid animals have been sent to Toluca to initiate the inoculation treatment in that neighboring city.

Medical Service in the Emergency Stations

Measures have recently been taken to improve the medical and surgical service in the Comisarias de Policia where the victims of accidents or crimes are tended and registered, and to which the indigent apply who are seeking admission to the public hospitals. Until now these services have been inadequate for the needs of the populace.

Delegates to Child Welfare Congress

The second Congreso Americano del Niño is to be held at Montevideo in December, and Señor A. Nervo, diplomatist and author, and the Mexican consul at Montevideo have been appointed to represent the Republic of Mexico at that meeting. They are to present the articles prepared by Mexican physicians. It was previously rumored that Dr. E. Aragon, the professor of legal medicine here, was to have been the official delegate.

Influenza

News has been received that influenza is prevailing in epidemic form in the states of Coahuila, Nuevo Leon and Tamaulipas, bordering on Texas, and it is feared that railroad communication between Mexico and the United States may be impeded by the sanitary police measures that may have to be taken to isolate the epidemic focus.

New Professor of Chemistry

The pharmacist, M. de M. y Campos has been appointed to the chair of chemistry in the pharmacy department of the University here after competitive examination of three candidates.

Academy of Medicine

The Academia Nacional de Medicina resumed its sessions October 2, after the regular vacation. Dr. R. E. Cicero, of the dermatology section, now presides at the meetings, and Dr. D. Lopez is the secretary. Dr. E. Montañón, of the ophthalmology section, was elected vice president and Dr. M. E. Soberon second secretary.

LONDON LETTER

LONDON, Sept. 17, 1918.

The Shortage of Medicinal Oils and Fats

A committee appointed by the Home Office on the outbreak of war to deal with economy in the use of drugs has issued a memorandum to the medical profession on measures necessary to meet shortage or discontinuance of the supply of lard, olive oil and castor oil for medicinal purposes. The prior claims, partly of food supply and partly of munition production, have for some months compelled restriction or even discontinuance of these substances for medicinal purposes. At present lard can no longer be released for medicinal use. The amount of olive oil and of the possible substitutes, sesame and arachis oils, that can be released is uncertain. Little if any of the quality of castor oil hitherto required for conformity with the pharmacopeial standard can be used. To obviate the difficulties that might have arisen through the fact that these substances are ingredients of many official preparations, the General Medical Council, after consultation with the Home Office Committee, directed, in an alteration and amendment of the British Pharmacopeia, 1914, that certain preparations be withdrawn from the British Pharmacopeia until further notice, while in the case of other preparations containing oils and fats, the use of various substitutes was sanctioned. By these alterations, considerable latitude was accorded in the dispensing of prescriptions that contained the official preparations affected. It appeared desirable, therefore, that some understanding should be established between prescribers and dispensers that should obviate uncertainty, and it seemed that this would best be effected by the suggestion of alternative preparations of definite formulas. The Pharmaceutical Society, acting in cooperation with a body of representative manufacturers and the Home Office Committee, undertook the necessary experiments, and has now constructed a set of war emergency formulas. The following suggestions are offered for the assistance of physicians in prescribing:

Lard can no longer be dispensed either as such or as an ingredient of a prescription. A base consisting of 5 per cent. wool fat, 10 per cent. hard paraffin [paraffin] and 85 per cent. soft paraffin [petrolatum] is on the market, and will, it is believed, afford a suitable substitute for most cases in which lard would previously have been ordered. For some cases the physician may find it advisable to modify the proportions of the ingredients named. Ointments formerly containing lard or lard and suet are now allowed to be prepared with wool fat or paraffin or mixtures of these in place of the lard or lard and suet, which may no longer be used. The base described above (named for convenience *adeps factitius*) has been found to afford a satisfactory substitute in the preparation of these ointments, and war emergency formulas containing it have been constructed.

For olive oil, sesame oil or arachis oil may be substituted, but none of these vegetable oils should be ordered avoidably. When required for external purposes a specially prepared mineral oil derived from petroleum (known as *paraffinum liquidum flavum*) is now obtainable, and will in most cases be found to afford a satisfactory substitute.

Four liniments containing olive oil have ceased to be official. War emergency formulas, containing the specially prepared mineral oil mentioned above, have been devised. Liniments so prepared are on the market and may be substituted for the former official preparations.

For castor oil it has been found that the neutralized second castor oil, now recognized by the pharmacopeia and readily obtainable, affords a satisfactory substitute for the first quality oil hitherto used. One preparation containing castor oil has been withdrawn, namely, *liquor cresol saponatus*. For the preparations containing castor oil remaining official, *collodium flexile*, *linimentum sinapis*, and *liquor epispasticus*, the neutralized second oil will be used.

The Sinking of the Llandovery Castle

The results of an inquiry by the Minister of Overseas Military Forces in Canada Sir Edward Kemp, into the sinking of the hospital ship *Llandovery Castle*, June 27, are published in the August number of the *Bulletin* of the Canadian Army Medical Corps. Two facts stand out—the devotion and sacrifice of the medical personnel and the ship's company, and the dastardliness of the outrage. "Deliberate in its conception, every circumstance reveals the German in the light of the cunning murderer who employs every foul means of destroying all traces of his crime. No other explanation can be attached to the systematic attempts of the submarine to ram, shell and sink the lifeboats and wreckage floating helplessly with their 258 victims 116 miles from land—a work of destruction so successfully performed that only one boat containing twenty-four survivors escaped." The ship had been in service for the Canadian government as a hospital ship since March, 1918, and made four voyages to Halifax. She was on her return voyage carrying the crew and hospital establishment, but no patients nor any passengers. The statement of the submarine commander that she carried American flying officers or munitions is simply the usual convenient fiction of the Hun. There were no grounds whatever for mistaking her for anything else than a hospital ship. Except one medical officer, a sergeant and four privates, all the medical personnel were lost, including the commanding officer, Lieutenant-Colonel Macdonald of Nova Scotia.

PARIS LETTER

PARIS, Sept. 19, 1918.

Health Conditions in France

The Conseil supérieur d'hygiène, at its last session, considered reports furnished by the director of the Assistance et Hygiène publiques au ministère de l'intérieur, and the representatives of the office of the Service de Santé militaire and of the Service de Santé de la marine on health conditions in France. The Conseil verified the statements that while there are many small foci of grip in various parts of the country, as is also the case in Algiers, in the colonies, and in most foreign countries, and although, owing to the severe heat, dysentery has made its appearance anew in French territory, yet there has not been a single case of typhus, plague or cholera.

Heated Air in the Treatment of War Wounds

Drs. Belot and Dechambre reported to the Société médico-chirurgicale de la XIII-e Région the good results which they have obtained from the treatment of war wounds with a jet of hot air. The temperature of the air varied between 60

and 80 C., with a pressure of 4 or 5 kilograms. It is well to combine this treatment with massage of the surrounding and subjacent tissues. The heated air dries the wound, the odor disappears, and dead tissue is thrown off. The surface becomes rosy in hue, small granulations form, and epidermization takes place, extending from the periphery toward the center. The duration of the treatment varies from one to three months. About 600 cases which have resisted the usual methods of treatment have been treated by Belot and Dechambre in the manner described, with only 5 or 6 per cent. of failures, generally restricted to cases associated with severe trophic lesions.

Treatment of Ulcers

Several surgeons have had good results from the treatment of wounds with balsam of Peru, which is a good deodorizer, antiseptic and keratoplastic. Dr. Morlet uses the balsam especially in the treatment of ulcers. In order to lessen the discharge of pus from the wound and to prevent its stagnation in the wound, he mixes bismuth subnitrate with the balsam, making an absorbent paste of the mixture when it has dried. In this manner a sort of embalming dressing is obtained, which is semi-occlusive and yet at the same time permits the pus to escape from the wound, and then acts as a drier. The mixture contains 15 to 20 gm. of balsam of Peru; the same amount of bismuth subnitrate; 50 gm. of *colle de poisson* (gelatin); 50 gm. of glycerin and 100 gm. of water. The *colle de poisson* should be used in preference to any other gelatin, which may be infected with tetanus bacillus spores. The wound is cleaned with alcohol and the paste is applied by means of strips of tarlatan which have been impregnated with the heated paste. They are then placed over the wound in the same manner as is a silicate bandage. This dressing is left in place for from twelve to fifteen days. According to the size of the wound, one or two dressings only are necessary, rarely a third. The patient is permitted to be up and about, thus adding mechanical action from walking to the keratoplastic and drying qualities of the paste.

Emetin and Ipecac

Since subcutaneous injections of emetin hydrochlorid have established a place for this agent in the treatment of amebic dysentery, other indications for its use have been found, notably in the treatment of hemoptysis, pulmonary congestion, etc. In this connection attention should be directed to the danger attending the use of ipecac even in infinitesimal doses, in cases in which emetin has been previously used. Drs. G. Billard and Blatin have made some interesting observations in this respect. In twelve cases of amebic dysentery of severe type, in which the emetin seemed to have exhausted its efficiency, it was thought advisable to resort to the use of ipecac, administered according to the Brazilian method. In order to determine the susceptibility of the patient to ipecac, 0.05 gm. of powdered ipecac was administered. In each instance, in a few minutes, the patient became pale, nauseated and then vomited; in four cases cardiovascular symptoms appeared, with syncope of short duration; in one instance these symptoms became alarming, an actual narcoleptic state ensuing and lasting for more than eight hours.

Marriages

LIEUT. CLAUDE EVERETT BROWN, Assistant Surgeon, U. S. Navy, Sacramento, Calif., on duty at the U. S. Naval Transport Depot, New York City, to DR. ALICE CORNELIA SCULLY of Springfield, Mass., September 26.

LIEUT. ROBERT PERCIVAL PARSONS, Assistant Surgeon, U. S. Navy, Chicago, on duty at Deer Island, Boston, to Miss Marion L. Murray of Allston, Boston, recently.

LIEUT. LEO L. SMITH, M. C., U. S. Army, Sapulpa, Okla., on duty at Camp Pike, Ark., to Miss Mabel E. Robison, at Sapulpa, August 22.

LIEUT. JAMES LEONARD REYCRAFT, Assistant Surgeon, U. S. Navy, Cleveland, to Miss Marie Dannemiller, also of Cleveland, October 2.

LIEUT. STANLEY JOSEPH SEEGER, M. C., U. S. Army, Milwaukee, to Miss Helen Brachman of Texarkana, Texas, October 8.

JOHN ARTHUR FOLEY, Dorchester, Boston, to Miss Elizabeth Ewing of Roxbury, Boston, recently.

Deaths

Frank Fairchild Westbrook, Vancouver, B. C.; Manitoba Medical College, Winnipeg, 1890; aged 50; a Fellow of the American Medical Association; president of the University of British Columbia, Vancouver, since 1913; died at his home, October 21. He was formerly professor of pathology and bacteriology in the University of Manitoba; professor of pathology and bacteriology in the Medical School of the University of Minnesota from 1895 to 1913, and dean of the institution from 1906 to 1913; director of laboratories of the Minnesota State Board of Health from 1896 to 1911, and member of the board from 1896 to 1900, and from 1911 to 1912; a member of the advisory board of Hygienic Laboratory, U. S. P. H. S., from 1904 to 1913; president of the American Public Health Association in 1905; president of the section on state and municipal hygiene of the International Congress of Hygiene and Demography in 1912; chairman of the provincial committee on food resources, and a member of many learned societies of the United States, Canada and Europe.

Frank Baker, Washington, D. C.; George Washington University, Washington, D. C., 1880; aged 77; a Fellow of

Rockefeller Institute; an instructor in parasitology in the officers' school at that place, and in charge of the laboratory of the War Demonstration Hospital; also instructor to the surgical staff in bacteriology of wounds; an investigator of great talent and promise; died in the Rockefeller Hospital, New York, October 7, from pneumonia, following influenza.

Clarence Hamilton Gray, Philadelphia; University of Pennsylvania, Philadelphia, 1905; Hahnemann Medical College, Philadelphia, 1915; aged 35; at one time a Fellow of the American Medical Association; a member of the Medical Society of the State of Pennsylvania; chief of the staff of the Maternity Hospital and a member of the ophthalmological staff of the Hahnemann Hospital, Philadelphia; died at his home, October 6.

Herbert Marion Stowe, Chicago; Rush Medical College, 1896; aged 44; a Fellow of the American Medical Association; assistant professor of obstetrics in Northwestern University Medical School; assistant obstetrician to Provident Hospital; attending obstetrician to the Chicago Lying-In Hospital, and a member of the staffs of Cook County and Mercy hospitals; died, October 21, from appendicitis.

Asst. Surg. Bronson Ewing Summers, Lieutenant (Junior Grade), U. S. Navy, Richmond, Va.; Medical College of Virginia, Richmond, 1912; aged 28; a Fellow of the American



Died in the Service
ASST. SURG. HADLEY H. TETER,
LIEUTENANT, U. S. NAVY,
1891-1918

(See *The Journal* last week, p. 1334)



Died in the Service
IN FRANCE

LIEUT. IRVING J. PINKUS, M. C.,
U. S. ARMY, 1891-1918



Died in the Service
IN FRANCE

LIEUT. EMIL KING, M. C.,
U. S. ARMY, 1867-1918

the American Medical Association; professor of anatomy of Georgetown University since 1883; for many years lecturer on artistic anatomy at the Corcoran Art Gallery; superintendent of the National Zoological Park from 1886 to 1916; president of the Association of American Anatomists in 1897; and once vice president of the American Association for the Advancement of Science; assistant superintendent of the U. S. Life Saving Service from 1889 to 1890; editor of the *American Anthropologist* from 1891 to 1898; died at his home, about September 30.

Frederick Carroll Heath, Indianapolis; Bowdoin Medical School, Brunswick and Portland, Me., 1884; aged 61; at one time a Fellow of the American Medical Association; secretary of the Indiana State Medical Society from 1896 to 1910, and president in 1910, and president of the Indianapolis Medical Society in 1905; eye surgeon to the Indianapolis City Hospital and Dispensary, the German Lutheran Orphan Asylum and Eleanor Hospital; professor of ophthalmology in the Indiana University Medical College since 1905; at one time assistant surgeon in the U. S. P. H. and M. H. S.; died at his home, October 16.

Lieut. Herbert Douglas Taylor, M. C., U. S. Army, New York City; Johns Hopkins University, Baltimore, 1914; aged 29; a Fellow of the American Medical Association; for three and one-half years a member of the scientific staff of the

Medical Association; at one time assistant health officer of Richmond; on duty with the United States Marine Corps at Quantico, Va.; died in the hospital of that camp, October 12, from pneumonia, following influenza.

Lieut. Nial Franklin Twigg, M. C., U. S. Army, Brockton, Mass.; Johns Hopkins University, Baltimore, 1917; aged 25; who had been connected with a base hospital at Birmingham, England, was returned to the United States about six months ago, and was assigned to duty at Fort Oglethorpe, Ga.; died in General Hospital No. 14, Fort Oglethorpe, October 10, from pneumonia, following influenza.

Lieut. Emil King, M. C., U. S. Army, Fulda, Minn.; University of Pennsylvania, Philadelphia, 1893; aged 51; a Fellow of the American Medical Association and a specialist on diseases of the ear, nose and throat; on duty with the American Expeditionary Forces in France, is reported to have been killed in action, about October 7.

Lieut. Irving Jonas Pinkus, M. C., U. S. Army, New York City; University and Bellevue Hospital Medical College, 1914; aged 27; a Fellow of the American Medical Association; is reported to have been killed in action, August 31.

John Wesley Kinard, Lancaster, Pa.; University of Maryland, Baltimore, 1882; Bellevue Hospital Medical College, 1889; aged 60; a Fellow of the American Medical Association,

and once president of the Lancaster City and County Medical Society, and Lancaster Pathological Society; local physician of the Pennsylvania Railroad; died at his home, October 8, from pneumonia.

Major Clarence Fahnestock, M. C., U. S. Army, New York City; College of Physicians and Surgeons in the City of New York, 1900; aged 45; a Fellow of the American Medical Association; chief surgeon of the Three Hundred and First Infantry, at Camp Devens, Ayer, Mass., and later on duty as a line and medical officer in France; died, October 5, from pneumonia.

Capt. Warren Walker, M. C., U. S. Army, Philadelphia; University of Pennsylvania, Philadelphia, 1900; aged 39; a Fellow of the American Medical Association; surgeon to the outpatient departments of the Episcopal and Children's hospitals; was burned to death in the fire which consumed the officers' quarters at U. S. Base Hospital No. 3, Colonia, N. J., October 9.

Adolph Cohn, Philadelphia; Medico-Chirurgical College of Philadelphia, 1913; aged 26; at one time a Fellow of the American Medical Association; a member of the Medical Society of the State of Pennsylvania; surgeon to the Baldwin Locomotive Works, and draft board examiner; died at the Jefferson Hospital, October 7, from pneumonia, following influenza.

Paul Guilford, Chicago and LaGrange, Ill.; University of Pennsylvania, Philadelphia, 1891; aged 48; a Fellow of the American Medical Association; attending oculist and aurist to St. Luke's Hospital, Chicago; a well known specialist on diseases of the eye, ear, nose and throat; died at his home in LaGrange, October 20, from pneumonia, following influenza.

Lieut. Clayton A. Endicott, M. R. C., U. S. Army, Frankfort, Ind.; State College of Physicians and Surgeons, Indianapolis, 1907; aged 37; a Fellow of the American Medical Association, and secretary of the Clinton County Medical Society; secretary of the Frankfort Board of Health; died at his home, October 8, from pneumonia, following influenza.

James Christopher Wallis, Arkadelphia, Ark.; Jefferson Medical College, 1877; aged 64; a Fellow of the American Medical Association; president of the State Medical Board of the Arkansas Medical Society, and of the Arkansas Medical Society in 1915; and once president of the Clark County Medical Society; died at his home, October 10.

Lieut. Carl Calvin Culver, M. C., U. S. Army, Burlington, Kan.; University of Kansas, Lawrence and Rosedale, 1911; aged 31; a Fellow of the American Medical Association; on duty at Camp Grant, Rockford, Ill.; a specialist on diseases of the eye, ear, nose and throat; died in Camp Grant, about October 6, from pneumonia, following influenza.

Capt. Charles Emmett Varier, M. R. C., U. S. Army, South Bend, Ind.; University of Michigan, Ann Arbor, 1909; aged 34; a Fellow of the American Medical Association, and for one year president of the St. Joseph County Medical Society; under orders to proceed to Camp Zachary Taylor, Louisville; died at his home, October 9, from pneumonia.

Michael Francis Black, New York City; College of Physicians and Surgeons in the City of New York, 1904; aged 40; a member of the Medical Society of the State of New York; attending physician to the Seton Hospital, and chief surgeon to St. Vincent's Hospital, New York City; died at St. Vincent's Hospital, October 5, from pneumonia.

John Joseph Hassett, Lee, Mass.; New York University, New York City, 1887; aged 56; a Fellow of the American Medical Association, and president of the Berkshire County Medical Society; associate medical examiner of Berkshire County; a member of the school board of Lee; died at his home, October 11, from pneumonia.

Lieut. James Allen Etheridge, M. R. C., U. S. Army, Baltimore; Johns Hopkins University, Baltimore, 1916; aged 26; who had spent several months in Flanders with the Johns Hopkins Unit, and was later under treatment for injuries in a hospital in London; died in Johns Hopkins Hospital, Baltimore, October 7, from influenza.

Asst. Surg. John Clinton Bowman, Lieutenant, U. S. N. R. F., Canton, Ohio; Ohio State University, Columbus, 1918; aged 28; a Fellow of the American Medical Association; formerly a practitioner of Thornville, Ohio; died in the U. S. Naval Hospital, Philadelphia, October 2, from pneumonia, following influenza.

John Farrar Hunter, Jackson, Miss.; Tulane University, New Orleans, 1882; aged 58; a Fellow of the American Medical Association; for several years secretary and executive officer of the Mississippi State Board of Health; one of the

most prominent physicians of the state; died at his home, October 5, from heart disease.

Harry Burton Stevenson, Baltimore; University of Maryland, Baltimore, 1892; aged 48; at one time a member of the Medical and Chirurgical Faculty of Maryland; president of the Baltimore County Medical Association, and health officer of Baltimore County; died in St. Agnes' Hospital, Baltimore, October 10, from influenza.

Alfred William Berr, Rockville, Conn.; Tufts College Medical School, Boston, 1916; aged 30; formerly a member of the staff of the Lawrence (Mass.) General Hospital; who had been inducted into service and was on duty at Fort Slocum, N. Y.; died in that place, October 8, from pneumonia, following influenza.

Harold R. Dwyer, Chicago, Rush Medical College, 1895; aged 49; at one time a member of the Illinois State Medical Society; an officer of the city health department for sixteen years; high physician of Illinois, United Order of Foresters; died at the Contagious Disease Hospital, Chicago, October 20, from diphtheria.

Charles R. Schoemaker, Baltimore, College of Physicians and Surgeons, Baltimore, 1891; aged 46; at one time a member of the Medical and Chirurgical Faculty of Maryland; a member of the staff of the Presbyterian Eye, Ear, Nose and Throat Hospital, Baltimore; died at his home, October 6, from influenza.

Asst. Surg. Warren A. Van Derveer, Lieutenant (Junior Grade), U. S. Navy, Philadelphia and Mount Holly, N. J.; Hahnemann Medical College, Philadelphia, 1910; aged 31; a Fellow of the American Medical Association; on duty at Portsmouth, Va.; died in the U. S. Naval Hospital in that place, October 7.

Asst. Surg. Michael James Carroll, Lieutenant (Junior Grade), U. S. Navy, Lenox, Mass.; Georgetown University, Washington, D. C., 1910; aged 36; a Fellow of the American Medical Association; on duty at the U. S. Naval Hospital, Newport, R. I.; died in that institution, September 29, from pneumonia.

Myron Allen Boor, Terre Haute, Ind.; Medical College of Indiana, Indianapolis, 1894; aged 46; at one time a Fellow of the American Medical Association; a member of the Indiana State Medical Association; surgeon to St. Anthony's Hospital for more than eighteen years; died at his home, October 9.

Lieut. Hugh Todd Ryan, M. C., U. S. Army, Schuylkill Haven, Pa.; Hahnemann Medical College, Philadelphia, 1914; aged 26; a Fellow of the American Medical Association; on duty at Fort Oglethorpe, Ga.; died in General Hospital No. 14, at that post, October 9, from pneumonia, following influenza.

Act. Asst. Surg. Edward Raymond DeBoth, U. S. P. H. S., Green Bay, Wis.; Rush Medical College, 1911; aged 32; a member of the State Medical Society of Wisconsin; who had applied for and was awaiting commission in the Army; died at his home, October 6, from pneumonia, following influenza.

Thomas Weaver, Nashville, Tenn.; University of Nashville, Tenn., 1897; aged 45; at one time a Fellow of the American Medical Association; for several years attending physician at the Tennessee Industrial School; died in St. Thomas' Hospital, Nashville, October 6, from pneumonia.

Charles Votteler Dorwarth, Philadelphia; University of Pennsylvania, Philadelphia, 1910; aged 31; a Fellow of the American Medical Association; visiting physician to the Polyclinic and Children's hospitals, Philadelphia; died at his home, October 8, from pneumonia, following influenza.

Capt. Howard Bigelow Jackson, M. C., U. S. Army, Melrose, Mass.; Harvard Medical School, 1901; aged 44; a Fellow of the American Medical Association; on duty at Fort Oglethorpe, Ga.; died in the General Hospital at that post, October 13, from pneumonia, following influenza.

Asst. Surg. Douglas Holmes Warner, Lieutenant, U. S. N. R. F., Portland, Ore.; University of Oregon, Portland, 1918; aged 27; a Fellow of the American Medical Association; died in the U. S. Naval Hospital, Bremerton, Wash., October 8, from pneumonia, following influenza.

Felix G. Cross, Cincinnati; Miami Medical College, Cincinnati, 1869; aged 76; president of the Columbia Life Insurance Company; a veteran of the Civil War and for several years surgeon at the Dayton Soldiers' Home; died at his home, October 1, from heart disease.

William Atlee Drysdale, Philadelphia; Jefferson Medical College, 1882; of national repute as a consulting engineer;

a member of the board of examiners of the International Electrical Exhibition, Philadelphia, 1904; died at his home, October 6, from a nervous breakdown.

Arnold Robert Moon, Williamsburg, Iowa; State University of Iowa, Iowa City, 1910; aged 32; a Fellow of the American Medical Association, and secretary of the Iowa County Medical Society; died at his home, October 6, from pneumonia, following influenza.

John Knight Bennett, Gloucester City, N. J.; Jefferson Medical College, 1887; aged 61; a member of the Medical Society of New Jersey; medical inspector of the board of health of Gloucester; died at his home, October 1, from pneumonia.

Robert Earl Harrington, Montville, Conn.; Baltimore Medical College, 1906; aged 34; a Fellow of the American Medical Association; died in the Backus Hospital, Norwich, Conn., September 23, from pneumonia, following influenza.

Joseph David Cohn, Corpus Christi, Texas; Johns Hopkins University, Baltimore, 1911; aged 30; a Fellow of the American Medical Association; and a specialist in genito-urinary diseases; died at his home, September 30, from pneumonia.

John Edward West Thompson, Bridgeport, Conn.; Yale University, New Haven, 1883; aged 68; United States minister to Hayti, under President Cleveland; was stabbed by a former patient at Bridgeport, October 6, and died instantly.

Frances N. Baker, Media, Pa.; Woman's Medical College of Pennsylvania, Philadelphia, 1877; aged 78; a Fellow of the American Medical Association; died in the Woman's Hospital, Philadelphia, September 29, from pneumonia.

George August Colin, Chicago; Illinois Medical College, Chicago, 1903; aged 37; a Fellow of the American Medical Association; also a druggist; died at his home, October 10, from bronchial pneumonia, following influenza.

William J. K. Kline, Greensburg, Pa.; Long Island College Hospital, Brooklyn, 1863; aged 82; a Fellow of the American Medical Association; died in the Westmoreland (Pa.) Hospital, October 6, from pneumonia.

Hugh B. Reynolds, Escanaba, Mich.; University of Michigan, Homeopathic Medical School, Ann Arbor, 1886; aged 53; a member of the Michigan State Medical Society; died at his home, October 3, from myocarditis.

Julius Bachrach, Joliet, Ill.; Jenner Medical College, Chicago, 1912; Chicago College of Medicine and Surgery, 1912; aged 40; a Fellow of the American Medical Association; died at his home, October 7, from pneumonia.

Frederick Joseph Denning, South Boston; Harvard Medical School, 1908; aged 33; a Fellow of the American Medical Association; died in the Boston City Hospital, September 17, from pneumonia, following influenza.

Clarence Ayers Turner, Middle Point, Ohio; Cleveland-Pulte Medical College, Cleveland, 1913; aged 31; a member of the Ohio State Medical Association; died at his home, October 4, from bronchial pneumonia.

Joseph Franklin Miller, Stroudsburg, Pa.; Medico-Chirurgical College of Philadelphia, 1906; aged 35; a member of the Medical Society of the State of Pennsylvania; died at his home, September 29, from pneumonia.

Jasper N. Clark, Columbus, Ohio; Starling Medical College, Columbus, 1872; aged 74; for thirty-five years a practitioner of Fayette County, Ohio; died at his home, September 29, from cerebral hemorrhage.

Gustavus P. Folks, Waycross, Ga.; Louisville (Ky.) Medical College, 1889; aged 60; at one time a member of the Medical Association of Georgia; died at his home, September 23, from nephritis.

Talcott Ormsbee, Stanley Station, Ore.; American Eclectic Medical College, Cincinnati, 1876; aged 83; died in St. Vincent's Hospital, Portland, Ore., September 11, from shock, following prostatectomy.

Lieut. Morris Finkelberg, M. C., U. S. Army, Spring Valley, Ill.; Loyola University, Chicago, 1908; aged 31; a Fellow of the American Medical Association; was killed in action in France, September 15.

George Wilds Linn, Malvern, Pa.; University of Pennsylvania, Philadelphia, 1872; aged 74; a Fellow of the American Medical Association; a veteran of the Civil War; died at his home, September 26.

Silas Baldwin, Baltimore; University of Maryland, Baltimore, 1867; aged 71; for more than twenty-five years coroner of northwest Baltimore; died at his home, October 2, from cerebral hemorrhage.

A. U. Gressett, Chunkey, Miss. (license, Mississippi); surgeon in the Confederate service during the Civil War; a practitioner for 57 years; died at his home, September 21, from senile debility.

Irving Harry Kaufman, Brooklyn; University and Bellevue Hospital Medical College, 1912; aged 31; adjunct visiting gynecologist to Zion Hospital; died at his home, October 1, from pneumonia.

Louis H. Geiger, Gilman, Ill.; University of Illinois, Chicago, 1903; aged 45; a member of the Illinois State Medical Society; died at St. Luke's Hospital, Chicago, October 9, from diabetes.

David Borger, Hamilton, Ohio; Eclectic Medical Institute, Cincinnati, 1876; aged 75; was found dead from cerebral hemorrhage in a cornfield in his farm, near Hamilton, September 30.

Robert C. Mitchell, Belvidere, Ill.; Chicago Homeopathic Medical College, 1901; aged 49; a Fellow of the American Medical Association; died at his home, October 7, from pneumonia.

William Robert Cluness, Alameda, Calif.; Queens University, Kingston, Ont., 1859; aged 82; at one time a Fellow of the American Medical Association; died at his home, September 26.

Harry William Priem, Chicago; Rush Medical College, 1914; aged 30; a Fellow of the American Medical Association; died at his home, October 9, from pneumonia, following influenza.

Jane Darling Stevenson, Akron, Ohio; University of Michigan, Ann Arbor, 1918; aged 25; an intern in the Philadelphia General Hospital; died in Philadelphia, October 6, from influenza.

John J. Laurans, New Orleans; Tulane University, New Orleans, 1886; aged 56; a Fellow of the American Medical Association; died at his home, September 21, from angina pectoris.

Ray Howard Rice, Delavan, Wis.; Bennett Medical College, Chicago, 1898; aged 44; a Fellow of the American Medical Association; died at his home, October 2, from pneumonia.

William Reginald Chipman, Chelsea, Boston; Harvard Medical School, 1876; aged 69; a member of the Massachusetts Medical Society; died at his home, October 7, from heart disease.

Lieut. Joseph Charles Monnier, M. C., U. S. Army, Cleveland; Western Reserve University, Cleveland, 1917; aged 28; died in Washington, D. C., October 2, from pneumonia.

Lucy Wadsworth Tuck, Boston (license, Massachusetts, years of practice, 1894); aged 90; died at the Home for Aged Women, Roxbury, Boston, September 19.

George W. Farrow, Kansas City, Mo.; Rush Medical College, 1875; aged 76; a Fellow of the American Medical Association; died at his home, September 14.

Morris Weinberg, Philadelphia; University of the South, Sewanee, Tenn., 1904; aged 37; died at his home, October 1, from pneumonia, following influenza.

Florence B. Power, Burlingame, Calif.; Willamette University, Salem, Ore., 1893; aged 50; died in San Francisco, September 29, from carcinoma uteri.

John E. Alder, Cane Hill, Mo.; Kentucky School of Medicine, Louisville, 1876; aged 75; a veteran of the Civil War; died suddenly, September 26.

Horace N. Marvin, Dover, Del.; formerly of Sioux City, Iowa; Hahnemann Medical College, Chicago, 1883; aged 73; died at his home, September 29.

Carl Clifton Stevens, Iron Mountain, Mich.; University of Michigan, Ann Arbor, 1903; aged 37; died at his home, September 30, from pneumonia.

Isaac H. Hague, Shreve, Ohio; University of Wooster, Cleveland, 1868; aged 77; a veteran of the Civil War; died at his home, September 28.

William S. Pitts, New York City; Rush Medical College, 1868; aged 88; died at the home of his son in New York City, about September 26.

William John Truitt, Naperville, Ill.; Hahnemann Medical College, Chicago, 1889; aged 51; died at his home, October 2, from pneumonia.

James F. Doyle, Santa Ana, Calif.; University of Illinois, Chicago, 1886; aged 60; died at his home, October 1.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

SULPHERB

"Sulpherb" or "Sulpherb Tablets" is another of the multifarious nostrums sold by the Blackburn Products Company of Dayton, Ohio. In common with their class, they are advertised by the "fake prescription" method, a scheme which gives the reader the impression that the advertisement is really a newspaper "health department." The individual used by the Blackburn concern to carry out this deceit is Lewis Baker, whose activities in this connection we have previously noted. The advertisements appear under the general title, "The Doctor's Advice, by Dr. Lewis Baker." Here are samples of the method by which the public is deceived:

"L. W. writes: 'My blood is in bad condition. I suffer with constipation and my tongue is always coated. My skin is dark and I have pimples. I feel tired all the time, but I am too nervous to sleep. Please prescribe.'

"ANSWER: Get a tube of three-grain sulpherb tablets (not sulphur) and take according to directions. They will clean your blood, aid digestion, and relieve constipation. When you get your blood pure, the other symptoms disappear."

"George asks: 'For several months I have not been feeling well. My skin is sallow, my tongue coated, have headache, am sleepless, nervous and bothered with chronic constipation. Please help me.'

"ANSWER: You need a laxative blood cleansing treatment in the form of three-grain sulpherb tablets (not sulphur). Overcome the tendency to constipation and gradually your good health and pure blood will return."

"Orrie writes: 'I have been taking salts to purify my blood and cure my skin of itching and pimples, but don't get much benefit. Please prescribe for this.'

"ANSWER: I advise three grain sulpherb tablets (not sulphur tablets), composed of sulphur, cream of tartar and vegetable extracts that remove constipation and purify the system. Take this treatment for several months for best results."

The package in which "Sulpherb Tablets" comes bears on the label one of those noninformative, alleged formulas that the shrewd "patent medicine" faker so delights in. No quantities are given, but the public is told that the tablets "contain the extracts or concentrations of Cascara, Aloes, May Apple, Nux-Vomica, Black Cherry, Capsicum, Ginger, Sarsaparilla. Also Calcium Sulphide, Sulphur and Cream of Tartar."

"Sulpherb Tablets" were examined in the A. M. A. Chemical Laboratory, and the chemists report as follows:

"Sulpherb Tablets" are sugar coated, yellow, and weigh about 7.3 grains each, coating and all. The package states that they are three grain tablets; this probably refers to the medicament only. A qualitative examination shows the presence of emodin-bearing drugs, the taste suggesting aloes. Sulphur, calcium, sulphid, traces of alkaloid, potassium, and tartrate are present. The chemical examination shows that "Sulpherb Tablets" are probably compounded from calcium sulphid, sulphur, cream of tartar, and vegetable extractives. Of the vegetable extractives claimed to be present, aloes was indicated and a trace of some alkaloid, the amount of which was too small to permit its identification. If this alkaloid is strychnin, the quantity is insignificant, certainly not more than $\frac{1}{1000}$ of a grain to each tablet.

Here we have, then, a simple laxative tablet, consisting essentially of drugs that have been known and used for generations, both by the medical profession and by the public. It is advertised in a way that is doubly deceitful. First the public is deceived by being led to infer that "Sulpherb Tablets" are extraordinarily efficacious; then it is further deceived by the fakish "health column" and the concealment of the "patent medicine" character of the nostrums that are recommended. Newspapers that accept such advertisements commit more than an offense against the public health; they are, for a consideration, guilty of imposing on the public's confidence by leading their readers to suppose that the "Health

Talk" or "Doctor's Advice" is a department of the paper, presenting unbiased information on health subjects. The whole "prescription fake" scheme is a disgraceful combination of nostrum exploitation, quackery and low-grade advertising.

Correspondence

ALKALIS IN THE TREATMENT OF INFLUENZA

To the Editor:—It is universally agreed that in perverted metabolism by bacterial invasion, it is the acidosis that is fatal.

When the system is saturated with alkalis, there is poor soil for bacterial growth. The baneful acids may be neutralized by harmless alkalis, and these seem to act almost specifically. I have uniformly employed, and always with good results, potassium citrate and sodium bicarbonate saturation by mouth, bowel and skin.

For the past three weeks, in the present influenza epidemic, I have seen an average of 100 private patients daily. There have been all degrees of frequency and severity, and in some houses as many as six patients.

As is well known in this epidemic, there has been a very high mortality in cases occurring in pregnant women. I have seen three instances of bronchopneumonia, or "lung patches," in pregnant women, two at term, with complete recovery.

Incidentally, I have made the use of the bed-pan imperative, and have absolutely refrained from administering any of the coal-tar series.

I explain to the afflicted persons that they must be patient, and that the fever, aches and pains are inevitable for a few days, and that they must be willing to forego the seductive relief afforded by acetylsalicylic acid (aspirin), acetanilid and other heart depressants. I employ cold applications and the ordinary stimulation by strychnin, aromatic spirits of ammonia, digitalis, quinin, etc. I have always withheld all depressants.

My very successful experience in this epidemic with the saturation of the system with harmless alkalis cannot be dismissed as accidental or unique. It seems to represent an important new medical fact, or one apparently forgotten or generally overlooked. It is so simple and without any possible objection that I urge its immediate trial empirically. Further investigation in laboratory and clinic may follow later.

THOMAS C. ELY, M.D., Philadelphia.

PRECAUTIONS ON THE PART OF PHYSICIANS TO AVOID INFLUENZA INFECTION

To the Editor:—I believe THE JOURNAL would do service by suggesting precaution that should be practiced by physicians and others in the sick room with influenza patients.

Large numbers of Pennsylvania's physicians are sickening, I am sure, because they are indifferent to danger and careless about protecting themselves from the spray of moisture from the mouth of the patient.

I am getting stories every day by the score of physicians examining the chests of influenza patients in the old careless fashion, leaning over the bed with the patient talking constantly and with no attempt to have the patient cover the cough or sneeze with a towel or handkerchief. The sick rate among physicians and the death rate are appalling, and I believe physicians are needlessly sacrificing themselves because of their failure to fully appreciate what they ought to do.

I have not had time to prepare an article and have only had time to glance over the series of splendid articles illustrated in THE JOURNAL.

Masks if properly used do offer a certain degree of protection apparently and yet the every-day precaution that we practice in handling the tuberculous should be practiced at all times by careful physicians.

B. FRANKLIN ROYER, M.D., Harrisburg, Pa.

Acting Commissioner, Department of Health, Pennsylvania.

TOMATO LEAVES AND DERMATITIS

To the Editor:—I notice in an article on "Dermatitis Lycopersicum Esculentum (Tomato Plant)" by Dr. E. S. Lain (THE JOURNAL, Oct. 5, 1918, p. 1114) that after a brief search he was unable to find the tomato plant mentioned as a cause of skin eruption. In Norman Walker's "Introduction to Dermatology," Edition 6, p. 109, it says, "The following are some plants and woods which have been proved to cause dermatitis . . . tomato leaves (*Lycopersicum esculatum*)."

MALCOLM MACKAY, M.D., Sherbrooke, Quebec.

THE V. M. S. C. AND THE SELECTIVE SERVICE

To the Editor:—Desiring information for my own guidance in making selection of physicians for appointment as examiners on Local Boards and Medical Advisory Boards, I made inquiry of the Provost Marshal-General's Office in reference to the use, if any, he had directed should be made of the Volunteer Medical Service Corps. His reply may be useful to medical aides and others, and I send it to you for publication with the sanction of General Crowder.

JOHN M. DODSON, M.D., Chicago.

General Crowder's letter says in part:

. . . the Provost Marshal-General has had no thought of employing the Volunteer Medical Service Corps, as an organization, for any purpose, nor has any need for its aid arisen. On the other hand, many of its members have doubtless been utilized, individually, in the physical examination of drafted men. The medical profession has given most earnest and whole-hearted support to the work of the Selective Service, and no unofficial intermediary is required between its members and the Provost Marshal-General.

F. H. CROWDER, Provost Marshal-General.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

VENTILATION ABOARD SHIP

To the Editor:—Will you kindly inform me how many cubic feet of air an hour a man on board ship should have?

F. D. GERMAN, M.D., Franklin, Mich.

ANSWER.—Where possible an adult should have an air supply of 3,000 cubic feet an hour, never less than 2,000. However, there are many factors affecting this point. When the air in a given space is changed oftener than three or four times an hour, the minimal air supply would be 3,000 divided by 4, or 750 cubic feet per man per hour. The subject is fully discussed in Pryor: Naval Hygiene, Philadelphia, P. Blakiston's Son & Co., price \$3. Several chapters are devoted to the problems of air and ventilation aboard ship.

Paper Famine.—There was a paper famine in Europe in the seventh century. In A. D. 640 the Saracens conquered Egypt, and at the same time, by the Order of Omar, their caliph, the renowned library at Alexandria, consisting of 400,000 volumes, was burnt. The paper supply of the then world was derived from the papyrus bark, a reed which grew only in Egypt. Consequently, when the Saracens gained possession of the country the paper supply was cut off. This led to the adoption of a curious expedient. The writing on used papyrus paper was erased and the paper, which was thus made available, again brought into use. An old author has suggested that probably owing to this, many valuable contributions from classic writers, Tacitus, Livy and others, were lost to the world. But in this ancient expedient we have a hint for the present. There must be thousands of households lumbered with books of no value and many libraries with volumes occupying shelf space uselessly. In every household and every library these books should be "combed out," and the paper sent back to the mills. Paper is wanted; such books are not.—*Med. Press and Circular*.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

- ARKANSAS: Little Rock, Nov. 12-13. Sec., Regular Bd., Dr. T. J. Stout, Brinkley, Ark.; Sec., Eclectic Bd., Dr. C. E. Laws, 803½ Garrison Ave., Ft. Smith.
- CONNECTICUT: New Haven, Nov. 12-13. Sec., Regular Bd., Dr. C. A. Tuttle, 196 York St., New Haven; Sec., Eclectic Bd., Dr. James E. Hair, 730 State St., Bridgeport; Sec., Homeopathic Bd., Dr. E. C. M. Hall, 82 Grand Ave., New Haven.
- IOWA: Des Moines, Dec. 10-12. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.
- LOUISIANA: New Orleans, Dec. 2-4. Sec., Dr. E. W. Mahler, 730 Audubon Bldg., New Orleans.
- MAINE: Portland, Nov. 12-13. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.
- MARYLAND: Baltimore, Dec. 10. Sec., Dr. J. McP. Scott, 137 W. Washington St., Hagerstown.
- MASSACHUSETTS: Boston, Nov. 12-14. Sec., Dr. Walter P. Bowers, No. 1 Beacon St., Boston.
- NEBRASKA: Lincoln, Nov. 13. Sec., H. P. Lehnhoff, 514 First Natl. Bk. Bldg., Lincoln.
- NEVADA: Carson City, Nov. 4. Sec., Dr. S. L. Lee, Carson City.
- OHIO: Columbus, Dec. 3-5. Sec., Dr. H. M. Platter, State House, Columbus.
- TEXAS: Dallas, Nov. 19-21. Sec., Dr. M. F. Bettencourt, Mart.
- VIRGINIA: Richmond, Dec. 10-13. Sec., Dr. J. W. Preston, 215 S. Jefferson St., Roanoke.
- WEST VIRGINIA: Charleston, Nov. 19-21. Sec., Dr. S. L. Jepson, Masonic Bldg., Charleston.

Arkansas Eclectic May Examination

Dr. C. E. Laws, secretary of the Arkansas Eclectic Medical Board, reports the written examination held at Fort Smith, May 13-15, 1918. The examination covered 12 subjects and included 120 questions. An average of 75 per cent. was required to pass. Twenty-seven candidates were examined, all of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
California Eclectic Medical College	(1915)		88.1
American Medical College	(1896)		85.9
Kansas City College of Med. and Surg.	(1918)	81.4, 81.7, 82.6, 83.4, 84.3, 84.7, 84.7, 85, 85.1, 85.5, 86.2, 86.5, 86.7, 86.7, 87.5, 87.8, 88.1, 88.8, 89.1, 89.3, 89.6, 89.7, 90.3.	
Lincoln Medical College	(1918)		87, 87.8

One candidate, a graduate of the American Medical College in 1906, received a license that had been revoked for one year.

New Mexico July Report

Dr. W. E. Kaser, secretary of the New Mexico Board of Health and Medical Examiners, reports that 8 candidates were licensed on credentials and 1 candidate was licensed through reciprocity at the meeting held at Sante Fe, July 8-9, 1918. The following colleges were represented:

College	LICENSED ON CREDENTIALS	Year Grad.	No. Licensed
Rush Medical College	(1882)	(1916)	2
Louisville Medical College	(1896)		1
Tulane University	(1911)		1
Starling Medical College	(1888)		1
Pulte Medical College	(1892)		1
Medical College of the State of South Carolina	(1904)		1
University of Texas	(1896)		1

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
University of Arkansas	(1910)		Arkansas

West Virginia Reciprocity Report

Dr. S. L. Jepson, health commissioner of the West Virginia Public Health Council, reports that 16 candidates were licensed through reciprocity including up to July 9, 1918. The following colleges were represented:

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
American Medical Missionary College	(1902)		Tennessee
Kentucky School of Medicine of Louisville	(1903)		Kentucky
University of Louisville	(1890)		Kentucky
Tulane University	(1914)		Louisiana
University of Maryland	(1908)	(1915)	Maryland
Marion-Sims College of Medicine	(1897)		Missouri
Eclectic Medical College	(1905)		Illinois
Jefferson Medical College	(1914)		Penna.
Medical College of Virginia (1898)	(1906) (1909) (1910,2)		Virginia
University College of Medicine	(1908)		Virginia
Queen's University	(1908)		Indiana

Book Notices

THE DIAGNOSIS AND TREATMENT OF VENEREAL DISEASES IN GENERAL PRACTICE. By L. W. Harrison, D.S.O., Lecturer on Venereal Diseases and Officer in Charge, Military Hospital, Rochester Row. Cloth. Price, \$7.50. Pp. 482, with 100 illustrations. New York: Oxford University Press, 1918.

Harrison has had in view a book that will bring home to the general practitioner his responsibility in the care of venereal diseases, will interest him in them, and will show him how relatively simple and satisfactory their treatment is, once the knowledge of how to treat them has been mastered. To this end he has omitted the highly technical procedures that only the expert can carry out well, and has given full space to the simpler measures, which are all that are required in the great majority of cases. This is a difficult task and requires judgment as well as a knowledge of the subject based on large experience. Fortunately the author has had this experience in civil and military practice, and brings to the subject a maturity of judgment that has enabled him to select the essential parts. The result is a book which the expert may well consult, but which is particularly useful to the general practitioner. In it he finds the well-tried methods clearly described, the important things stressed, so that he is not left in uncertainty as to what course he should follow by a multiplicity of detail which leaves him finally in confusion. It is an excellent book. Its publication is timely, and its circulation will be beneficial to the medical profession and to the public, who have a right to expect from their medical advisers intelligent care of these diseases.

A LABORATORY MANUAL OF ELEMENTAL QUALITATIVE CHEMICAL ANALYSIS FOR STUDENTS OF MEDICINE, DENTISTRY, PHARMACY AND SCIENCE. By A. R. Bliss, Jr., A.M., Ph.D., M.D., Professor of Pharmacology, School of Medicine, Emory University. Second edition. Cloth. Price, \$2.25 net. Pp. 194. Philadelphia: W. B. Saunders Company, 1918.

What was written about the first edition of this book applies with almost equal force to this edition. It is true that some of the glaring errors pointed out in our previous review have been corrected, and an attempt, at least, has been made to have the book conform more to the modern theories as applied to chemical analysis. There is, however, nothing new or unique either in the subject-matter or in the arrangement. There are in existence many textbooks dealing with this subject, and why there should be added this one we fail to see, unless it be as we said before simply to attach one's name to a collection of well known facts presented under the camouflage of a nice appearing book.

AIDS TO RATIONAL THERAPEUTICS WITH U. S. A. PHARMACOPEIA EQUIVALENTS. By Ralph Winnington Leftwich, M.D., C.M., M.R.C.S. Cloth. Price, \$1.50. Pp. 233. New York: William Wood & Co., 1918.

The author has placed all diseases in forty groups on the basis of their pathology and similarity of treatment, believing that this is the simplest way to teach therapeutics. This conception has some commendable features. The book will not, however, be of much value to American physicians because the prescriptions are long and complicated, many of the ingredients are drugs that are not even slightly used in this country, and many of the preparations recommended will not bear the scrutiny of scientific investigation.

EMERGENCIES OF A GENERAL PRACTICE. By Nathan Clark Morse, A.B., M.D., F.A.C.S., Surgeon to Emergency Hospital, Eldora, Iowa. Cloth. Price, \$4.50. Pp. 449, with 251 illustrations. St. Louis: C. V. Mosby Company, 1918.

The author has discussed briefly all the emergency methods of a general practice. Many subjects are, of course, only enumerated. It seems a mistake to attempt to cover a field that includes the reduction and maintenance of fractures, the treatment of compound fractures, amputations, obstetric emergencies and infected wounds in so brief a way as is necessary in a volume no larger than this. The explanations are explicit and the illustrations well selected.

Medicolegal

Damages Recoverable for Miscarriage

(*Wallace v. Portland Railway, Light and Power Company (Ore.)*, 170 Pac. R. 283)

The Supreme Court of Oregon reverses a judgment obtained by the plaintiff for damages for a miscarriage alleged to have been caused by the defendant's negligence in suddenly starting a street car from which the plaintiff was alighting, in which she claimed damages not only for the injuries and pain she suffered, but also for the loss of her child. The court says that there can be no question that a plaintiff, a pregnant woman, may recover for the pain and injury, both physical and mental, experienced by her from a miscarriage brought about by the negligent act of a defendant. She is entitled to have nature in such cases work out its proper function in due time. Any disturbance of the period or process of gestation resulting in her injury is actionable. It is only, however, for the injury to her that she can recover. She has no action for the loss of the child. The injury, if any, is too remote and speculative to form a basis for damages. Furthermore, the court holds that the defendant was not helped by an assignment of error in a refusal of the trial court to allow a witness called for the defendant to answer whether or not she was told by the plaintiff and her husband, prior to the occurrence of the accident, that they were contemplating an operation on the plaintiff. It was true that if the defendant could have shown that the plaintiff and her husband brought about the miscarriage in question by some act of their own, it would have been material to the defense; but the mere expression of an intention to have an operation performed was of no moment whatever, unless followed by testimony tending to show that the intent was carried into execution. The trial judge was clearly right in excluding the proffered testimony, as it did not appear by the record that there was any effort to supplement the offer by proof of any overt act of the plaintiff or her husband committed with a view to produce an abortion.

Cost of Operation Added to Alimony

(*Rotge v. Rotge (Colo.)*, 171 Pac. R. 360)

The Supreme Court of Colorado affirms a judgment in favor of the plaintiff, who asked that the defendant be required to pay the necessary expenses—hospital bill and surgeon's fee—incurred for an operation which it had become necessary for her to undergo while a suit for divorce was pending between them and after she had been awarded \$125 a month temporary alimony. The court says it was conceded that the surgeon who performed the operation had sued the parties to this suit before a justice of the peace and recovered judgment against both for the amount of his fee, but nothing had been recovered on the judgment, though the defendant had been garnished as being indebted to the plaintiff, and had answered thereto, admitting his indebtedness for the monthly alimony due. The court thereupon found the issues in favor of the plaintiff, and that the expenses of the operation and hospital bill were an unforeseen contingency, for which no provision had been made by the court and that the bills were just, and ordered that the defendant pay the hospital bill and the judgment for the surgeon's bill rendered in the justice court, and that the payment of these amounts should in no wise be deducted from or in any way affect the temporary alimony required by prior order of the court to be paid by the defendant to the plaintiff each month. Continuing, the supreme court says that the ordinary rule that, when in a divorce suit temporary alimony has been awarded the wife and the husband duly pays it, he will not be liable thereafter for necessities subsequently furnished her, had no application to the facts of this case. It might be that the husband, in this case, might have avoided the judgment against himself in

the justice court by making the defense here suggested. This he did not do, and the finding was that a judgment was rendered therein against both of the parties hereto and stood unpaid. While it was the debt of the husband, it was likewise the debt of the wife, and the substantial effect of the order was that the husband furnish her with money to pay her debt. If compliance with the order incidentally satisfied a judgment against the husband, it in no wise affected this controversy. The question here related to the power of the district court, in which the divorce suit was pending, to increase the payments required to be made by the husband during the pendency of the suit, to meet the needs of the wife which had arisen because of changed conditions, and had nothing to do with the rights of third parties as against the husband. But the order directing the defendant to pay the hospital bill incurred by the plaintiff, and the judgment in favor of the surgeon for his services, is modified to require him to pay the necessary amount into the court to be used by the plaintiff in the discharge of such indebtedness, instead of requiring him to pay it directly to persons not parties to the suit.

Society Proceedings

COMING MEETINGS

- American Public Health Association, Chicago, Dec. 9-12.
- Assn. for S. & P. of Inf. Mort., Asheville, N. C., Nov. 11-14, 1918.
- Medical Association of Porto Rico, Ponce, Dec. 14-15.
- Southern Medical Association, Asheville, N. C., Nov. 11-14, 1918.
- Southern Surgical Association, Baltimore, Dec. 17-19.
- Western Roentgen Society, Chicago, Nov. 20-22.

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS

Thirty-First Annual Meeting, held at Detroit, Sept. 16-18, 1918

(Concluded from page 1340)

Sarcoma of the Left Ovary in a Child Twenty-Three Months Old

DR. HERMAN E. HAYD, Buffalo: A small round cell sarcoma of the right ovary, about the size of a goose egg, was removed from a baby aged 23 months. The child's temperature was 101 F. It was peevish and irritable, and lost considerable flesh, had been sick about ten days, was cutting the eye teeth, and had some bronchitic sounds in the chest, with areas of bronchopneumonia in both lungs. The liver dulness was much increased. The bowels and kidneys were functioning satisfactorily. In the lower right abdominal quadrant could be felt a large, movable, smooth tumor, not painful to the touch. We treated the symptoms, irrespective of the abdominal condition. In the course of four or five days the temperature became normal, the child began to play, took considerable semisolid food, the tongue cleared up, the feverish condition of the mouth and lips passed away, and the mother was told to take the child into the country and to return in a few weeks or earlier, if the child's condition did not continue to improve. The child remained at home for ten or twelve days, when I saw it again. The lungs were clear, but the abdomen contained considerable fluid, and the mass, which was still movable, was tender. The temperature was 100 F.; the child looked sick and was again fretful and irritable. She was prepared for operation immediately. The tumor was free in the abdomen, with the right tube attached to it. The appendix was long and curled on itself, and it was also removed. The uterus and the left tube and ovary were normal. Quite a little bloody fluid ran away when the abdomen was opened. The liver was palpated and found to be much enlarged and filled with nodular masses. The child suffered little shock and recovered from the operation, leaving the hospital on the thirteenth day. It died at the end of the fifth week, no doubt from exhaustion with acute hepatitis and, perhaps, general sarcomatosis.

DISCUSSION

DR. THOMAS B. NOBLE, Indianapolis: My experience with sarcoma of the ovary comprises four cases in children, three of whom are dead. One, a girl of 16 who was operated on four years ago, is living.

Do Not Sterilize Women when Operating for Tuberculous Peritonitis

DR. J. HENRY CARSTENS, Detroit: Thousands of tuberculous nodules are left in the abdomen which are absorbed and disappear; hence we have a right to believe that the few nodules that are on the tubes and ovaries will also disappear after we open the abdomen with or without irrigation or drainage. There is no use in removing the tubes if they are only affected by tubercles. Many of the women are young and unmarried, and should not be sterilized needlessly.

Intestinal Actinomycosis

DR. JOHN W. KEEFE, Providence, R. I.: Actinomycosis of the digestive tract practically never occurs in the stomach or small intestine, possibly because the acid contents of the stomach and the fluid secretions found in the small intestine are less irritating to its mucous lining. An acute or chronic inflammation of the appendix may open the door for the entrance of the actinomycotic organism. Actinomycosis is practically never carried by the lymphatics and but rarely by the blood stream. The method of extension is by continuity of tissue. Hence, general actinomycosis, unlike tuberculosis and blastomycosis, is extremely rare.

The early diagnosis of actinomycosis is generally overlooked. A firm swelling, painless on pressure, occupying either the right or left inguinal regions, usually the right, is the sign most frequently found in cases of intestinal actinomycosis.

The surgical measures to combat the disease consist of excision in some cases and incision in others, and curetting of diseased tissues together with the use of antiseptics and the maintenance of free drainage. Injections of 4 per cent. aqueous solution of liquor formaldehydi have been employed with success. Vaccines and serums have been found of value only in a few reported cases. The roentgen ray has not shown any marked beneficial effect. In a few instances radium has been given with marked immediate results. Large doses of potassium iodid, 90 grains, three times a day, have been given with success in many cases. The marked efficacy claimed for this drug is readily explained by the fact that it promotes the absorption of granulation tissue, acting in very much the same manner as in the case of granulomas of tertiary syphilis.

The Rôle of Congenital Colonic Membranes as a Causative Factor in Disease

DR. J. P. RUNYAN, Little Rock, Ark.: Colectomy is a radical operation for the relief of intestinal stasis, and in the skilled hands of Lane may be fairly safe; but it has always appeared to me to be unjustifiable, provided a simpler and a safer operation could be devised. Acting on the hypothesis that intestinal stasis is due to colonic membrane formation, the result of imperfect embryologic development, which membrane causes more or less angulation of the bowel, we began dividing or removing this membrane with most gratifying results. It is a splendid, safe and sane substitute for colectomy in the treatment of intestinal stasis, and an operation devoid of mortality.

DISCUSSION

DR. WILLIAM SEAMAN BAINBRIDGE, New York: Constipation is a symptom just as diarrhea is a symptom. The worst cases of stasis are those in which the condition is accompanied frequently with diarrhea. The frequency of the number of stools does not mean that the putrefying and noxious material is not there. The retained stool is being absorbed. There is an overflow of retention in the bowel just as there is overflow of retention in the bladder. That point Mr. Lane has emphasized repeatedly, and the worst cases of stasis are of that type. When the intestinal canal is dammed, the body as a whole or in part cannot take care of the added amount of poisoning which such retention involves. As to treat-

ment, to say that Mr. Lane or any of those that follow him advocate colectomy for stasis is so radical that it does harm. Lane put himself on record in regard to that in 1901 when he said that nine tenths of the patients with stasis ought never to see a surgeon.

DR. JAMES E. DAVIS, Detroit: The body in its development usually follows the law that function determines anatomic form. With some arrest in the embryonic development, no interference with normal function occurs; but there are cases in which the arrested anatomic form does interfere definitely. I performed a necropsy on a child that illustrates this point. A child, aged 6 weeks, died apparently of symptoms of inanition. The right lobe of the liver appeared displaced well down into the pelvis; in fact, it seemed to be a development and a displacement. The gall-bladder was in a right angled position with the midaxis of the bowel. The lower border of the right lobe of the liver was down in the lowermost part of the pelvis. Through the right hernial ring the cecum and appendix were herniated. The symptomatology was something like this: For the first four days after birth there was no trouble whatever; then there appeared a train of gastro-intestinal disturbances, and a little later metabolic disturbances were found. The terminal picture was that of ordinary inanition. In my judgment this abnormality of position was the etiologic factor of the gastro-intestinal and metabolic disturbances.

DR. GORDON K. DICKINSON, Jersey City, N. J.: In the June, 1918, issue of the *Annals of Surgery* is published a very interesting article on the anatomy and embryology of the subject under discussion. I have forgotten the name of the author. His observations are based on embryologic researches, the literature and otherwise. He says that all these bands are of embryonal origin and can be traced back to the very early period of fetal life.

DR. HUGO O. PANTZER, Indianapolis: We find these conditions often associated with a narrow costal angle with visceroptosis, congenital defects, and so on. By percussion one can tell whether the cecum is over the brim or not. By auscultation and percussion much can be learned about the abdominal contents.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Annals of Otology, Rhinology and Laryngology, St. Louis June, 1918, 27, No. 2

- 1 Report on Otolaryngology in First Year of War. H. P. Mosher, Washington.—p. 437.
- 2 Case of Otogenous Temporal Abscess with Hemiplegia, Facial Paralysis and Aphasia; Cerebral Drainage, Decompression, Recovery. O. Glogau, New York.—p. 456.
- 3 Pathology of Sinus Thrombosis. A. Braun, New York.—p. 461.
- 4 Indications for Variations in Technic in Tonsillectomy. C. L. Adams, Kokomo, Ind.—p. 474.
- 5 Reactions of Normal Labyrinth: Experience in U. S. Aviation Examinations. H. Hastings, Los Angeles.—p. 481.
- 6 Case of Neuritis of Eighth Nerve Involving Both Branches from Focal Infection in Appendix. G. W. Mackenzie, Philadelphia.—p. 490.
- 7 Gasparo Tagliacozzi and His Contribution to Rhinoplasty.—M. and I. Frank, Chicago.—p. 505.
- 8 Examination of Applicants for Aviation Service, U. S. Army. W. A. Scruton, New York.—p. 528.
- 9 Infections of Paranasal Sinuses in Infants and Young Children. L. W. Dean, Iowa City, Iowa.—p. 534.
- 10 Adenocarcinoma of Nose; Four Cases. L. M. Hurd, New York.—p. 557.
- 11 Foreign Body (Carpet Tack) Remaining Two Years in Bronchial Tube without Pathologic Symptoms. D. Roy, Atlanta.—p. 565.
- 12 Blastomycosis of Upper Respiratory Tract: Case Primary in Larynx. F. L. Dennis, Colorado Springs.—p. 571.
- 13 Case of Granuloma of Mastoid Simulating Subperiosteal Abscess. J. D. Richards, New York.—p. 587.
- 14 Case of Mastoidectomy for Acute Suppurative Otitis Media, Followed Later by Facial Paralysis, Almost Total Deafness, Meningitis and Death. J. R. Page, New York.—p. 589.
- 15 Cases of Vincent's Angina. C. F. Theisen, Albany, N. Y.—p. 594.
- 16 Radical Treatment of Peritonsillar Abscess. C. F. Theisen, Albany, N. Y.—p. 600.

- 17 Syphilitic Necrosis of Intermaxillary Bone. C. W. Richardson, Washington, D. C.—p. 605.
- 18 Two Cases of Unusual Wounding of Lateral Sinus. V. Dabney, Washington, D. C.—p. 607.
- 19 Digest of American and English Otologic Literature for Year 1917. O. M. Rott, Spokane, Wash.—p. 609.
- 20 Abscess of Left Frontal Lobe Following Suppuration of Frontal Sinus; Report of Case and Exhibition of Specimen. W. V. Mullin, Colorado Springs.—p. 667.
- 21 Bone Transplantation for Correction of Nasal Deformities. W. F. Callfas, Omaha.—p. 672.
- 22 Lothrop Operation for Frontal Sinusitis; Report of Two Cases. J. J. Pattee, Pueblo.—p. 677.
- 23 Nose and Throat in Medical History. D. A. Vanderhoof, Colorado Springs.—p. 685.
- 24 Relation of Blood Pressure to Pathologic Conditions of Head and Neck. T. E. Carmody, Denver.—p. 691.

Annals of Surgery, Philadelphia

September, 1918, 68, No. 3

- 25 *Preliminary Report of Method for Estimating in Vivo Germicidal Activity of Antiseptics. J. A. Perkins.—p. 241.
- 26 Treatment of Gunshot Fractures of Mandible. J. B. Roberts, Philadelphia.—p. 245.
- 27 Operative Treatment of Hernia: Analysis of Eight Thousand, Five Hundred and Eighty-Nine Cases. W. B. Coley and J. P. Hoguet, New York.—p. 255.
- 28 Case of Lipoma of Funiculus Spermaticus. H. Schiller, Chicago.—p. 269.
- 29 Fecal Fistula Following Strangulated Hernia: Report of Five Cases. W. D. Haggard, Nashville, Tenn.—p. 272.
- 30 Traumatic Abdomen. J. B. Deaver, Philadelphia.—p. 275.
- 31 Acute Pancreatitis. J. B. Deaver, Philadelphia.—p. 281.
- 32 Incidence of Calculi in Gallbladder in One Thousand Six Hundred Necropsies. L. J. Mitchell, Chicago.—p. 289.
- 33 Kidney Ureter Abnormalities; Two Cases. T. N. Hepburn, Hartford, Conn.—p. 294.
- 34 *Diverticula of Bladder. E. S. Judd, Rochester, Minn.—p. 298.
- 35 Treatment of Wounds of Genital Organs in Warfare. C. G. Cumston, Geneva, Switzerland.—p. 306.
- 36 Anatomic Methods of Approach in Operations on Long Bones of Extremities. J. E. Thompson, Galveston, Texas.—p. 309.
- 37 Lengthening of Achilles Tendon in Treatment of Complicated Pott's Fracture. C. N. Dowd, New York.—p. 330.
- 38 *Receiving and Operating Pavilions for Modern Base Hospital. A. P. C. Ashhurst, Philadelphia.—p. 333.
- 39 Treatment of Malignant Peritonitis of Ovarian Origin; Two Cases. E. A. Codman, Boston.—p. 338.

25. Germicidal Activity of Antiseptics.—With a view to reducing the margin of error in estimating the bacterial contents of a wound with microbe charts Perkins and his associates have been culturing the wounds, counting the number of colonies and plotting curves as in microbe charts. In order to reduce so far as possible the element of the personal equation, the work has been done by one man. The inoculations were made from the same part of the surface of the wound, one definite spot being selected and used throughout; the attempt was made to get a uniform-sized drop; the same platinum wire loop was used each time. The drop obtained was inoculated at the bedside in 2 c.c. of plain bouillon, the bouillon suspension, undiluted, was immediately poured over an agar-agar plate, which was then covered and turned upside down and marked with the patient's number, the number of the culture, and the time the culture was taken. The plate was then taken to the laboratory and placed in an incubator and kept at 37 C. At the end of twenty-four hours the colonies were counted, macroscopically, and recorded. Carrying out this procedure during different stages of wound treatment with antiseptics some idea can be obtained of the comparative strength of antiseptics and the length of time during which they are active when applied to human tissues in the presence of infection.

34. Diverticula of Bladder.—During a period of ten years forty-four patients were operated on in the Mayo Clinic for bladder diverticula. Judd says that diverticulum of the bladder is much more common than has been realized. The condition is perfectly amenable to surgical treatment. In this series of forty-four patients, so far as is known, all but ten are living. Two of the patients died within a few days after a drainage operation; both of these men had septic kidneys and drainage was of no avail. The other deaths occurred after the patients had been up and around for some time, and in most instances after they had gone home. The

general and functional results in the remaining thirty-four patients have been uniformly good. The functional result, in so far as emptying the bladder is concerned, may, Judd says, be slow to adjust itself, though eventually it will be practically perfect.

38. Receiving and Operating Pavilions for Modern Base Hospital.—Ashhurst describes the adaptation of standard barrack buildings to the uses of receiving, bathing, operating, and roentgen-ray pavilions in a base hospital. The buildings described form part of Base Hospital 34, American Expeditionary Forces, which is situated in the outskirts of a large city, at a considerable distance from the front.

American Journal of Physiology, Baltimore

September, 1918, 47, No. 1

- 40 *Action of Pituitary Extract on Kidney. F. P. Knowlton and A. C. Silverman, Syracuse, N. Y.—p. 1.
- 41 *Effect of Food in Increasing Oxidation. W. E. Burge and A. J. Neill, Urbana, Ill.—p. 13.
- 42 *Material Lost in Menstruation of Healthy Women. L. H. Gillett, L. Wheeler and A. B. Yates, New York.—p. 25.
- 43 Muscular Strength and Muscular Symmetry in Human Beings. E. G. Martin and W. H. Rich.—p. 29.
- 44 Significance of Undissociated Carbon Dioxid in Respiration. R. W. Scott, Cleveland.—p. 43.
- 45 Differences in Catalase Content of Muscle from Different Parts of Stomach. W. C. Alvarez and E. Starkweather, San Francisco.—p. 60.
- 46 Catalase Content of Mucous Membrane from Different Parts of Digestive Tract. W. C. Alvarez and E. Starkweather, San Francisco.—p. 67.
- 47 *Comparison of Activity of Extracts of Pars Tuberalis with Extracts of Other Regions of Ox Pituitary. W. J. Atwell and C. J. Marinus, Ann Arbor, Mich.—p. 76.
- 48 Studies on Physiology of Reproduction in Birds. Effects of Quinin on Production of Egg Yolk and Egg Albumen. O. Riddle and C. E. Anderson, Long Island, N. Y.—p. 92.
- 49 Postmortem Melanin Pigment Formation in Pigmentless Retinas and Choroids of White Ring Doves. O. Riddle and V. K. La Mer, Long Island, N. Y.—p. 103.
- 50 *Chemical Composition of Brain of Normal and Ataxic (?) Pigeons. M. L. Koch and O. Riddle, Long Island, N. Y.—p. 124.
- 51 New Form of Aerotonometer. P. M. O'Sullivan, Toronto.—p. 137.
- 52 Lung as an Aerotonometer. P. M. O'Sullivan, Toronto.—p. 143.
- 53 Heat Liberated by Beating Heart. C. D. Snyder, Baltimore.—p. 156.

40. Action of Pituitary Extract on Kidney.—Knowlton and Silverman found that the oxygen consumption by the kidney is not increased during the diuresis induced by pituitary extracts. Using the oxygen consumption as the criterion, there is no evidence that pituitary extract stimulates the renal cells. Throughout their experiments increased blood flow through the kidney was an invariable accompaniment of pituitary diuresis. From the evidence at hand it seems possible to explain the diuretic action of pituitary extract entirely on the basis of the vascular changes and increased filtration pressure obtaining in the kidney.

41. Effect of Food in Increasing Oxidation.—The increase in oxidation following the ingestion of food is attributed by Burge and Neill to the increase in catalase produced by the stimulation of the digestive glands, particularly the liver, to an increased output of this enzyme. The glycerin radical of the fat molecule is responsible for the stimulating effect of the fats; the end products of protein digestion, presumably the amino-acids, for the stimulating effect of meat; and the simple sugars for the stimulating effect of the starchy foods.

42. Material Lost in Menstruation of Healthy Women.—In the experiments referred to the subjects were healthy women who were working in the laboratory from ten to twelve hours a day. In general the object was to ascertain whether the calcium and phosphorus requirements of women differed materially from those of men. The diet of each subject was uniform from day to day and the daily intake and output for nitrogen, calcium and phosphorus were determined by analysis. The data obtained show that there is no pronounced periodicity in the output of phosphorus and calcium and that the amounts of these elements lost in menstruation are not sufficient to make the nutritive requirements of women for these elements materially different from those of men of the same weight.

47. Extracts of Several Parts of Ox Pituitary.—According to Atwell and Marinus a pars tuberalis may be distinguished in the bovine hypophysis. It differs histologically from both the pars intermedia and the pars anterior propria. But, extracts of the pars tuberalis are very inferior to extracts of the pars intermedia in producing contractions of the isolated uterine segment and are likewise inferior to extracts of the neural stalk in raising the blood pressure of the dog. Extracts of the pars tuberalis equivalent to 5 mg. of fresh gland substance failed to produce a rise of blood pressure in the rabbit. It is believed that the active effects displayed by extracts of the pars tuberalis are due to an inclusion of some of the neural stalk substance during the preparation of the extract. It would seem improbable that the pars tuberalis is responsible for the origin of active principles which increase uterine contraction or raise the blood pressure. An extract of the pure pars intermedia of the ox is capable of producing a strong pressor effect when injected intravenously into the dog. An extract of pure pars intermedia representing 5 mg. of the fresh gland substance produces a distinct rise of blood pressure in the rabbit. An extract of the pure neural stalk is fairly powerful in producing a rise of blood pressure in the dog. This removes one objection to the possibility that the secretion of the pars intermedia passes into the neural lobe and then, via the neural stalk, into the third ventricle.

50. Chemistry of Brain of Normal and Ataxic Pigeons.—The brains of birds which have very little control of the voluntary movements (ataxia?) were analyzed by Koch and Riddle. The data thus obtained are compared with similar data obtained on the brains of normal birds of the same parentage. The derangement first appeared (mutation?) under conditions known to lead to weakness in the offspring. The disorder is exhibited in all degrees and has been inherited undiminished to the fifth generation. Usually it is shown from the earliest age of the bird and is probably present throughout the whole development of the bird. The brains of the affected birds show increased values for moisture, protein and extractive sulphur; decreased values for lipoids, phosphatids and cholesterol. In general the less ataxic individuals show values intermediate to those of the normals and most ataxic. The distribution of sulphur and phosphorus in the various chemical fractions was determined. The results of the analyses of the affected brains are interpreted as suggesting a chemical underdifferentiation or immaturity of these brains. The brains of affected birds of approximately mature age are chemically more like the brain at earlier stages of development.

Archives of Internal Medicine, Chicago

September, 1918, 22, No. 3

- 54 *Study of Eighty Cases of Empyema at Camp Upton. H. Brooks and R. L. Cecil, Camp Upton, N. Y.—p. 269.
- 55 *Voluntary Acceleration of Heart Beat. H. F. West and W. E. Savage, Boston.—p. 290.
- 56 *Acute Endocarditis Following War Wounds. H. T. Karsner, France.—p. 296.
- 57 Pathologic Report on Forty-Three Cases of Acute Poliomyelitis. H. L. Abramson, New York.—p. 312.
- 58 Aberrant Electrocardiogram Associated with Sclerosis of Atrioventricular Bundle Branches and Their Terminal Arborizations. E. P. Carter, Cleveland.—p. 331.
- 59 *Epidemic of Mumps at Camp Wheeler, October, 1917-March, 1918. M. J. Radin, Camp Wheeler, Ga.—p. 354.
- 60 Study of Eight Cases of Acute Nephritis. D. W. Atchley, New York.—p. 370.

54. Empyema at Camp Upton.—Eighty cases of a highly virulent type of empyema have been analyzed by Brooks and Cecil at Camp Upton in a series of 300 pneumonias. Fifteen of these were caused by the pneumococcus; fifteen others were sterile; the remainder of the cases were caused by streptococcus, usually of the hemolytic type. In this series of cases empyema has been constantly associated with pneumonia of either the bronchial or lobar type. Usually a bronchopneumonia has accompanied a streptococcus empyema, and a lobar pneumonia the pneumococcus empyemas. In the great majority of cases the organism which has been found

to be the causative agent in the pneumonia has also been isolated in pure culture from the pleural exudate. In nine cases, however, a pneumococcus pneumonia was associated with a streptococcus empyema. The onset of the pneumonia and the empyema is apparently simultaneous in some cases. This epidemic of empyema has been, in large part, independent of measles and other similar infections.

The clinical symptoms and the physical signs differ from those of classic empyema. Diagnosis is frequently difficult by reason of the equivocal physical signs and the indefinite symptomatic picture. Diagnostic aspirations are the most certain means of discovery of the condition in its early stage. The roentgen ray stands second in diagnostic importance. Of the physical signs, alterations in percussion seem to be the most helpful. The interstitial type of bronchopneumonia, recently described by Cole and MacCallum, is usually found associated with streptococcus empyema. Fibrinopurulent pericarditis is the most frequent complication. Pyopneumothorax has also been observed in a number of cases. The mortality rate is high and the prognosis is serious. Medical treatment is essentially expectant. The most efficacious method of surgical treatment and the correct time for its application are yet to be determined.

55. Acceleration of Heart Beat.—A young medical student who is entirely healthy and is apparently free from all physical and neurotic defects has had no cardiovascular symptoms whatever and physical examination shows the heart to be of normal size and free from abnormal sounds and murmurs. Attacks of tachycardia have never been noticed. He discovered the ability to increase his heart rate voluntarily during the course in physiology in his freshman year and has practiced it only at times of making observations. During the period of acceleration there is a very slight increase in the rate and the depth of respiration and the pupils dilate moderately as recorded by other observers. No definite physical effort is made, but constant mental concentration must be maintained, which, after several, closely repeated trials, becomes quite fatiguing. The rate begins to increase almost immediately following the word of command and reaches its maximum after about ten heart cycles. All tracings show a decrease in amplitude of the pulse waves rather than an increase with marked diastolicity. There was a distinct rise in blood pressure with each acceleration with the exception of the effort at the height of the atropin effect, when there was a drop of 10 mm. from the reading made five minutes before. The latter reading, however, was 10 mm. higher than the first record made before the atropin was given. The greatest increase noted was one of 18 mm. accompanying an acceleration of 27 beats per minutes.

Electrocardiograms show no distinctive characteristics other than a slight notching of R and a diphasic T in the third lead. There is a definite, but not unusually marked, sinus arrhythmia. During the periods of acceleration there was no change in the P-wave, in the P-R interval, nor in the distance from the beginning of R to the end of T. The amplitude of T was not changed. There was some rhythmic variation in the height of R both before and during the period of acceleration. The general average of the R deflections was slightly lower during the periods of acceleration, but by not more than one tenth of the height preceding the increased rate. After subcutaneous injection of 0.002 gm. of atropin sulphate the rate was increased from 69 to 94 beats per minute. Electrocardiograms taken at this time show a very slight increase in the amplitude of T in the first lead and a correspondingly slight decrease in the height of R. No change in the distance from the beginning of R to the end of T could be made out. The sinus arrhythmia was almost, but not completely, obliterated. When respirations were forced without atropin the sinus arrhythmia becomes more marked.

56. Endocarditis and War Wounds.—Acute endocarditis was observed by Karsner in fourteen necropsies. Twelve were pure acute disease and two showed acute lesions superimposed on preceding chronic lesions. The twelve acute cases showed involvement of the aortic valve alone in five cases; the mitral, two cases; the pulmonary, one case; the tricuspid, one case; combined mitral and aortic, three cases.

One case showed chronic mitral stenosis with acute mitral and aortic lesions; one case showed chronic mitral and aortic stenosis with acute mitral lesions. *Staphylococcus pyogenes-aureus* was isolated in three cases, two of which were pyemias and one was a septicemia. *Streptococcus pyogenes* was isolated in nine cases, two of which were pyemias and seven were septicemias. Two cases were clinically and pathologically septicemias, but were not demonstrated to be so bacteriologically. All the patients had suffered serious primary wounds, five of which involved joints and four others of which involved other serous cavities. These wounds are irregularly distributed in regard to the valves attacked except that both the cases showing superimposition of acute on chronic lesions were penetrating wounds of the pelvis. In contrast to these figures, there were six cases of infected wounds of the joints which failed to show endocarditis, twenty-three cases of wounds of other serous cavities not including head wounds and forty-two cases of septicemia or pyemia without noticable lesions of the endocardium.

59. Epidemic of Mumps at Camp Wheeler.—Among approximately 18,000 men at Camp Wheeler, there were 5,756 cases of mumps, an incidence of 32 per cent. Every third man in the division, in other words, has had mumps. Of 13,638 total admissions to the hospital to March, 1918, almost one half were mumps—42.2 per cent. The cost of the epidemic to the government was at least \$1,000,000. Six hundred and eleven had testicular involvement of various kinds. Suppurative otitis media occurred in twenty cases. Pancreatitis occurred in fourteen cases. Five cases of lobar and one case of bronchopneumonia occurred. There were nine cases of bronchitis of the ordinary type and course. Radin says that the most diagnostic prodromal sign, pathognomonic, in fact, was first noted by Lieutenant Hathcock. The sign is tenderness just beyond the angle of the jaw on running the finger toward the angle, under the mandible. If the parotid gland is at all involved, the patient winces with pain. This occurs before any swelling can be made out. It is almost constant, it is early, it is definite and it is exclusive; therefore it is diagnostic.

Boston Medical and Surgical Journal

Oct. 3, 1918, 179, No. 14

61 *Kidney Function in One Hundred Cases of Hypertension. W. C. Rappleye, Foxborough.—p. 441.

61. Kidney Function in Cases of Hypertension.—A study of the blood urea nitrogen, elimination of phenolsulphonephthalein and urine analysis was made by Rappleye on 100 cases of elevated blood pressure, using the figure of 150 to 155 mm. systolic pressure as the low value for selection. With but four or five exceptions, the patients were in apparently good physical condition and active, none showed any edema, dyspnea, fever or other compromising conditions. In this group of patients 70 per cent. showed blood urea nitrogen values below 16.0 mg. per 100 c.c. (whether considering the whole group or only those showing a systolic value of over 170 mm. or a diastolic figure of over 100 mm.), and 66 per cent. showed a dye excretion of 40 per cent. or higher; 16 per cent. showed a value of 40 per cent. A slightly lower percentage was found in those patients showing a higher blood pressure (systolic of 170 mm. or over, diastolic of 100 mm. or over). Twenty-eight per cent. showed both a urea nitrogen of 16.0 mg. or over and a dye excretion of 40 per cent. or less. Ninety per cent. of the cases showing a urea nitrogen of 16.0 mg. or over had a dye excretion of 40 per cent. or less. Twenty-four of the cases showed a blood pressure over 160 mm., a urea nitrogen below 15.0 mg. and a phthalein over 50 per cent. There have been thirteen deaths in this group with eleven necropsies. The causes of death in ten of the thirteen cases were associated with either the cardiovascular system or acute infections.

Bulletin of Canadian Army Medical Corps, Ottawa

September, 1918, 1, No. 6

62 Typhoid Spine. W. Osler.—p. 78.

63 Nature of Shell Shock. F. Dillon.—p. 79.

64 *Early Stages of Trench Nephritis. G. S. Strathv.—p. 83.

65 Botulism. E. C. Dickson.—p. 85.

66 Some Aspects of Military Ophthalmology. S. H. McKee.—p. 87.

64. **Treatment of Early Stages of Trench Nephritis.**—Strathy says that with rest in bed and a simple diet of milk and milk puddings the large majority of patients improve rapidly. The symptoms calling for active treatment are cough, dyspnea, decrease in urine, headache and convulsions. At the casualty clearing station in which Strathy was stationed if a patient was markedly edematous or his blood pressure high a hot-air bath was given. In nearly all cases this produced free sweating, relieved the cough and headache, and decreased the edema. The patient's bowels were kept fairly free with Epsom salt, but the patients were not severely purged. If the dyspnea did not then subside and was severe, oxygen inhalations almost invariably gave considerable relief. After losing two patients whose deaths were both directly due to the affection of the lungs and pleurae, oxygen treatment was given to all cases of extreme dyspnea, and apparently carried several severe cases through, but when the dyspnea was not relieved by oxygen, and later, when the use of oxygen was forbidden owing to shortage of oxygen supply, aspiration of the hydrothorax was carried out, and immediate improvement resulted. One patient who was in extremis and appeared likely to die within five minutes was aspirated. After the removal of the fluid he was immediately improved and ultimately recovered. The hydrothorax did not recur. Opium in any form for the relief of cough or sleeplessness Strathy abandoned after some unhappy results from its use. It appeared to increase the patient's cyanosis. For convulsions spinal puncture and withdrawal of fluid was done in three out of four cases. The three recovered and the unpunctured patient died. Strathy believes it should be done either when an attack of convulsions is threatening, or as soon after the first convulsion as possible. One-fourth grain of morphin was always given at the onset of a convulsion.

Bulletin of John Hopkins Hospital, Baltimore

September, 1918, 29, No. 331

- 67 *Sinus Spud. W. S. Halsted.—p. 195.
- 68 Medical Industrial Relations of War. D. L. Edsall, Boston — p. 197.
- 69 Thymus Tumor Associated with Acute Lymphatic Leukemia. R. H. Major, Rosedale, Kan.—p. 206.
- 70 Wit and Satire on Physician in Hebrew Literature. H. Friedenwald, Baltimore.—p. 209.

67. **Sinus Spud.**—Four cases are cited by Halsted. The nature of the tumors or spuds was the same in the four cases. In the three perineal cases the pictures, were, in every particular, so nearly identical that, presumably, they had also a cause in common. In one instance a urethral fistula developed two years after the excision of the sinus and its fibrous wall. Halsted says that from this we might naturally conclude that a urethral lesion was responsible for all of the perineal spuds, notwithstanding the fact that no one of the three patients could recall having had at any time a urethritis. But this patient had been treated for fistula-in-ano a year before his perineal tumor appeared, and another patient had been operated on for hemorrhoids. In two cases operated on by Halsted, he felt that he could assert positively that at the time of operation the sinus did not communicate with either rectum or urethra. In both of these cases, furthermore, the sinus did not extend in either direction, to the end of the spud. The original urethral or rectal openings must have been very minute and have become closed.

In the three perineal cases the situation of the spud was precisely the same, and the dissection in the two operated cases led to the same spot, namely, to neighborhood of the bulbomembranous urethra. If the three cases had been of rectal origin it is extremely unlikely that the rectal perforation would in each have been identically at the same point. Correct interpretation of the condition is important, although failure to recognize the nature of the tumor could hardly be disastrous. Faulty diagnosis, however, caused three of the patients great distress. A finger-shaped, subcutaneous tumor of the perineum, quite free at its tip and with the hardness and elasticity of cartilage, is probably a sinus spud and may be recognized almost at the first touch of the palpating finger.

Florida Medical Association Journal, Jacksonville

September, 1918, 5, No. 3

- 71 Diagnosis of Laryngeal Tuberculosis. F. J. Walter, Daytona.—p. 41.
- 72 Malaria and Multimillionaire. E. Van Hood, Ocala.—p. 42.

Indiana State Medical Association Journal, Fort Wayne

September, 1918, 11, No. 9

- 73 Epidemic Streptococcus Infection of Nose and Throat Clinically Considered. W. A. Hollis, Hartford City.—p. 327.

Iowa State Medical Society Journal, Des Moines

September, 1918, 8, No. 9

- 74 Strouse's Method of Treating Dropsy. M. H. Thielen, Grundy Center.—p. 317.
- 75 History of Medicine in Iowa. D. S. Fairchild, Clinton.—p. 320
- 76 Treatment of Empyema. C. A. Hedblom, Rochester, Minn.—p. 328.
- 77 Plastic Surgery of Face and Neck. J. H. McGready, Independence.—p. 332.
- 78 Myocarditis; Its Recognition and Treatment. J. R. Walker, Fort Madison.—p. 334.

Journal of General Physiology, Baltimore

September, 1918, 1, No. 1

- 79 Dynamics of Photosynthesis. W. J. V. Osterhout and A. R. C. Haas, Cambridge.—p. 1.
- 80 Method of Studying Respiration. W. J. V. Osterhout, Cambridge.—p. 17.
- 81 *Antagonism Between Thyroid and Parathyroid Glands. E. Uhlenhuth, New York.—p. 23.
- 82 *Further Proof of Existence of Specific Tetany-Producing Substance in Thymus Gland. E. Uhlenhuth, New York.—p. 33.
- 83 Difference in Action of Radium on Green Plants in Presence and Absence of Light. C. Packard, Woods Hole, Mass.—p. 37.
- 84 Amphoteric Colloids. Chemical Influence of Hydrogen Ion Concentration. J. Loeb, New York.—p. 39.
- 85 *Theory of Mechanism of Disinfection, Hemolysis and Similar Processes. S. C. Brooks, Boston.—p. 61.
- 86 Law Controlling Quantity of Regeneration in Stem of Bryophyllum Calycinum. J. Loeb, New York.—p. 81.
- 87 Reversal of Reaction by Means of Strychnin in Planarians and Starfish. A. R. Moore, New Brunswick, N. J.—p. 97.
- 88 Light and Muscle Tonus of Insects. Heliotropic Mechanism. W. E. Garrey, New Orleans.—p. 101.
- 89 Luteal Cells and Hen-Feathering. A. M. Boring and T. H. Morgan, New York.—p. 127.

81. **Antagonism Between Thymus and Parathyroid Glands.**—From the facts stated by Uhlenhuth it is evident that the thymus gland of mammals contains a substance which is capable of producing tetany when fed to the larvae of certain species of salamanders (*Ambystoma opacum* and *Ambystoma maculatum*). As long as the larvae have not developed their own thymus glands, they are able, by means of some mechanism, to counterbalance the tetanic action of the thymus substance introduced in their food. When, however, the secretion from their own thymus glands is added to the thymus material introduced with the food, this mechanism of preventing tetany becomes inadequate and tetany ensues. If the thymus is the organ by whose action tetany is produced, Uhlenhuth says, we can understand why tetany in human beings occurs far more frequently in children than in adults, since in the latter the thymus gland is replaced, at least to a great extent, by connective tissue. The relation of thymus to tetany may also possibly explain the occurrence of tetany during pregnancy; while the parathyroids of the mother may be sufficient to prevent tetany from her largely atrophied thymus, they may not be sufficient to prevent tetany from the excess of thymus substance furnished by the fetus to the blood of the mother.

82. **Tetany-Producing Substance in Thymus Gland.**—Uhlenhuth believes that the effect of the thymus gland in producing tetany is due to a specific tetany toxin produced by and contained in the thymus, hence the thymus gland must be added to the group of glands for which the function of internal secretion has been demonstrated.

85. **Mechanism of Disinfection and Hemolysis.**—Brooks presents a critical discussion of the part played by the physicochemical process or group of processes leading to death, laking, and similar effects in determining progressive changes in the number of individual cells succumbing in

successive units of time to the action of the deleterious agent. He believes that the course of such processes as hemolysis is very largely dependent on variations in resistance among the different individuals, and secondarily on the course of the fundamental reaction. The fundamental reaction may be either a simple process, or the expression of a complex series of changes whose rate is at all times governed by that of the slowest of the series.

Journal of Nervous and Mental Disease, Lancaster, Pa.

September, 1918, 48, No. 3

- 90 *Relation of Tuberculosis to Dementia Praecox. E. E. Southard and M. M. Canavan, Boston.—p. 193.
91 Case of Spina Bifida Occulta in Third Cervical Vertebra. S. N. Clark, Chicago.—p. 201.
92 Pathology of Human and Experimental Poliomyelitis. H. S. Howe, New York.—p. 206.

90. Relation of Tuberculosis to Dementia Praecox.—On account of a recent revival of interest in the relation between tuberculosis and dementia praecox, a brief statistical inquiry was made by Southard and Canavan, using data of the Massachusetts necropsy series. It was shown that dementia praecox, found in 8 per cent. of 5,040 Massachusetts necropsies, was far more apt to be terminated by tuberculosis than manic depressive psychosis, occurring in 7 per cent. of the basic series. One hundred and twenty of 403 dementia praecox patients died of tuberculosis, and but forty-three of 339 manic depressive psychosis patients died of tuberculosis. Eighty-seven cases of dementia praecox showed neither death due to tuberculosis or any other anatomic feature whatever (even including adhesions in various parts of the body) which would conceivably be related with tuberculosis. Ninety-five cases of manic depressive psychosis were equally free from tuberculosis.

The question whether these nontuberculous cases of dementia praecox were actually victims of the disease and not subject to erroneous diagnosis was taken up in the statistical study from the Danvers symptom catalog from which thirty-six deaths from tubercle were taken to contrast with twenty-seven deaths without the slightest evidence of tuberculosis whatever. Some of the most characteristic symptoms of dementia praecox were found equally distributed in the two groups and strongly represented in both, so that no major doubt can be raised as to the accuracy of the diagnosis of dementia praecox in the nontuberculous group. For example, the fundamental symptoms of dementia and delusions of paranoid type are found equally represented in both. Nor was it found that the fundamental symptom dementia was more frequently shown in the fatally tuberculous cases than in the others.

Tuberculosis appears to dispose certain cases to catatonia and to hyperkinetic symptoms of a presumably psychogenic or cortical nature. Per contra, the nontuberculous cases showed more instances of the peripheral symptom, motor restlessness, than did the tuberculous cases. Another hypothesis raised by this statistical study is whether tuberculosis does not cause a trend of symptoms in dementia praecox over toward manic depressive psychosis. Does not the superposition of a somatic feature like tuberculosis on the encephalic or psychogenic picture of dementia praecox cause also a superposition of sundry features showing an alliance with those of manic depressive psychosis? Or, does not tuberculosis tend to make dementia praecox look more at times like manic depressive psychosis than dementia praecox is ordinarily likely to look?

Journal of Pharmacology and Experimental Therapeutics, Baltimore

August, 1918, 12, No. 1

- 93 *Noninfluence of Rise in Body Temperature Induced by Drugs on Protein Quotient and Leukocytes. F. McC. Hill, San Francisco.—p. 1.
94 Detoxifying Action of Sodium Salt on Potassium Salt in Guinea-Pig. S. Amberg and H. F. Helmholz.—p. 19.
95 Acridity of Some Plants Due to Mechanical Action. E. D. Brown and D. D. Anderson, Minneapolis.—p. 37.
96 *Tonus Waves from Sino-Auricular Muscle Preparation of Terrapin as Affected by Epinephrin. C. M. Gruber and C. Markel, Denver.—p. 43.

- 97 *Tonus Waves in Terrapin Auricles as Affected by Pilocarpin, Atropin and Epinephrin. C. M. Gruber and C. Markel, Denver.—p. 53.

93. Rise in Body Temperature Induced by Drugs.—The drugs used by Hill in these experiments were the fluidextract of ergot and a saturated solution of calcium lactate. Fluid-extract of ergot in doses of from 1 to 1.5 c.c. per kilogram body weight administered intravenously to rabbits induced a steady rise of body temperature from 1.5 to 2.2 C. Higher doses proved fatal. Calcium lactate in doses of from 5 to 8 c.c. of a 1:20 solution administered intravenously to rabbits caused an initial fall of from 0.4 to 0.6 C. in temperature accompanied in the higher doses by symptoms of calcium poisoning. This was succeeded by a strong rise of from 1.5 to 2.5 and disappearance of the symptoms of poisoning. Higher doses were fatal. In sublethal doses, neither fluid-extract of ergot or calcium lactate caused any decisive alteration in the protein quotient or the leukocyte count. These experiments show that the aseptic fever induced by these drugs causes no alteration in the globulin content of the blood nor does any alteration of note occur in the leukocyte count.

96. Auricular Tonus Waves as Affected by Epinephrin.—These experiments were performed on the hearts of twenty-seven terrapin immersed in Ringer's solution. Epinephrin caused a disappearance or a diminution in the tonus waves in all hearts. In those experiments in which the strength of the solution was strong the waves ceased almost at once. In those in which a more dilute solution was employed only a few tonus waves appeared after its addition to the Ringer's solution. No oxygen was used during the first mentioned observations, whereas continuous oxygen was employed throughout the second set of experiments.

97. Auricular Tonus Waves as Affected by Pilocarpin.—Pilocarpin hydrochlorid was found to have a marked effect on the contractions of the heart, almost completely stopping them, but has no effect on the tonus waves. Atropin sulphate increases the general tonus of the heart when injected into the solution in which the muscle is contracting, either in the normal solution or following the administration of pilocarpin. It has only a slight effect, if any, on the tonus waves increasing them along with the general tonus. Epinephrin chlorid or epinephrin (crystalline epinephrin) cause a disappearance of the tonus waves in the atropinized heart as it does in the normal heart.

Medical Record, New York

Oct. 5, 1918, 94, No. 14

- 98 Modern Treatment of Gallstone Disease as Affected and Controlled by Duodenal Intubation. J. C. Hemmeter, Baltimore.—p. 575.
99 Plea for More Systematized Study of Patient's Life Needs. J. S. Doubleday, New York.—p. 583.
100 Internal Use of Radium. D. C. Moriarta, Saratoga Springs.—p. 586.
101 Overflowing Tears (Epiphora) and Its Management. J. A. Kearney, New York.—p. 587.
102 Pyorrhea Alveolaris. M. B. Saunders, Waco, Texas.—p. 589.

New York Medical Journal

Oct. 5, 1918, 108, No. 14

- 103 General Diagnostic Study by Internist. L. F. Barker, Baltimore.—p. 577.
104 Recurrent Teratomatous Growth of Trachea. W. Freudenthal, New York.—p. 582.
105 Ten Thousand Wassermann Tests. During 1916 and 1917 in Philadelphia General Hospital. R. C. Rosenberger, Philadelphia.—p. 584.
106 Acidosis. C. D. Waltz, Cleveland.—p. 585.
107 Sarcoma of Brain. H. M. Fisher and A. G. Ellis, Philadelphia.—p. 590.
108 Pilocarpin in Chronic Deafness. C. M. Sautter, New York.—p. 592.
109 Asphyxiation—Respiration—Circulation. P. A. Kane, Chicago.—p. 592.

Surgery, Gynecology and Obstetrics, Chicago

October, 1918, 27, No. 4

- 110 *Repair of Large Gaps in Peripheral Nerves by Neuroplasty: Cases. K. A. J. Mackenzie, Portland, Ore.—p. 353.
111 Surgical Considerations of Peripheral Nerve Injuries. B. Stookey, Ann Arbor, Mich.—p. 362.
112 Improvements in Reconstructive Surgery of Head. J. B. Roberts, Philadelphia.—p. 369.

- 113 Application of Teachings of War Surgery to Civil Hospital Conditions. J. A. Hartwell and E. F. Butler, New York.—Jp. 377.
- 114 Preparation of Neutral Solution of Chlorinated Soda from Liquid Chlorin by Gravimetric Method. S. R. Benedict, New York.—p. 386.
- 115 Reconstruction and Repair of Hepatic and Common Bile Ducts; Implantation of Hepatic Duct into Duodenum. W. F. Fowler, Rochester, N. Y.—p. 387.
- 116 Congenital Hernia of Diaphragm; Two Cases. W. A. Downes, New York.—p. 393.
- 117 Intrathoracic Goiter. O. F. Lamson, Seattle.—p. 397.
- 118 *Fibroid Tumors of Uterus Treated by Radium. H. A. Kelly, Baltimore.—p. 402.
- 119 Cancer of Rectum. J. M. Lynch, New York.—p. 410.
- 120 *Practical Method of Foreign Body Localization. A. H. Busby, New York.—p. 413.
- 121 Inflammatory Neoplasms of Intestine Simulating Malignancy; Cases. N. M. Jones and A. A. Eisenberg, Cleveland.—p. 429.
- 122 Congenital Polycystic Kidney; Four Cases Occurring in Children of Same Mother. R. E. Wobus, St. Louis.—p. 423.
- 123 Roentgenologic Aspects of Hour-Glass Stomach. R. D. Carman, Rochester, Minn.—p. 426.
- 124 *Pulmonary Edema During Pregnancy; Two Cases. K. C. McIlwraith and W. A. Scott, Toronto, Ont.—p. 438.
- 125 *Temporary Internal Fixation of Compound Fractures. W. L. and C. P. Brown, El Paso, Texas.—p. 440.
- 126 Method of External Fixation for Fractured Femur. E. L. Eliason, Philadelphia.—p. 443.
- 127 Late Perforation of Typhoid Ulcer; Laparotomy Under Novocain Anesthesia; Recovery. H. C. Cooney, Princeton, Minn.—p. 447.
- 128 Army Cystoscopic Table. A. H. Peacock, Camp Lewis, Wash.—p. 447.

110. **Repair of Large Peripheral Nerve Gaps by Neuroplasty.**—The conclusions reached by Mackenzie from the study of three cases are: Regeneration and recovery of function is promoted by the use of nerve flaps. Both central and peripheral flaps can be used for such purposes. A peripheral flap, by laying down a nerve path, may promote regeneration over a great gap; in one case quoted regeneration occurred over a gap $10\frac{3}{4}$ inches in length. The approximation of nerves and their repair should be done in all cases with the least possible delay. (This would apply as well to cases which are infected as to clean cases.) The arrest of trophic shock can be promoted by early closure of large gaps by flaps. Unimpaired nerve tissue should always be utilized for the effective repair of damaged nerves. In their repair, nerves can be successfully sequestered in muscular tissue so as to promote their own regeneration and that of the muscles in which they are embedded. The principle of sequestration can be utilized in proper cases so as to avoid infected zones in wounds and also scars and other obstacles to nerve repair.

118. Abstracted in *THE JOURNAL*, June 22, 1918, p. 1976.

120. **Foreign Body Localization.**—The method described by Busby is said to enable the operator to ascertain the depth of foreign bodies in a simple, practical manner, eliminating all mathematical problems, the reading or compilation of charts, at the same time minimizing the technic and thereby removing many possibilities of error. It is not necessary to know the distance of the tube from the patient, nor the distance from the screen to the skin, nor the distance the tube moves on a horizontal plane. Any actual measurement of these factors may be disregarded, yet the correct depth of the foreign body may be read on a scale of millimeters immediately after the operation is completed. This method is based on the fact that the two opposite sides of the parallelogram are equal in distance, one from the other, as described by Barret and Andrault.

124. **Pulmonary Edema During Pregnancy.**—The authors cite two cases of acute pulmonary edema occurring during pregnancy, one at six months and the other at eight months. In both cases the outstanding feature was a tremendously high blood pressure. In the first case, apart from the urinary findings, there was very little else to be discovered before the onset of the acute symptoms. The second case, had a considerable amount of edema elsewhere in the body, but in the first case this edema was confined to the lungs. In neither case, so far as could be discovered, was there any preexisting cardiac lesion. These patients can hardly be said to be eclamptic because they had no convulsions, nor did they die in coma without convulsions. The condition is interpreted as being due to a profound toxemia giving rise to a high

blood pressure which finds its outlet in a spot of weakened resistance in the lung. These cases show that blood pressure findings are the best indications regarding the severity of a given case of preeclamptic toxemia. Moreover, in dealing with albuminuria and high blood pressure during pregnancy one should have in mind not only the possibility of a development of convulsions but also that at any time a complication far more tragic than the ordinary eclampsia may arise.

125. **Temporary Internal Fixation of Fractures.**—The Browns endorse temporary fixation of a fracture, preferably with the Parham-Martin band, or, if not feasible, with a Lane's plate; this fixation to be removed under local anesthesia as a rule at the end of five or six weeks. In cases of compound fractures where interference is otherwise indicated for the control of hemorrhage, removal of foreign bodies, disinfection or coaptation of fragments, they have found nothing to contraindicate the use of internal fixation with the express idea of removing it as soon as there has been sufficient callus and fibrous tissue formed to hold the fragments in apposition. They are unable to see any comparison between this method, where the above procedures are otherwise found necessary, and that of transfixation by means of screws or pegs driven into bones for the purpose of making extension. The internal fixation frequently reduces or solves the problem of extension.

Survey of Head Surgery, Washington, D. C.

October, 1918, 1, No. 3

- 129 New Camp Disease of Larynx: Pneumococcus Ulcerative Laryngitis. F. D. Owsley, San Antonio, Texas.—p. 94.

Texas State Journal of Medicine, Fort Worth

September, 1918, 14, No. 5

- 130 Anatomic Methods of Approach in Operations on Long Bones of Lower Extremity. J. E. Thompson, Galveston.—p. 188.
- 131 Reaction Following Blood Transfusion by Sodium Citrate Method. V. C. Hunt, Rochester, Minn.—p. 192.
- 132 Technic of Supravaginal Hysterectomy. G. V. Brindley, Temple.—p. 195.
- 133 Study of Pathologic Conditions which Impair Quality, Pitch and Tone in Voice Production. L. H. Lanier, Texarkana.—p. 197.
- 134 Treatment of Intestinal Amebiasis. H. G. Walcott, Dallas.—p. 199.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Sept. 14, 1918, 2, No. 3011

- 1 *Differential Diagnosis between Functional and Organic Paraplegia. R. T. Williamson.—p. 275.
- 2 An In Vitro Method of Demonstrating Return Immigration of Leukocytes in Blood Clots and in Wound Tissues. C. J. Bond.—p. 277.
- 3 Musculospiral Nerve Disabilities. A. V. Clarke and N. I. Spriggs.—p. 280.
- 4 Epidemic of Fifty Cases of Influenza Among Personnel of Base Hospital, B. E. F., France. C. J. Martin.—p. 281.
- 5 Three Cases in Which Laminectomy for Removal of Shell Fragments from Spinal Canal was Performed. C. F. M. Saint.—p. 282.
- 6 *Value of Flavine. H. M. Savery.—p. 283.
- 7 Extension Apparatus for Fracture of Femur. D. W. Crile.—p. 284.
- 8 Six Cases of Ruptured Spleen (All Recovered). R. Jamison.—p. 285.
- 9 *Operation for Varicose Veins. F. J. Steward.—p. 286.

1. **Diagnosis of Functional and Organic Paraplegia.**—When the diagnosis has been especially difficult, or the symptoms slight and indefinite, the three indications of organic disease which Williamson has found of the greatest service have been the Babinski or Oppenheim reflex, the loss of the Achilles tendon reflex, and the loss of the vibrating sensation, while other forms of sensation are unaffected. The onset of a number of organic affections are: paresis with loss of the Achilles tendon reflex, as in early anterior poliomyelitis—chronic, subacute or acute; paresis with loss of the plantar reflex and loss of the Achilles tendon reflex (in many organic diseases); paresis with double sciatica and loss of the Achilles tendon reflexes, as in early cauda equina lesions;

paresis with loss of the Achilles tendon reflex, loss of the vibrating sensation, and pains in the legs, as in early peripheral neuritis; loss of the vibrating sensation with very slight incoordination and very slight paresis, with or without a Babinski reflex, as in early combined posterolateral degeneration of the cord; paresis, with Babinski reflex (in many organic affections); paresis with loss of the vibrating sensation and Babinski reflex (in the early stages of several organic diseases of the cord); root pains, or root symptoms, followed after a period of weeks or months by paresis, as in meningeal spinal tumor.

6. **Value of Flavine.**—Savery endorses the use of flavine in septic injuries. He points out that a few essential facts must be borne in mind for the use of flavine: 1. In the first place it is imperative that all affected parts should be reached so far as possible, and in order to carry this out thoroughly he always endeavors to introduce flavine solution by means of a hypodermic or dental syringe. 2. The flavine soaked gauze should always be applied as wet as possible and any cavities filled up with the solution immediately before, and the part covered with a piece of mackintosh and wool. 3. A third important feature is the duration of the use of flavine; if applied continuously, a yellowish pellicle will appear on the surface of the wound in the course of a few days. This pellicle appears to be composed of leukocytes and fibrin. The best results from flavine have been obtained from its early application and the appearance of the pellicle is an indication that a change should be made, for example, to eusol, brilliant green, or magnesium sulphate, on the fourth day or thereabouts, and then to revert to flavine once in every three days. This method has given great satisfaction. An enormous amount of sepsis would be prevented by the primary use of flavine, and therefore its use is advocated by Savery in every case septic or likely to become septic.

9. **Operation for Varicose Veins.**—The simpler method of excision is endorsed by Steward as being the most useful operation in these cases. Suitable incisions are made and the veins removed, the cut ends of the main veins and the larger tributaries being ligatured with fine catgut. The incisions are then closed by means of Michel's clips, the limb wrapped in large sterile pads, and a bandage applied evenly and firmly, but not too tightly, from the foot upward.

Edinburgh Medical Journal

September, 1918, 21, No. 3

- 10 Acute Intussusception of Colon in Adult. J. M. Graham.—p. 128.
- 11 Unusual Case of Suicidal Gunshot Wound. B. J. Ryrie.—p. 135.
- 12 Training of Student of Medicine: Education of Students in Venereal Diseases. L. W. Harrison.—p. 138.
- 13 Id.: Teaching of Tuberculosis for Undergraduates. R. Philip.—p. 145.
- 14 Id.: Teaching of Infectious Diseases. C. B. Ker.—p. 151.
- 15 Id.: Teaching of Surgical Tuberculosis. J. Fraser.—p. 154.
- 16 Id.: School Education of Girl Candidates for Profession of Medicine. B. Smith.—p. 160.
- 17 Id.: Relation of School Education to Study of Medicine. J. Alison.—p. 165.
- 18 Id.: School Curriculum of Boys who Intend to Become Medical Students. C. Stagg.—p. 169.
- 19 Id.: Science Teaching in Secondary Schools, Especially in Relation to Preliminary Scientific Subjects of Medical Curriculum. M. McC. Fairgrieve.—p. 173.

Journal of Laryngology, Rhinology and Otology, London

September, 1918, 33, No. 9

- 20 Pulmonary Collapse, Consequent on Papillomata of Larynx; Unrelieved by Tracheotomy; Death. C. H. McIlraith.—p. 257.
- 21 Intrinsic Cancer of Larynx and Operation of Laryngofissure. I. Moore.—p. 260. To be continued.

Journal of Tropical Medicine and Hygiene, London

Sept. 2, 1918, 21, No. 17

- 22 Paramycetoma. A. J. Chalmers and R. G. Archibald.—p. 177.
- 23 Obscure Case of Malaria. C. S. Crispin.—p. 179.
- 24 Passing of Bilharzia Worms in Urine. J. B. Christopherson and J. R. Newlove.—p. 180.

Lancet, London

Sept. 14, 1918, 2, No. 4959

- 25 *Prevention and Arrest of Lice-Borne Diseases by New Methods of Disinfection. W. Hunter.—p. 347. To be continued.

- 26 *Rôle of Scapula in Thoracoplasty. J. E. Adams.—p. 351.
- 27 *Gunshot Wounds of Knee Joint with Septic Arthritis. A. Neve.—p. 353.
- 28 Three Plastic Facial Operations. R. Lake.—p. 354.
- 29 Failure of Treatment of Malaria by Disodoluargol. W. A. Murray and R. W. H. Row.—p. 355.
- 30 Breast Feeding: Faradisation of Mammary Glands. E. S. Chesser.—p. 356.
- 31 Natural Science in Education. E. H. Starling.—p. 365.

25. **Disinfection in Lice-Borne Diseases.**—Hunter describes the railway van disinfector devised by Lieut.-Col. G. F. Stammers, R. A. M. C., to meet the needs of disinfection of troops on a larger scale, and to form a part of the British Sanitary Train for Inoculation and Disinfection. The principle of action of the van disinfector is disinfection by current steam, supplied by and directly discharged in greatest volume and force into one or two ordinary railway vans (suitably adapted) by the railway engine, which conveys them along the line to the place most conveniently adjacent to the troops. The cost of adaptation is only \$150 to \$200, the working of it simple and easy. Each double van is capable, if fully employed, of carrying out disinfections at the rate of 500 kits with 1,000 blankets and 500 overcoats every two hours; of 2,000 kits with 4,000 blankets and 2,000 overcoats in a day of eight hours; of disinfecting over 10,000 kits with 20,000 blankets and 10,000 overcoats in four days; and 18,000 kits with 36,000 blankets and 18,000 overcoats in nine days.

With one disinfector alone Hunter has disinfected the kits and blankets of a hospital with 1,000 beds in four hours; the kits, blankets, and camp bedding of 4,000 prisoners of war in sixteen hours; of 1,500 camel corps men in about twelve hours. Divisions of troops can be dealt with at the following rate: 8,000 men in four days, 15,000 in twelve days (3,800 of these being done in one day); of 16,000 in twelve days; 10,000 in four days, and 18,000 in ten days. As regards ordnance clothing, this can be disinfected, in sackfuls at a time, at the rate of many thousands of articles every two hours, tens of thousands daily, and hundreds of thousands weekly.

A most striking illustration of the advantages of this rapidity was afforded in one instance, where a van disinfector which had just disinfected a division of 18,000 troops in twelve days in one area went off about 500 miles to a center in southern Europe, where some cases of typhus had occurred among the native laborers. It disinfected the whole of the troops and laborers (1,500 in number) in three days, and was back at work again in its former area disinfecting another division on the fourth day.

In the first three months of their work two van disinfectors carried out the disinfection of 170,000 kits, 170,000 overcoats, 340,000 blankets and great masses of ordnance clothing. Since that time the disinfectors in use have been the most prominent and effective measure of preventive work in Egypt, each double van disinfector being capable of carrying out in the simplest and most efficient way in all parts of the war area—up to railhead—disinfection of troops and native laborers to the number of 60,000 men monthly. The total number of disinfections carried out in twelve months (May, 1916, to April, 1917) among a monthly average of 40,000 laborers was 495,000—an average of over 40,000 a month.

26. **Use of Scapula in Thoracoplasty.**—The bone of the scapular body is utilized by Adams to take the place of resected ribs, and its muscles to secure mobilization of the lung and raising of the diaphragm, both essential factors in the healing of these cases.

27. **Treatment of Septic Gunshot Wounds of Knee Joint.**—In the earliest stage of infective traumatic arthritis, Neve says, an attempt should be made by tapping and distending the joint with some antiseptic, such as flavine or iodoform emulsion, to abort the sepsis. This is being successfully done in France. Good fixation of the limb is essential. When sepsis is established thorough drainage is essential; anterior lateral incisions do not suffice; the Peck method is not successful. Suprapatellar, anterolateral, and posterolateral incisions should be used in combination. If there is bone damage excision is desirable in most cases, and the bone surfaces may be kept apart.

Carrel's method offers the only effective way of introducing an antiseptic fluid into the recesses of the injured joint.

With other methods burrowing pus very frequently occurs, with abscesses tracking up and down the limb and septic absorption; and amputation is apt to be performed too late, when the vital powers have succumbed to the prolonged strain and sepsis has become generalized with a perhaps fatal result.

Medical Journal of Australia, Sydney

Aug. 24, 1918, 2, No. 8

- 32 Prevention of Disease. F. S. Hone.—p. 153.
- 33 City Milk Supply: Plea for Pasteurization. E. B. Heffernan.—p. 157.

Medical Journal of Siamese Red Cross, Bangkok, Siam

April, 1918, 1, No. 1

- 34 Treatment of Trachoma by Carbonic Snow. H. C. Highet.—p. 16.
- 35 Treatment of Eight Cases of Concussion Aphasia by General Anesthesia. H. S. Bholaraksha.—p. 29.
- 36 Severe General Pruritus as a Prodromal Symptom of Human Rabies. L. Robert.—p. 34.
- 37 Spirochetal Infection of Ulcers. R. W. Mendelson.—p. 43.

Practitioner, London

September, 1918, 101, No. 3

- 38 Headaches of Sinus Origin. W. Ibbotson.—p. 121.
- 39 Recent Public Health Work. J. Priestley.—p. 128.
- 40 Recent Work on Diseases of Lungs. A. J. Jex-Blake.—p. 135.
- 41 Tuberculosis Problem. E. Ward.—p. 141.
- 42 Exercise, Work, Rest and Sleep; Comparison of Sayings in Regard to Their Hygienic and Physical Value, etc. F. P. Weber.—p. 146.
- 43 *Surgical Treatment of Intussusception. W. H. C. Romanis.—p. 152.
- 44 Series of Severe Cases of Osteomyelitis. R. A. Walker.—p. 163.
- 45 *Treatment of Hemophilia. J. D. R. Monro.—p. 167.
- 46 Large Retropharyngeal Swelling Due to Aneurysm of the External Carotid Artery. G. W. Thomas.—p. 169.
- 47 Allen Treatment of Diabetes Modified by Administration of Alkalies in Full Doses. T. E. Mulvany.—p. 171.

43. **Surgical Treatment of Intussusception.**—Three hundred and seventy-four cases of intussusception treated by laparotomy at St. Thomas' Hospital during the twenty years from 1898 to 1917, inclusive, are analyzed by Romanis. The total mortality was 121, or 32.3 per cent.; but since 1898 the mortality percentage has been lowered from 48.1 per cent. for the four year period, 1898 to 1902, to 19.2 per cent. for the period 1913 to 1917. There has been a more or less continuous increase in the number of patients operated on, but a steady drop in the mortality; the lowest annual mortality of the series recorded in any year being in 1915, when twenty patients were operated on, with a mortality of 10 per cent. This lowering of the death rate is due to the fact that patients have on the average come to operation earlier; many minor alterations in the technic of abdominal surgery have been, and are still being introduced from time to time.

With regard to intussusception operations in particular, it is only during the last ten years or so that surgeons have come fully to recognize the importance of the time-factor in the case of abdominal sections performed on infants and tiny children, and to realize that every minute saved during the operation of opening the abdomen of a small child increases the chances of its recovery. The harmful effects of general anesthesia in infants has been taken into account, and every effort made either to reduce its duration to a minimum in various ways or better, to substitute spinal anesthesia in its place. It is, therefore, to these three factors, Romanis says, that we must look as offering the most probable explanation of the decided improvement in the results of surgical treatment in these cases, rather than to any supposed diminution in the time that elapses before operation is undertaken.

The different operations performed in this series were as follows: (1) laparotomy and reduction in 301 cases with mortality 26 per cent.; (2) laparotomy, reduction and appendectomy in thirty cases with mortality 40 per cent.; (3) laparotomy, resection and union in thirty cases with mortality 63.3 per cent.; (4) laparotomy, resection and artificial anus in ten cases with mortality 100 per cent.; (5) laparotomy and lateral anastomosis above and below the tumor in three cases with mortality 33.3 per cent. This bears out the well known fact that if anything more than the simple procedure of opening the abdomen and reducing the invagination is

required, the mortality rises by leaps and bounds; but it also shows that irreducible or gangrenous intussusceptions that require anything more severe than simple reduction are, fortunately, comparatively rare, only forty cases of the above series failing to be reduced. In other words, 89.2 per cent. of all cases can be reduced on opening the abdomen.

The important question whether an intussusception will be reducible or not depends almost entirely on the interval that has elapsed between the onset of symptoms and the performance of laparotomy. Of the above cases, in only one case in which operation was performed within twenty-four hours of the onset of symptoms was a resection necessary; of the cases dealt with between twenty-four and twenty-six hours after onset, only two required resection, and of those in which the interval was between thirty-six and forty-eight hours four were irreducible. All the other patients in whom an enterectomy was found necessary had been ill for over forty-eight hours before operation was performed. In dealing, therefore, with an intussusception in which symptoms have been present for less than thirty-six hours, one can feel fairly confident that reduction will be possible.

45. **Treatment of Hemophilia with Emetin.**—Monro records the remarkable result of using emetin in checking the bleeding on one occasion in a case cited. Monro gave one-half grain of emetin hydrochlorid by hypodermic injection in the forearm. The next morning the patient was in a profuse perspiration; he complained of pains in his joints, and his arm was swollen. The urine was scanty and still bloody; the temperature had fallen to 100. The day following his temperature was normal, the joints were better, and he passed normally colored urine—the first for exactly ten weeks. From that time on the patient made a steady recovery.

Bulletin de l'Académie de Médecine, Paris

August 6, 1918, 80, No. 31

- 48 *Projectiles in Heart Cavities. R. Le Fort.—p. 147.
- 49 Lead Poisoning from Crystal Nursing Bottle. Guerbet.—p. 149.
- 50 *Aviator's Heart. G. Etienne and Lamy.—p. 151.
- 51 Influenza in Switzerland. J. Renault.—p. 153.

48. **Projectile in Left Ventricle.**—Le Fort demonstrated before the Académie the first case in France in which a scrap of shell (8 by 4 by 4 mm.) was successfully removed from the cavity of the left ventricle. He has previously reported the successful extraction of a projectile from the cavity of the left auricle. This makes the eleventh projectile he has extracted from the heart in a total of nine cases. One of the men succumbed the fourth day thereafter but all the others recovered.

50. **Aviator's Heart.**—Etienne and Lamy report that in the large numbers of aviators they have examined, the left ventricle was found constantly hypertrophied. This hypertrophy was more marked among the aviators doing bombing, etc., that require high flights. It was always moderate and well tolerated, and occurred indiscriminately in those who had or had not been trained in athletics before.

Bulletins de la Société Méd. des Hôpitaux, Paris

June 7, 1918, 42, No. 20

- 52 Case of Lethargic Encephalitis at Alger. Ardin-Delteil.—p. 577.
- 53 Hemorrhagic Spirillosis. Beau, Dide and Ribereau.—p. 582.
- 54 *Intravenous Arsenic Medication. Sicard and H. Roger.—p. 585.
- 55 *Walled-Off Meningitis. A. de Verbizier.—p. 586.
- 56 Meningitis in an Epileptic. A. de Verbizier.—p. 589.
- 57 Simulation of Mumps. F. Trémolières and L. Caussade.—p. 591.
- 58 Local Eosinophilia in Dermatitis. Maccia and Petzetakis.—p. 594.

54. **Intensive Treatment of General Paresis.**—Sicard and Roger have been treating general paresis with intravenous injections of an arsphenamin preparation in large doses. In their twelve cases there never was any aggravation of the physical or mental condition. When intoxication from the medication was impending, this was revealed by blistering when the skin was painted with tincture of iodine. Another sign revealing intoxication before it became otherwise apparent was the abolition of the Achilles tendon reflex. This occurred in five of the cases during the second or third month of the intravenous treatment, to a total of 12 or 16 gm. of the drug. There was evidently incipient arsenic neuritis.

55. Walled-Off Meningitis.—In the three cases reported, the meningococci disappeared from the spinal fluid although the meningitic symptoms persisted. Then suddenly, after an interval of three or six days, they appeared anew in the lumbar puncture fluid. They did not disappear definitely until after fourteen intraspinal and one intraventricular injection of the serum.

Nourrisson, Paris

September, 1918, 6, No. 5

- 59 *Protection of Young Infants. A. B. Marfan.—p. 257.
60 History of Care of Foundlings. R. Flament.—p. 285.
61 Early Vaccination of Infants. R. Wurtz.—p. 294.
62 Extraventricular Hydrocephalus. A. B. Marfan.—p. 297.

59. Protection of Young Infants.—Marfan reviews the history of the movements for protection of young infants from ancient Rome to modern times. In conclusion he urges the establishment in crowded parts of the city of an institution where mothers can leave their children during the day in competent hands, with a free restaurant for nursing mothers, a working home for nursing mothers who have no one to support them, a hospital for infants requiring institutional care, and a kitchen for providing food for infants and children, sick or well, and an affiliated dairy and a convalescent home for infants in the country. An institution of this kind would render priceless services to the mothers and medical students as well as to the infants, and through them later to the state. Marfan emphasizes the necessity for all this social service being on the highest plane of efficiency, with a numerous personnel.

Paris Médical

Aug. 10, 1918, 8, No. 32

- 63 *Tuberculous Pelvic Peritonitis in Men. J. Duvergey.—p. 117.
64 Passive Mechanotherapy for Sequels of War Wounds. Guilleminot, Cistrier and Baudouin.—p. 120.
65 *Persisting Bone Fistulas. R. Bonneau.—p. 124.
66 *Albumin in Hemorrhagic Cerebrospinal Fluid. L. Boyer.—p. 129.

63. Tuberculous Pelvic Peritonitis in Young Men.—Duvergey has encountered several cases of chronic partial occlusion of the bowel in soldiers, with enlargement of the abdomen, febrile periods and loss of flesh. Ordinary palpation of the abdomen gives negative findings. Palpation through the rectum reveals an encysted accumulation of fluid and false membranes filling the small pelvis more or less completely. The compression from the ascitic fluid interferes with bowel and bladder functioning. He cleared out the pelvis through a subumbilical laparotomy, leaving a drain for five or six days. The seven men thus treated seem to be cured completely; the interval since has been two years in some. He warns not to attempt to operate through the rectum on the tumefaction palpated there—the peritonitis should be given the benefit of the laparotomy. This pelvi-peritonitis is an essentially local and surgical form of tuberculosis.

65. Treatment of Fistulas.—Bonneau has charge of a hospital that specializes in treatment of fistulas, and he declares that thorough surgical clearing out of the fistula may be counted on for a cure. In the type of persisting bone fistula leading into a central cavity, with rigid walls, the surgical treatment has always hitherto been inadequate. It is not realized that this central cavity may be irregular in shape, with diverticula or passages reaching for 6, 8 or even 10 cm. The whole cavity, the fistula, itself, and the soft parts around, he says, "are drowned in sclerosis," and the anatomic conditions offer no opportunity for healing and repair even if the cavity is sterilized. The central cavity must be opened up to transform it more into a flat surface; after resection of the rigid tissues, mobilize the normal tissues, muscles, cellular tissue and fat, bringing them as much as possible over the plane surface provided by cutting away a long oval of bone and tissue to expose the central cavity. A head mirror is indispensable, and a strong jet of hot water is useful for washing the cavity clean. There is liable to be considerable hemorrhage unless ample precautions are taken. It may be necessary to sacrifice formidable amounts of sound bone, but this is the price of success. In some cases he had to slice

the bone like a sausage over a long segment before sound tissue was reached. The greater the experience, the more generous in sacrificing the bone. The clearing out must be as scrupulously careful as at a mastoid operation. It is sometimes necessary to open up the cavity from the side opposite the fistula, to avoid injuring nerves or vessels, or when the cavity is closer to the surface on that side. It is around this type of fistula, he remarks, that all fistula surgery gravitates. Anything short of absolute thoroughness is bound to fail. He has thus cured men whose fistula had been curetted fourteen times, without curing the lesion, and finally some constitutional disease had been incriminated. Surgeons who practice this thorough *évidement* are unanimous in the optimism of their prognosis, even for fistulas that have been suppurating for two or three years.

66. Albumin in Cerebrospinal Fluid.—Boyer refers to hemorrhagic fluid, and says that the proportion of albumin can be estimated by centrifuging and determining the albumin content in the decanted fluid. This removes the red corpuscles. Normal blood averages 5,000,000 or 5,500,000 reds, with about 80 per cent. albumins. The average albumin content of a liter of normal blood, multiplied by the amount of plasma in the specimen of spinal fluid being examined, gives approximately the quantity of soluble proteins from the blood. If 50,000 reds are found in the specimen, then the fraction $\frac{5,000,000}{50,000} = 0.01$ represents the amount of blood in the specimen, and half this, the amount of the plasma present. The albumin in the spinal fluid is thus what is left after subtracting the figure resulting from multiplying 75 or 80 by $\frac{\text{Number of reds}}{5,000,000 \times 2}$. Of course this method can be applied only with sound reds.

Presse Médicale, Paris

Aug. 15, 1918, 26, No. 46

- 67 *Oliguria of Cardiac Origin. O. Josué and M. Parturier.—p. 421.
68 Identification of Meningococcus in Carriers. P. Papin and H. Stévenin.—p. 423.
69 *Test for Blood. Thévenon and Rolland.—p. 425.

67. Oliguria of Cardiac Origin.—Josué and Parturier discuss the clinical consequences of oliguria of cardiac origin, especially the retention of nitrogenous waste and retention of water, the latter entailing hydremia and visceral and interstitial edema. The urine with asystole is scanty, rich in urea, but with little chlorids as the latter are retained to make the retained water isotonic. The urea content of the blood is so high from the oliguria alone that it may suggest pathologic conditions in the kidneys when in fact they are still sound. If the heart recuperates and regains its force, the diuresis returns to normal, and the urea content of the blood drops to normal. Treatment should be addressed to the heart. On account of the oliguria, all the symptoms are deceptive, all the laboratory findings misleading. The first task is to get the heart to pumping normally and induce the liberating diuresis. Digitalis and theobromin are useful whether or not the kidneys are pathologic, supplemented possibly by restricting the intake of salt. When the blood is pumped through the vessels with the normal force, there need be no restrictions as to intake of salt in these cases.

69. Test for Blood in Excreta and Effusions.—The test described is based on the color reaction given by pyramidon in the presence of an oxidizer. The reagents are (1) a solution of 2.5 gm. pyramidon in 50 c.c. of alcohol (90 degrees), and (2) a solution of 1 c.c. of crystallizable acetic acid in 2 c.c. of distilled water. To 3 or 4 c.c. of unfiltered urine, for example, is added the same volume of the pyramidon solution, and 6 or 8 drops of the acetic acid solution. After agitation, 5 or 6 drops of hydrogen peroxid solution (12 volumes) are added, and the fluid turns at once an intense violet if there is much blood present. The reaction is slower in developing if there is not much blood, reaching its height in fifteen minutes and then retrogressing. The same technic can be applied to fecal matter; a small amount is triturated with 3 or 4 c.c. of distilled water; after decanting, the reagents are applied as above, as also in examination of gastric juice, spinal fluid, pleural effusion, etc. All the tests

made with this technic were controlled with the Meyer phenolphthalein test, and the findings were constantly parallel. The test is therefore as sensitive as the latter, while the technic is simpler and the reagents more durable.

Progrès Médical, Paris

July 13, 1918, **33**, No. 28

70 *General Paresis. H. Damaye.—p. 237.

71 Primary Suture and Early Evacuation. Aimes and Sari.—p. 240.
July 20, 1918, **33**, No. 29

72 *Complications of Vincent's Angina. L. Tixier and Tobé.—p. 245.

73 Cyclic Albuminuria of Malarial Origin. C. Garin.—p. 249.

July 27, 1918, **33**, No. 30

74 *Extraction of Projectiles under Screen Control. Civel.—p. 255.

70. General Paresis in an Army Psychiatric Center.—Damaye has encountered in two years 32 cases of general paresis at the center in his charge. There was albuminuria in 11, plus heart disease in 8. In 4 cases shell concussion had brought it on; in 2 other cases a fall or kick by a horse. A number of cases are described in detail; all show the marked improvement that may be realized in the early stages by repose of mind and body, with tonics and mercury later, when the tonics have increased the resisting powers. He insists that dismissal from the military service is imperative, but that the man should be kept for thorough treatment and the family instructed how to continue it at need.

72. Complications of Vincent's Angina.—The fusiform bacillus-spirochete infection of mouth and throat may induce eruptions of various kinds, swelling and ulceration in glands in the neck and elsewhere, and all kinds of other septicemic complications, from bronchitis, albuminuria, pericarditis and iritis to congestions in various serous membranes and even pneumonia. Examples of these different types of septicemic complications of Vincent's angina have passed through the hands of Tixier and Tobé. In many instances the complications so outshadowed the "trench mouth" that the connection with the latter had not been suspected. In some cases the ulcerating fusiform-spirochete infection had been overlooked. Treatment has to be local and vigorous, clearing out the ulcerating gums and throat with a 1 per cent. solution of methylene blue or silver nitrate or a weak solution of some arsphenamin preparation. (For treatment see further Campbell and Dyas, *THE JOURNAL*, June 2, 1917, p. 1596.)

74. Extraction of Projectiles Under Screen Control.—Civel tells about his work in this line since his first publications on the subject in 1904. By 1916 he had a record of 132 cases in which needles or pins had been extracted by this method and twenty-four foreign bodies in the esophagus, besides many cases of war projectiles. With the screen control it is not necessary to make an incision any larger than is required to admit the instrument for extraction of the foreign body, so that the buttonhole incision under screen control is the main feature of his technic. He claims priority not only for the method but for its application to war projectiles.

Revue Médicale de la Suisse Romande, Geneva

August, 1918, **38**, No. 8

75 *Pernicious Anemia in Young Infants. A. D'Espine.—p. 461.

76 Chronic Amebic Dysentery. F. Wanner.—p. 471.

77 *The Cerebrospinal Fluid with General Paresis. I. Osman.—p. 477.

78 Cure of Gonococcus Hydrarthrosis of Knee under Intravenous Injection of Colloidal Sulphur. C. G. Cumston.—p. 483.

79 *Fat Embolism. T. Nakata.—p. 486.

80 Psychosis in Scarlet Fever in Adult. A. Schlesinger.—p. 489.

75. Pernicious Anemia in Young Infants.—D'Espine discusses 2 cases of pernicious anemia in infants of 11 and 5 months from private practice. He has previously published 2 personal cases, and a recent compilation lists 56 cases from the literature. This latter group includes 32 cases in which the anemia was traceable to the bothriocephalus or a tenia. Only 2 cases are known of essential progressive pernicious anemia in older children: A girl of 6 died in six weeks after the first symptoms of the hemorrhagic pernicious anemia, and a boy presented simple anemia for several years. It assumed the pernicious type at the age of 13, and he died two years later. There is no verified case on record of pernicious anemia in young infants, and in the 2 cases reported the infants recovered. In the first case a one-sided

diet was incriminated, the pernicious anemia being regarded as, to some extent, an equivalent for scurvy. The other child was breast fed. The clinical picture was that of true pernicious anemia in each case except that there was no leukopenia. The recoveries are ascribed to the special serotherapy used. The serum was obtained by venesection of animals at the height of the regeneration of blood following a previous extensive withdrawal of blood. This "hematopoietic serum" seems to have a decidedly favorable action on the composition of the blood, when injected in cases of pernicious anemia. These infants were given daily subcutaneous injections of 5 or 10 c.c. of the serum. It is the result of the researches of Prof. P. Carnot, mentioned in *THE JOURNAL*, at different times. The changes in the blood count, from hemoglobin 20 per cent. and reds 658,875, to 53 per cent. and 2,102,125 reds in nine months, testify to the efficacy of this form of serotherapy. In the first case the hemoglobin rose from 25 to 75 per cent. in a month.

77. The Spinal Fluid in General Paresis.—Osman states that in forty cases of general paresis he found large numbers of cells and usually a high albumin content in the cerebrospinal fluid early in the disease. As the disease progresses, the number of cells grows less.

79. Fat Embolism.—Nakata injected olive oil or emulsions of human fat into an artery or vein of rabbits, guinea-pigs and frogs. Comparing the resulting phenomena with his clinical experiences in seven cases of fat embolism, shows that fat embolism does not occur in the general circulation in man, or only to a minimal extent. The fat never accumulates in the greater circulation and it rapidly disappears from the blood. In the pulmonary circulation, on the other hand, the presence of fat in the lung vessels was manifest up to eighteen days. Part of the fat injected into an artery or vein accumulated in the pulmonary vessels and lingered there, but the largest proportion of the fat piled up in the liver. The local force of the general blood stream aids in sweeping the fat along.

Correspondenz-Blatt für Schweizer Aerzte, Basel

Sept. 7, 1918, **48**, No. 36

81 *Rupture of Aorta with Chronic Nephritis. W. Löffler.—p. 1185.

82 *Tardy Intracranial Hemorrhage. V. Demole.—p. 1191.

83 Alveolar Pyorrhea. M. Hausmann.—p. 1197.

84 *Dermographism of the Thorax with Tuberculosis. G. Ichok.—p. 1201.

85 *Significance of Lactic Acid in Stomach. A. Rodella.—p. 1210.

Aug. 24, 1918, **48**, No. 34

86 *Necropsy Findings in Influenza. A. Glaus and Fritzsche.—p. 1121.

87 Powder Treatment of Nose in Prophylaxis of Influenza. A. Schönmann.—p. 1125.

88 *The Appendix and Gynecologic Disease. C. Waegeli.—p. 1127.

89 *Symphysiotomy. Y. de Reynier.—p. 1136.

90 *Dinitrobenzene Poisoning. O. Steiner.—p. 1139.

81. Rupture of Aorta with Chronic Nephritis.—Löffler reports two cases in a woman of 38 and a man of 43, the spontaneous rupture occurring during sleep in the latter. The heart was much hypertrophied in both cases. The wall at the point of the rupture was not particularly thin. In the woman it spared the outer coat of the artery and did not induce any symptoms. There are a few such cases on record in which the incomplete rupture healed and proved a necropsy surprise.

82. Tardy Intracranial Hemorrhage.—In a fall on the stairs the right occipital bone was fractured, but except for vague headache and weakness the woman of 49 showed no symptoms from the contusion for twenty days. Then slight mental confusion, inattention and forgetfulness attracted attention for a few days, then came delirium and stupor, with right lax hemiplegia and left spastic hemiparesis. Necropsy revealed a large hematoma under the intact dura. It covered parts of the parietal, temporal and frontal lobes—evidently the result of progressive hemorrhage from a small branch of the median meningeal artery, the result of the impact on the other side of the skull at the contusion. The case teaches the necessity for exploratory trephining on both sides. In a recent compilation, five of the twelve patients would undoubtedly have been saved if the opposite side had been trephined when the first trephine gave negative findings.

84. **Dermographism of the Thorax with Pulmonary Tuberculosis.**—In testing ninety-six tuberculous men, Ichok found a positive reaction in 68.9 per cent. of the chronic cases, and only in 5.9 per cent. with more recent infection. In thirty cases of recent pleurisy, a positive reaction was elicited in only one. These findings and his analysis of the literature seem to indicate that the dermatographic reaction is an indirect index of the behavior of the musculature, as he explains in detail.

85. **Relations Between Lactic Acid and Hydrochloric Acid in the Stomach.**—Rodella's further research has demonstrated that sterile substances covered with pure concentrated hydrochloric acid, if they are not destroyed, remain sterile. But much infected albuminous substances, in solid form and in not too small fragments, covered with hydrochloric acid, not only fail to become sterile but at body temperature strong fermentation occurs. The products of this fermentation may include lactic acid. This responds positively to the Uffelmann test even in the presence of hydrochloric acid. Neither the lack of hydrochloric acid nor the presence of a tumor and its resulting stagnation are absolutely necessary for the production of lactic acid. It can occur wherever there is retention of stomach content, plus the presence of some substances which bind the hydrochloric acid or which protect the fermentable matter against the action of the hydrochloric acid. When these conditions are realized, lactic acid may be formed abundantly in the stomach even without cancer. Prou reported in 1917 that he had found lactic acid in the fasting stomach in 27 per cent. of 300 cases of nonmalignant stomach disease. He declared that the significance of lactic acid needed revision. Rodella will discuss in a following article the relations between secretion of hydrochloric acid and the production of lactic acid as studied from the clinical and from the bacteriologic standpoints.

86. **Necropsy Findings with "Spanish Influenza."**—Only fifteen were females in the fifty-three fatal cases with necropsy, and in all but thirteen cases the patients were absolutely healthy young people between 19 and 30. The oldest was 59, the youngest a year old child. The women were nearly all pregnant or had heart disease. The fatal complications of the influenza are due to mixed infection with pneumococci, streptococci and staphylococci. No influenza bacilli were found at necropsy, even in cases in which they had been cultivated during life from the sputum and sometimes from the blood.

88. **Relations Between Gynecologic Disease and the Appendix.**—On the basis of 896 laparotomies for gynecologic disease, Waegeli concludes that concomitant appendix disease, found in 16.4 per cent., was secondary to the gynecologic lesion in most of the cases. Lesions were found in the appendix in 75 per cent. of the cases of torsion of a cyst in the right ovary, and in 23.7 per cent. of the cases of right tube or ovary disease, but never with left tube or ovary disease alone. Simple congestion in the appendix with gynecologic disease he warns is not enough ground alone for appendectomy. On the other hand, he urges systematic investigation of the right tubes and ovaries as a routine measure in all cases of appendicitis. This may reveal its secondary character.

89. **Symphysiotomy.**—Reynier analyzes thirteen cases in which symphysiotomy was done, in nearly all as an emergency measure. It does not seem to be any more serious than a forceps intervention. In two of the cases described in detail the symphysiotomy was done under local anesthesia, and it proved to be speedy and free from complications, allowing the birth of a well developed vigorous child. The local anesthesia rendered the symphysiotomy painless, and the labor pains at the following spontaneous delivery were no greater than at any moderately difficult delivery. The fetus at two preceding pregnancies had been removed by perforation or had died soon after induced premature delivery. The true conjugate was 8.5 and 9 cm. but the pelvis was generally contracted. Symphysiotomy was decided on, and the women allowed to go to term, and the results fulfilled all anticipations.

90. **Dinitrobenzene Poisoning.**—Steiner describes seven cases in munitions workers, and comments on the gray discoloration of the mucous membranes and sometimes of the whole skin. The blood looks gray and thick, but the differential count is normal except that there is excessive destruction of reds. In treatment he found useful inhalation of oxygen, free withdrawal of blood followed by infusion of sodium bicarbonate, with stimulants, and copious drinking of milk. The clothes must be removed from the room, and the whole body, especially the hands and hair, must be thoroughly washed with hot water and soap.

Annali di Ostetricia e Ginecologia, Milan

June, 1917, 19, No. 6

91 Treatment of Tuberculous Peritonitis in Women. C. Merletti.—p. 201.

July, 1917, 19, No. 7

92 *Temporary Tubal Sterilization. E. Alfieri.—p. 213.

92. **Operation on Fallopian Tube.**—Alfieri ligates the tube, cuts off the fimbriated end, and pushes the ligated stump into a blind tunnel bored for it in the posterior wall of the uterus, where it is held with two stitches. The procedure is repeated with the other tube, and conception is thus rendered impossible. When the need for preventing conception has passed, the ends of the tubes can be released, and practically normal conditions thus be restored once more. His article is illustrated.

Pediatria, Naples

September, 1918, 26, No. 9

93 *Malignant Lymphogranuloma. R. Jemma.—p. 513.

94 *Vaccine Therapy of Diplococcus Infections. R. Pastore.—p. 524.

95 Recovery from Tetanus under Serotherapy. Marinucci.—p. 536.

93. **Malignant Lymphogranuloma.**—In both of Jemma's two cases the children of 6 and 11 presented signs of inherited syphilis, and in one the tuberculin test was positive.

94. **Vaccine Therapy of Pneumococcus Infection.**—Pastore applied diplococcus vaccine in eight cases of protracted pneumococcus infectious processes, pyothorax, interstitial pneumonia or migratory pneumonia. Acute pneumonia runs too brief a course for vaccine therapy to display much efficacy, but in these practically chronic cases the pneumococcus lesions in the pleura or the parenchyma of the lung were favorably influenced by this systematic intravenous vaccine therapy. The results were particularly striking in purulent pleurisy. The vaccine seemed to arrest the process and it retrogressed, obviating the necessity for operative measures and even puncture. The little patients were 18 months, 2 and 4, to 9 years old. There was usually a vigorous reaction to the first injection, with a chill, dyspnea and cyanosis but the following injections seldom elicited any appreciable reaction. In others the reaction appeared with the second or third injection, but there were no mishaps of any kind. The vaccine was a suspension of a twenty-four hour culture of Fränkel's diplococcus on a hemoglobinized culture medium. The bacilli were estimated by the opacity of the fluid, and from 0.10 to 0.20 c.c. was used containing from 10,000 to 20,000 of the microbes. Up to eleven injections were made in some of the children.

Policlinico, Rome

July 21, 1918, 25, No. 29

96 *War Surgery. M. Fasano.—p. 677. Concluded in No. 30, p. 701.

97 *Premature Grey Hair and War Psychopathies. C. Vignolo-Lutati.—p. 680.

July 28, 1918, 25, No. 30

98 Epidermis Grafts. F. Costa.—p. 707.

99 Apparatus to Facilitate Plaster Treatment of Fractured Leg. E. Cavazzani.—p. 708.

100 Tests of Liver Functioning. G. Sabatini.—p. 709.

96. **War Wounds of Elbow and Knee.**—Fasani describes how his extra conservative management of wounds of the elbow during the first years of the war gave such poor results, both in the stiff joints left and the tedious septic complications, that he finally decided to operate at once in the more serious cases. The results were surprising, the pains and fever subsiding under a light aseptic dressing, and passive movements being begun by the fifth to the eighth day. They

can be done by the man himself, and he soon appreciates the benefit from them. Fasani obtained far better results with wounds of the knee when he restricted intervention to a median longitudinal incision, extending it upward or downward as circumstances indicated. The incision is carried through the patella, dividing it in half, and thus affording ample access to the joint without permanent impairment of its functioning. The simplicity of this technic and its great practical usefulness commend it as the best mode of access to thoroughly explore the joint. When resection is inevitable in a septic focus, he cauterizes profoundly the raw surface to make a barrier between the sound tissue and the septic field in which it lies. By the time the eschar drops off, a layer of granulations keeps up the defensive barrier. He also makes a point of refraining from coaptating the resected stumps, but keeps them apart to ensure better draining and permit medication until the septic process has died out.

A wounded artery should be sutured when possible, but a ligature does not inevitably entail gangrene. Fractioned and consecutive ligation may be permissible sometimes. In one case of a traumatic false aneurysm of the femoral artery, there was tardy hemorrhage on several occasions, and he ligated in turn the femoral and the external iliac at different heights. As the hemorrhages kept recurring, he made a transfusion of blood from the man's 17-year-old brother, and this arrested the tendency to hemorrhages and the man soon recovered. The benefit in this case suggests transfusion as a routine procedure with hemorrhages from pseudo-aneurysms.

97. Premature Blanching of the Hair.—Lutati relates that the hair of an artillery captain of 24 turned almost completely white during the two days of the battle on the Piave. A young lieutenant had barely escaped being taken prisoner by the enemy and part of the hair on one side turned white in the course of a day or two. In another case a railroad man of 38, after a bombardment of his train, had all his hair, brows and beard drop out. As they grew again, they came in white, but by the end of eight months the eyebrows and beard had returned to the former chestnut color but the scalp hair was still white. Another soldier noticed a long patch of white hairs on the side of his head the morning after a battle. This white strip was still plain eight months later, when Lutati first saw it. He has witnessed further the premature progressive blanching of the hair in several aviators, and this is not uncommon in men who have spent some months at the advanced front. He regards it as an indication of nervous instability, liable to make trouble later. In connection with these cases personally observed, he cites a number of the classic instances on record.

Riforma Medica, Naples

August 10, 1918, 34, No. 32

- 101 *Atrophy of Tumors under Restricted Diet. E. Centanni.—p. 626.
- 102 Successful Resection of Large Arteriovenous Aneurysm of Popliteal Artery. G. Matera.—p. 631.
- 103 Present Status of Bone Grafting. E. Aievoli.—p. 635.
- 104 Vocational Training of Disabled Soldiers. E. Levi.—p. 639.
- 105 Antituberculosis Campaign of Italian Red Cross. A. Botti.—p. 643.

101. Dietetic Treatment of Cancer.—Centanni does not hesitate to call his experiments here reported "the most important results accomplished to date in modern cancer research." The idea of dietetic treatment of malignant disease is not new, but hitherto the experiments have been made with a diet which starved all the cells. The consequence was that the normal cells were too weak to contend with the cancer cells, and the malignant disease was merely whipped up by the modified diet. Centanni, on the other hand, sought to modify the diet in such a way that it amply sufficed for the nourishment of all the cells, cancer cells included, but the substances in the diet which promote growth were all carefully excluded, and others added which tend to inhibit growth. Modern research has demonstrated a number of food substances which promote growth—he calls them blastins—and he emphasizes that cancer cells do not differ essentially from normal cells except in their "tumultuous multiplication." By depriving them of those elements in the food the fundamental office of which is to sustain the multiplicative function, auxetics, *Wuchsstoffe* or blastins, and for which the cancer cells display exceptional avidity, the tumor cells

languish and die. Among the facts which testify to the correctness of this assumption are Haaland's experiences—confirmed by others—to the effect that gestation prevents successful grafting of tumors and checks the growth of those already implanted. The physiologic growth of the fetus victoriously combats the pathologic growth of the cancer.

In Centanni's research he experimented with ninety-three series of from four to ten mice each. On ordinary food, 100 per cent. of the tumor grafts "took" and some grew to be larger than the body of the mouse to start with. Given the restricted diet ten days beforehand, none of the grafts "took" or only feebly grew. On this diet, tumors already established, up to 2 or 2.5 cm. in diameter, became arrested and were finally reabsorbed without leaving a trace. Large tumors softened and decayed to a friable mass. The most striking results were obtained when the main mass of the tumor was resected and the remainder became reabsorbed as the animals were kept on the blastin-free diet. The growth promoting substances are certain vitamins, certain internal secretions and certain chemical substances. In his experimental diet he took particular pains to exclude the antiscorvy vitamin and nuclein and phosphorus compounds, and denatured the food by heating to 125 or 130 C. The outlook for application of the principle to man is promising, as human beings are particularly sensitive to lack of vitamins, while the size of the cancer in proportion to the whole body is immeasurably smaller than in the experiments related. On the other hand, the results will take much longer to become manifest. The method is harmless, as any disturbances from a dietetic deficiency would be recognized early and could be promptly remedied. Experienced medical supervision would be indispensable.

Tumori, Rome

June-August, 1918, 6, No. 2

- 106 *Experimental Glio-Fibro-Endotheliomas. D. B. Roncali.—p. 73.
To be continued.
- 107 *Primary Perithelioma of Ethmoidal Mucosa. G. Basile.—p. 115.
- 108 *Tissue Growth and Tumor Growth. L. Loeb.—p. 127.

106. Experimental Endotheliomas.—Roncali's extensive experimental research with inoculation of the toxic products and the endotoxins of pathogenic blastomycetes has apparently demonstrated that no cells are affected by them except those which are in a specially receptive state, that is, candidates for anaplasia. And among these, only those which have undergone some traumatism at the moment of the injection, and when the antigen has come in direct contact with them. These facts were confirmed by injection into the brain of twelve dogs. Two of the dogs died with symptoms of a focal brain lesion the twenty-fourth and thirtieth day after the injection, and a neoplasm was found at the spot consisting of gliomatous, endothelial and connective tissue, evidently malignant. The article is to be continued.

107. Primary Perithelioma.—The pedunculated tumor in the nasal fossa had developed from the perivascular endothelium, the so-called perithelium. It had followed a few months after removal of supposed polyps.

108. Tissue Growth and Tumor Growth.—This is a translation of Loeb's article in the *Journal of Cancer Research*, summarized in THE JOURNAL, June 9, 1917, p. 1781.

Gaceta de los Hospitales, Mexico, D. F.

June, 1918, 1, No. 3

- 109 The Mental State in Hysteria. J. T. Rojas.—p. 33. Conc'n.
- 110 *Immovable Retroversion of the Uterus. R. R. Ojeda.—p. 41.
Conclusion.
- 111 *Autoserotherapy in Ascites. A. Maya.—p. 57.

110. Vaginal Operation for Retroversion of the Uterus.—Ojeda describes with eighteen illustrations the various steps for correction through the vagina of immovable retroversion, and gives a brief summary of twenty-six cases in which this colpoperineorrhaphy was successfully applied.

111. Autoserotherapy in Ascites.—Maya has only two cases to report, but the influence from the autoserotherapy was prompt and pronounced. The effect seems to be mainly on the diuresis. In both the women the accumulations of fluid seemed to be passed off in this way. The procedure is harm-

less and is certainly worth a trial, he says, in cases of ascites with still sound kidneys. The ascitic fluid obtained by puncture is reinjected into the cellular tissue, without withdrawing the needle. He injected from 2 to 6 c.c. in this way at three or four day intervals, a total of six and thirteen injections in his two cases. The ascites was of six months' and nine years' standing. The first case was in a woman of 60. There has been no return of the ascites during the seven and nine months to date.

Repertorio, Bogota

August, 1918, 9, No. 11

- 112 *Medical Education in Colombia. E. Ferrero and others.—p. 565.
113 *Technic for Vaccination against Typhoid. M. Mendez.—p. 585.

112. **Medical Education in Colombia.**—The addresses here given were delivered on the occasion of the inauguration of the new buildings for the medical school, mentioned in THE JOURNAL, recently, p. 1238. The speakers were the minister of public instruction, the secretary of the department of public works, and other state officials, besides the president of the medical faculty.

113. **Vaccination Against Typhoid.**—Mendez expatiates on the great value of antityphoid vaccination which has been applied in Colombia on a large scale. But he protests that it is not necessary for every one to be vaccinated, as some advise. Only those particularly exposed to the disease, such as soldiers and nurses, should be systematically vaccinated. He warns further that all persons should be excluded who have fever, albuminuria or signs of tuberculosis, syphilis or Addison's disease. Suprarenal insufficiency is a particularly important contraindication for antityphoid vaccination, as he demonstrates by the case of an army officer. Severe symptoms followed the third injection of the vaccine, keeping up into the next day: profuse sweating, rapid respiration, livid aspect, complete relaxation of the members, distress and frequent vomiting. The man was so sensitive that he winced at the gentlest movement. The pulse was absolutely imperceptible and the heart sounds scarcely to be heard. The temperature in the axilla was 41 C. and there was complete anuria. These symptoms showed no attenuation by the next day, but then epinephrin was injected and improvement became evident almost at once; by the fourth hour the pulse became perceptible. Recovery was accelerated by injection of a solution of glucose. The injections of epinephrin were kept up for a week, by which time the patient was able to leave his room. This was the only mishap encountered in the course of the vaccinations at Bogota.

Revista dos Cursos, Porto Alegre, Brazil

1918, 4, No. 4

- 114 Present Status of Nuclear Ophthalmoplegia. V. de Britto.—p. 3.
115 *Surgery of the Stomach. C. Wallau.—p. 31.
116 *Drainage of Abdominal Cavity. C. Wallau.—p. 45.
117 Vaccine and Serotherapy of Gonorrhea. M. Gomes.—p. 56.
118 Tardy Inherited Phagedenic Syphilis. U. Nonohay.—p. 75.
119 Syringomyelia. G. Vianna.—p. 80.
120 Pituitary Dystrophy. F. Barros.—p. 87.
121 Prepuberal Acute Psychosis. L. Guedes.—p. 104.
122 Chagas' Disease. A. M. da Cunha.—p. 108.
123 Dental Alveolar Polyarthrititis. C. Lima.—p. 124.

115-116. **Surgery of Stomach and Abdomen.**—These two articles were the last from Wallau's pen before his recent death. He reviewed his experience with thirty-two operations on the stomach, and discussed the best means for draining ascitic fluid and other collections of fluid in the abdomen. He protested against the too prevalent practice of curetting the uterus, relating instances of serious sequels, and styling it a crime *de lesa natureza*, high treason against Nature. He reiterated that Nature created the abdominal cavity a closed cavity, and that this should be respected to the utmost. In one of his cases the ascitic fluid drained into the scrotum like a hydrocele. This was readily punctured as required, relieving the patient from the tapping of the abdomen. In a second case he intentionally accomplished the same with a trocar, drain tube, and urinal. He adds that this would be the ideal method for draining the abdominal cavity if this persisting permeability of the inguinal canal was the normal condition instead of being a rare anomaly.

Revista Ibero-Americana de Ciencias Medicas, Madrid

July, 1918, 40, No. 167

- 124 *Dislocations and Fractures of the Elbow. S. G. Hurtado.—p. 3.
125 *Suprarenal Form of Malaria. C. Fraga.—p. 9.
126 Inorganic Heart Murmurs. A. N. Blasco.—p. 21. Conc'n.
127 *The Diet with Cirrhosis of Liver. R. M. Terol.—p. 29.
128 Manic Depressive Insanity. A. Sanchez-Herrero.—p. 37.

124. **Dislocations and Fractures of the Elbow.**—Hurtado gives some roentgenograms of normal elbows as well as of others with fractures or luxations, showing the differences between the adult and infant elbows in both health and disease.

125. **Suprarenal Form of Malaria.**—Fraga reports from Brazil three cases of a set of symptoms indicating acute insufficiency of the suprarenals, and explained by malarial infection. One of the patients was demonstrated at a meeting of the American Society of Tropical Medicine at New York. Necropsy in one case showed the malaria parasites in the capillaries of the suprarenal cortex. The importance of this suprarenal form of malaria is enhanced by the fact that we have in epinephrin a means to tide the patient past the danger point. In the algid form, artificial serum with epinephrin given by the vein, may complete the triumph of quinin. In the less severe cases opotherapy alone may prove effectual.

127. **Diet with Cirrhosis of Liver.**—Terol advises a milk diet in the early stages of cirrhosis of liver. This leaves the liver comparatively in repose while promoting diuresis. He gives nothing but water the first day except a purge. An adult should take 3 liters of milk during the day, sipping a small amount every one or two hours. The milk should never be taken more than this at a time, as this would distend the stomach, with retention and fermentation with results injurious for the liver cells, and digestive disturbances which impel the abandoning of the milk diet. The milk must never be taken raw, but goat's or asses' milk may be substituted for cow's milk. Fermented milk or condensed milk, etc., should not be used except when the patient wearies of the sterilized milk. This milk diet should be kept up for a month. After this the ordinary diet can be very slowly and gradually resumed, keeping to small meals of easily digestible foods. He advises four meals, the two latest at 5 and 9 p. m., but they should never be abundant. Weak mineral waters are useful, avoiding all carbonated beverages as their gas distends the stomach. Mastication should be especially thorough, and the patient should give both body and mind a rest after eating. General and tonic hygiene should be enforced. In cirrhosis with hypertrophy, there is excessive functioning on the part of the liver, and the diet should aim to reduce production of toxins, being restricted to starchy foods and dry vegetables with little sugar or substances liable to putrefy. In cirrhosis with atrophy, meat should be positively prohibited to ward off production of toxins, and salt should be restricted to 6 gm. a day to guard against ascites and edema.

Mededeelingen van den Burg. Geneesk. Dienst, Batavia

1918, No. 3

- 129 *Sugar Content of the Blood in the Tropics and Its Importance in Acclimatization. C. D. de Langen and H. Schut.—p. 1; p. 26.
130 *Nature of Acclimatization. Id.—p. 43.
131 *Glycosuria in the Tropics and "Low Fever." Id.—p. 62.

129 to 131. **Sugar Content of the Blood and Acclimatization in the Tropics.**—The extensive researches of de Langen and Schut at Java have demonstrated that in both man and animals the sugar content of the blood is from 30 to 75 per cent. higher in the tropics than in Europe. The seventy-five pages of their report are in parallel columns of English and Dutch. On change to a mountain climate (3,800 feet) the sugar content drops, but it returns to its former figure on return to near sea level. They found further that the sugar content of the blood always ran up, about an hour before a malarial chill and fever, and persisted high during the attack, but subsided anew just before the close of the attack. Quinin did not modify the sugar in the blood directly. They recently reported marked differences between the cholesterol content of the blood in the East Indies and in Europe, and they here refer to other findings which suggest that the calcium content

of the blood is unusually low in the tropics. Low calcium content usually pairs with hyperglycemia, and there is much to sustain the assumption that the infrequency of calcium deposits in the tropics in blood vessels or lungs has some connection with the high sugar content of the blood. They insist that the chemical intensity of the light is no greater in the tropics than in Europe, so the heat must be the main factor. It may act on the sympathetic system; this would explain the high sugar content, the low cholesterol content, and various other factors which enter into the process of acclimatization. If we accept this hypothesis of sympathetocotony as an important element in acclimatization in the tropics, then it follows that measures to reduce the hypersensitiveness of the sympathetic system are required. Chief among these is the administration of calcium chlorid. With this can be prevented hyperglycemia and hyperthermia in animals given a drug which otherwise promptly sends up the temperature and the proportion of sugar in the blood. When the sugar content of the blood is increasing on arrival in the tropics, higher demands will be made on the kidney filter, and some of the sugar may be cast off in this way—a true renal glycosuria. Another way for the body to get rid of the excess of sugar is by combustion, and de Langen and Schnt are convinced that the majority of cases of long persisting "low fever" in persons not acclimated to the tropics can be explained in this way. The "low fever" to which they refer is not a disease; not a single abnormality can be detected. The complaints are the same as with renal diabetes, and both yield to the same measures, namely, change to a cooler climate or administration of calcium. A sea voyage is a sovereign remedy for "low fever," but it has not been tried for renal diabetes, they believe. They emphasize in conclusion that persons inclined to renal glycosuria, the tuberculous, and those displaying sympathetocotony, should be warned against settling in tropical regions, at least near sea level. On the other hand, a healed apical tuberculous process in persons of the vagotonic constitution need not be a contraindication to life in the tropics.

Hygiea, Stockholm

July 31, 1918, 80, No. 14

132 *Fasting Treatment of Diabetes. P. Arnell.—p. 817.

133 Chylorthorax in Tuberculous Boy. A. Gullbring.—p. 840.

132. **Starvation Treatment of Diabetes.**—Arnell's patient was an engineer of 50 who had had four attacks of diabetic coma within a year. Under the influence of prolonged fasting for four days and restriction of fat, the acidosis subsided, the sugar disappeared from the urine and slight tolerance for carbohydrates was regained.

Svenska Läkaresällskapets Handlingar, Stockholm

June 30, 1918, 44, No. 2

134 *Spondylitis Deformans. G. Kahlmeter.—p. 169-405.

134. **Deforming Spondylitis.**—Kahlmeter was assistant for two years at an asylum for the aged and incurable, and he examined with the roentgen rays every inmate that presented the slightest stiffness or pain in spine or hip joint. There were twenty-three typical cases of deforming osteoarthritis of the spine, and he further examined with the roentgen ray thirty-four cases at other institutions, and studied the roentgenograms taken for other purposes in 1,056 persons. The necropsy findings are shown in two colored plates, with fifty-six roentgenograms. Every one in two or three of the elderly presented the characteristic lesions, but they were extremely rare under 40. Four times more men were affected than women. The stiffness and pains do not seem to be associated with these processes, but to be the result of the weakening of the spine which always inaugurates the deforming osteoarthritis. The symptoms from this insufficiency of the spine may precede any pathologic anatomic changes. On the other hand, the characteristic pathologic anatomic changes may in time correct the insufficiency of the spine, and then there will be no further pain. He emphasizes that the process does not spread over much of the spine, and that the disturbances are remittent, so that the earning capacity may be only periodically impaired.

Treatment addressed to the stiffness and pains may include baths, massage, passive exercises, application of heat, revulsion to the skin and other antineuralgic measures. He found bed rest and local heat to the part of the spine involved the most effectual of all symptomatic measures. He explains the pathogenesis as the consequences of the displacement of the weight-bearing balance of the spine on account of some disproportion between the weight to be borne and the weight-bearing power. This assumption suggests the necessity for measures to restore the normal balance in the spine. This would not only relieve the subjective disturbances but it might arrest the further progress of the disease or prevent the development of the characteristic pathologic process. It can be accomplished by reducing the weight to be borne, or by strengthening the supports, especially the muscles that sustain the spine. Massage and gymnastics are useful for this. The strain on the spine may be reduced by change of occupation if it compels carrying heavy articles or bending over, or by reducing the body weight in case of a tendency to obesity (some of the clinical cases reported show the marked benefit from measures of this kind taken unconsciously), or supporting corsets may be worn. One of his patients was materially relieved by a leather corset. He was able to resume his work as a carpenter for a year and a half to date, free from all disturbances, but they return whenever he discards the corset.

Ugeskrift for Læger, Copenhagen

Aug. 8, 1918, 80, No. 32

135 *Hematoma Impedes Delivery. E. Petersen and A. Tofte.—p. 1253.

136 Historical Sketch of "Cerebral Otorrhea." J. Møller.—p. 1264.

Aug. 15, 1918, 80, No. 33

137 *The Abdominal Walls with Gynecologic Disease. S. A. Gammeltoft and G. Wiltrup.—p. 1291.

138 *Croupous Pneumonia. C. Lundsgaard.—p. 1308.

139 *Calomel in Treatment of Pruritus Ani. O. Hamburger.—p. 1316.

135. **Hematoma Impeding Delivery.**—Petersen and Tofte report four recent cases of a hematoma developing in the vulva or vagina in the course of a childbirth and preventing its completion. It was necessary to incise the hematoma and, after the child had been delivered, ligate the bleeding vessel when it could be found, suturing the incision to fully obliterate the cavity.

137. **Changes in Abdominal Walls with Mild Gynecologic Disease.**—Gammeltoft and a massage specialist call attention to the patch of tenderness in the abdominal walls that may sometimes be the only sign of latent disease below. They give the details of seventeen instructive cases of the kind. Palpation of the abdominal walls revealed changes in the subcutaneous tissue or the muscles, and by massaging at these points conditions returned to normal both in the abdominal wall and below. It is indispensable to palpate the abdominal wall itself in examining for disease in the internal genitals. If tender spots or palpable lesions are found, this shows the points where massage or other measures should be applied, and with this the patient's symptoms may subside completely. It is possible that the innervation of the tender patch is by a branch of the same nerve innervating the diseased area below, and the superficial tenderness is induced by reflex action from the lesion beneath. This persists after the deep lesion has completely retrogressed.

138. **Pneumonia.**—Lundsgaard describes the research and the clinical experiences at the Rockefeller Institute Hospital at New York, during his fourteen months of work there. He adds that croupous pneumonia seems to be less prevalent in Denmark and less fatal than in New York. The death rate at Copenhagen averages from 18.3 to 25.9 per cent. but it was only 13.1 per cent. for children between 5 and 15, and 20 per cent. between 15 and 65. Above this age it averaged 68 per cent.

139. **Calomel for Pruritus Ani.**—Hamburger states that several physicians have expressed their gratitude for the relief from long standing pruritus ani by his method of rubbing dry calomel into the parts. When the calomel is rubbed in well it sticks till the next day. In salve form, he reiterates, it cannot be counted on for such effectual service.

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ETIOLOGY AND TREATMENT OF PRURITUS ANI

SUMMARY OF EIGHT YEARS' ORIGINAL
RESEARCH WORK *

DWIGHT H. MURRAY, M.D.
SYRACUSE, N. Y.

With the exception of cancer, there is probably no disease that afflicts mankind the etiology of which has been so little understood as pruritus ani, vulvae and scroti. I might say that few other diseases have baffled the profession in its efforts to relieve patients as seriously as this.

In every book that contains a chapter on the subject, it is asserted that nearly every disease to which flesh is heir is a cause of pruritus ani, yet the recovery from the original diseases has left them with the same old pruritus. It would seem, therefore, that the profession might have formed a logical conclusion, eliminating nearly all of the so-called causes of pruritus ani, when it was seen that it continued after the disappearance of the various diseases that were supposed to have caused it.

For many years when the American Proctologic Society held its annual meetings, the members asked each other if there was anything new as to the etiology or successful treatment of pruritus ani and the answers were always along the line of continued speculation as to the causes, and empiricisms for treatment, with negative results.

For a number of years I investigated various conditions that I thought were causes, only to find that my theories, when fully tested, were not tenable. In the summer of 1910, an unusual circumstance led me on a line of investigation different from any I had ever followed, which had a bacterial origin in view. I made cultures of the anal skin with the thought that if any bacteria were constantly or nearly constantly present, this might be a step toward a better understanding. My associates and I found that in the first four cases, the patients had *Streptococcus fecalis* as the only constant organism.

After serious consideration I decided to have an autogenous vaccine made from *Streptococcus fecalis* and test these four cases with it. Meanwhile, other patients with pruritus ani came and the cultures in every one showed *Streptococcus fecalis* as the only constant bacteria present.

During the year, definite improvement in these cases, with the use of autogenous vaccine, was noted.

In fact, I was at first dumfounded that we should get such good results, but this was before I had sufficient experience in the work to reason out cause and effect, while today from my past clinical experience, it is not difficult to understand the reasons.

In the cases of patients that came to me before this discovery, I had made an abject failure to bring about any real improvement from either treatment or operation. In fact, I had become so pessimistic as to results of treatment or operation that when these patients came, I frankly admitted to them that I had never been able to give benefit, and either tried to send them to some other physician, or discourgae them so that they would voluntarily excuse me.

BACTERIOLOGIC EXAMINATIONS

Our bacteriologic reports show that a skin infection is the cause and when we know that the common symptoms both subjective and objective are almost identical in all cases, this alone gives strong support to the bacteriologic etiology.

The first side investigation that followed was an examination of the blood to determine its phagocytic power against these bacteria. In every patient examined the coefficient of extinction of opsonins for *Streptococcus fecalis* was low, while in patients who had other rectal diseases, without pruritus, it was normal. We found that when the phagocytic power increased, by the use of autogenous vaccine, the itching ceased proportionately, the improvement as a rule, being manifested by less frequent attacks and a lessened intensity of the itching. As they improved, many patients said that if itching began they could rub or scratch the parts with relief, the same as when itching occurred on any other part of the body, instead of being compelled to dig at the parts until they were sore and bleeding, as had formerly been necessary.

Textbooks written by some of the ablest men give as causes of pruritus ani all dietetic faults as well as all local pathology of the anal canal. In order to prove whether these claims were true, I examined the history and pathology of 900 consecutive rectal cases from my own records and found that only ninety-four patients had complained of pruritus ani. A year later, Dr. T. Chittenden Hill of Boston made a similar investigation of 3,000 rectal cases treated in the Boston City Dispensary and taken from his own private records. He reported 320 cases of pruritus ani among them, which is the same percentage I found. This of itself is strong evidence that pathologic conditions in the anal canal cannot be the etiology of pruritus ani. If so, we should have far more than 10 per cent. of the cases in all rectal pathology.

Of the patients examined that had pruritus ani I found that 50 were constipated, 5.5 per cent. of the

* Read before the Section on Gastro-Enterology and Proctology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918

900 patients examined; 21 had hemorrhoids, 2.3 per cent.; 20 had ulcers, 2.2 per cent.; 23 had diseased crypts, 2.5 per cent.; 12 had hypertrophied papillae, 1.3 per cent.; 3 had polypi, 0.03 per cent., and 3 had fistula, 0.03 per cent. The skin of 15 was pigmented, 1.7 per cent., and 68 had excess of moisture, maceration and skin fissures, or 7.5 per cent.

ETIOLOGY

It seems to me that my records prove that none of these diseased conditions may be properly classed as causative of pruritus ani, but when present are coincidental. My case records show that there is no other rectal pathology of any account, etiologically, in 90 per cent. of the pruritus ani cases.

We have abundant proof that food has nothing to do with the etiology, though some foods may provoke attacks of itching and the patients may improve under vaccine treatment just the same, whether they are on a full mixed diet or not.

Cases of pruritus ani, complicated with fistula having a pus discharge on the anal skin, have been relieved by autogenous vaccine treatment while the fistula was still discharging, and I have found that when rectal pathology is present with pruritus ani, an operation for its radical cure does not relieve the itching for more than a few weeks, if the streptococcic infection is present.

In other patients having rectal pathologic condition and itching, but without streptococcic infection of the anal skin, an operation for the cure of the rectal pathologic condition permanently relieved the pruritus. Only two cases of this kind have occurred in our series of 185 cases, while at least a dozen patients have relapsed as to the pruritus ani when operated on with the infection present.

It has been demonstrated to my satisfaction that operations do not cure pruritus ani when skin infection is present. Some surgeons make the assertion that operations cure pruritus ani, but I find that after the patients have been operated on, they are free from itching for a few weeks at most, when it returns with increased severity.

Two of the conclusions in my third annual report were as follows:

The presence of skin infection with a local lesion begets an unfavorable prognosis for the cure of pruritus ani as a result of operative procedure, and, the absence of demonstrable skin infection with pruritus ani, in the presence of a local lesion, will justify making a favorable prognosis for the cure of the pruritus as a result of operative procedure.

Pruritus ani rarely, if ever, extends above the white line of Hilton. This is another proof that pathologic conditions in the anal canal are not a basic cause. The pruritus of diabetics is not in any way connected with bacteriologic pruritus ani, except as a coincidence. Many textbooks state, and the majority of the medical profession believe, that the moisture present in these cases is due to mucus that leaks through the sphincter on the anal skin.

If you examine the skin through a magnifying glass you can see the moisture collecting on the diseased skin, but you cannot see it on the normal contiguous skin. Experience has proved that the moisture is a result of the low grade inflammation of the skin, caused by the infection, and never comes from inside the anal canal unless there is a patulous anus, and

even then it is not the same kind as the skin exudate. This is usually caused by some ambitious surgeon who thinks he can cure the pruritus by doing a Whitehead operation, "Ball's operation," divulsing the sphincter muscle, or some other equally inefficacious procedure.

The statement that pruritus ani is the result of skin infection has led some to misinterpret its full meaning, that is, to believe that the bacteria affect only the surface of the skin, and to apply a local treatment that is of little effect or that may be a positive damage to the patient.

To illustrate this, I quote from Mummery's¹ last book in which he states he has tried the autogenous vaccine treatment in several cases with a certain amount of success. He then says:

It seems to me, however, that if the streptococcic infection of the skin which is undoubtedly present on testing in many of these cases, is the cause of the itching, the best method of getting rid of the infection is direct local application rather than the use of autogenous vaccine. We are not in the habit of using autogenous vaccine to sterilize a patient's skin before operating as we have other and more effectual methods.

TREATMENT

Hè describes a local treatment by a 2 per cent. solution of iodine in a 75 per cent. rectified spirit, which he drives into the tissue by cataphoresis. This indicates that Mummery overlooked the crucial point of the discovery, that is, that the coefficient of extinction of opsonins in all pruritus ani cases is low for the infective bacteria and that they are found in the skin as well as on its surface; therefore any local treatment that does not increase the phagocytic power of the blood against these germs can have only a very temporary effect. Many physicians are of the opinion that the skin fissures are caused only by the finger nails. If this were true, the parts would not show so many common characteristics, but instead, distinct markings of the finger nails that would not be quite the same in all cases as we now find them.

Other local applications have been used with the same idea in mind and with similar results, such as treatment by the roentgen ray, radium, and other applications that could kill the germs in situ. I have cared for some patients on whom the roentgen ray had been applied to the extent of local burning and sloughing. The pruritus did not improve, but was made materially worse, notwithstanding the burning of the tissues which certainly must have killed the germs then present, but it did not increase the systemic resistance to infection.

The loss in skin pigmentation is a result of the maceration and the bacterial action on the skin. The bacterial infection takes the elasticity out of the skin so that it is like parchment, easily fissured, and the fissures nearly always follow the direction of the skin folds. In severe cases of long standing the skin will break with slight straining much the same as old rubber. The elasticity and resilience have been destroyed by the action of the bacteria and the resultant inflammatory process. With autogenous streptococcus vaccine treatment the phagocytic power is raised, then the excessive itching, moisture and skin fissures gradually disappear, pigmentation returns and the skin seems to resume its elasticity.

1. Mummery: Diseases of the Rectum, New York, William Wood & Co., 1914, p. 241.

Last year I directed the treatment of a New York physician. He had been treated with roentgen ray; the skin about the anus and the abdomen as far as the umbilicus was burned so that he had extensive sloughs. The pruritus and this treatment had incapacitated him for a considerable time and caused the most intense suffering. When healing began, the itching returned with increased intensity. It was at this time that I was appealed to and advised autogenous vaccine.

After a few weeks' treatment I received a letter from him, the conclusion of which I quote:

Sept. 18, 1917. In conclusion I can report definite improvement in the intensity and frequency of the pruritus. As I am now back on duty we shall be able to judge how matters stand during the exactions and activity of the daily routine work.

Nov. 7, 1917, a report came from his physicians saying, "Dr. — is fine."

I have now examined 181 cases of pruritus ani bacteriologically and have found *Streptococcus fecalis* as the common germ in 168 of them. Of the thirteen in which *Streptococcus fecalis* was not demonstrated, twelve had only one or two cultures taken and the thirteenth case, an acute one, developed an abscess in the perineum and had no more itching after this was operated on. It is therefore not at all certain that these twelve patients are not infected, because, in a considerable number, *Streptococcus fecalis* was not found until as many as eight or nine cultures had been taken. Therefore the bacteriologic results of these twelve negative cases cannot be considered final.

The reason I did not find *Streptococcus fecalis* in the twelve was probably because the mediums were not properly made. Sometimes the plates are overgrown with other bacteria that choke out *Streptococcus fecalis*.

I have treated 113 of the 181 patients, and distinct relief was obtained in ninety-nine of them. Some of those in whom the greatest relief was experienced were among those with the most distressing cases. Thirteen of them received little or no benefit, but only four of the thirteen received a sufficient number of treatments, so that they should have had relief, according to our experience with the others. Two of the four had the worst vulvar involvement of any I have ever seen, while a third one of the four had a complicating eczema.

The other nine had only a few treatments each, became discouraged and discontinued treatments. They expected too much.

METHOD OF TAKING CULTURES AND APPLICATION

I shall give in an abbreviated way the method of taking cultures and the treatment used. The anal skin should be carefully washed with a weak soap and water solution and rinsed with plain sterile water. No alcohol or other drug is used. A sterile swab is then rubbed on the cleansed anal skin, especially over any skin fissures that exist.

The isolation of *Streptococcus fecalis* is accomplished as follows: The swabs received are gently but firmly rubbed over the surface of solidified standard beef infusion agar in Petri dishes. The agar should have an acidity of 0.5 to phenolphthalein.

The small clear colonies of *Streptococcus fecalis* are readily distinguished from the larger colonies of *Bacillus coli*, *Staphylococcus albus* and other bacteria encountered in such cultures.

The small colonies of *Streptococcus fecalis* are subcultured on slants of the same kind of agar as that used for isolation.

As a rule, the growth is rapid and luxuriant and a few tubes suffice for the amount of bacterial vaccine desired. However, some strains are encountered that are grown with difficulty.

The bacteria should be killed either by 0.5 per cent. phenol (carbolic acid) solution or a 0.33 $\frac{1}{3}$ per cent. tricresol solution. Heat should not be used.

After the vaccine is proved sterile, it is ready for use and should be kept in a sealed bottle in a cool place. At the time of using, the vaccine should be thoroughly shaken in order that the dead bacteria may be evenly distributed in the dose given.

I begin the dosage with 3 minims, injected into the buttock close under the skin, not into the muscle. The first three or four doses are repeated at intervals of two days, increasing from 3 to 5 minims each treatment, unless a severe reaction is caused by the previous dose. The number of minims at each treatment may then be increased as much as the judgment of the operator dictates. The results will be obtained in most of the cases just as well without local applications of antipruritics except for the temporary relief obtained.

RESULTS

I never promise permanent relief, and do not think it is advisable to do so, no matter how favorably the case progresses, because I have never found what it is that primarily lowers the phagocytic power of the blood so that the original infection occurs. Therefore, if the same condition that originally lowered the resistance remains and again reduces the phagocytic power, conditions favorable for reinfection will be present. If this occurs, the patient must take another course of vaccine treatment to bring the phagocytic power back to normal.

My records show that a majority of the patients who have taken this treatment with favorable results have never relapsed to as severe pruritus as they originally had, and I look on this as a physiologic endorsement of the claims put forth for both the etiology and the treatment.

This was emphasized recently in Case 1 of our series, when the patient (now living in California) came into my office. He reported that he had very little itching at any time and if it did come on, it was easily controlled. This patient had twenty-seven treatments, the last of which was administered five years ago.

A fair question and one frequently asked is: Why is one person afflicted by pruritus ani and another free from it, since the same bacteria are found in the feces of both? We find that the resisting power against these bacteria is below par in the patient afflicted so that the soil in his case is ready while the other has the normal phagocytic power and resists the infection.

POSSIBLE PREVENTIVE MEASURES

The usual method of cleansing after a stool is by using dry paper as a detergent, with which it is impossible to cleanse thoroughly. You can easily demonstrate this by using a moist cloth after you are supposed to be thoroughly cleansed with paper, a method that leaves the fecal matter on the skin between the nates. This skin is an efficient incubator at a proper temperature with just enough moisture for the

rapid growth of bacteria, and on account of being kept in contact with the parts, affords an opportunity for them to find a home in the skin. If there is any possibility of prevention it must be along the line of cleanliness after defecation, as outlined. In women, for prevention of pruritus vulvae, the cleansing should be from the front backward. This is seemingly such an unimportant matter that some may think it unnecessary. I believe that this manner of cleansing would also repay many women by the prevention of a *B. coli* cystitis.

CONCLUSIONS

1. From the data presented by this series of cases, I feel justified in saying that pruritus ani is caused by an infection made by one of the streptococci group, or associated with it. This infection may be the primary, secondary, or aggravating cause. If it is the secondary or the aggravating cause, the primary may already have passed away.
2. Whether the infection occurs because the opsonins for streptococci are low or whether the opsonins are lessened because of the invading organism is not yet known.
3. Statistics of 4,000 distinctly rectal cases show that 414 (about 10 per cent.) had pruritus ani. This is good evidence that, when rectal disease and pruritus ani occur together, it is only a coincidence. When there is pus or other discharge on the skin about the anus, pruritus ani does not often exist unless there is a skin infection.
4. Pruritus vulvae and pruritus scroti are also proved to be skin infections.
5. Pruritus ani rarely extends above the white line of Hilton.
6. The sphincter muscle does not allow leakage of mucus on the anal skin in one who has pruritus ani unless there is a patulous anus, any more than it does in a patient with a normal sphincter muscle who has no pruritus.
7. The skin moisture is produced locally and is due to the low-grade inflammation of the infected skin.
8. The presence or absence of bacterial infection is of great prognostic value if operative work is expected to cure.
9. Pruritus ani will not be improved unless the phagocytic power of the blood is increased, and the pruritus will return if the phagocytic power of the blood is again lowered enough to allow a reinfection.
10. A complicating infection may be present.
11. Pruritus ani, pruritus vulvae or pruritus scroti are not a part of a diabetic condition. When they occur with general pruritus, it is a coincidence.
12. The only possible method of prevention lies in bathing the anal skin after each defecation.

ABSTRACT OF DISCUSSION

DR. J. M. FRICK, Toledo, Ohio: My own experience in the treatment of pruritis ani with autogenous vaccine began five years ago. Great care must be taken in selecting the case as one of true pruritis ani. It is not at all infrequent for an eczema marginatum or some skin infection to be referred to as a pruritis ani, which, of course, would not respond to true pruritic treatment. Among 4,700 candidates for selective service I found pruritis ani to be the most frequent proctologic disease. I have complete records of forty-three private cases. All these patients exhibited the typical skin changes. Twenty-five exhibited no other coincidental pathology; eight exhibited other coincidental pathology; ten had

been operated on previously for coincidental pathology, with the theory of producing a cure of the pruritus. Forty were sent to the same laboratory for cultures. Three were treated with autogenous or stock vaccines. Of the forty cultures thirty-eight were positive. One culture was a pure colon bacillus, one a mixed streptococcus culture.

DR. DWIGHT H. MURRAY, Syracuse, N. Y.: How many cultures were taken of those cases?

DR. FRICK: We take only one culture. It is not necessary to get more than one culture. Four patients did not return for treatment, leaving thirty-six treated with the autogenous vaccines and three treated with stock vaccine. Of the thirty-nine treated, thirty-seven have been discharged as cured. Four of these have remained cured for a period of four years. One patient received no benefit, or reported no benefit. One patient was insufficiently treated, owing to moving out of town. Three cases recurred; two cases recurred after a period of one year, and one case recurred in six months. One of the former, and the latter case, are now under treatment. One of the first cases that recurred was a case treated with stock vaccines. Later we had a culture taken and an autogenous vaccine made, and that patient is now doing very nicely. The two remaining cases treated with stock vaccine have remained cured.

Our culture medium differs somewhat from the technic used by Dr. Murray. We have used from the beginning of our work the ascitic fluid of Rosenow.

DR. E. ELIOT HARRIS, New York: I would like to ask Dr. Murray how often he repeats the injections; also the interval between them, and, further, if he could tell us the strength of the solution he uses and the number of bacteria in each injection.

DR. J. M. RECTOR, Columbus, Ohio: I should like to have either Dr. Murray or Dr. Frick tell us something more about the culture. Dr. Frick spoke of Rosenow's agar, and I wish he would tell us something more about that.

DR. J. M. FRICK, Toledo, Ohio: The area is prepared first by soap and water, flushed off with sterile water and dried with a sterile gauze. Remember, the infection is deep, not superficial. We remove the surface just as you would in the ordinary vaccination, without drawing blood, taking the culture on the platinum needle and placing it in the ascitic agar of Rosenow.

DR. JAMES A. DUNCAN, Toledo, Ohio: I have had only a limited experience following the method of Dr. Murray. There were nineteen cases in all; seventeen of the nineteen were what we called cured, and cured permanently, we hope, while two were cases in which there was no benefit to the patient. In one case the skin had been washed with alcohol instead of soap and water, which I believe to be the cause of the failure. The other case was one in which I did not curet deep enough. Following that I have had no failures.

DR. THOMAS CHARLES MARTIN, Washington, D. C.: We have heard only one side of the question. I believe it is not claimed by Dr. Murray or his exponents of this method that they get 100 per cent. cure by the Murray method.

DR. MURRAY: That has never been claimed.

DR. MARTIN: And is it not also a fact that in nearly all the reports of cases of treatment of pruritis ani by this method other means have also been employed in the treatment of these patients?

DR. MURRAY: You mean at the same time?

DR. MARTIN: Yes.

DR. MURRAY: Very rarely.

DR. MARTIN: I asked that question because I thought the answer would be somewhat different. It is a part of parliamentary practice, of course, to exercise that kind of caution. My reason for anticipating that Dr. Murray's statement would not be what it is is the fact that I have not seen the more recent of his papers; but the early case reports I remember also mentioned other means of treatment as being applied. It was very proper to do so because those methods had yielded good results. However, from the scientific viewpoint, such reports tended to confuse the mind as to on what depended the result. Dr. Murray has not only talked to you about the

autogenous or vaccine treatment of pruritus, but he condemned another method of procedure, a method of procedure which, if employed by hands equally skilled as those which applied this method of vaccine treatment, does yield 100 per cent. of cures. I refer to surgical intervention. The operation is termed the Ball operation. It consists in dividing the cutaneous nerves that supply the circumanal skin. The operation consisted in making an incision on either side of the anus, going through the skin, cutting off the nerves in the loose connective tissue between the skin and deeper structures. For many reasons that method of incision was not very satisfactory mechanically. Later, Dr. Krause of Cincinnati and I designed an operation requiring no suture. This technic has not been published. I make an anterior and posterior incision and cut the nerves supplying the skin. Dr. Murray makes the statement that Ball's operation or any modification of it is to be condemned as useless, often leaving the patient worse than before. I do not condemn Dr. Murray's method of treatment of pruritus ani. But until this time I have yet to be persuaded that it is as dependable a method of procedure, or as positive in its effects, as the surgical operation.

DR. ANTHONY BASSLER, New York: The doctor's case cited by Dr. Murray is the ninth case that I have had to do with that has been treated thoroughly, all of the patients having gotten well except one, and that one is very distinctly improved, but having to use some local means about every six months or a year.

DR. DWIGHT HENDERSON MURRAY, Syracuse, N. Y.: So far as I know, Dr. Martin is the only man who has ever had 100 per cent. cures in pruritus ani from operative procedure. I have seen many cases of pruritus ani in which operation has been performed in the hope of a cure, and the story was always the same. They were free for a little while, just the same as the patients on whom I have operated, but the pruritus returned. I used the autogenous vaccines with great lasting benefit. I have never yet said that I cured a case of any kind. I do not believe it is the province of any physician to claim that he cures his patients. Possibly they get well in spite of him, and he should not take unto himself all of the credit that Nature ought to have. In all the papers that I have written on this subject I have only given the facts as I have found them. I have not said that autogenous vaccine cures any patient. The primary claim that I make is that we have found the etiology. I believe this to be a great step in advance.

In all of my papers I have asked the profession to cooperate with me to find some better treatment, something that will stop the itching for all time, that will enable us to say definitely that the itching will cease at a definite time. I have urged the profession to help, and I will welcome all improvements on present methods that will assure patients a hundred per cent. cure. I do not see how Ball's operation could benefit pruritus scroti, complicated with pruritus ani.

In answer to Dr. Harris' question, I usually begin with 3 minims, and as near as possible the standard strength of vaccine, 2 billions of dead germs per cubic centimeter; the second dose is double the amount, the third dose 3 or 4 minims increase over the last. The dose is increased each time until a strong reaction is produced. The first improvement noted is a less frequent and less intense itching.

DR. HARRIS: How frequently are the doses given?

DR. MURRAY: Every other day for the first four or five doses, until the reactions appear.

DR. HARRIS: How many doses do you give?

DR. MURRAY: The number varies. I have given as many as seventy and as few as seven.

DR. J. M. RECTOR, Columbus, Ohio: Is it necessary to make the injections near the rectum?

DR. MURRAY: No. I make them in the skin of the buttocks. In the last few years, whenever I make local applications on the skin, it has been 20 per cent. protargol; and if I advise the patient to do anything in the meantime, it is usually to apply black wash, let it dry and then dust with compound zinc stearate.

DR. MARTIN: Do you use other methods than the vaccine?

DR. MURRAY: Frequently, but not in every case. Some of these patients are treated without any application at all, and they have improved, just the same as the others. Most of these patients have used ointments of some kind, but I condemn the use of ointments. They are dirty, they macerate the skin, make it worse than before and do very little, if any, good. Many patients are opposed to any sort of operation, and in some cases in which the Ball operation has been done a stricture was grafted on the original disease. Perhaps Dr. Martin will say this was due to an inexperienced operator, but Dr. Ball himself abandoned it as ineffective, I am told.

THE SUBNORMAL COLON FUNCTION*

WILLIAM M. BEACH, M.D.

PITTSBURGH

The colon, considered in its entirety, is essentially an organ of elimination and resorption. Its muscular wall endows it with the property of expansion and retraction, and the variation of its axis and caliber controls the current of its contents toward the anus. Deviation from this physiologic process is recognized as a pathologic condition which may manifest itself in frequent discharges, or by sluggishness. Hyperactivity would indicate an exaggeration of its function by virtue of disease within its chambers or upper tracts, that is, it may be extramural or a neurosis. Sluggishness or atony signifies its inability to mobilize its contents by reason of impaired musculature or innervation, giving rise to the adynamic or subnormal colon. The word "atony," which seems best to express the condition, is derived etymologically from the Greek word "teinein," negative "a," which signifies literally to stretch, a translation that we may liberalize into expansion, contraction and retraction—in short, having the property of elasticity. With the negative prefix, the term is made to mean inertia, or want of power or vigor. Atony is applied to any organ giving evidence of want of vigor as to its function. It is a question whether we should not limit its application to structures not under the control of the will. The muscular structure of the colon is made up entirely of unstriated or involuntary fiber, hence its subnormal function must be due to some inherent factor.

FACTORS IN SUBNORMAL COLONIC ACTIVITY

What constitutes the normal function of the colon? It is debatable what intervals in its evacuation maintain the standards of health, and whether daily periods, alternate days, or longer periods of constipation are compatible with well-being. Metabolic disturbance is apparently not in evidence even in three day constipation or with intestinal inertia of a week's duration. While it has been frequently observed that shorter intervals are conducive to ill feeling and depression, such cases are easily corrected by ordinary measures of diet, exercise and various remedies. But the severe types should receive the best care at our command, to obviate all possible sequelae terminating in destructive metabolism. It is obvious that the vicarious elimination of toxic elements due to physiologic insufficiency of the colon so impresses us with deleterious end-results that we are impelled to regard a daily, or at

* Read before the Section on Gastro-Enterology and Proctology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918

most a bidaily evacuation, as a necessary corollary to health. Some one has said that a daily visit to the "throne of Cloacus" insures one's life that day. With this in view, let us inquire into a few of the many factors that lead to subnormal colon activity: (1) structural deviations; (2) bacterial invasions; (3) occupational influences.

1. *Structural Deviations*.—The cardinal symptoms of the subnormal colon record the presence of mucomembranes, constipation and pain. Glénard himself well describes the disease named in his honor: "Flabby abdomen, outspread like a wallet, looseness, slackness, want of tone of the abdominal walls, bearing down of the bowels and subsequently of the stomach, the kidneys and the liver; and, as may be verified by palpation, either the dilatation or the shrinking of certain portions of the intestine and pulsation of the abdominal aorta." This is the physical picture we adopt in our present consideration.

It is not my purpose to discuss the pros and cons of the antecedents in visceroptosis in its relation to mucomembranous colitis. The inactive colon may exist without enteroptosis. Also, it is certain that enteroptosis may be seen without colitis, but in all serious cases they coexist. The most careful clinical observation can elucidate these problems. It is well to think of some primitive disturbance in the nervous system, or in some predisposition of the economy, by virtue of which intestinal atony, then colitis and enteroptosis may originate on a common basis. The order of sequence matters little. The pain is shifting and accompanies the spasm, occurring in colonic sections, at the angles, then in the sigmoid, the transverse or the caput coli. Spasm of the colon head has led to error in diagnosis, with subsequent removal of a healthy appendix. In examining the large intestine, we find alternate dilatation and constriction, hardness of certain segments and flabbiness of others, displacement of the transverse portion, and gurgling and sonorous splashing, with dull lapping sounds elsewhere. Palpation is frequently painful. The roentgenogram reveals sharpened lateral angles and retarded fecal excursions.

In addition to structural deviations in the bowel itself, the clinician must conjure with certain extramural agencies which provoke the subnormal colon. Bands and adhesions, or a dislocated kidney or stomach combine to irritate the colon. Adhesions succeeding pelvic peritonitis and appendicitis are not uncommon, as well as new growths deflecting normal colonic function. To these may be added anorectal diseases obstructing the evacuation of the colon content.

2. *Bacterial Invasions*.—The colon is a great storehouse for toxins and fortunately is immune in most persons, but repeated mass attacks make dents in the mucosal column of defense, which requires the highest strategy of the clinician to restore. If the first line of defense, the mucosa of the colon, is disabled, the second and third lines, the liver and the antitoxic glands respectively will come to the rescue to neutralize the toxemias. The source of bacteria entering the colon may be the mouth and the gums, the pylorus, a diseased gallbladder, the appendix or any of the pelvic viscera. Besides, bacteria are created in the intestine itself, *sui generis*, by end-products of digestion, and the anaphylatoxin present in certain toxemias, both convulsive and nonconvulsive in character, depend on certain conditions of stasis in the intestine.

3. *Occupational Influences*.—The subnormal colon is rarely found among rural folk. Their active lives in physical effort, with pure air and food, mental contentment and freedom from much worry, are compatible with active secretion and elimination. On the other hand, the anxiety, fear and sacrifice, and perhaps the unsanitary quarters, poor ventilation and sedentary life of the city resident combine to cause the fluctuations on the trophic centers and to inhibit the secretory functions, which terminate in habits of constipation. It is well known how often this effect is encountered in the country lad when he assumes the rôle of college student. Office employment, service in department stores, the mechanic's work and similar occupations requiring intensive effort are conducive to colon stasis, to be self-corrected or otherwise treated. We need only to observe the transforming power of army camp life to be convinced of the salutary effect on previously erratic organs of elimination. The pale-faced city clerk becomes, with his rural comrade, erect, robust and ruddy. I have on record several such cases cured by camp life.

A DIATHESIS

To direct our thought to the subnormal colon, without consideration of certain terminal effects on the economy, would be treating our subject like Ephraim's "unturned cake," half baked. That colonic atony appears to be antecedent to arthritism or at least concomitant with it seems well established. Some students in enterology, notably Axtell and Reed, profess to coordinate subnormal colon functioning with epilepsy, as cause and effect. The correlation of asthmatics and so-called neuro-arthritis in such conditions is well known. It must be conceded, also, that, while constipation is consonant with these ultimate phenomena, not all constipated persons manifest any of them.

These observations show that mucous colitis, either as cause or effect, is in close connection with the nervous system. Analysis of the following facts will demonstrate this more fully. A certain number suffer more or less from intense reflex disturbances going from the irritated intestine, by means of the bulb, thence by that of the pneumogastric nerve or the sympathetic system, and reverberating on the most diverse organs. The heart is subject to this reflex nervous action, with attacks of tachycardia after meals, then intermittences; and an irregularity of the heart's rhythm; and even attacks of pseudo angina pectoris are not infrequent. The proof that these nervous phenomena are correlated with the function of digestion is that they are usually terminated by a stercoraceous evacuation followed by relief.

The terminal threads of the vagus in the lungs are also apt to be affected in the same way. I have often seen marked attacks of asthma from this source. The patient suffocates for want of air, the windows are thrown open, the thorax is immobilized in the act of expiration, and inspirations are made with great difficulty.

In regard to the arthritides as an end-product of intestinal origin, there are undoubted cases, which is in agreement with the splendid researches of Rosenow.

Brick¹ says:

It cannot be claimed that any specific organism is constantly associated with the disease. Some observers have

1. Brick, J. C.: Tr. Am. Proc. Soc., 1912, p. 157.

found the joint fluids sterile, while others have isolated organisms. We may conclude, therefore, that the majority of cases contain no organisms either in the blood or joint fluids. The infection theory of its cause has many features which cannot be determined, such as glandular or splenic enlargement, which at least suggest the result of a toxemia from a distant point, possibly the gastro-intestinal tract. I am inclined to the view that the varied phenomena of arthritis deformans are due to a cerebrospinal toxemia, in other words a trophoneurosis of infective or toxic origin.

Physicians have relieved many cases of neuro-arthritis, by directing attention to a sluggish colon, restoring it to normal activity. This fact is proof that, in some cases at least, it is one focus of infection and becomes a diathesis or predisposition to disease in remote parts.

CONNECTION OF ACQUIRED EPILEPSY WITH COLITIS

There are a few advocates of the theory that acquired epilepsy or those attacks beginning late in life are a trophoneurosis of toxic origin from the colon. In these cases the patients are so easily impressed by the physician's efforts to help them, that he is often misled by their enthusiasm into thinking a permanent cure is at hand, to be doomed to disappointment. Yet permanent cures are reported by some, and much improvement is reported by others, due to keeping the colon clean. Axtell is a firm believer in the correlation of membranous colitis and epilepsy. The demonstration of certain toxemias of the convulsive and non-convulsive type seems a forward step in the solution of this problem.

A patient under my care since 1912, a married woman, aged 47, who had had both grand mal and petit mal attacks at varied intervals for fifteen years, had acquired epilepsy. Twenty years previously, she had had an oophorectomy and appendectomy performed, which had been followed by severe intestinal stasis and colitis, and a few years later with the fits. The neurologist, with his usual remedies, had kept the attacks under control very well, but finally referred the case for treatment of the colon. We found obstinate constipation, glairy mucus, severe periodic cramps, and a large postoperative hernia. The hernia was repaired, at which operation were noted adhesions too extensive to break up, involving the ascending colon and the sigmoid. So with a hope of reducing the colitis to a minimum, and of thus possibly influencing favorably the epileptic seizure, we performed a cecostomy. She has used irrigations of various kinds through this opening during this time, and has had only three grand mal seizures in six years; but it is only fair to state that mild cataleptic spells of momentary duration have occurred rather frequently of late. For two years following the operation, she did not have a single spell. On the whole, she has had a comparatively good six years, when contrasted with the weekly and daily attacks previously recorded.

I am not prepared in this case to deduce any definite conclusions, but I believe that, if the extensive intestinal traumas could be corrected, the correction would go a long way toward clearing up this case permanently. I believe, also, that the case is a good illustration of the verity of the theory that the subnormal function of the colon is a diathesis leading to acquired epilepsy and other neurasthenic dyscrasias. I do not think that epilepsy in young people has this correlation of cause and effect. Yet it is well known how even they improve on intestinal ablutions.

CAUSES AND TREATMENT

When confronted by patients suffering from subnormal colon activity, we write in our case records such notes as: hemorrhoids, migraine, gravel, arthri-

tism, very great nervousness, hereditary nervousness, hepatic lithiasis, gout, rheumatism, impressionability, obesity in the family, and tendency to worry.

To apprehend the essential and underlying cause of this array of symptoms will properly direct the treatment, both medical and surgical. The treatment cannot be considered in extenso, but merely suggested.

Diet is the first desideratum. All articles of food should be avoided whose digestion terminates in much residuum, and further irritates an already jaded colon. We may give milk, meat soups fat-free, porridge, barley, oatmeal, rice, arrowroot, etc.; eggs, boiled, scrambled or in custards; boiled fish, lean roast, and boiled mutton or beef, etc.; vegetables mashed fine, as potatoes, beans, peas and lettuce; but on no account green vegetables.

The time limit will not allow further discussion of diet and medical treatment of constipation. Suffice it to say that a daily evacuation should be secured by mild laxatives, for of the two evils choose the lesser.

How many persons there are who for years go to stool only by means of a daily laxative, and whose health is not worse, but on the contrary better, than that of those persons who, on pretext of not irritating the intestine, allow fermentable, noisome matter to accumulate there constantly! I would suggest liquid petrolatum (mineral oil) as a purgative and periodic morning doses of sodium phosphate in hot water. I would here emphasize the use of iodine to secure the best results in restoring an atonic colon swarming with bacteria. Solutions of half-grain doses of iodine with aromatic fluid extract of cascara sagrada in a palatable vehicle are well borne.

By means of the roentgen ray, structural deviations may be deciphered that will bring the case into a domain of surgical therapy. How many cases of subnormal colon are restored to normal activity by anorectal surgery, appendectomy, cholecystotomy, or intrapelvic adjustment! Ochsner has reported three cases of rheumatoid arthritis cured through an appendectomy which restored colonic function. The abdominal supporter has done good service in many cases of enteroposis. Partial colectomy, or short circuiting, does not give me as good results as have been reported by other surgeons.

The pendulum is swinging toward more conservative measures in restoring the subnormal colon. Hammock fixations of displaced viscera should be rarely resorted to. Rather should we endeavor to restore the function by such remedies as strychnin and belladonna to their physiologic limit, together with such remedies as may be secured only by rural environment. Such measures as direct or indirect irrigation, with styptics like krameria, tannin, etc., or, if there is much inflammation, the use of oils, salines, etc., are beneficial. Direct irrigation with cecostomy is effective in severe cases. Finally, a complete survey of the treatment is not designed here, but rather a suggestive outline, with an admonition against drugging as a means of building up broken-down constitutions. Neurasthenics do better on such measures as rest, exercise, good air, proper diet and agreeable environment.

SUMMARY

1. The subnormal colon is a term we have used interchangeably with membranous colitis.
2. The cardinal symptoms are pain, constipation and mucus.

3. Factors to be considered that predispose to atony are enteroptosis, bacterial invasions, occupational environment and neurotic constitutions.

4. It is probably a diathesis toward arthritism, tachycardia, asthma, etc.

5. Further observation should be made in order to link it with acquired epilepsy.

6. Treatment should be comprehensive, each case being a separate problem, to be solved by dietetic, medical or surgical measures, or by all combined.

ABSTRACT OF DISCUSSION

DR. DWIGHT HENDERSON MURRAY, Syracuse, N. Y.: I think the causes of these troubles that go on to autointoxication, convulsions and chronic nervous troubles are the result of neglect on the part of the profession in not instructing the mother how to care for the child, so that it will not be necessary to give laxatives. Another necessity that we neglect very much is the drinking of sufficient water. The system needs a certain amount of water for elimination, for building up the system and for metabolism. It is also important that one be regular with the time for bowel movements. I tell my patients that absolute regularity is necessary, and that the proper time is the first thing in the morning. I direct them to sit on the toilet and make the effort, whether they have any desire or not; if this is not successful, I direct them to take an enema of plain water, while lying on the left side. I instruct them not to wait, because normal peristalsis will not take place unless the bowel is about full, and unloading the bowel at night defeats our natural morning action.

DR. E. L. EGGLESTON, Battle Creek, Mich.: I believe that a greater number of our patients suffer from some form of colonic disturbance than from any other condition. So far we have not been able to determine definitely the toxic products resulting from bacterial activity in the intestine, although we believe from clinical evidence that specific products are elaborated. I can hardly agree with Dr. Beach that an atonic condition of the colon is frequently found. My observations lead me to believe that in subnormal colon we find a spastic condition in a large proportion of the cases. When there is severe constipation, the roentgen examination reveals a spastic condition of the distal colon with a dilated cecum, and especially do we find this condition to obtain in neurasthenia and other conditions where there is a disturbance of the vagosympathetic nervous mechanism. If you make inquiry of these patients as to how long it has been since they have had a formed bowel movement, they will tell you it has been weeks, or months, or sometimes years. This condition is practically always the result of a spastic condition of the colon, and an improvement in their condition is indicated by the passage of a normal formed stool. This has resulted, not from irritating the colon by cathartics, but from relieving the local congestion and by measures that tend to restore a normal nervous state. I believe that there are two conditions which are responsible for this spastic condition, one a local condition incident to the neglect on the part of the patient in properly caring for himself by allowing the intestinal contents to accumulate for an abnormal length of time, and the other a reflex nervous condition. Dilatation of the colon, particularly the cecum, is entirely the result of the spasm of the distal colon and the dilatation can be relieved only by measures that relieve the spastic condition of the pelvic and ileac portion of the colon. Rest, bland foods, heat externally, warm oil enema, and agar-agar and liquid petrolatum by mouth are measures that are well adapted for the relief of such conditions.

DR. W. H. STAUFFER, St. Louis: The factors involved in producing subnormal colon function are generally threefold: dietetic disturbances, adhesions resulting from surgical operations, generally of the uterus or adnexa, and the local conditions of the lower bowel produced by the use of cathartics and the improper use of enemas. One school of pediatricians teaches that children ought not to drink any

water until they are a year old; that milk is the natural nourishment for the child, and it should have nothing else. Another class of pediatricians and nurses insists on giving children enemas in order to produce regularity of bowel movement. This practice should be condemned. I do not agree in regard to the use of preparations of petroleum. They do not empty the bowel. After continuous use of these preparations you will find a condition very much like that found in the automobile engine when it needs cleaning, and until that condition is corrected you will have no normal bowel function. The improper use of enemas causes undue distention, producing atony of the bowel. The occasional use of petroleum is all right, but the habit must not be formed.

DR. NATHAN ROSEWATER, Cleveland: I was probably the first to prescribe liquid petrolatum internally, fully twenty years ago, and I have prescribed many barrels of it since. It is neither saponifiable nor absorbed through the bowel wall, nor oxidizable; does not maintain germ life, but it acts as a protective and lubricant to the inflamed or traumatized mucosa, while it softens the feces, thus reducing flatulence. I have prescribed it for infants 2 weeks old, while for the aged it is valuable for relaxed as well as for the spastic bowel. It is not a cathartic. It does not stimulate peristalsis, but by its lubricant action permits the normal force of bowel peristalsis to exert itself with little or no spasm or colic. It is as useful as a protective in diarrheal as in constipated states. I agree with Dr. Murray as to water, but give it methodically, as to proper time and quantity, to secure the proper amount to flush the circulation, as well as the bowel. It acts more as a bowel flush if two, three or four glasses, hot, warm or cold, are given fully an hour or two before breakfast, when the stomach is surely empty. The bowels then move usually before or soon after breakfast, when the increased peristaltic waves during and following the meal assist in driving the stool forward. In the severe cases the patient is given two meals a day. Two glasses of water hourly or half hourly are given until eight or ten glasses are taken. This flushes the bowel thoroughly, softens and removes hard scybala, whereby mucous colitis and other conditions resulting from fecal stasis and pressure are controlled. For infants and children a sufficient amount of water fully two or three hours after each feeding flushes the bowel and produces softer and less irritating feces and prepares the stomach for the next meal.

DR. WILLIAM M. BEACH, Pittsburgh: I am heartily in accord with Dr. Murray on the use of water, but I have been in the habit of adding a little salt to the water. The advantage in giving salt water is that one drink makes the patient want another, and in that way he gets the amount of fluid which he ought to have. I want to recommend iodine, administered internally, to restore functional activity of the glands of the colon. I suggested iodine, in half-grain doses, in my paper.

Relation of Cancer to Economic Condition.—In an investigation of the relation of incidence of and mortality from cancer in the period 1914 to 1916, conducted by the statistical department of the Metropolitan Life Insurance Company, interesting conclusions were arrived at concerning the relation of cancer to the economic condition of the victim. The insurance company's policy holders are divided into what are called ordinary, intermediate and industrial classes, the economic condition of the ordinary class being best, intermediate next, and the industrial third. The study led to the following conclusions: the current opinion that there is a positive relation between poverty and a low cancer rate is in all probability unfounded; the cancer rate increases as we go down in the economic scale; this is true of both sexes and by age period where sufficient data are available to form conclusions. It is said that medical selection has been considered in arriving at the foregoing conclusions. Medical selection against cancer is most effective in the ordinary department, and is limited to the earlier ages and to the earlier years of issue. In both ordinary and intermediate departments the effect of medical selection against cancer is limited to the first and perhaps the second year of issue.

MUNICIPAL HEALTH ADMINISTRATION

GENERAL CONSIDERATIONS *

ERNEST C. LEVY, M.D.

NEW YORK

The total estimated population of continental United States in 1916 was 102,017,312. Of this population, 41,752,530 was urban, that is, was in communities having more than 8,000 inhabitants. There were 770 such municipalities.¹

In other words, 40.9 per cent. of all our people have their health looked after (or not looked after, as the case may be) by 770 local health departments. In this single consideration, we see the great importance of municipal health administration and also, it would seem, its relative simplicity compared with the problem of looking after the health of the 59.1 per cent. of the rural population. The latter population, which is scattered over the rest of the country and reached only by a bewilderingly large number of local organizations, can at best be coordinated only by efficient state departments of health.

To discuss municipal health administration as a whole would be obviously unprofitable. Dealing with the cities by groups according to population, as has been done by the chairman, helps the situation. Unfortunately, the number of special papers in this symposium had to be limited to three. This necessitated the leaving out altogether of cities with more than 500,000 inhabitants and (more to be regretted) the making of groups with such wide limits of population as to render these groups far from homogeneous even in this single respect.

DISTRIBUTION OF URBAN POPULATION

Let us see how the urban population of the United States is distributed.

TABLE 1.—MUNICIPALITIES IN CONTINENTAL UNITED STATES, JULY 1, 1916

Group	Number in Group	Estimated Population
1,000,000 inhabitants and over	3	9,810,081
500,000 to 1,000,000 inhabitants	7	4,438,369
100,000 to 500,000 inhabitants	56	11,157,102
25,000 to 100,000 inhabitants	201	9,177,026
20,000 to 25,000 inhabitants	70	1,540,749
8,000 to 20,000 inhabitants	433	5,629,203
All over 8,000 inhabitants	770	41,752,530
Population continental U. S. ....	...	102,017,312

In Table 2 certain of the foregoing figures have been reduced to percentages. In this table only one group is made of places having from 20,000 to 100,000 inhabitants, so as to conform to the groups in the papers which are to follow.

TABLE 2.—PERCENTAGES OF POPULATION IN CITIES ABOVE 8,000, AND PERCENTAGES THAT EACH GROUP OF CITIES CONSTITUTES OF TOTAL NUMBER

Group	Percentage of Entire No.	Percentage of Urban	Percentage of Total
1,000,000 inhabitants and over .....	.4	23.5	9.6
500,000 to 1,000,000 inhabitants ...	.9	10.6	4.4
100,000 to 500,000 inhabitants ...	7.3	26.7	10.9
20,000 to 100,000 inhabitants ...	35.2	25.7	10.5
8,000 to 20,000 inhabitants ...	56.2	13.5	5.5
	100.0	100.0	40.9

Table 2 shows that two years ago (the latest year for which official estimates are available) 9.6 per cent.

of the total population of continental United States (23.5 per cent. of the total urban population) was to be found in our three greatest cities, of more than 1,000,000, while 4.4 per cent. of the total population (10.6 per cent. of the urban population) was in the seven cities of between 500,000 and 1,000,000.

Thus our ten greatest cities, those with populations or more than half a million, contained 14.0 per cent. of our total population and 34.1 per cent. of our urban population.

These ten greatest cities, however, represent only 1.3 per cent. of the total number of municipalities in the United States. For this reason, and also because, in the carrying out of their complicated administrative functions, the health officials of these ten greatest cities would gain but little from any formal paper here presented, the section chairman and I were of the opinion that the small number of papers that could be read had better deal with health administration in cities of smaller size.

1. CITIES WITH POPULATION FROM 8,000 TO 20,000

The last of the groups given in the tables—that containing cities of from 8,000 to 20,000 inhabitants—is the most important of all from several points of view. It is important numerically, for it embraces 433 communities, or 56.2 per cent. of the 770.

Chiefly, however, does the importance of this group appeal to us because only very exceptionally will a community of less than 20,000 have a competent health officer. Yet 5,629,206 citizens of the United States live in communities of this size. Civic pride will ordinarily lead these places to have nominal boards of health of their own. Certainly they should have proper health protection in one form or another, since they have their own peculiar health problems quite distinct from those of the surrounding country. Hence it is that communities of this size present one of the most difficult problems in the entire field of public health administration.

In the United States, modern public health work had its first development in certain of our large cities. Next came efficient state health departments. More recently a number of cities of less imposing rank have begun to do excellent public health work. Still more recently we have found much time and attention devoted—and very properly so—to the subject of rural sanitation.

In consequence of the developments just referred to, it may safely be asserted that we have today in this country a far more satisfactory mass of information on public health administration for states and for cities of, say, over 25,000 inhabitants, on the one hand, and for rural sections, on the other hand, than we have for the intermediate communities, namely, those of less than 25,000 and particularly those of less than 10,000 or 15,000.

In various ways the attempt has been made to deal with the problem of health administration in these small communities. Inclusion as part of a really efficient county health department, special arrangements with the state department of health, the combination of several favorably located small communities under a single administration of their health affairs which is better than any one of them could individually afford—these are among the measures that have worked well in special cases.

* Read before the Section on Preventive Medicine and Public Health at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. For all statistical data in this paper, I am indebted to Mr. C. S. Sloane, Geographer, United States Bureau of the Census.

The very difficulties of the small cities made it also difficult to find just the man to discuss their problems from the standpoint of actual experience. So we are fortunate in getting Dr. Armstrong to handle this subject. The Framingham situation is, of course, most exceptional. But Dr. Armstrong himself realizes this fully and may be relied on not to present the Framingham work as a thing which may be followed—certainly not as yet—in the ordinary small city.

2. CITIES WITH POPULATION FROM 20,000 TO 100,000

The group of cities containing from 20,000 to 100,000 inhabitants embraces 271 communities, or 35.2 per cent. of all the cities in the United States. Their aggregate population is 10,717,775, which means that 10.5 per cent. of the people of the United States and 25.7 per cent. of the urban population live in cities of this group.

In discussing health administration for this group of cities, Dr. Furstman has a difficult task, since, more than any other group as arranged for the purposes of this symposium, it embraces cities of widely different requirements at the two ends of the scale. It is, for example, open to question whether a city whose population slightly exceeds 20,000 should, as the practice of public health now stands, have a whole-time health officer. On the other hand, there can be no question that every city, long before its population reaches the 100,000 mark, should have a health officer who not only devotes his whole time to his public duties, but who is trained in sanitary science and who possesses considerable executive ability.

In many other particulars there is a wide difference between the requirements and the methods to be followed in the rather mixed class of cities which have been included in this single group. This difficulty will give Dr. Furstman full opportunity to exercise that ability which he has shown as health commissioner of La Crosse.

3. CITIES WITH POPULATION FROM 100,000 TO 500,000

The group of cities that have populations between 100,000 and 500,000 is numerically the smallest that will be considered in the papers of this symposium. It includes fifty-six municipalities, or only 7.3 per cent. of the 770. The aggregate population, on the other hand, is the greatest of all, being 11,157,102, which is 10.9 per cent. of the total population of continental United States and 26.7 per cent. of its urban population.

In spite of the fact that the margin of 400,000 between the upper and lower limit of population in this group is by far the largest that is found in any of the three groups covered by our papers, nevertheless this group is the most homogeneous of the three, by reason of the fundamental fact that every city in the group should have at the head of its department of health an officer equally expert in sanitary science and in the handling of men. After this basic requirement is satisfied, all else becomes merely a question of giving to the right man abundant financial and moral support and a free hand in the development of a department of health which, however much he may be helped by study of what has been done elsewhere, he must work out to suit the peculiar circumstances and needs of his own community.

Cities in this group should each have a real department of health, not merely a board of health with a

chief executive officer who is required to be a sanitary jack of all trades, a condition almost necessary in smaller communities. With increasing insistence, as we go from the lower to the upper limit of population in this group of cities, the health officer should be relieved of detail work by surrounding himself with able men in each of the department's activities.

Health administration in this group of cities will be dealt with by Dr. Landis, whose work and accomplishments as health officer of Cincinnati entitle him to speak with real authority.

In the arrangement of this symposium on municipal health administration, we have sought to make it of a practical nature, in the hope that the papers that follow may be of real help to those who are now in control of city health departments or who may later be called to this important field of work.

HEALTH ADMINISTRATION IN CITIES OF LESS THAN TWENTY THOUSAND POPULATION *

D. B. ARMSTRONG, M.D., M.A., M.S.

Assistant Secretary, National Tuberculosis Association; Executive
Officer, Framingham Community Health and
Tuberculosis Demonstration

FRAMINGHAM, MASS.

The writer is not and never has been a health officer in charge of routine health administrative work in a small city. On the other hand, as executive officer for the Framingham Community Health and Tuberculosis Demonstration, it has been possible to consider the small city health problems, with the more or less unique advantages of the laboratory worker having for his field an urban community as a social laboratory. It is true that, with adequate funds for health work along various lines available in the demonstration budget, it may be considered that conditions are far from typical. Further, Framingham as a field for experience is under New England town government and in that way differs from similar communities in other parts of the United States in its form of official administration.

Because of the advantages, as well as the limitations inherent in this experience background, no attempt will be made herein to give an historical résumé of small city health conditions. An effort will be made to analyze with some thoroughness the health needs of communities of this kind and the author will endeavor, primarily on the basis of the Framingham experience, to suggest methods for meeting these needs.

While the object of this paper is to discuss in general the health needs of cities of this size, and not to describe in particular the Framingham activities, it may be wise to state that the experience in Framingham is being acquired in a reasonably average American community. Framingham now has a population of 18,000 people, of which more than 6,500 are directly engaged in industry. More than 27 per cent. are foreign born, and in the last five years the town has experienced a growth in population of 22 per cent. The industries are varied, and the social, racial, and economic conditions are typical of a normal industrial town.

* Read before the Section on Preventive Medicine and Public Health at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

HEALTH STATISTICS OF SMALL CITIES

As a justification for giving consideration to the health needs of the smaller cities, it may be pointed out that, of the entire population of the United States, July 1, 1916, 7,629,128 individuals were resident in communities having a population of more than 8,000 and less than 25,000. A further analysis of the 1915 census shows that for the registration area, there were at that time 262 cities with a population of more than 10,000 and less than 25,000. The population, the total number of deaths, and the general death rate for special groups of these cities are indicated in Table 1.

TABLE 1.—POPULATION AND GENERAL DEATH RATE FOR TWO HUNDRED AND SIXTY-TWO CITIES IN REGISTRATION AREA BETWEEN TEN THOUSAND AND TWENTY-FIVE THOUSAND

City Groups	Population	Total Deaths	General Death Rate
All cities	4,251,823	60,104	14.1
New England cities	851,136	11,589	13.6
Massachusetts cities	449,958	5,582	12.4
N. E. without Mass. cities	401,178	6,007	15.0
All cities outside New England....	3,400,687	48,515	14.3

From this table it will be noted that cities of this class have a reasonably good general death rate (14.1). Massachusetts cities have considerably better than the average rate (12.4), while New England without Massachusetts has slightly more than the average (15.0). It may be interesting to point out that in 1915, Framingham, with 13,815 people and 242 deaths (residents and nonresidents, without stillbirths) had a general death rate of 17.5. This rate corrected for nonresidents was for that year 13.5. For the decade from 1906 to 1916, the general death rate including nonresidents was 15.3 for Framingham. In 1917 this rate was 15.1 (11.1 when nonresidents are excluded).

Another reasonably reliable criterion of health conditions in any community is the situation in regard to tuberculosis mortality. Consequently, an effort has been made on a similar scale to ascertain the mortality of tuberculosis for cities of the smaller size. The 1915 census has been used as a basis here also, and the rates cover all forms of tuberculosis.

TABLE 2.—DEATH RATES FROM TUBERCULOSIS IN ONE HUNDRED AND SEVEN TOWNS

Rates per Hundred Thousand	Cities Falling in Corresponding Rate Class
31 to 60	10
61 to 90	23
91 to 120	22
121 to 150	15
151 to 180	12
181 to 210	12
211 to 310	11
311 to 410	2

For the registration area as a whole in 1915, with a population of 67,336,992 (67 per cent. of the total population of the United States), there were 98,194 deaths certified as tuberculosis, giving a death rate of 145.8 per hundred thousand. In comparing conditions in smaller cities with the registration area as a whole, I have selected five towns in each registration state with a population of more than 10,000 and less than 25,000, except when the states had fewer than five cities of this size. Institution towns, with corresponding above average rates have not been included. This selection gave 107 towns in all, twenty-five of which were in New England. The distribution of all these towns according to tuberculosis rates is set forth in Table 2.

It will be noted that the majority of these cities show tuberculosis rates of less than the average for the registration area. For the most part, cities with higher rates are from southern territories with large colored populations.

Tuberculosis rates in the twenty-five New England cities are distributed according to the figures set forth in Table 3.

TABLE 3.—TUBERCULOSIS RATES IN TWENTY-FIVE NEW ENGLAND CITIES

Rates per Hundred Thousand	Cities Falling in Corresponding Rate Class
51 to 80	6
81 to 110	7
111 to 140	1
141 to 170	6
171 to 200	3
201 to 250	2

It will be noted that approximately half these cities fall below the registration area rate. For any single town, the rates show wide fluctuations yearly, because of the small population involved. In 1915, for instance, Framingham had an exceptionally low rate, 65.1. For the decade 1906 to 1916, the average rate was 99. On the other hand, a study of the reliability of death certification in Framingham indicated that the more probable tuberculosis mortality would be represented by a rate 22 per cent. more than the stated rate. For Framingham, this would give for the decade a rate of 121.5 per hundred thousand, and for the year 1915 a rate of 90.7 per hundred thousand. On the other hand, it is safe to assume that approximately this same error would be found in other communities.

ROUTINE HEALTH PROBLEMS OF CITIES

To return to the direct consideration of the small city health problems, it is obvious that in many respects the factors involved are similar to those met with in the larger municipalities. The routine health problems which cities of all sizes have in common may be briefly indicated as follows:

1. General sanitation. Those responsible for health administration have to deal with matters of general sanitation, such as water supply, milk and food control, sewage disposal, mosquito and fly suppression, regulation of stables, privies, wells, etc.
2. Communicable disease. The health officer is concerned with the control of contagious disease, the suppression of typhoid fever, tuberculosis, etc., and the provision of laboratory facilities for the carrying out of diagnostic and therapeutic measures.
3. Infant life. The provisions for adequate supervisory and educational activities along prenatal, obstetric, and postnatal lines, reaching into the preschool period are essential in the care of infants, and include nursing, clinics and social efforts.
4. School life. The needs of small and large towns alike involve the provision of medical, clinic, and nursing service among schoolchildren.
5. Industrial life. The industrial workers everywhere, regardless of community size, should have provided for them, from public or private resources, adequate medical, nursing, dispensary, first aid, and social service facilities.
6. The middle age. The problems of adult hygiene and of the control of degenerative diseases are the same everywhere, and may be met in small cities as well as in larger communities by the institution of hygienic, educational, and life extension procedures.

DIFFERENCES BETWEEN LARGE AND SMALL
COMMUNITIES

Of greater interest than the similarity in problems are the differences that characterize the smaller communities in regard to their hygienic problems. In addition to specific and obvious differences, significant, yet intangible, factors of personality enter into the small town problem, making health administration there sometimes more direct and yet again more difficult.

1. In the first place, the relation of the health administrator to the practicing physician is of necessity more intimate and direct. His contacts are more frequent and more personal. A larger percentage of the population receiving medical care is in the hands of private physicians. Dispensary with outpatient service is less developed, the practice of medicine is less depersonalized. The official town agent, whether tuberculosis nurse or infant welfare nurse, etc., will find herself more frequently dealing with the family physician, and for that reason adaptability, tact, and tolerance are, if anything, more necessary in the smaller community than in the larger.

2. The development of group, "wholesale," or dispensary therapeutic services is less apt to be found in the smaller community and more difficult to establish, for medical as well as for economic reasons.

3. The atmosphere of intimacy which characterizes the relationship between the health administrator and the average citizen must seriously modify the type of educational work that can be carried on in the small community. The health officer, even in addressing the foreign-born and foreign-speaking people in his community, is appealing, not to an impersonal mass of humanity, but to his neighbors whom he meets daily on the street, in the stores, at church, at town meetings, etc.

4. Contrary to what one at first thought might suppose, an inferior degree of cohesion is characteristic of the smaller towns, particularly the New England towns, which more nearly coincide with townships in other sections of the country, and which are spread out over wider territories, frequently being composed of numerous villages, each with a greater or lesser degree of autonomy. Separate neighborhoods, sometimes of special races, are frequently isolated; hygienic conditions in regard to fundamental necessities, such as water supply and sewage disposal, frequently vary tremendously within the limits of the municipality; factories are of diverse types; the milk supply is most heterogeneous, etc.

5. In communities with a relatively small population, age, sex, and race factors may vary radically from average conditions found in larger and more representative units.

6. Many towns, particularly in New England, comprise in their limits a fringe of rural life, presenting special problems of farm hygiene.

7. Hospital facilities, of course, vary for each community, though presumably for most small towns they are less adequate, not only in regard to beds, but also in regard to special and oftentimes even routine medical service, than they are in the larger cities. On the other hand, a smaller community which is the trading and population center for a large semi-urban or rural district, may not only have excellent hospital facilities, but because it is the hospital center for a large popula-

tion outside the community's own limits, it may have its morbidity and mortality rates seriously affected, unless corrections are made for nonresident illnesses and deaths.

8. All American communities are intolerant of so-called expert services. This is one of the fundamental defects which American democracy must remedy. The man specially trained for any piece of work is still ill-received by the average American community, and has not successfully been made a part of the community life. The recent vicious political attack on the health administration in New York City has met with indifference, if not support, by the rank and file of New York City citizens, largely because the municipality is reacting against the specialist service preeminently characteristic of the previous administration. This is true, of course, along other lines than health. Further, the same difficulty is, if anything, augmented in the smaller American community, for there more than in the larger cities, the citizens, expressing themselves through town meeting, or other local municipal organization, indulge themselves in a belief in the myth of early Grecian democracy, that each individual, be he only a "free man," is capable of governing in any capacity whatsoever, without regard to special training or modern technical requirements.

HEALTH MACHINERY

In discussing the machinery which ought to be provided in order to meet effectively the health needs of the smaller community, no attention will be paid to the cooperative plans that have been developed where small towns adjacent to one another have administered their health work in common. It is assumed that consideration needs to be given to an isolated or at least an independent autonomous community needing and capable of supporting an adequate health machinery of its own. It is the intention of the writer to give primary consideration to routine health machinery, first from the point of view of public provision, and second, through the machinery which private agencies in the normal community might, for the time at least, be expected to provide. Further, there will be discussed certain special health measures which are being experimented with in Framingham, and which, if demonstrated to be a success, may eventually be incorporated, in this community at least, into the routine machinery, and which may subsequently, as a result of this demonstration, be considered routine necessities.

ROUTINE HEALTH MACHINERY

A. Public Provision: 1. Board of health work. It is safe to assume that the health work of a community of 20,000 cannot be administered effectively on a part-time basis. The needs of such a community, as outlined earlier, indicate that full-time service must be required. Further, the Framingham experience has demonstrated that even a conservative New England community may be encouraged to appropriate sufficient funds to make full-time, reasonably adequate service possible. In order to meet the medical, sanitary, laboratory, nursing, and office necessities of a community of this size, the following staff is required: a medical officer of health, a sanitarian (laboratory worker), a tuberculosis nurse, an infant welfare nurse, and a secretary (stenographer). Further equipment includes two or more infant welfare clinics and a small laboratory.

2. School health work. In some communities the school health work may be administered by the board of health, and in others by the school committee. It is probable that an economy in administration will result in having the school health work handled by the board of health staff. In either case, however, the following staff is necessary for a community of this size: one full-time physician, two school nurses, a part-time dentist, and a physical director. Additional equipment will include a dental clinic, an eye refraction clinic, a nose and throat clinic, several open-air classes, provision for school lunches, etc.

B. Private Provision: 1. Hospital facilities. In addition to whatever routine private hospital facilities the community may possess, arrangements should be made for the local isolation of communicable disease, an outpatient service on a pay, self-supporting basis, a sun room and perhaps other facilities for the nonpulmonary cases of tuberculosis, district nursing work, etc. There are practical advantages in having the local district nursing work administered from the hospital, particularly if the hospital operates a nurses' training school; for the nurses in training, under adequate supervision, may be used in the district work.

2. Industrial medical service. Full-time medical, nursing, clinic, and first-aid facilities should be provided at the expense of the industries, for convenient units of the industrial population. This work in the industries may for the most part be largely diagnostic, the therapeutic service being provided by private physicians, and by the outpatient pay clinic mentioned above. Single industries are not large enough to afford full-time service, medical and nursing provision may be made on a joint basis, several industries, preferably similar in type, combining to purchase this service.

3. Private civic provision. Through the creation of a community-wide civic association, essential health activities may be established on a basis of private resources. This provision should meet the needs of recreation, relief, public health education, social organization for health, athletics, and life extension work. The staff necessary for this work will include a social worker, an athletic director, a stenographer, and possibly a special investigator.

SPECIAL HEALTH MACHINERY

In addition to these routine activities, certain experimental activities have been created or are being created in the Framingham "health laboratory." Most of the services to be discussed under this head are distinctly experimental in character, as their usefulness and self-supporting qualities must be established before their recommendation for adoption to the community will be considered as justified. If it can be demonstrated that they meet recognized community needs, some of them would eventually become a part of the town's official health work; others would be taken up by private agencies. These services might be briefly discussed as follows:

1. Industrial Medical Service for the Smaller Industries: It is hoped that a few of the smaller industries in Framingham, not yet provided with full-time medical and nursing service, may be persuaded to cooperate with each other in the purchase of this service. If sufficient appropriations are made to cover the salary of full-time physicians and nurses, there is no reason why this work might not eventually be absorbed by the community and supervised by the local health

authorities. Presumably, also, the similar services already established in the larger industries will be coordinated with the service to be established in the smaller plants, and will be supervised by the same central authority, at no expense to the town itself.

2. A Central Milk Pasteurization Plant: In order to encourage the pasteurization of milk, and to make this measure possible for the smaller producers in this community, a central plant for the collection, pasteurization, and distribution of milk is proposed. Once established, this also should be operated on a self-supporting basis, and might be supervised by the local health authorities.

3. An Outpatient Medical Service: With the diagnostic work which is now being carried out in the schools, factories, infant clinics, and elsewhere, the need of facilities for treatment is emphasized. On the other hand, it is believed that these facilities should be established on a self-supporting basis, local medical service should be employed, and adequate compensation should be offered to the physicians engaged for this work. Presumably this work should be carried out in cooperation with the local hospitals, though its coordination and supervision might be directly under the local medical officer of health.

4. An Expert Medical Consultation Service: This service, already in operation for more than a year in Framingham under the auspices of the demonstration, has proved its worth, not only in the detection of tuberculosis, but also in the diagnosis of other conditions. Such a service would seem a necessity for any community, regardless of size, but particularly for smaller communities, where expert facilities are more frequently lacking. There is no reason why this service should not eventually be, in part at least, self-supporting, and its ultimate sponsors might be the local hospitals, the local health authorities, or the local medical organization.

5. Medical Examination or Life Extension Work: Already in Framingham, more than 5,000, or nearly one third of the population, have been examined, largely by physicians from out of town. The citizens are in increasing numbers calling on the local physicians for routine health examination work. This practice of annual medical inspection for the adult population outside the schools and factories should be extended and placed, if possible, on a permanent basis. Its ultimate supervision might be located in the official or private agencies mentioned previously.

6. Community Houses: Already there have been established, under the auspices of the school committee and the local industries, two community houses in Framingham. The programs for these civic centers include a large amount of health work along educational and organization lines. These agencies, while not directly self-supporting, are already established under local auspices and should perhaps be extended into other neighborhoods of the community.

7. A Summer Camp for Children: Such a camp, providing fresh air, recreation, food, and educational supervision for many children of the school and pre-school age in the community, should become a permanent factor in the hygienic life of the town. While it cannot perhaps be made self-supporting, the per capita cost is small, particularly if operated as a day camp, and the results would justify public or private agencies in devoting sufficient funds to this work.

8. Neighborhood Health Committees: These have already been established in all parts of Framingham, and the expense involved in the maintenance of this intimate, neighborhood, social organization for disease detection and health promotion is extremely slight, other than the necessary supervision, which might eventually be given by a full-time worker employed by the local civic organization.

COST OF COMMUNITY HEALTH ORGANIZATION

The cost of an adequate community organization for health, as outlined in the foregoing discussion is, of course, the determining factor in its practicability. At the present time communities of this size are spending on an average of not more than 20 or 30 cents per capita on health work, from both private and public sources. Framingham, when chosen for the demonstration, was spending about 40 cents per capita. It is now spending from the public funds approximately 82 cents per capita, which compares very favorably with any community in the United States, regardless of size. Framingham is doing this without, in any way, being conscious of undue public financial burden. In addition, private agencies, including industries, are now spending nearly \$1 per capita on medical and health service.

In considering the cost of adequate health machinery to the average community, attention will be paid only to the routine procedures previously outlined. These will be considered in groups corresponding to the services previously outlined.

A. Expenditures for Public Facilities.—1. The board of health. An adequate budget for a local board of health should total approximately \$12,000, distributed as follows: medical officer of health, \$2,500; sanitarian, \$1,600; tuberculosis and infant welfare nurses, \$2,400; secretary, \$800; miscellaneous (including communicable disease work, dispensary work, laboratory work, transportation, office maintenance, etc.), \$4,700.

2. The school health work. An adequate school budget ought not to exceed \$6,000, distributed as follows: full-time physician, \$2,500; school nurses, \$2,200; part-time dentist, \$500; clinic expense, \$800.

This would give from public funds a total of \$18,000, or approximately \$1 per capita. In most communities a considerable saving, as far as public health expenditures are concerned, could be realized by the elimination from the health budget of certain items having no bearing on the morbidity or mortality rates. In Framingham, for instance, the board of health expenditures now include items totaling more than \$1,500, made up approximately as follows: garbage collection, \$625; plumbing inspector, \$600; removal of dead animals, \$30; slaughtering, \$300. Practically all these activities might preferably be met by appropriations in other departments, thereby decreasing the burden which health work now carries, though obviously not decreasing the total town appropriations.

B. Expenditure for Private Health Activities.—

1. In order to provide medical, nursing and other health machinery for the industrial workers in a typical manufacturing community of the size under consideration, it is estimated, on a basis of the Framingham experience, that the annual expenditures will amount approximately to \$18,000 a year. This

will provide at least three full-time physicians, several nurses, and clinic maintenance.

2. Civic activities. An annual budget of \$4,000 for a civic association might be distributed as follows: secretary and investigator, \$1,500; physical director, \$1,200; stenographer, \$800; miscellaneous, \$500. On the other hand, many of the activities which might be undertaken, such as gymnasium class work, will prove in part self-supporting.

The entire expenditure necessary to meet the private health needs, including the needs of industry, ought not to amount to more than \$20,000 to \$22,000, or a little more than \$1 per capita. On this basis, the entire community health expenditures from public and private sources would amount approximately to \$2 per capita.

PRACTICAL RESULTS IN FRAMINGHAM

It is hoped that the unusual opportunities and resources now available from outside sources in Framingham will throw light on the value, not only of routine procedures, but of the special measures there being tried out. On a basis of the work there, many activities falling both in the routine and special categories may eventually be discarded or permanently adopted. Of course, in Framingham, the main object of the work is to discover and eliminate tuberculosis. On the other hand, as has been indicated in the foregoing paper, every opportunity is being seized to stimulate action along allied lines, and to develop a community-wide machinery for detection of disease and creation of health.

The work in Framingham was initiated shortly before Jan. 1, 1917, and was in part well under way during a fraction of that year. A summary of the mortality findings for 1917 in Framingham may be of interest, as indicating the conditions under which the demonstration was working, and the statistical basis with which its subsequent results will have to be compared. The situation in regard to mortality, as indicated for 1917, is not offered as a manifestation of the effect of the demonstration program. All that can be said at the present time is that it indicates a tendency, which, being in the direction of lower rates, must be maintained and if possible accelerated, if the measures now being tested are to prove of worth.

In Framingham, during the decade from 1906 to 1916, the general death rate including nonresidents was 15.3 per thousand. In 1917 it was 15.1. When nonresidents are excluded, the general death rate for this decade was 13.65, and for 1917, it was 11.1. The tuberculosis death rate per hundred thousand, corrected for nonresidents and death certification errors, was 121.5 for the preceding decade, and 99.0 for 1917. While infant mortality rates for the decade are unreliable, because of the inadequate birth registration, the infant death rate per thousand born in 1916 was 81, and for 1917, 73.

Thus far in Framingham, as has been adequately illustrated in the preceding discussion, the community, both publicly and privately, has been most generous in its support and in its endeavor to meet its own health obligations. The committee in charge of the work in Framingham are encouraged to believe that communities elsewhere, having this example, will endeavor to provide measures for health. Framingham is attempting to set these standards. Thus the nation's municipal health experimental laboratory may also become the nation's health town.

PUBLIC HEALTH ADMINISTRATION IN
CITIES OF FROM TWENTY THOU-
SAND TO ONE HUNDRED
THOUSAND *

J. M. FURSTMAN, M.D.

Commissioner of Health
LA CROSSE, WIS.

From the title of this paper you will undoubtedly realize that it is quite difficult to lay out a plan of health work that will be suitable for all. The question thus arises, why should this task be difficult? Should not health work be the same in a city of 20,000 as it is in a city of 100,000 or more, only somewhat modified to meet local conditions?

You have undoubtedly tried to compare the work of various health departments from annual reports issued by them and found it next to impossible to do so. The greatest single need is probably standardization. In other words, there appears to be no standard of measurement. The public health official realizes that such standardization will promote a unification of thought and action, which will make it possible for him to devise ways and means of fairly competing in the field of public health endeavor.

There is no question that every one engaged in public health work is trying to do what he thinks will accomplish the best results. But is he doing it? Have we as health officers, in the administration of our duties, kept pace with the advancement in public health work? Have we seen to it that the laws relative to public health work have been changed to conform with modern ideas, or are most of us still endeavoring to work under the ancient laws that were passed when contagious diseases were looked on as something mysterious?

Are we as health officers getting the best results for the money that is being spent on health work? It is my opinion that most of us are not. And why not? For the simple reason that we are not all working along the same lines. There is no definite standard laid out for health workers to follow.

In a questionnaire sent out to a number of cities ranging in size from 20,000 to 100,000, I found that considerable attention is spent, and money as well, on garbage collection and sanitary inspection, the latter including the inspection of alleys, outhouses, yards and foods, but little or no money is spent on laboratory facilities, medical inspection of schools and infant welfare work. As a matter of fact, most of the work done in the smaller cities consists in quarantining and fumigating for contagious diseases, in looking up nuisances and collecting garbage. The last branch of the work receives the bulk of the appropriation.

If the merchant or manufacturer hopes to succeed against competition, he must by good accounting learn which goods yield the highest profit. So the health officer, if he wishes his department to have its due share of the municipal budget, must learn which line of work yields the most for the sum expended. He should seek greater financial assistance for the most effective work and should eliminate, cut down, or at least not emphasize, those functions which yield little

return for the money. It is difficult to change the direction of sanitary endeavor, but certainly it is our duty at frequent intervals to take account of stock and try thereby to discover the most profitable lines. It is also our duty clearly to set forth our conclusions, even though it may not be easy to convert the public, and particularly town and city councils, to new points of view.

ADVANCEMENT IN PUBLIC HEALTH WORK

There has been considerable advancement in public health work within the last fifteen years, and as we learn more about the causes of the various diseases, our methods of control change.

Years ago when a typhoid fever epidemic presented itself in a community, general orders would be issued to whitewash basements, yards would be cleaned, plumbing would be overhauled, etc., but the epidemic continued just the same because little was then known of the four great public routes of infection, namely, water, milk, food and flies, and what is still more important, carriers and missed cases.

When diphtheria broke out in school, the school would be closed for a few days, the building would be fumigated and the children would be permitted to return to school, but the diphtheria continued. Why? Because no laboratory facilities were at hand to detect the carriers.

In the past we have paid altogether too much attention to the environment and too little to the individual in the spread of contagious diseases. Most men engaged in public health work today are of the belief that contagious diseases are spread by the fresh discharges of the individual and that fomites play no part in the spread unless they are infected with fresh discharges. If this theory is correct, then we must educate the public to understand that fact. The sooner this is done, the sooner will men engaged in public health work be able to spend their appropriations for the more important phases of health work and thereby accomplish the most for the money expended.

DUTIES OF A HEALTH DEPARTMENT

In enumerating the administrative work of a health department, I am going to emphasize what seems the most important duties for the department to undertake.

First, the head of the health department should be a physician, who is especially trained in sanitation and hygiene. It should be his duty to teach the public about the preservation of health and the prevention of disease. The medical graduate of the past has not had this training, because of the limited amount of instruction in sanitation and hygiene that the schools then offered.

In the past the study of medicine has based its teachings on the old principle of the cure of disease, and still continues to do so; while the new profession of medicine, the one we hope for, will certainly have to recast some of the methods of the old medicine, so that it will emphasize the prevention of disease.

If the head of the department is fully qualified to undertake the work, he should be given full authority to choose his subordinates and lay out the work, taking up such activities as he knows will bring the best results for the money available. It is absolutely essential that the department be divorced from politics and that the terms of office of the head be made secure. In La Crosse a board consisting of three members is appointed by the mayor, each member

* Read before the Section on Preventive Medicine and Public Health at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

serving three years. This board has full control of the health department and is out of politics. The head of the department is appointed by this board and is responsible to them only.

The following activities should be undertaken: (1) control of contagious diseases; (2) medical inspection of schools; (3) infant welfare work; (4) laboratory diagnosis; (5) sanitation; (6) vital statistics, and (7) publicity and education.

CONTROL OF COMMUNICABLE DISEASES

The control of communicable diseases is one of the most important factors in public health work. In order to establish control, the health department must have the full cooperation of the local physicians, for without the knowledge of the existence of these diseases the department would be just as useless as the fire department would be without the knowledge of where the fire was. A thorough investigation of epidemics as well as sporadic cases must be instituted, in order that we may get at the source of the trouble and check the epidemic before it goes too far.

The epidemiologist must always keep in mind the four great public routes of infection, namely, water, milk, food and flies, and since epidemics are the exception to the rule, in the handling of sporadic cases, which he will be confronted with most of the time, he must never lose sight of the mild, the missed and the carrier cases.

Antitoxin and vaccine should be furnished free to all by the department and people should be urged to make use of them. A program should be instituted for the prevention of venereal diseases and tuberculosis.

In the treatment of tuberculosis, the use of the county sanatorium has been and is being urged all over the country.

There is no doubt that tuberculosis sanatoriums do considerable good but I question if we are getting enough good out of the money we are spending for them.

I am firmly of the opinion that if the same amount of money were used in the employment of visiting nurses, who would see tuberculous patients at home and educate them how to care for themselves properly, a great deal more would be accomplished, especially since we, in most instances, get only the patients with fairly advanced cases into the institutions. The nurses, while doing their work in the homes, would be in a position to watch all other members in the family and thereby detect the early cases. If we are going to build institutions for the prevention of tuberculosis let us build preventoriums to take care of the overwhelming number of patients who have been exposed by those that are sent to sanatoriums and really constitute only a small percentage of the cases.

The question in my mind is, are we really handling tuberculosis properly with the county institution and are we progressing in the control of this disease as spent and yields big returns.

MEDICAL INSPECTION OF SCHOOLS

Medical inspection of schools is no longer in the experimental stage. We know positively that any amount of money spent along that direction is well spent and yields big returns.

Medical inspection of schools should include not only the control of contagious diseases but also the

routine inspection for physical defects, which is far more important, provided the children showing defects are followed up and the defects corrected.

In this great work, the visiting nurse makes her appearance and I wish to say that without her 90 per cent. of the value of school inspection would be lost. It is through the nurse's efforts in the home that we are able to get the results we are getting in school work. Medical inspection of schools should be under the supervision of the health department, rather than under the board of education. School boards have no authority, by precedence or by law, as have health departments, to follow back to its home outside the schools the ramification of the infection, of which the infected child in the school constitutes but one link. School boards also have no authority over nor information about the large number of children who are not of school age, nor concerning any adult, except those directly connected with the schools.

INFANT WELFARE WORK

This departmental activity surely needs no introduction. It has done and is doing more in health department work than any other activity. I am making this positive assertion because it is one of the activities in health work which, as we know by actual figures, is getting results.

Here again the nurse steps in, and without her we should be at sea. It was thought that clean milk and milk stations were the essential factors in reducing the infant death rate, but we really didn't begin to get results until the nurse was installed.

In this great work we must not lose sight of prenatal work nor of supervision of midwives and boarding-houses for infants.

In spite of the fact that every city undertaking infant welfare work has accomplished results in direct proportion to the amount of money it was willing to spend, it is surprising that many cities are spending considerable money for garbage collection, but not a dollar for this important activity.

LABORATORY DIAGNOSIS

A health department without laboratory facilities is about as efficient as a fire department would be without modern fire apparatus or an efficient water supply. A city, no matter how small, should have laboratory facilities, in order that the physician may be aided in making correct diagnosis and in that way be instrumental in lessening the number of contagious diseases. Examinations should be made for tuberculosis, typhoid, diphtheria and venereal diseases, and water and milk should be examined. The physicians should be encouraged at all times to make use of the laboratory. A laboratory in a community encourages more scientific work among physicians and consequently raises the standard in the community.

SANITATION

I am very sorry to say that sanitation as a phase of health work has been the most popular and one that is probably bringing us the least results for the money spent. With the old ideas as to the spread of contagious diseases we can readily see why this has been so popular. But since most of us know better, why don't we change our methods? Most of us know that we are not saving any lives through the removal of garbage and that this activity should be

taken out of health work, but we still continue to attend to it because the public demands that we take care of it. A great deal of money is being spent on food inspection, while little or nothing is being done to see whether the people that are handling the food are suffering from tuberculosis, venereal disease or other contagious diseases.

I do not want to infer that there is no good accomplished from proper sanitation, but I do think we have been giving altogether too much credit to this work. We all appreciate that it is essential to have a good water supply and that we must look after the milk supply, and in connection with the latter I wish to say that a great deal more time should be given the product on the dairy and less time spent in the chemical analysis of it.

Sanitation, as far as human excreta is concerned, is very essential and obtains results, therefore it is necessary that we have proper sewage disposal, and in smaller communities where there are no public sewers, especial attention should be given privies, because they are a direct menace to health. If they must remain, because of lack of sewers, they should be made as clean and flyless as possible.

VITAL STATISTICS

Without vital statistics, health departments would be at a loss to measure the progress made. Vital statistics are just as important to a health department as is the most careful accounting maintained by our most successful business enterprises. It is the book-keeping of the health department, and unless the statistics are accurately kept, they are of little or no value to us at all.

PUBLICITY AND EDUCATION

It is within the scope of publicity and education that the success of public health work lies. We have been progressing rapidly in public health work, but we have failed to keep the public informed of our progress. It was not until the public health nurse was added to the department that we were able to get the results we are getting in the reduction of infant mortality, and why? Because she went into the home, gained the confidence of the mother and then educated her in the proper handling, care and feeding of her baby. The public must be educated in health work. They must be shown that it is no longer a mystery. The facts must be put before them, and I am satisfied if this is done that health departments will not have the trouble they now have in getting sufficient appropriations for carrying on this important work.

How are we going to educate the public? By means of publicity, motion pictures, talks, little mother's classes and, most important of all, by means of the school teacher and the visiting nurse. The addition to the department of a paid publicity agent, who is well versed in health matters, and who could place the subject before the public so that the ordinary layman could understand it, would be money well spent.

CONCLUSION

I wish to bring out these facts:

1. We are badly in need of proper standardization of public health work and it is my belief that the best way to go about this is through the creation of a national department of health that would set a uniform standard of work for all health workers.

2. We must take an accounting of the work we are doing to see if we are getting enough results for the money we are spending and to see if we are spending it in the right direction.

3. If the health department is to get the best results, it must be divorced from politics.

4. If the public is properly educated in public health work and is kept informed as to the progress we are making, there will be little difficulty in our obtaining adequate appropriations for the work; and there will be less difficulty in health departments divorcing themselves from duties they know are not bringing results.

5. If the several branches enumerated cannot be taken up individually, I should suggest the following combinations: (1) control of contagious diseases, medical inspection and nursing; (2) food inspection and laboratory diagnosis; (3) vital statistics, and (4) sanitation.

6. Appropriations, instead of being made in lump sums, should be divided and the amount for each activity specified.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. LEVY, ARMSTRONG AND FURSTMAN

DR. JOHN DILL ROBERTSON, Chicago, said that there is not much difference between the health administration of a small community and a large one, because the latter is made up of a group of small communities. The cost per capita depends entirely on what is done. Is antitoxin given free to school-children in case of a diphtheria epidemic? Is every case to be hospitalized? If so, then a contagious disease hospital is a necessity. By doing these things, he said, \$5 per capita a year is not too much.

The health department is in reality a disease department. Money has been spent in fighting disease, rather than in preventing it. In Chicago about fifty cases of venereal diseases are reported each day. A venereal disease hospital has been opened to take care of that situation. About 2 to 4 per cent. of Chicago's population is tuberculous. A million a year, or 40 cents per capita, is spent in Chicago for tuberculosis work.

MR. EUGENE R. KELLEY, Boston, said that we are apt to regard county sanatoriums and hospitals as if they were addenda, whereas they are supplements. We cannot do without one or the other. Massachusetts, he said, has come nearer to supplying proper supervision through the public health nurse to all classes of population than any other city. A mandatory law requires that each community of 10,000 or more inhabitants should maintain a tuberculosis dispensary. The main part of the dispensary machinery should be the visiting nurse. The affected communities cover 85 per cent. of the whole population. The state is divided into eight health districts. One health nurse and one doctor correlate the work of the dispensary and look after the regular cases. The follow-up work of the State Sanatorium for Consumptives is also being done by these workers. About ninety of the Visiting Nurses' Association follow up tuberculous cases in addition to the bed tuberculous. The biggest obstacle that those nurses have, Mr. Kelley said, is the lack of suitable institutions and beds. After developing a state sanatorium, a number of institutions for county cases of tuberculosis were created. However, the nurse is as essential as the institution. The completely rounded-out program, in Mr. Kelley's opinion, would be to have the nurse working in the home, getting the patients into the institution and supervising them after they come back; the institution taking the cases that cannot be properly handled in the home.

DR. HERBERT L. WRIGHT, Kenosha, Wis., said that Kenosha will complete an isolation hospital soon. A health and dental clinic has been established; also a baby camp on an island in the lake, and a laboratory known as the State Cooperative Laboratory.

Publicity, Dr. Wright said, plays a very large part in the progress of health work. The public should be educated in regard to health activities. The people must see something. The baby camp and the dental clinic are tangible activities. Vital statistics also play a very large part.

DR. HERMAN N. BUNDESEN, Chicago, said that in Chicago all cases of tuberculosis are visited. If the patient does not take reasonable precaution, he is reinstructed. If after several investigations, the patient does not adhere to the rules, the authorities placard the premises for five days. If this does not bring results, the patient is hospitalized. Usually, after from five to six weeks, the patient asks to go home. If conditions at home are safe, he is discharged. If he is an open case, he is visited at least once a week, and if he is slipping on the instructions, he will again be hospitalized.

Dr. Bundesen said that the idea of the visiting nurses is impossible, impracticable. They have no authority. The health department has the authority. The sanatorium or visiting nurse cannot get the cooperation of the patient. The health department can handle the case. With authority, tuberculosis can be controlled like any other communicable disease.

DR. P. S. SCHENCK, Norfolk, Va., said that when Virginia passed some new child labor laws, two years ago, the health department was besieged with applications for birth certificates, about one in four or five of which could be supplied. In order to improve birth registration the King's Daughters were interested in this proposition. A force of 600 women was organized. The city was divided into districts, with about twenty workers in each district. Every house in the city was visited and every birth in every family for the past six years was registered. The state health department helped to check the reports. Not only have those ladies become interested in the birth registration, but they instructed the people as to future reports and getting in touch with the health department on other matters. In handling the food proposition, Dr. Schenck said, they organized the housewives. These ladies appointed a committee in every district in the city; visited the stores, and reported everything they saw that did not suit them. To control tuberculosis, an antituberculosis league was organized. A clinic was opened at which a small entrance fee is charged. The league has about 3,000 members. Two nurses and one doctor do this work.

DR. I. D. RAWLINGS, Chicago, said that hospitals are essential to the control of communicable diseases. Hospitals also make for much less hardship in the home. The quarantine restrictions in Chicago are very drastic in many respects. No worker can live at home unless absolutely shut off from all communication with his family when a major disease is under quarantine, hence, it is a kindness to that family to place the patient in a hospital where the care is far superior and the death rate smaller. Chicago is not doing much on prenatal work because of lack of funds. The requirements of the state department of health in the various states should be reasonable but effective, and then the communities in that state should be required to live up to these requirements. Scarcely a day passes that the Chicago Health Department does not ask cooperation of the police department in enforcing these requirements. About 180 cases of venereal disease are reported each week through the courts, and in many instances the judge parols in the regular routine manner. These people are either paroled to a physician, who will assume responsibility for treatment of those patients, and also guarantee that these women will not infect others while under treatment. Some persons who cannot be paroled are placed under treatment in a hospital set aside for that purpose.

DR. O. B. NESBIT, Gary, Ind., said that in Gary the "Children's Bureau" is making a survey of all children under 7 years of age. They are notified to come to school and a study is made of these children in the kindergarten and first grade. The parents are asked to be present at the examination. He believes that this work is more promising than the work of the visiting nurse. The parent should be encouraged to talk to the doctor. The people want to see and know

what the doctor says about things; it is a point in school work that has been neglected.

DR. HASBROUCK DE LAMATER, St. Joseph, Mo., said that in his city the salary of the full-time health officer is paid, in part, by the board of education and in part by the board of health, and also by means of donations from public spirited citizens. The duty of the health officer or director of hygiene is a preventive and educational one. Sickness comes under the Board of Public Welfare. They appoint their staff physicians, and all medical, surgical, obstetric cases are taken to the hospital or cared for in their homes by what they term the family physician. He is convinced that volunteer work in school inspection is worthless. The average practitioner will take care of his own patients first before he takes care of the school work. An ordinance in St. Joseph gives the director of hygiene power to go into the home and take out any infectious case, no matter what, even venereal disease, and hospitalize the patient. The system to carry on the public health work of the smaller cities, Dr. De Lamater said, must be adapted to that place. Too many men have been theoretical rather than practical.

DR. PETER BRICE, Montreal, Canada, said that he had compared the deaths and hospital cases in the sanatorium at Ottawa with those of the city of Hamilton, Ontario, both cities having about the same population. In Ottawa the death rate from tuberculosis has been high. Hamilton has been going down in the number of tuberculosis deaths. For several years the two cities have had sanatoriums or hospitals for advanced cases. In every respect the two cities have been similar. Ottawa has a very good organization, but Hamilton has a better organization. In 1916 Ottawa had 211 cases in the sanatorium. Hamilton had 246 cases. Ottawa had fifty-one deaths in the sanatorium; Hamilton had twelve cases. Hamilton had eighty-eight persons under 15 years of age under treatment out of the 246 cases. Ottawa had eighteen. Hamilton had 142 days' treatment for each case, on an average; Ottawa had ninety-five days. If the disease is discovered in its initial stage, and the patient is kept under treatment until practically cured, these cases will not become old cases, going to hospitals and dying, because they go in too late for treatment. The hospital is as essential as the visiting nurse, and the visiting nurse is as essential as the hospital. In Hamilton 90 per cent. of the patients in the sanatorium come through the nurses of the public schools. In Ottawa the nurses are not under the board of health, and they are not finding the early cases in children. The parochial schools have no nurses at all. The class of population whose children attend these schools furnishes the larger number of tuberculosis cases. Toronto has ninety-three public health nurses doing the district work. Last year they had eighty-six deaths in July among children under 1 year of age. Montreal had sixty with a population five times as great.

DR. C. J. O. HASTINGS, Toronto, Canada, said that the control of communicable disease which has been looked on as the "be all and end all" of public health administration, is only the fractional part of it, although it is essential. Health work must begin with the expectant mother. The conditions under which she is living and the revenue of the home, etc., must be such as to make it possible for her to bring into the world a fit offspring. Toronto has made provision for prenatal care, and the care of the child of preschool age, a period sadly neglected in public health work. Mothers have been supervised during the expectant period at "well baby clinics," of which Toronto has twenty-three. The children are brought there to be weighed, measured and examined by physicians. The follow-up work is done by the public health nurse. The children of preschool age that are left there while the mothers are working are examined. In that way many defective conditions of the child will be removed before it enters school. Dr. Hastings said that nine tenths of the efficient public health work is educational. In Toronto this work is done by the health authorities and not by the board of education. The importance of a complete physical examination of every child entering the school, having the parent present, cannot be overestimated. It is effective education. In nine cases out of ten, the parent witnesses the examina-

tion, and is delighted to know that they have a physical record of his or her child, or attention may have been drawn to some defective condition. Before the children leave school a complete physical examination ought to be made again, to determine the best vocation in life for that child.

Toronto has ninety-three public health nurses, taking up all activities in connection with the department. That includes the activities in connection with the school work. There are no school nurses or tuberculosis nurses or child welfare nurses. The public health nurse is doing the combined work. The school nurse, when her duties are done, so far as school is concerned, is visiting some of the homes in the district, ascertaining the conditions there. By specializing in the home rather than on the disease, the work is done much more economically and much more efficiently.

DR. DONALD B. ARMSTRONG, Framingham, Mass., emphasized the value of using women in canvassing and covering the different sections of a community for various purposes as was done in Norfolk. Framingham made use of neighborhood committees, and in one year increased the number of registered births by nearly 30 per cent. He suggested that very frequently that type of an organization can be made a permanent organization by selecting, on various streets, the leaders, those who have the most enthusiasm, and making them a permanent group for that particular neighborhood. When called on they will attend to the distribution of literature, canvassing for medical examination, reporting of sickness as well as births, and other things. Framingham has also organized the schoolchildren into "health crusaders." This has also been tried out in other communities, and is proving very profitable. About 80 or 90 per cent. of the children are health crusaders. They are members of clubs in their own schools, and are helping in various ways to do different things in the community, such as sanitary inspection. This educates the youngsters and furnishes useful information. Each child keeps his own score card of public health activities and various hygienic practices that he is supposed to observe, such as hand washing before meals, sleeping a certain number of hours, etc. All of this proves to be very useful, and has interested the children so that they are now "thinking health" primarily.

DR. J. M. FURSTMAN, La Crosse, Wis., speaking of tuberculosis said that a combination of both the institution and nursing service would be ideal. But with the smaller communities, with 200 and 250 cases of tuberculosis and an institution accommodating, say, only forty-four cases, not much would be accomplished by hospitalization. With the general practitioner, most of the cases reported are far advanced cases. There is not any question that other members of the family have already become infected. Contagious disease hospitals in the smaller communities, the speaker said, are an expensive proposition. If an arrangement could be made for some of the smaller hospitals to make an addition to the hospitals to take care of communicable diseases, the maintenance cost would be less, and more cases could be admitted. He is satisfied that we can get considerably better results for the small amount of money it is going to cost to take care of these cases in the hospitals. A hospital for communicable diseases with a bed capacity of forty would cost \$50,000. A small isolation hospital in connection with one of the hospitals gave facilities in La Crosse for taking care of twelve or fourteen people comfortably. This hospital has been remodeled, and now has facilities for about thirty-five. All the expense the city has had to bear is the taking care of the patient in the hospital. There is no overhead expense; no maintenance whatever. If that system can be adopted in the smaller communities, more cases can be hospitalized.

Ascaris Escapes Through Ear.—The little girl of 4 was taken suddenly with intense earache, but there was no fever, and paracentesis brought no pus. By the third day the child had syncope, violent nystagmus and general convulsions, and then something was seen in the ear which resembled the wormlike mass from a tube of tooth paste. It was seized with Kocher forceps and proved to be a male ascaris nearly 6 inches long.—*Revue de laryngologie*, 1918, **39**, 358.

THE ORGANIZATION OF HEALTH DEPARTMENTS

IN CITIES OF ONE HUNDRED THOUSAND TO FIVE HUNDRED THOUSAND POPULATION

J. H. LANDIS, M.D.

Health Officer

CINCINNATI

No hard and fast rule can be laid down for the organization of health departments for all cities of between 100,000 and 500,000 population.

Very few cities present exactly the same health problems. It follows, therefore, that while a general plan may be suggested, this plan must be flexible enough to meet varying needs due to purely local conditions.

At the present time, it would be difficult to find two cities with the same organization. Some are governed by an independent board; others are a division of some other department, such as the service or safety department; and still others are under a commissioner of health appointed by the mayor. Some have charge of hospitals, insane asylums, charitable and correctional institutions, plumbing and building inspection. In some cities, school medical inspection is a school board function, in others a health department function. Others include street cleaning and the disposal of ashes and garbage.

This lack of system leaves one practically helpless to make comparisons or to arrive at a definite conclusion as to the per capita expenditure of a given city for purely preventive medicine work.

The chaotic state in which we find the subject is probably due largely to differences in state laws and to the revolutionary political period through which American cities have been struggling. Geographic location is also of importance because of the special problems that may confront officials of coast cities or those located on or near international boundary lines. To the foregoing may be added the tremendous strides made in our knowledge of the subject of disease prevention during the past quarter of a century, and the slowness or rapidity with which this knowledge is applied.

In dealing with this subject, it is understood that nothing more than a skeleton form of organization can be outlined, and that the population to be served is to be taken into consideration in determining the number of employees working for the particular city under question.

Control by a board of experts has advantages that are hard to duplicate in any other method of organization. Among these may be mentioned a continuous policy, practically free from political interference due to changes in administration. Public health work is a highly specialized branch of medicine, requiring a vast amount of time to acquire the knowledge necessary to secure efficient results. Change in the executive officer and his force with each change in the general administration of a city results in disintegrating a trained force and substituting one inexperienced and necessarily inefficient. While incumbency is not synonymous with honesty and efficiency, the experience gained in eight years of public health work has given me a very high opinion of the honesty and efficiency of the average individual if freedom of action is assured him in the performance of his duties. Ser-

vice under an independent board insures freedom of action to a greater degree than can be hoped for when appointment comes from some other source.

Boards of health have legislative powers and are independent of other branches of the city government in passing necessary regulations. The work of the board necessarily gives it information concerning sanitary needs and the proper method of meeting them that is impracticable for others to acquire whose time is taken up largely with other duties. In other words, it specializes in its work, knows just what it wants, and takes the most direct method in securing it.

In their recommendations for an ideal health department for Minneapolis, Biggs and Winslow say:

The administration of health laws, as in the case of most other municipal activities, should be in the hands of either a single expert or a small body of experts, in order to obtain the best results. In most city departments the single commissioner is preferable to the board. In the case of the health department, however, the framing of ordinances requires the exercise of legislative powers which can not be entrusted to a single officer. If there is a single health commissioner with no board, the ordinance framing power must be left in the council. With the complexity and rapid progress of public health science on the one hand, and the pressure of private interests on the other, such a course is certain to be disastrous. It is for this reason that whatever may be the case in other departments of government, sanitary policies and legislation and administration can be most successfully developed and carried out by a board.

The work of a department of health includes a wide variety of functions, making it necessary to group those closely related into different divisions. These, in turn, may occupy ground that is common to two or more divisions, so that the best results can be obtained only by the fullest cooperation between the various divisions. The work of the divisions of medical inspection, food inspection and the laboratory in a milk-borne epidemic of diphtheria or typhoid fever may be cited as examples of instances in which three or more divisions might be actively engaged in solving one problem.

While very few health departments perform the same functions, most of them have divisions of general administration, medical inspection, food inspection, sanitary inspection, laboratory, and vital statistics, and I shall give these divisions consideration in developing the title of this paper.

GENERAL ADMINISTRATION

To general administration belong the executive officer, the clerk and stenographers. The successful executive officer must have something in addition to a knowledge of the game to insure success; he may have a very wide knowledge of his duties and yet be a failure as an executive. Brusqueness and incivility are no longer accepted by the public as infallible signs of genius, or excused on the ground of temperament or eccentricity. He must be able to secure results and do it without creating opposition. The ability to refuse unreasonable demands and send the applicant away feeling that he has been the recipient of unusual favors is one possessed by few men, but one that is very essential to success in public health work. He must be able to harmonize the little jealousies that do so much to disorganize a force and destroy its efficiency. In a word, he must be not only a master craftsman, but he must have the personality that counts for success in any walk in life. Similar per-

sonal qualities are essential for a successful clerk, for the reason that one weak link in the chain destroys the usefulness of the whole.

Publicity might well be placed in the division of general administration. The public knows what it sees, hears or reads. Where one gains knowledge by seeing or hearing, thousands learn by reading. For this reason, the activities of a department should be placed before the newspaper-reading public by some one individual in the department with special aptitude for that kind of work.

FOOD INSPECTION

The division of food inspection should employ experts only. Laymen cannot be expected to have the exact knowledge necessary for efficient work. Milk and dairy, and meat inspectors should be graduates in veterinary medicine. Since adopting this rule, Cincinnati's meat inspection service has been placed on a par with government meat inspection. The chief of the division must be familiar with all varieties of food and their multitudinous forms of adulteration. My ideal of a chief food inspector is one with this knowledge and the heart of a gladiator, for he needs that quality to place "the fear of God" in the hearts of that small minority whose rascally actions lower the tone of the entire food industry.

Food inspection should include surveillance over all foods, and the places and persons engaged in the industry, with authority to enforce regulations necessary to protect the general public from articles detrimental to health. Most forms of adulteration are commercial frauds, and their detection could very properly be assigned to some other department. It is the meat and milk supplies and other perishable foods that require constant watchfulness on the part of the food inspection division. Close cooperation with the division of infectious diseases is necessary in order that food-infected foci may be located and proper steps taken to limit the spread of infectious diseases. One or more central points for the pasteurization of milk, under supervision of the health department, would be the most important step that could be taken to minimize the spread of infection through this important article of food.

MEDICAL INSPECTION

The division of medical inspection should have as its chief an expert in the differential diagnosis of the acute infections. Medical inspection should include medical relief of the poor, surveillance over infectious diseases, the enforcement of quarantine, school medical inspection, open air schools, pure milk stations, dental inspection, epidemiologic study of the acute infections, the isolation of diseased prostitutes, prenatal and postnatal instructions, prevention of infant mortality, control of tuberculosis with special reference to the removal and detention of vicious consumptives, and control of midwives with particular attention to the prevention of blindness.

Management of hospitals, insane asylums, and correctional or charitable institutions has no place in public health work except to control the method of admitting and discharging cases of infectious disease and general sanitation of the institution.

School medical inspection should be under the control of health departments. If carried on by the board of education, twilight zones of authority are created that cripple efficiency and give rise to needless fric-

tion. In other words, a division of authority always paves the way for inefficiency or leads to a duplication of effort and expense.

Full-time work is an absolute essential for district physicians if the best results are to be obtained and friction between the family physician and district physician is to be reduced to a minimum. Since the adoption of this policy in the Cincinnati Health Department, the work of the district physicians shows an increased efficiency of about 40 per cent., and misunderstanding with the general profession has practically disappeared. As they have no private practice, there is no ground for the suspicion that their acts may be inspired by selfish motives.

An adequate force of nurses is necessary to follow up the cases. Their influence in the home has been of the greatest importance in securing compliance with the recommendations of the district physicians.

The epidemiologic study of tuberculosis has been neglected. It is reasonable to believe that much could be learned that is now unknown concerning the spread of this disease, and the application of this knowledge would result in decreasing the morbidity and mortality rates from this cause. Every city of the first class should have one or more experts giving all their time to the study of this disease. These experts would logically be a part of the force engaged in carrying on the subdivision of tuberculosis.

The results obtained in cities devoting special attention to prenatal and postnatal instruction, to the control of ophthalmia neonatorum, and to the prevention of infant mortality, more than justify the expenditure necessary to provide the nursing and medical service.

Cincinnati's Association for the Welfare of the Blind, for example, in two years treated fifty-nine cases of "sore eyes" in new-born infants without blindness occurring in any case. This was done at an annual cost of about \$1,000 to the Association, and includes the salary and incidental expenses for a nurse. It is not to be assumed that all of these cases would have resulted in blindness had the patients received no treatment, but the chances are that many of them would have become life-long dependents from this cause. If only one was saved from this fate, the cost of prevention returns a dividend to the state for education alone of 450 per cent. Assuming that all were saved from blindness, the return on the investment amounts to 13,075 per cent., or \$261,500. The foregoing figures are very conservative, for they take no account of the blind pension and other expenses borne by public and private charity or of the economic loss due to impaired productive units.

Other figures showing the enormous economic saving brought about directly through public health work could be brought forward that would stagger the imagination.

The prevention of infant mortality means coordinating the efforts of numerous functions. Improvement in milk and water supply, the establishment of pure milk stations, the education of parents through lectures delivered to mothers' clubs, and through visiting nurses, have resulted in a reduction since 1910 in deaths from diarrheal diseases in infants under 2 years in Cincinnati from 104 to 40 per hundred thousand of population. The economic saving in eight years, assuming the potential value of an infant to be \$1,000, amounts to over a million dollars, which amount is hundreds of thousands of dollars in excess of what it cost to run the entire health department

during that period. Intelligent expenditure of a small amount of money on prenatal and postnatal instruction would result in still further reducing infant deaths from preventable causes.

SANITARY INSPECTION

The division of sanitary inspection is confronted with problems of sufficient importance to require a chief who is a graduate in sanitary engineering.

As plumbing, heating, lighting and ventilating are all vital factors in determining the average state of health of a community, it seems rational to include plumbing, building, workshop, factory and tenement house inspection in this division. In Cincinnati, plumbing, building and tenement house inspection are in a subdivision of the department of public safety, while workshop and factory inspection is performed by the state. The arrangement is not a happy one for the reason that it is impossible to define accurately the line of authority separating the three departments. Work is duplicated, and not infrequently one may find three sets of orders on the same property, differing one from the other according to the personal views of the inspectors.

Close cooperation should exist between the division of sanitary inspection and accredited delegates from labor unions. In Cincinnati, the sanitarians of organized labor meet with the sanitary chief twice each month. Information concerning insanitary conditions in workshops and factories is solicited, special care being observed to suppress the source of the complaint. A vast amount of good has been accomplished, and the unions are enthusiastic in their support of the plan. The complaints are referred to the building inspector, the state inspector, or the sanitary division of the health department, according to the nature of the complaint, and the proper authority to conduct an investigation. While the work described is not ordinarily found in a health department organization, it has much to commend it to those desiring to develop latent activities in a municipality. It is a means of education among a class of people who are more vitally interested in securing improved sanitary conditions than any other class in the community.

In the matter of dealing with nuisances, American cities could adopt European methods with advantages in the way both of increased efficiency and economy. The regular police are charged with this duty abroad. The plan has the advantage of a large force of inspectors; regular police officers cover their beats every day, often several times each day. Orders received from a man in uniform carry more weight than those coming from the average inspection force of a sanitary division. The notion that it is beneath the dignity of a regular policeman to report conditions threatening the health of citizens is foolish and needs radical revision. He should be made responsible for sanitary conditions on his beat, as well as for the safety of life and property.

The work of the building department and that of the division of sanitation of the health department necessarily bring the two functions into close relationship. Questions concerning sanitation very naturally belong to that division; those dealing with structural defects which may have no bearing on sanitation belong to the building inspector. Lack of light and air, the presence of dampness, inadequate sewage disposal, etc., are conditions detrimental to public health and may be due to structural defects, thereby placing

the solution of the problem in both divisions of the city government. This necessarily means a division of authority and responsibility, and calls for the closest cooperation between the two.

In Cincinnati, a vacation ordinance has done much to simplify the work of both divisions.

LABORATORY

The laboratory division calls for the full-time services of expert chemists and bacteriologists. Chemical and bacteriologic examinations of water, milk and other foods subject to infection or liable to adulterations that may directly endanger the public health are indispensable, as are facilities for the free diagnosis of specimens from cases of diphtheria, typhoid fever, tuberculosis, rabies, etc. The manufacturing of antitoxins and vaccines entails an expense that few cities are justified in assuming, and one that is better left in the control of commercial houses.

The detection of frauds practiced for purely commercial reasons and the assaying of materials used in filling public contracts, which have no bearing on public health, have no place in a department of health laboratory.

VITAL STATISTICS

The vital statistician has been called "humanity's bookkeeper." He needs considerable tact in the way of tact to meet and overcome the eccentricities with which a very small minority of the medical profession burden themselves. The work includes the securing of reports and classification of births and deaths.

The reporting and classification of communicable diseases is so intimately bound up with the work of the division of medical inspection that it is included in that division of the Cincinnati health department.

CONCLUSION

In closing, it seems desirable to state that a department may have an ideal organization on paper but a very mediocre one in securing results. While a good plan is desirable, good results may be obtained in spite of the fact that the paper plan is full of defects.

In the long run, results are brought about by men who are qualified to carry out policies by a close and harmonious cooperation between chiefs of divisions and other departments of the city government. Without the proper qualifications and close cooperation, any scheme of health administration degenerates into a ghastly joke and a gruesome tragedy.

Killing Head and Body Lice.—In an article on the louse problem in the United States Army, printed in the *Review of War Medicine and Surgery*, October, 1918, the following method of killing head lice is given: Clip the hair of the head with a hair clipper and wash with a mixture of equal parts of vinegar and kerosene. This should be followed in a few hours by a bath of soap and hot water. Following this treatment a search should be made for nits and lice and if found the treatment should be repeated. For crab lice the same mixture is used, after shaving the pubic region, axillae, chest and legs. As mercurial ointment, which is sometimes used, may cause a dermatitis, yellow oxid of mercury 10 parts, salicylic acid 1 part and petrolatum 20 parts may be substituted. For body or clothes lice, heat, either dry, or, better, in the form of steam, is best. Other things suggested are the English N. C. I. powder, consisting of naphthalene 96 per cent., creosote 2 per cent. and iodoform 2 per cent. The powder is dusted over the underclothing and on the inside of the outer clothing once a week. Also crude oil 9, soft soap 5 and water 1 part, or, soft soap 10 and crude naphthalene 90.

CEREBRAL SPASTIC PARALYSIS *

M. E. BLAHD, M.D.

Interim Director of Surgery, Mount Sinai Hospital

AND

WALTER C. STERN, M.D.

Orthopedic Surgeon, Mount Sinai Hospital

CLEVELAND

The syndrome known as Little's disease was first brought to the attention of the profession by Little of London, who, in 1843, in a lecture before the London Orthopedic Institute, reported several cases of the disease, which since has borne his name.¹ For a great number of years, this syndrome was erroneously classified as a medical entity, without any regard for the numerous causative factors. Since its etiology has been more completely recognized, it has been found that instead of its being a single medical entity, there are a great number of conditions with various etiologic factors, all producing the same end-results classified as Little's disease.

Cerebral spastic paralysis, or hemiplégie cérébrale infantile, seems a better term by which to express the manifestations of these various etiologic factors. The latter have been well classified by Grossman² into three groups: 1. intra-uterine, or prenatal; (2) natal, or intrapartum, and (3) extra-uterine, or postnatal.

The most important prenatal factors are malformation of the brain, porencephaly, microcephalus, atrophy of one hemisphere, congenital cysts and cerebral disease. In the intrapartum etiology, the chief factors are intermeningeal hemorrhage, intercerebral hemorrhage, cerebral palsy, and degenerations of the pyramidal tract after premature delivery. Injuries to the skull with subdural hemorrhage, circumscribed encephalitis, sinus thrombosis and embolism, and syphilis constitute the chief extra-uterine causes. In order to facilitate a clearer conception of the manner in which all these enumerated factors may produce the same end-results, the physiologic pathology on which spastic paralysis is based must be studied.

Whenever there is a break in the continuity of a motor corticospinal tract, of which the pyramidal tract is the most important, there results a characteristic motor paralysis. Irrespective of whether the lesion be situated in the brain or the cord, the resulting paralysis will be the same. This paralysis consists of a paralytic and a spastic component.

ETIOLOGY

Normally, impulses are propelled along the pyramidal tract to the various muscle groups, enabling these muscles to perform certain voluntary motions; but when there is a break in some part of this tract, these impulses no longer reach the affected muscle, and they are consequently unable to carry out certain of these voluntary motions or all of them. This is termed the paralytic component. On the other hand, an involuntary spasticity of the muscles takes place, which adds itself to the actual paralysis and intensifies it. If this spasticity is examined more closely, it becomes

* From the Surgical and Orthopedic Divisions of Mt. Sinai Hospital, Cleveland.

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* Because of lack of space, this article is abridged in *THE JOURNAL* by the omission of the footnotes. The complete article appears in the author's reprints, a copy of which will be sent by the author on receipt of a stamped, self-addressed envelop.

evident that the underlying cause of the condition is the increased reflex excitability of the peripheral muscles. Sensory impulses arising in the skin, ligaments, joints, and especially the muscles, are propelled along the sensory peripheral nerves and the posterior nerve roots, through the gray matter of the cord and the anterior motor cells, along the motor roots and motor peripheral nerves to the muscles, forming the spinal cord reflex arc. It is this reflex which maintains muscle tonus, and keeps the muscles in a certain degree of fixation. For convenience sake, it has been termed the fixation reflex. The pyramidal tract contains fibers which have an inhibitory action on this fixation reflex, keeping it at a point equivalent to the normal muscle tonus. But when the inhibitory action of the pyramidal tract is destroyed, allowing the fixation reflexes to exercise their full power on the muscles, without any restraint whatever, they cause spastic muscle contractures. This is the spastic component of the paralysis. Proof of this theory may readily be found in the living human pathology. One need only examine a tabetic patient, and observe the flaccid condition of the muscles to note the comparison. There is a complete absence of muscle tonus, due to a break in the continuity of the fixation reflex arc, resulting from the degeneration of the posterior tracts of the cord. But more convincing than this is the clinical picture of a patient suffering from a lesion of the pyramidal tract, with marked muscle contractures, who secondarily acquires a tabes. The muscle contractures relax, and instead of a spastic paralysis there results a flaccid paralysis.

After careful perusal of these pathophysiologic facts, one may readily see that any one of the previously enumerated etiologic factors, acting on the pyramidal tract, either in the brain or cord, may be the causative factor in the production of spastic paralysis; and the degree of impairment is dependent entirely on the extent of the involvement of the pyramidal tract.

It does not lie in the scope of this paper to discuss in detail the anatomic pathology of the various etiologic conditions which may produce this syndrome, since the end-result will be the same, regardless of whether the causative lesion produces an injury to the pyramidal tract by means of pressure, inflammation, edema or hemorrhage.

SYMPTOMS

The cardinal symptom characterizing cerebral spastic paralysis is a spastic rigidity of the muscles, varying in location and intensity with the motor areas involved. Sharpe³ very clearly defines where the lesions may be encountered in the various degrees of paralysis.

In a spastic paraplegia, which results from a lesion situated over the upper portion of both motor areas, both legs are affected. Very often it is overlooked for several months after birth, but eventually the mother notices a rigidity of the muscles. When the child begins to walk, the posture is characteristic. There is a talipes equinus which varies in degrees of intensity. The heels are everted and the knees approximated. However, if the lesion is over the upper two thirds of the motor tracts, the arms as well as the legs are involved. In this condition, the feet are crossed in the pes equinus or equinovarus position. The whole body may at times become rigid. The hands are used awkwardly and very often it is difficult to raise the arms or to abduct them. In rare cases of extreme

spastic diplegia, in which practically the entire muscular system is involved, the complete motor area of both cortical hemispheres is affected. However, the condition one most frequently encounters is that in which the lesion involves one cortical hemisphere and produces either a monoplegia—the impairment of a leg or arm on the opposite side—or a hemiplegia characterized by spasticity of both the arm and the leg or the entire side of the body opposite the lesion. The elbow and wrist joints are flexed and the arm is held close to the body. There is a flexion at the knee and hip joints and plantar flexion at the ankle joint. A slight paralysis may be found in one facial nerve. Sensory disturbances are rare. The knee jerks and reflexes are accentuated. Unilateral squint is often present.

Flexion contractures of the muscles are the product of hypertonicity and are accompanied by a corresponding overextension of opposing muscle groups, the extensors. There are, however, milder forms of spastic paralysis in which merely an awkwardness in gait is manifested. Athetoid movements and convulsions may often be observed in these patients.

The majority of cases, to be more exact 60 per cent., are due primarily to intracranial hemorrhage.³ It is interesting to note that in these cases the intracranial pressure is not as great as in those in which intracranial tumors exist. Occasionally, however, one can make out the beginning of papilledema and "choked disk," which are so characteristic of intracranial tumors. The optic disk margins are found blurred and edematous and the retinal veins are dilated.

It is not difficult to make the diagnosis of spastic paralysis, since it is based on the spastic condition of the muscles, the increased reflex excitability, and the lack of muscular coordination. Very often, however, there are no focal symptoms which are indicative of the origin.

If permanent degeneration of the pyramidal tract has occurred, it is almost fruitless to attempt alleviation, for it is needless to say that destroyed nerve elements possess very little, if any, regenerative powers. Unless the basic elements, such as hemorrhage, are relieved soon after their occurrence, it will be futile to attack the brain in the hope of relieving the spasticity of the muscles. The same principle applies to brain cysts and other destructive tumors. Consequently, it is obvious that the treatment, for the most part, is of necessity symptomatic and entirely dependent on the degree of spasticity and the extent of muscular involvement.

In addition, the surgeon must take into consideration the mental state of the patient. The degree of mental impairment is often such that surgical procedure is contraindicated. To make the after-treatment effective, intelligent cooperation is essential. These unfortunate beings are very often forced into seclusion and are dependent on their limited resources for mental development. As a result, their intellectual growth is often retarded. As a matter of fact, in a number of cases in which we operated, following resection of the posterior roots, we noted a marked improvement in mentality, which we attribute partly to the more favorable surroundings during their stay in the hospital.

TREATMENT

The treatment of spastic paralysis must, therefore, consist in restoring to the higher centers the power of useful, coordinate movement in the limb or limbs

afflicted; in restoring muscle balance; in overcoming the ataxia, and in training the muscles to respond quickly and accurately to the normal centripetal stimuli of physiologic activity.

In the mildest patients, possessing a high grade of intelligence, it is quite feasible to accomplish this by long continued developmental and educational exercises. A perfect cure is never to be anticipated with this or any other method of treatment, but useful function can frequently be attained. In very young children, the Montessori system of education will be found useful in exercising the upper extremities. Such educational training must be carried through many years, and various types of exercises, apparatus and useful, purposeful motions (as in the curative workshops of adults) may be improvised to meet the demands of the case.

When the spasm of the muscles is greater and contractures exist to a greater or less degree, mechanical intervention becomes necessary in order to equalize the lack of balance in the muscles at the afflicted joints, before the educational training may be successfully carried out.

OPERATIVE PROCEDURE

Such operative procedures are ordinarily employed to weaken the power of the stronger spastic groups, which are as a rule constant in all cases. The muscles usually afflicted are the flexors of the wrist and fingers, the pronators of the forearm, the flexors of the elbow, the abductors of the thigh, the extensors of the knee and the plantar flexors of the foot. The following outline gives in brief the courses of treatment open to the surgeon:

1. Muscle and Tendon Operations:
 - (a) Forcible redressment and overcorrection.
 - (b) Tenotomy.
 1. Subcutaneous.
 2. Open.
 - (c) Tendon lengthening.
 1. Subcutaneous.
 2. Open.
 - (d) Muscle resection.
 - (e) Tendon transplantation.
 - (f) Muscle implantation.
2. Brain Operations:
 - (a) Trephining and evacuation of blood clots.
 - (b) Decompression.
 - (c) Excision or evacuation of cysts or tumors.
3. Motor Nerve Operations:
 - (a) The causation of temporary paralysis by means of various injections (Allison's method).
 - (b) The partial resection of the motor nerves leading to the spastic muscles (Stoffel's operation).
4. Centripetal (Sensory) Nerve Operations:
 - (a) Resection of the posterior nerve roots (Foerster's operation).

The choice of operation depends on the etiologic factor and on the necessity of weakening the spasm of definite muscle groups, to a degree approaching normal muscle tonus. Almost all the operations enumerated allow of fairly exact dosage, which is usually determined by the amount of overcorrection used or the amount of nerve tissue resected.

The patient must possess at least such promise of sufficiently high intelligence as to warrant a hope for the success of the educational after-treatment. In many cases, the intelligent mind seems to be awakened by a successful nerve operation, such as the Foerster operation, but too much ought not to be anticipated

from this source. There are many cases in which the spasm is so completely in control of all muscle function, that any hope of improvement that might have been entertained must be abandoned. This is true in cases in which the involvement of the upper extremities is so great that spasm from their use will of itself spread to the corrected lower extremities in such measure, as to preclude success. The severe ataxic, the epileptic, the choreal and the athetoid cases are confessedly hopeless, and the patients are not to be operated on, except possibly for a few tenotomies, etc., to permit the improvement of certain fixed attitudes.

Forcible redressment with overcorrection is seldom advisable. The tearing and rupturing of muscle fibers, tendons or ligaments leads to great pain, which of itself calls forth muscle spasm and defeats the very object to be accomplished. One indication for this procedure may be found in the severe cases of spastic pes valgus, which can often be markedly improved by forcible correction. The simple fixation of a joint or member in maximal overcorrection under anesthesia, without the use of any force whatever, will be found very useful in mild spasm of the shoulder or elbow joints.

Tenotomy may usually be accomplished subcutaneously. When important nerves or blood vessels in the neck might be endangered, it is better to resort to the open operation. Tenotomy does not admit of exact dosage, and when there is danger that the opposing muscles will assume the permanent balance of power and give rise to the opposite deformity (as in the foot), it should never be done. In the correction of the flexion contracture at the knee, one of the weaker hamstrings should always be left intact, lest the unopposed strength of the quadriceps result in a permanently extended knee and a stiff knee gait.

Subcutaneous tendon lengthening presents the same disadvantages as to dosage as does simple tenotomy, and is of little value. The open tendon, lengthening with only a small amount of overcorrection, should be the operation of choice for the Achilles tendon, as spastic calcaneus usually results from a too free lengthening of this tendon.

Tendon shortening is rarely found necessary.

When muscles have no tendons (pronator quadratus), or when the tendons are not accessible, muscle resection or the freeing of the muscle body from its periosteal origin (Soutter's operation) is indicated.

It will be seldom found necessary to transplant tendons, because of the usual good strength of the active opponents. It is quite possible that in excessive pronation of the forearm, the muscle and tendon operations advised by Tubby for the relief of this condition, due to other causes than Little's disease, might be found useful. We know of no case of Little's disease in which this has been tried, but there is no reason why it should not be successful in suitable cases. This operation consists of the transference of the tendon of the pronator radii teres into the ulna, the resection of the pronator quadratus, and the transference of the flexor carpi ulnaris around the wrist to the radial side of the back of the hand.

AFTER-TREATMENT

These operations are all to be followed by a period of fixation in plaster in an overcorrected position. Care must be taken that the amount of overcorrection is quite exact, lest a deformity in the opposite direction

should result. The greatest care must be taken with the foot. On the other hand, the overcorrection of the spasm of the adductor muscles must be complete. After a few weeks, the plaster may be temporarily removed and passive motions begun.

Too long fixation is harmful. It renders the joints stiff and painful, and often exudates may be found in the joints, especially the knee joint, after three to four weeks of continuous fixation.

Passive motions produce pain, and often give rise to all sorts of nervous or even neurotic outbursts. We have in mind one case of most severe spastic contractions of the lower extremities, beautifully overcome by means of a Foerster operation, in which the permanent muscle shortening and resulting deformity had to be overcome by tenotomy and overcorrection. This patient complained of so much pain in various muscle groups, and became so neurotic and even hysterical at the periods of massage and muscle training that these had to be abandoned, and the success of the operation was jeopardized for a long time. The patient was finally taught to walk, only to have an attack of influenza six months later, followed by such intolerable pain in the left hip joint that she absolutely refused to get on her feet again.

Passive motions are first carried out in bed and consist of abduction, adduction and rotation of the hips, and flexion and extension of the knees and feet.

As soon as possible, the motions must be performed actively. Finally the children are to be supported in an upright position by means of braces, apparatus or hand rings and compelled to learn, first, to stand and then carry out exercises in a standing position, keeping the head upright and the body erect at the same time. Often they can stand erect by merely leaning against a wall.

Foerster has called attention to the importance of teaching the use of the hips, knees and feet in their physiologic sequence. He noted that the children readily learned to shuffle along with the hips, knees and feet held straight but stiff, and after they had once learned to walk in this fashion, they could not be taught or compelled to walk in the normal manner. He advises that the children be placed with their faces against the wall and compelled to learn to flex their knees and ankles in this position. After this, they are to be taught to walk in "goose step" fashion, supported by crutches, walking chairs, etc.

For all this, almost unbelievable patience is absolutely necessary. Often six to eight hours a day are consumed in carrying out these stepping exercises, together with the finer movements of rotation of the thighs, flexion and extension of the ankles and toes, pronation and supination of the feet, and so on. Foerster recommends the continuation of this educational regimen for several years.

It is just in this particular that we have all fallen down, especially in this country. Few clinics have enough teachers and gymnastic instructors so that such instruction may be carried out for more than a few hours a day, and that for a few months only. Each case needs a veritable Mrs. Macy.

The operations on the brain have been carried out for the purpose of relieving the cause of the spasm. It is obvious that these procedures are indicated only in cases in which the spasticity arises from easily accessible portions of the cerebral tract and is not caused by disease or degeneration of the spinal pyramidal tract. We know of no way of accurately differ-

entiating these cases into their appropriate groups, except in cases of undoubted birth trauma, in which examination of the eyegrounds suggests an increase in the intracranial pressure.

If, immediately after a difficult labor, the symptoms of intracranial irritation or pressure are marked and hemorrhage or a brain cyst can positively be diagnosed, the immediate decompression and evacuation of the clot or cyst is the operation of choice.

Unilateral convulsions alone, even if severe, are no indication for this operation, except in the presence of asphyxia and cyanosis. Mild unilateral twitchings not amounting to actual convulsions, even combined with asphyxia and cyanosis, are to be left alone, as the children usually recover with perfect muscular control.

To be successful, decompression must be performed within the first week of life. It has never seemed to us that the late trephining, with or without the evacuation of any possible cysts, could be of much avail on account of marked destruction of brain tissue. The later experiences of Sharpe and Farrell confirm this.

The causation of temporary paralysis by the injections of various drugs into the nerve trunks (Allison's method) has not yielded permanent results. The muscles are at first completely paralyzed, then only partially so, but finally the complete restoration of the previous nerve function occurs and the case is necessarily in the same state of muscle imbalance as before.

The partial resection of the motor nerves supplying the definite groups of overspastic muscles (Stoffel's operation), is based on a correct appreciation of the mechanics involved, and if it can be successfully carried out in precisely the same manner as the originator of the operation recommends, it will fill a definite place in the treatment of this affliction. With it, exact dosage and diminution of harmful muscle contracture ought to be secured, regardless of the appalling number of individual nerves it will be necessary to resect, even in the milder cases. The possibility of accurately carrying out this procedure, which must, of course, always be anatomically exact, in the larger common nerve trunks, as the sciatic, median, etc., depends on absolute constancy of the nerve pattern, and we know of no proof that this exists except Stoffel's own claims.

The possibility of regeneration of the resected nerve fibers must not be lost sight of in this procedure or in the Foerster operation, and sufficient nerve must be resected to avoid this condition.

The resection of the posterior nerve roots of the spinal cord, like the resection of certain parts of the motor nerves, does not aspire to remove the pathologic cause of the spasticity. It simply reduces the number of motor impulses which reach certain muscles or muscle groups and in this way relieves the spasm and brings the muscles to a state of contraction closely resembling normal muscle tonus. The same thing may be accomplished by interruption of the fixation reflex arc in any part of its course, and as we have shown in a previous chapter of this paper, is admirably accomplished by nature, by causing a degeneration of the posterior tracts of the cord in tabetic patients. Foerster selected the posterior roots, since this is the only part of the sensory system accessible to the surgeon's knife. The dosage is naturally dependent on the amount of involvement of the various muscle groups. The various nerve segments that supply these spastic muscles may be readily ascertained from tables published in any standard neurology.

METHODS OF DISTINGUISHING SENSORY AND
MOTOR ROOTS

Various methods have been devised for the purpose of distinguishing between the sensory and motor roots, all of which may be classified under the following headings: physiologic, morphologic and anatomic.

The physiologic methods are dependent on electrical stimulation of the nerve roots, and are, perhaps, the most accurate, if properly and successfully carried out. On account of the close proximity of the posterior and anterior roots in the cauda equina, it is often impossible to apply the electric current to one root without stimulating a nearby root. For example, an electric current may be passing through a sensory root, which in turn is transmitted to a neighboring motor root, causing a muscle contraction, leading one to believe that the stimulated root is a motor nerve, whereas in reality it is a sensory nerve.

The morphologic methods, as the name implies, depend on the morphology of the nerve roots for their distinguishing factors. These methods are absolutely unreliable and may be discarded without further discussion.

The method we have used is the anatomic, and depends on the ligamentum denticulatum for the recognition of the posterior roots. The ligamentum denticulatum is a transparent, film-like membrane attached to the posterior roots, and is absent from the anterior roots. It is easy to recognize, and is very constant. The use of this method is reliable, and has served admirably in our series of cases. The location of the nerve to be resected is determined by the spinous process, under which it takes exit. A guiding spinous process may be permanently located by biting off its tip with a Rongeur forceps at the beginning of the operation.

If the proper nerve roots are selected, the spastic component of the paralysis may always be relieved and this, after all, seems to be the pertinent factor on which is based these children's inability to walk. When Foerster first described his operation, a great number of surgeons enthusiastically resected the posterior roots and were highly gratified by the immediate relief of spasticity which was obtained. But, as is often the case, they soon forgot about these poor patients and left them to work out their own salvation, with only an indifferent educational after-treatment. These patients quickly resumed their former habits and after a short time the spastic condition again returned. In our opinion, it is the lack of after-treatment rather than the regeneration of the posterior nerve roots which has caused most of the failures in operations of this kind.

MORTALITY

A word in regard to the mortality in resections of the posterior roots may not be amiss. In a series of twenty-two cases, we have had two deaths, a mortality rate of 9 per cent. In the first case, death resulted from shock following chloroform anesthesia. In the second case, death was due to a purulent cerebrospinal meningitis. In all but our first case, we have been blocking off the higher centers of the cord and brain by means of injection of procain into the cord immediately above the seat of operation. This procedure is carried out for the prevention of shock and also for the purpose of using as little anesthetic as possible. After the bony structures have been removed

it is usually possible to perform the remainder of the operation under the anesthesia produced by the procain injected into the cord. The use of this method permits a much freer handling of the cord, and, after all, this seems to be the most dangerous part of the operation. If all manipulations are gently and quickly carried out in combination with the injection of procain, the mortality rate of resection of the posterior roots should not be any higher than the average severe laparotomy. In any event, it should not exceed 5 per cent.

After these operations on the nerves, it will often be found necessary to overcome the permanent contractures and shortening of the muscles by means of the tendon and muscle operations previously described. These operations will differ in no way from those done primarily for the relief of the spasm except that overcorrection and fixation need not be so long.

The gymnastic and other educational exercises must be painstakingly carried out, as has already been mentioned.

CONCLUSIONS

We should like to point out several salient features in the study of cerebral spastic paralysis:

1. Little's disease is not a medical entity, but rather a syndrome resulting from various etiologic factors.
2. No stereotyped procedure can be used in the treatment of these cases, and the treatment is dependent on the etiologic factors, the condition of the muscles themselves, and the intelligence of the patient.
3. All forms of treatment will fail unless the educational after-treatment is conscientiously and painstakingly carried out.

ABSTRACT OF DISCUSSION

DR. GEORGE B. PACKARD, Denver: We are apt to forget that all muscles are spastic in these cases. If one has, for instance, had a calcaneus deformity follow a tenotomy for equinus, he will never forget that all the muscles are spastic. The final outcome is largely a question of balance. If that is true, I often wonder whether we are not overlooking the value of tenotomy. In doing tenotomies, if you get just the right length of tendon, the results are excellent. In order to prevent the recurrence of the trouble, one must follow up the after treatment—that is, mechanical treatment—particularly at night. My method is not to have the patient wear a brace in the day time for more than a few weeks, but at night, when he is inclined to curl up the leg or foot it should be worn for several months; and in that way, I prevent the recurrence of the trouble. Of course, if we do not get just the right length of tendon, we can operate later to lengthen it still more; but the point is to get just the right length, in order to maintain the balance of the muscles.

DR. ETHAN H. SMITH, San Francisco: One of the most important features in these cases is the anesthetic. I have found that patients suffering from this disease bear general anesthesia less well than almost any other surgical cases. I am glad that the point was made of holding the parts in correction during sleep. That is important not only in this, but in all other conditions involving the lower extremities. The weight of the bed covers at night has a tendency to cause relapse of the deformity after correction in nearly all deformities of the lower extremity, and a carefully made night shoe or night apparatus is necessary in all cases.

DR. WALTER G. STERN, Cleveland: I agree with Dr. Packard that we must be careful not to overdo the correction. That is why I said that in lengthening the Achilles tendon, it is preferable to do an open tendon lengthening, in which we can accurately measure the amount of lengthening that we wish to make. The question of night bracing has puzzled me. Most children with this disease are not of high intelligence, and

they do not bear well the application of rigid braces at night time. We must either fight with all the people around the hospital or lessen the bracing at night.

Of late years, we have been giving gas anesthesia and blocking the cord after we get to the dura by putting in procain. Most spastic cases will show tremor, etc., when first going under the anesthetic; but if the anesthetic is given by an expert anesthetist, these children take anesthesia as well as any one. In Ohio, we have not had very serious epidemics of infantile paralysis. It is my experience that, in comparison with this disease, I see a relatively high proportion of spastic cases. There is hardly a day passes that I do not see a new case of spastic paralysis. The condition is more frequent than is usually believed, because the general practitioner does not recognize it.

DR. JOHN RIDLON, Chicago: What is your guide to the operation on the Achilles tendon?

DR. STERN: My guide is the desired position of the foot. Of course, you can get the same result by doing a subcutaneous tenotomy and putting the foot up in plaster in a right angle position. But we have the fixation reflex there, by which the muscle is made to contract; and in doing a subcutaneous tenotomy alone, the contraction will pull up the severed end of the tendon too far. In the Achilles tendon, one can do an open tendon lengthening and suture the tendon at just the amount of connection one wishes to get.

DR. RIDLON: I do not know just how much you get.

DR. STERN: That depends on your judgment. I do not correct much beyond a right angle. I had some sad experiences, and found, as Dr. Packard did, a paralytic calcaneus resulting. I thought that the method was not so much in fault as my own judgment, therefore I put the foot up in a lesser angle. On visiting the clinics of Chicago, I found that many men there use the open operation; and in trying that, I found that it was much more accurate as to the amount of lengthening, and I have had no bad results since.

STREPTOCOCCUS PNEUMONIA AND EMPYEMA

AN INFECTION AFFECTING EIGHT MEMBERS OF ONE FAMILY WITH SEVEN DEATHS

WALTER L. BIERRING, M.D.

C. B. LUGINBUHL, M.D.

DES MOINES, IOWA

AND

C. W. BURT, M.D.

VALLEY JUNCTION, IOWA

In connection with the report of Miller and Lusk,¹ based on an epidemic of streptococcus pneumonia and empyema at Camp Dodge from March to May, 1918, we wish to report a similar infection affecting eight members of one family with seven deaths, occurring in the city of Valley Junction, which adjoins Des Moines, and is about 17 miles south from Camp Dodge.

These cases developed at the same time as the outbreak of the disease at Camp Dodge. The family consisted of the father, the mother and seven children ranging in ages from 4 to 24 years. The first member of the family to be taken ill was a son, aged 18 years, who manifested the first symptoms, March 26, 1918, and died three days later; the father, aged 46, and three children, aged 4, 15 and 21 years, respectively, became ill, March 29, 1918, one dying, April 1, two, April 3, and one, April 4. The clinical diagnosis of the first five cases was acute pneumonia. Two sons, aged 8 and

24 years, were taken sick, March 30, the first dying, April 7, and the second, April 15.

In each of the last two cases a left empyema developed, and aspiration on the exudate formed a part of the treatment.

April 2, a daughter, aged 12 years, was the eighth member of the family to become ill, and the only one to survive.

The acute pneumonia terminated in a left empyema, the exudate being removed by aspiration at first and later by rib resection and drainage, the discharge persisting for three months. The corresponding lung contracted and obliterated to a large extent.

The mother was apparently not ill at any time.

A postmortem examination was permitted in only two of the cases, being made by one of us (Dr. Luginbuhl) April 3, 1918, on the father and the 4-year-old daughter. The anatomic changes were identical in the two instances: a bronchopneumonia more than a lobar type, with a seropurulent exudate in the left pleura, and a fibrinopurulent pericarditis. These changes correspond to those described by MacCallum² in the Camp Dodge epidemic.

While the bacteriologic examinations were very incomplete, the etiology was evidently identical in the eight cases.

Cultures obtained from the exudate in the two necropsies produced a growth of the *Streptococcus hemolyticus*, and a similar micro-organism was isolated from the pus obtained by drainage in the last case of the series.

There were no definite predisposing conditions to be determined in these cases, except the insanitary surroundings in which the family lived. A preceding infection, such as a measles or tonsillitis, was not present. Each case was characterized by a sudden onset.

It will be noted that the virulence of the infection was more marked in the first five cases, there being a longer period of illness in the next two fatal cases, while the last patient of the series recovered.

The similarity between the cases reported herewith and those of the Camp Dodge epidemic suggests a common infective agent with variable degrees of virulence.

2. MacCallum, W. G.: Pathology of the Epidemic Streptococcal Bronchopneumonia in the Army Camps, THE JOURNAL A. M. A., Aug. 31, 1918, p. 704.

1. Miller, J. L., and Lusk, F. B.: Epidemic of Streptococcus Pneumonia and Empyema at Camp Dodge, Iowa, THE JOURNAL A. M. A., Aug. 31, 1918, p. 702.

Legislation for Physical Training.—In an article on "State Legislation for Physical Training," Dr. Thomas A. Storey, inspector of physical training for the state of New York, shows that since May 15, 1916, seven states have enacted school physical training laws. These states and the dates of the legislation are as follows: New York, May 15, 1916; New Jersey, Feb. 13, 1917; Nevada, March 21, 1917; Rhode Island, April 19, 1917; California, May 26, 1917; Maryland, March, 1918; Delaware, April 10, 1918. Illinois passed a law, June 26, 1915, but no financial provision was ever made for carrying it out. The program in New York requires six hours a week of physical training for every pupil above the age of 8 years in all elementary and secondary schools. In New Jersey the required training time is at least two and one half hours in each school week. In Nevada the carrying out of the law is assured by a tax of 5 mills on \$100 of assessed valuation of all the taxable property of the state. In the other states appropriation of certain sums is made by the legislature. In California the time requirement in the elementary schools is twenty minutes each school day, and in the secondary schools at least two hours a week. Similar legislation has been proposed and considered in other states.

Military Medicine and Surgery

CERTAIN RESIDUALS OF EPIDEMIC CEREBROSPINAL MENINGITIS OBSERVED IN THE ARMY

AARON J. ROSANOFF, M.D. (KINGS PARK, N. Y.)
Major, M. C., U. S. Army,

PLATTSBURG BARRACKS, N. Y.

In the period from December, 1917, to February, 1918, a number of cases of epidemic cerebrospinal meningitis developed at Camp Beauregard, La. The patients were treated with specific serum administered both intravenously and intraspinally, and a number of them made uneventful recoveries from the infection. After a four or five weeks' period of convalescence in the base hospital at the camp they were as a rule granted a sixty days' furlough at home. On return from their furlough some of the men were found still to have certain residuals owing to which they were unable to go back to duty. Others did go back to duty but were found within a few days to be unable to perform it. All such patients were therefore readmitted to the base hospital. After a further period of from five to eight weeks' treatment and rest in the hospital they were still not in condition to go back to duty, and eighteen of them were on July 29 transferred to U. S. Army General Hospital No. 30, Plattsburg Barracks, N. Y.

At various other times and from other camps eight other postmeningitic patients were received at this hospital, and thus a rather unusual opportunity presented itself of studying the residuals of epidemic cerebrospinal meningitis.

In the past ten or twelve years a great deal has been published on the subject of epidemic cerebrospinal meningitis; but these publications have dealt almost exclusively with the acute phases of the disease, its bacteriology, modes of transmission, prophylaxis and specific therapy, and not with the residuals.

The cases that have thus come to our attention present a striking and fairly uniform syndrome made up of the following elements, given here in the order of their frequency:

1. Limitation of flexion of the spinal column.
2. Undue fatigability.
3. Pains in back, legs and head.
4. Tendency toward dizziness and faintness.
5. Muscular weakness.
6. Tendency toward blurring of vision associated with photophobia.
7. Impairment of appetite and sleep associated with a state of undernutrition.

The limitation of flexion of the spinal column is shown in all cases by inability to stoop over far enough to touch the toes with the tips of the fingers without bending the legs at the knees. One or two of our patients, on arriving at the hospital, were able by special effort to come within 6 inches, but most of them could not come within a foot, and one could stoop but very slightly. All have told us that prior to their attack of meningitis they had been able to do this, and some had been able to stoop far enough to place the palms of the hands on the ground.

The limitation of flexion is further shown in the cervical region by the patients, in the majority of cases,

being unable to flex the head on the trunk so as to touch the sternum with the point of the chin—which most people normally can do. Some patients cannot come within 2 inches of touching.

Undue and unwonted fatigability is present in all cases, although it varies a good deal in degree. In one case, going up a flight of stairs or a short distance up hill or a few blocks even on level ground results in getting out of breath, palpitation, weakness, trembling, aches in the back and legs, and a feeling of exhaustion. In another case, the fact of undue fatigability is to be noted only by comparison with former endurance or with the endurance of other men in the organization.

Pains in the back, legs or head are present in all cases. In some cases it is constant and so severe as to make it impossible to maintain with comfort any position for more than a few minutes. In other cases it is slight or only occasional, or develops only on stooping or exertion. The favorite locations are, in order of frequency, the small of the back, the back of the head and upper part of the neck, the legs behind the knees, and the back between the shoulder blades. In some cases there is tenderness to deep pressure, and in one case the head is so sensitive that laying the hand lightly on top of it causes an increase of pain. In two cases there is great soreness in the tip of the coccyx, the patients having to sit either on one buttock or the other.

A tendency toward dizziness and faintness is present in almost all our patients, but also varies in degree. In some cases any sudden movement starts things whirling or causes black spots to come before the eyes, while severe or prolonged exertion causes the patient to become faint, lose consciousness, and fall; at least one of our patients had come to us with a transfer card diagnosis of "epilepsy following meningitis." In the milder cases even severe exertion brings on only slight or momentary dizziness. Stooping more than other movements excites this symptom. Arising from bed in the morning often brings it on. It develops more readily in the unshaded sunlight, especially on a warm day.

In the headaches, dizziness, faintness and losses of consciousness, and in the fact of these symptoms being especially apt to be brought on by exertion, stooping, sudden movements, or exposure to the sun, the postmeningitic condition closely resembles the well known condition that persists for years following severe cranial traumatism.

Muscular weakness, as existing independently of the fatigability and of the pains, is shown particularly by feeble hand grips in more than half of our cases. Usually both grips are weakened, but often in an unequal degree. One patient, in other respects having a rather mild case, formerly as "strong as a tiger," is hardly able to turn the faucets in the lavatory.

The tendency toward blurring of vision is very common but also variable in degree. It becomes manifest when patients attempt to read, especially if the print is fine. After a few minutes or half an hour the letters begin to "run together;" if the patient rests a while he can continue the reading, but unless he has rested an hour or more the blurring will come on again more quickly than the first time.

It would seem that this trouble is due to a weakness of the ocular muscles; in some cases close application brings on diplopia; the ocular movements, however, as ordinarily tested, are as a rule not impaired. In those

cases in which the tendency to blurring of vision is most marked there is also a degree of photophobia; at least two of our patients have had to wear smoked or colored glasses. In these cases there is sluggishness and limited excursion in the pupillary reaction to light; moreover, on continued exposure to bright light, the initial contraction soon gives way to relaxation; and it may be that the photophobia is dependent at least in part on weakness and fatigability of the concentric muscle fibers of the irides with resulting lack of shielding of the retina.

The impairment of appetite and sleep, sometimes associated with a state of slight subnutrition, is perhaps a secondary phenomenon. Many of our patients were formerly leading active outdoor lives, but have since been forced by their illness to remain almost wholly without exercise for months. The loss of sleep is almost invariably associated with pain; in some cases the patients have difficulty in getting into a comfortable position for sleep and toss around for hours before finally falling asleep; others fall asleep quickly, but wake up in the night on account of pain developing from the strain of being in one position.

Our cases have shown very considerable variation in severity of the symptoms and degree of disablement, as compared with one another, but not in the syndrome considered qualitatively. The quantitative variations seem to depend in part on severity of the original infection, or possibly the patient's resistance to it, and in part on the length of convalescence. The usual course is characterized by a very pronounced degree of disablement at the beginning of convalescence, progressive improvement for about a month or six weeks under rest without special treatment, and from then on an almost stationary residual condition persisting apparently indefinitely—in our cases from three months to over a year thus far.

Shortly following the admission of these patients to this hospital they were divided into groups, according to the degree of disablement and were placed under a regimen of graded hikes and exercises, such as neck bending and body bending. This was followed by striking and rapid improvement in some cases and in distinct though slight improvement in almost all within a month. Several of the patients can now bend over and touch the toes with the tips of the fingers without strain or pain and without getting a headache or becoming dizzy; their endurance has increased; and one of them took part in a lively game of baseball lasting more than an hour, and then felt fit to play another one.

It is, of course, too early to tell whether or not these patients, or any of them, can be completely restored; but our experience has already shown that in practically all of them the condition, which remains stationary for months under mere rest, can be confidently expected to improve at least to a certain extent under graded hikes and exercises.

Some explanation is perhaps due for presenting our observation in so unfinished a form. Our justification lies in the urgency of the practical problems that are involved. Almost in every cantonment in the country cases of meningitis have occurred since the beginning of mobilization. The postmeningitic syndrome has apparently received very little recognition, and only the more severely disabled cases have forced themselves on the attention of medical officers who have disposed of them in one way or another as cases of hysteria, neurasthenia, "psychoneurosis following men-

ingitis," "neurosis due to lumbar puncture," neuritis, etc.

It seems to us not unlikely that many patients that have been returned to duty and even sent overseas might, on examination by one familiar with this syndrome, be found to be really incompletely restored and hardly fit for duty. In such cases it would be obviously in the interest of both the patients and the government to institute the necessary treatment prior to returning the soldiers to duty.

Perhaps the simplest way of meeting the situation would be by ordering the transfer of all patients with epidemic cerebrospinal meningitis, on their recovery from the infection, to some one designated Army hospital for convalescence and such further observation and treatment as they may require.

THE MEDICAL ORGANIZATION OF THE ITALIAN ARMY

THE NEUROPSYCHIATRIC SERVICE

SANTE NACCARATI, M.D.

NEW YORK

Dr. Heiser,¹ last January, gave a thorough and valuable account of the military medical organization at the Italian front. Although the article had been written before the Italian retreat of October, 1917, during which much material was lost and three quarters of the medical units had to undergo considerable changes, yet the medical service at the front in its efficiency remains as Dr. Heiser described it. There are about 700,000 hospital beds within the zone of the armies, but their localization must not be revealed.

The medical service outside the zone of the armies is under the direction of the Director-General of the Army Medical Service, who is attached to the war office and whose position corresponds to that of Surgeon-General in the United States Army. He controls the so-called reserve hospitals, which are scattered all over the kingdom. Aside from these there are also other hospitals called territorial (about 160 in all, with a total of 30,000 beds), which are under the direction of the Italian Red Cross. There were in Italy, in the spring of 1918, 1,250 hospitals, including those of the Red Cross, with a capacity of 330,000 beds. These, added to the 700,000 beds existing within the zone of the armies, make the total military hospital capacity of Italy more than a million beds.

Considering that the area of Italy is 110,623 square miles, if we deduct the two provinces invaded lately and the others included in the zone of the armies (about 20,000 square miles), there are in Italy, aside from the 700,000 beds within the war zone $3\frac{2}{3}$ beds per square mile.

Under the Director-General of the Army Medical Service are twelve colonels of the medical corps, each attached to an army corps and with jurisdiction over the hospitals within his army corps. Nominally there are twelve army corps, numbered from one to twelve, but practically there are eleven at present, as the fifth (Verona), being in the zone of the armies, is not controlled from the war office, but by the general staff.

The 1,250 hospitals have been distributed among the eleven army corps, according to the distance of the

1. Heiser, V. G.: Some of the Accomplishments of Italian Medical Men in the War, *THE JOURNAL A. M. A.*, Jan. 5, 1918, p. 24.

corps from the battle front, the building and transportation facilities and the climate. So in the district of the fourth army corps (Genoa) there are 241 hospitals (with twenty beds per square mile), because almost all the hotels of the Italian Riviera were taken over by the government and transformed into convalescence homes and hospitals, the climate of the Riviera being suitable for patients suffering from tuberculosis and other exhausting diseases. In the districts of the Second, Third and Sixth Army Corps (Alessandria, Milan and Bologna), which are located nearer to the battle front, there is an average of 7, $6\frac{1}{2}$ and $5\frac{1}{3}$ beds per square mile; while in the district of the Twelfth Army Corps (Sicily), which is far front the front, there is less than one bed per square mile. The effectiveness of Italian base hospitals has been greatly increased during the last few months. In the single district of Milan there are 53,000 beds, against 37,000 beds in November, 1917.

In each army corps district there is a hospital called "principale," with which all the others are connected. A colonel or a lieutenant-colonel of the Medical Corps is at the head of the "principale," while the other hospitals are directed by a major or a captain, according to the number of patients. Most of the hospitals are for general patients, but many are reserved for certain classes of patients. In the matter of specialization, one is impressed with the number of categories and branches which have been installed and are successfully operated notwithstanding the difficulties and emergencies of the present time. The specialized hospitals include medical, surgical, ophthalmic, trachomatous with secretion, trachomatous without secretion, neurologic, orthopedic, infectious, contagious, psychiatric, stomatologic, venereal, dermatologic, otologic, isolation, malarial, tuberculous, crippled, climatic, convalescent, invalids', autolesionist,² diagnostic for tuberculosis and medicolegal, and there are schools of reeducation for the blind, agricultural schools for invalids, etc.

THE NEUROPSYCHIATRIC SERVICE

The Neuropsychiatric Service is one of the best services in the Italian army. Italy, having entered the world war nine months after the other allies, had time enough to study all the problems connected with the medical organization and was in a position to avail herself of the experiences of the other nations. While in France the Neuropsychiatric Service as a special unit was organized a long time after the war broke out, in Italy it started with the war. Moreover, Italy led the other nations in creating the so-called advanced neuropsychiatric sections, which are first line hospitals or sections of field hospitals, where the neuropsychiatric patients are first taken for diagnosis, distribution and eventual treatment. These advanced neuropsychiatric sections of the armies originated in Italy in September, 1915, three and one-half months after Italy declared war, after a short experimental period. In France, where the Neuropsychiatric Service has now reached perfection, it was not until April, 1916, that a committee composed of Drs. Chaslin, Colin and Truelle, chosen by the medicopsychologic society of Paris, proposed and obtained the creation of similar sanitary sections.

In order to give an idea of the whole Neuropsychiatric Service of the Italian army, distinction must be made between the neuropsychiatric service in the zones

of the armies, and the psychiatric and neurologic services outside the war zone.

The entire Neuropsychiatric Service is under the supervision of Dr. Tamburini, professor of psychiatry at the University of Rome, who is the consulting psychiatrist general to the war office.

1. *The Neuropsychiatric Units in the Zones of the Armies.*—These are mixed formations composed of:

(a) Advanced Neuropsychiatric Sections: These, as stated, are located in the first lines, either as wards of field hospitals or as separate hospitals. They have a limited number of beds, ranging from ten to 150. The neuropsychiatric patients are sent there either directly from the firing lines or from other field hospitals. A first examination separates the mild cases from the serious ones. The former patients are kept there and treated for a short period of time, after which most of them recover and are sent back to their regiments, save a few who require further observation or treatment, and these are sent to the neuropsychiatric center of the respective army. The latter are sent directly to the nearer neuropsychiatric center, after all the important anamnestic data, the clinical history and a provisional diagnosis have been obtained.

(b) Neuropsychiatric Centers of the Armies: These are units, one for each army, located in the rear, usually in the same town where the director of the Army Medical Service of the army resides. They occupy large, modern hospitals fitted with apparatus for diagnosis and physical therapy, where patients sent from the advanced neuropsychiatric section are received and submitted to a more accurate and rigorous examination. Here those functional cases, emotive, confused, etc., which, if transferred directly to reserve hospitals outside the war zone, as it was customary at the beginning, would become chronic, are treated until the patients are fit for service again. Those suspected of malingering are kept under strict observation until they are exposed or found mentally affected, in which case they are either recommended to a board of survey for medicolegal decisions, or are sent with the other serious cases to the reserve psychopathic hospitals outside the war zone. This occurs only when all means of treatment have failed and when the diagnosis of psychoses or organic neurologic lesion requiring long treatment is made. Recently, after the creation of the distribution center of Reggio Emilia, it was decided that all such cases should be directed to this center, for whatever decision.

The whole neuropsychiatric service of the zones of the armies is under the direction of neurologists and psychiatrists (one for each army) of unquestionable merit, chosen from among the best in the service, who have been connected for many years with neuropsychiatric clinics of the universities. A staff of trained neurologists and psychiatrists is attached to each neuropsychiatric center.

2. *The Neuropsychiatric Service Outside the War Zone.*—While the neuropsychiatric units at the front are mixed formations, a condition dictated by emergency and practical reasons rather than by scientific ones, the units outside the war zone are either neurologic or psychiatric. These include reserve military hospitals, university clinics and asylums, and constitute (a) the psychiatric sections and (b) the neurologic centers.

(a) The Psychiatric Service: This deals with two kinds of patients: (1) Psychopaths requiring further

2. Autolesionist refers to those who practice malingering by self-mutilation.

clinical observation or treatment or medicolegal decision, and (2) psychopaths that have to be interned in asylums or state hospitals. For practical purposes it has been decided to send the psychopathic soldiers to the hospitals nearest their birth places. This disposition facilitates a great deal the task of the psychiatrists in collecting all the necessary anamnestic data directly from the families of the patients, and enables the patients to live in their own environment, climatic and social. Those under observation remain there for a period of time not less than three months before they are discharged from the army and sent to state hospitals, of which there is one in each of the sixty-nine provinces of Italy. The psychiatric service outside the war zone is done in part by medical officers and in part by civilian psychiatrists, the chiefs of university clinics and asylums, who on account of their old age cannot be in active service. Towns where psychiatric sections are located are: Padua, Verona, Turin, Genoa, Parma, Alessandria, Reggio Emilia, Bologna, Ancona, Imola, Florence, Arezzo, Lucca, Siena, Perugia, Rome, Aquila, Bari, Catanzaro, Naples and Catania.

A distribution center for all the psychopaths from the war zone has been recently located at Reggio Emilia. This center is composed of five sections having a total capacity of 1,600 beds, of which 150 are for officers. One section is for general cases requiring observation and medicolegal decision; another is for the observation and distribution of all cases of hysteria, neurasthenia and epilepsy; another is a convalescent home for neurotics who had preliminary treatment elsewhere within the war zone, insufficient, however, for the complete restoration of their mental and nervous functions. The American Red Cross contributed generously in supplying this recent formation with medical and surgical material. In a recent editorial of an Italian paper of Reggio Emilia, high praises are paid to the American Red Cross and its medical director, Dr. Joseph Collins of New York, who, being a neurologist himself, takes great interest in this matter.

A plan is under consideration to create special hospitals for the degenerates, perverted and amoral, whose number is increasing among soldiers, not as a product of the war, but because, in the rush for enlistment, the psychologic investigation of the recruits is usually neglected. These subjects are discovered later on and brought to the attention of the medical officers, who at present cannot dispose of them, although they know by experience how dangerous they are to the community.

(b) The Neurologic Centers: There were in Italy before the Austro-German drive of October, 1917, eight neurologic centers modeled on the French system. Since that time the center of Treviso has been suppressed, owing to its proximity to the Piave line, and three new centers were created on account of the increasing number of neurologic cases. Actually the neurologic centers are distributed as follows:

Milan, which is a distributing center for the organic cases coming from the battle front of the fifth and first armies. It is the largest one, composed of several hospitals for a total of more than 1,000 beds.

Pavia, 600 beds. This center is under the direction of the histologist Camillo Golgi, who went from the laboratory to give his valuable service for the solution of social problems arising from the war, and to devote himself to the present and future welfare of those

wounded soldiers affected with organic neurologic lesions, who, without having lost limbs in the anatomic sense, have lost their function. These men, like the anatomically mutilated, have sacrificed their limbs. Physiologically they are crippled also, and deserve the same credit and help from their country as those who have had one or more of their limbs amputated; therefore, he called them the "functionally mutilated."

The other centers are: Genoa, 200 beds; Bologna, 300; Siena, 500; Ancona, 280; Rome, 310; Naples, 600; Bari, 150, and Catania, 250.

All these centers are equipped with modern apparatus for electromechanotherapy and diagnosis.

A notable innovation, which started in Milan and is proving most successful, is the institution of special occupational classes for the neurologic patients. These are by no means real schools for reeducation. Their scope is to furnish those patients who are able to do something during their period of treatment with a light occupation which, without tiring them, keeps them psychically active. For those patients who have either organic or functional disorders, the manual work, conveniently chosen and applied, is a wonderful therapeutic procedure, either from the point of view of the motor reeducation of the nervous and muscular system, or from the point of view of psychic reeducation of will. In many functional diseases of the nervous system, in which aboulia and psychic depression are prominent features, working is a splendid stimulus to awaken and keep alive the individual energies and activities, which otherwise would be lost forever, and any later attempt for reeducation would prove either useless or a most difficult task.

WORK ACCOMPLISHED

It would be out of the field of this article to speak at length of the wonderful work done by the Italian psychiatrists and neurologists during this war; but I will give a few data.

There are about 20,000 patients, soldiers and officers, who are admitted in a year to the psychiatric and neurologic reserve hospitals. This number does not include those successfully treated in the neuropsychiatric sections and centers of the armies. The latter units have proved of great value in reducing the number of permanently unfit by preventing, with appropriate and timely treatment at the front, many of the sensorimotor psychoneurotics from becoming sensitive-motor neurotics, which would mean the definite loss of the patient to the army.

V. Bianchi, consulting neurologist and psychiatrist of the Second army, reports that of a hundred patients sent to his department, 50 per cent. were able to return to service after a short period of treatment or furlough. Of the remaining 50 per cent., one third had to be sent to psychopathic hospitals, but only one half of these were declared insane and ultimately sent to an asylum. The other two thirds were declared temporarily or permanently unfit for service, which means that they were either discharged from the army or sent to the centers outside the war zone for medicolegal decisions.

The problem of dealing with the neuropsychiatric invalids of war is one of capital importance. So far it has been given due attention in Italy. Aside from the help which the government has been given to this matter, a committee for war invalids has been organized in Rome with the purpose of assisting in every

possible manner those soldiers who have cerebral, spinal and peripheral nerve lesions, and especially those who because of unusual and violent emotions reported in battle became functionally mutilated, namely, the invalids of the nerves, of the sight, of the hearing, of the speech and of the mind.

37 West Fifty-Fourth Street.

CHRONIC SKIN AFFECTIONS IN THE SOLDIER

C. J. HAILPERIN, M.D. (NEWARK, N. J.)

Captain, M. C., U. S. Army

CAMP LEE, PETERSBURG, VA.

My object in this paper is to point out the importance of looking for skin lesions, particularly those of a chronic nature, when examining men for the Army. From an examination of almost 8,000 men at the mustering office, and from a large experience in the dermatologic wards of the base hospital, I have been impressed by the potential and actual loss to the military service in accepting men who are suffering from chronic or recurrent dermatoses.

There are many types of skin affections which in ordinary civil life are of comparatively little significance. Many men go through life with these troubles without suffering any great inconvenience. When these men enter the Army, however, and are subjected to the physical and mental strain incident to Army life, they begin to have an aggravation of their trouble. They soon become incapacitated for work, and are sent to the infirmary or hospital for treatment. Many of these patients improve under rest and proper care, only to relapse soon after their return to duty. A sick or disabled man is a tax on the military organization. He cannot work; he requires medical attention; and to that extent he is a liability rather than an asset.

The accompanying table gives the various types of dermatoses as found among approximately 8,000 white men within a few days after their arrival at Camp Lee. Incidentally, this table also gives the number of men found with open syphilitic lesions, such as chancres, mucous patches and condylomas.

DERMATOSES AMONG EIGHT THOUSAND MEN

Acne keloid	1	Ichthyosis	8
Acne pustulosa	75	Lupus vulgaris	1
Acne rosacea	1	Parapsoriasis	1
Alopecia areata	8	Pediculosis corporis	1
Cysts, sebaceous (scalp)	3	Pediculosis pubis	3
Canities	2	Pityriasis versicolor	109
Dermatitis venenata	1	Psoriasis	40
Eczema, chronic	16	Purpura	2
Eczema, seborrheic	18	Scabies	20
Erythrasma	2	Syphilis (open lesions)	125
Folliculitis	11	Trichophytosis corporis	3
Erythema multiforme	4	Ulcer, varicose	2
Lipomas	4	Urticaria	5
Herpes zoster	2	Urticaria pigmentosa	1

Many of these diseases are of little significance from the standpoint of military service; but eczema gives considerable trouble, particularly if it affects the lower extremities. Among the men examined are many who give a history of chronic eczema, but who do not show any active manifestations. Active military life causes a return of their trouble, and they are then sent to the hospital for treatment.

REPORTS OF CASES

CASE 1.—C., admitted to the hospital after being in service twenty-four days, gave a history of repeated attacks of

papulovesicular eczema, which began six years before. On admission he presented an acute vesicular and weeping eczema of both feet, while on both hands there was a diffuse papulovesicular eruption. As the result of treatment, the inflammation gradually subsided after six weeks at the hospital. This man has now returned to duty, but will probably have a recurrence of his trouble.¹

CASE 2.—F. had had attacks of eczema for the past three years, particularly in the summer time. The present trouble began after being in service six months. A papular eruption appeared on the dorsum of both hands, and then spread to the arms and trunk. The patient was treated at the infirmary for two months, but the condition became worse. He was then admitted to the base hospital and discharged as improved after two weeks. Ten days later he was readmitted. On admission he presented a generalized erythematovesicular eczema that covered practically the entire body except the face and scalp. Some parts of the body, as the groins and axillary regions, showed considerable weeping. After more than two months of treatment there was only a moderate amelioration of the disease, and the patient had to be recommended for discharge from the service.

CASE 3.—K., admitted to the base hospital after being in service about two months, gave a history of general pruritus and eczema of the right leg for the past ten years. The itching and inflammation would subside somewhat during the winter, but would become aggravated again with the approach of summer. The present attack began about three weeks previous to admission with a papular eruption on the hands and the body. On admission the patient presented a vesicular eczema of the face, neck and ears, while in the right popliteal space there was a thickened, red, scaly patch of chronic eczema. Both legs showed numerous excoriations as the result of scratching. The arms and trunk showed numerous erythematous and scaly patches. After prolonged treatment with very little benefit the patient was finally recommended for discharge from the Army.

CASE 4.—Y., admitted to the hospital after two months' service, presented an interesting family history in that his mother, two brothers and one sister were suffering from a similar skin disease. The patient had had trouble with his hands and feet since he learned to walk. Large blebs would form on the palms and soles as the result of mechanical pressure. These lesions were present when the patient was mustered into service. After doing military duty for a few weeks, his condition became so painful that he was sent to the hospital for treatment. On admission the soles and palms showed a squamous condition as the result of the previous bleb formations. There was also a moderate hyperkeratosis of both plantar surfaces. While under observation at the hospital several new blebs have appeared on soles with very little inflammatory reaction. They heal without any atrophy or scar formations. The patient has now been in the hospital about six weeks without any marked benefit.

CASE 5.—McD. had been in the service one month when admitted to the base hospital. Several members of the family had the same trouble. On admission he presented a marked hyperkeratosis of the soles of both feet and several deep fissures extending through the skin into the subcutaneous tissues. Walking was quite painful. Several weeks of treatment have thus far proved of little benefit. It is clearly evident that this man will never make a soldier, particularly as his condition has existed now for many years.

The histories of these and many other patients show that they are very difficult to cure permanently, and they will ultimately have to be sent home.

CONCLUSIONS

1. Chronic skin diseases, and particularly chronic eczema, are very resistant to treatment, and usually incapacitate men for military service.

1. The patient returned to the hospital after being out six days. His condition is just as bad as it was at his first admittance, and he will have to be discharged for physical disability.

2. Examining boards should inquire into the past history, and be on the lookout for evidence of chronic eczema particularly.

3. Men with chronic dermatoses should be placed under observation before they are mustered in. Should they prove incurable, they can then be rejected. This, in my opinion, would be much simpler than discharging them after they have been inducted into the service.

AN INTERESTING REACTION TO LOUSE BITES *

WILLIAM MOORE, A.B.

ST. PAUL

Although the clothes louse is a known carrier of typhus and recurrent fevers and has recently been shown to be a carrier of trench fever, I am not aware of any published evidence that it may produce an illness due to a toxin or toxins introduced by its bite. Observations made while attempting to raise large numbers of lice for experimental purposes during the spring of 1918 appear to show that such an intoxication may result in persons bitten by large numbers of lice. The account given here is not presented as positive proof that such is the case, but rather to make available for other workers a record of our experiences.

Experiments were begun on the louse problem in the spring of 1917, with lice collected from the clothing of men in a municipal lodging house. They were kept in an electric incubator, heated to from 28 to 30 C. (82.4 to 86 F.). At first, attempts were made to feed them on rabbits, guinea-pigs, monkeys and pigs; but they refused to feed on either the rabbit or guinea-pig, and while they attempted to puncture the skin of a young pig, they were unsuccessful. The lice fed on the monkey but did not appear to thrive, which fact, together with the difficulty of so securing the monkey that it was unable to interfere with their feeding, caused a discontinuance of these methods. A laboratory assistant then undertook to feed them on his arm. Local irritation from the bites made it necessary to invite others to assist in feeding the lice. The work was continued in this manner until August, 1917, during which time no one person fed the lice more than two or three times a week, and at no time were there more than 400 lice. Miss Anna Wentz then took up the work as my assistant, and continued it until December. She cared for and fed all the lice, although they did not exceed several hundred at any one time. From April until December, when the work was temporarily discontinued, the lice received but one feeding a day, but when further experiments were started, March 12, it was determined to feed them twice a day, thus securing conditions more nearly normal.

During March, so many lice were destroyed in the experiments that there were at no time more than fifty lice to feed. By washing the arm with 95 per cent. alcohol immediately after the feeding and then treating it with a mixture of one-half glycerin and one-half ammonia, the local irritation was reduced to a minimum. During April, the number of lice on hand increased, and the first sign of an intoxication due to their bites was noted. Miss Wentz describes her con-

dition as that of being generally tired and with a nearly continuous, dull, steady and at times, very severe headache at the base of the skull. Later chills and fever (the chill occurring before the fever) set in, with symptoms very similar to grip. The fever lasted for three days, being highest in the afternoon; but unfortunately no record of the temperature is available. At this time, a rash developed over the neck and shoulders, while a number of small blisters were noted on the arm, where the lice were fed. This illness occurred between April 15 and April 30, the exact date not being recorded, since at this time we had not associated the illness with the bites of the lice. About April 20, I took over the feeding of the lice with the result that Miss Wentz improved in health, until by May 6 all symptoms had disappeared.

Whereas Miss Wentz had started feeding with a small number of lice which gradually increased, I started feeding about 700 to 800 twice a day. Almost immediately a general tired feeling was noticed in the calf of the legs and along the shin bones, while on the soles of the feet and underneath the toes this tired feeling was so intense as often to prevent sleep until late in the night. An irritable and pessimistic state of mind developed. May 7, an illness resulted with symptoms very similar to grip, and a rash similar to German measles was present, particularly over the shoulders and abdomen. As German measles were prevalent in the community at that time, it was considered German measles; and after remaining in bed for several days, I returned to work and again took up the feeding of the lice. The general feeling, previously noted, was present with increasing intensity. By May 15, the number of lice in our reserve stock had increased to about 1,200, and, May 28, I was again forced to remain in bed. The family physician was called and diagnosed the case as possibly grip. The next day he was again called, since a distinct rash was present all over the body. The rash was considered quite typical of German measles, but other symptoms of measles were absent. The heart was normal, the pulse about 90, and the temperature varied from 100 to 102. A blood count revealed a normal number of leukocytes and red corpuscles. A severe headache was experienced, accompanied with pains in the legs, not only along the shins, but also in the calf of the leg and the soles of the feet, while intense pain was present in all the joints of the body. The appetite was lost for several days, and the tongue was heavily coated. Dr. A. D. Hirschfelder, who has been assisting on the louse problem, saw me at this time and considered that it was not German measles, nor was it grip, but might be trench fever. Glandular enlargement was absent and no enlargement of the spleen was noted. Recovery was complete except for a general weak condition by June 4.

I again took up the feeding of the lice, June 6, with the hope of producing the symptoms again and deciding if the illness was really caused by the lice and, if possible, whether it was trench fever. The lice numbered about 800 adults, which gradually died off while young lice hatched from the eggs, until by June 22 about 1,800 young lice were being fed. During the early period between June 6 and 15, no lassitude was noticed, but from about the 17th on, it gradually returned as the number of lice increased, until the 27th and 28th, when it was pronounced. On the 29th, I was feeling so miserable that it was a decided effort to

*From the Division of Entomology, Department of Agriculture, University of Minnesota.

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get up in the morning and again feed the lice. The symptoms were the same as in the two previous illnesses. If the illness was due to the organism of trench fever, a day or two spent in the open with plenty of exercise would hardly prevent the attack, but if it was due to a toxin or toxins, it might be possible, by plenty of fresh air and exercise, to throw off the toxins and escape the attack; hence, the 29th and 30th were spent in the open, rowing and fishing. During the 29th, the symptoms were still quite pronounced, but gradually disappeared on the 30th, although a general tired feeling persisted for several days. Since that time, the lice have not been fed, and two weeks in July were spent on a vacation in the open. The result has been the total disappearance of the peculiar tired feeling in the legs and feet and a return to perfectly normal health.

CONCLUSION

The foregoing is suggestive that the clothes louse, if present in large numbers, may produce an illness, which appears to be an intoxication of the system with some toxin that they are capable of introducing at the time of feeding. It is also suggestive that some of the symptoms of trench fever encountered in certain cases may not be due to the organism of trench fever, but to certain toxins introduced by the lice.

University Farm.

AN APPARENTLY PRACTICAL METHOD FOR THE ISOLATION OF PFEIFFER'S BACILLUS FROM SPUTUM *

E. E. ECKER, PH.D.

CLEVELAND

During preliminary investigations in the present epidemic, the isolation of *B. influenzae* from sputum was found to be a difficult task when the usual routine procedure of plating on human blood agar was followed. The difficulty in isolating by this method is due to the fact that other organisms, such as pneumococci, staphylococci and *Micrococcus catarrhalis*, tend to obscure the colonies of influenza bacilli and overgrow them. Therefore it can be readily seen that in most instances the element of chance in isolating the influenza bacillus by blood agar plates alone is great and the whole procedure uncertain.

In 1903, Cantani¹ reported the interesting observation that bile did not destroy the virulence of influenza bacilli. Cultures of these organisms and bile simultaneously introduced into the peritoneum of guinea-pigs invariably killed the animals. It occurred to me to use bile or bile salts because of the dissolving action of bile on pneumococci and its inhibitive effect on other accessory organisms. Sodium taurocholate was used in a strength of 0.5 per cent.

Bronchial secretions were mixed with the taurocholate solution, and the mixture was allowed to stand for at least twenty minutes and longer. After exposure, streaks were made on human blood agar plates. The method proved satisfactory, and after twenty hours' incubation at 37 C. (98.6 F.) minute, colorless, transparent droplet-like colonies were easily detected and differentiated.

The organisms stain nicely with aqueous fuchsin and measure about 0.5 or 0.6 micron by 0.2 or 0.3 micron. They are gram-negative and form irregular clusters with no definite arrangement. They often give the appearance of *B. coli*.

Subcutaneous injection of washings from slants into mice proved fatal to the animals within six or seven hours. The bacilli were readily obtained from the heart blood of the animals.

Materials for the work were kindly furnished us by Dr. J. S. S. Gardner of the U. S. Marine Hospital, Cleveland.

PATHOLOGIC SIMILARITY BETWEEN PNEUMONIA OF BUBONIC PLAGUE AND OF PANDEMIC INFLUENZA

DOUGLAS SYMMERS, M.D.

Professor of Pathology, University and Bellevue Hospital Medical
College; Director of Laboratories, Bellevue and Allied
Hospitals

NEW YORK

Since the commencement of the present epidemic of influenza in New York City I have had occasion to investigate by necropsy at the Willard Parker and Bellevue hospitals twenty cases of death from pneumonia occurring in the course of this remarkable infection. The changes in the lungs are those of a variety of confluent lobular exudative and hemorrhagic pneumonia in which the naked eye and microscopic features bear such a resemblance to the lesions in the pneumonic variety of bubonic plague as to provide an interesting study in similarities. There are, however, several features which serve as differential safeguards in separating the two diseases on anatomic grounds. If these should be eliminated or projected into the background—as not infrequently they are—then, indeed, the sum of the reactions of the pulmonary tissues to the prevailing infection is so nearly equivalent to that of pneumonic plague as described and depicted by investigators in the Far East that, were it not for the aid of modern bacteriologic methods, the pathologist of this climate might be tempted to the conclusion that the world is facing a pandemic of pneumonic plague in which, contrary to rule, the mortality is relatively low, rather than a pandemic of influenza with unusually frequent pneumonic complications and a far higher mortality than that exacted by any previous eruption of the same disease. The captious critic might object that an otherwise harmonious comparison is violated by the projection of superficial buboes into the picture of pneumonic plague and their absence from that of influenza, to which it may be replied that the pneumonic variety of plague is seldom accompanied by those bubonic manifestations from which the disease takes its name and with which, erroneously, all of its several anatomic forms seem to be associated in the minds of most physicians resident in this latitude. As far, however, as participation of the deeper nodes is concerned, the extent and distribution of thoracic and abdominal adenopathies in both diseases bear out the analogy. Moreover, the similarity of the two diseases is enforced by the clinical features, which are remarkably alike in many respects, and by the pathology of certain tissues other than the lungs. However impressive these observations may be, it is

* From the Department of Hygiene and Preventive Medicine of Western Reserve University.

1. Cantani: Ztschr. f. Hyg. u. Infektionskr., 1903, 42, 505.

comforting to recall that the bacteriology of the prevailing pandemic is vouched for by a number of exceedingly able investigators, and that *Bacillus pestis* has found no place in their results.

In the greater number of all the cases of pneumonia associated with the prevailing epidemic, our experience at the Willard Parker and Bellevue hospitals is that the pleural cavities are free from excessive accumulation of fluid, only two exceptions having been found. In one of these the right pleural cavity was distended by cloudy, milklike fluid which had compressed the lung into an atelectatic mass scarcely larger than one's clenched fist, and the pleural was universally thickened. Obviously the empyema was one of long standing and had preceded the influenzal infection. In the second case, both pleural cavities were half filled with serofibrinous exudate, and the pleural membranes were extensively, although irregularly, obscured by collections of coarse, shaggy fibrin. In each of two other cases the pleura presented a localized, solitary patch of fibrinous exudate a few centimeters in diameter. In the remaining seventeen cases the pleurae were smooth, glistening and devoid of exudate. It is exceedingly important to note that, in this regard, the pathology of pneumonic plague is different from that of the existing pandemic influenza, Crowell, in twenty-five necropsies on subjects dead of plague in the Manchurian epidemic, having found extensive pleural exudates in every one.

The naked eye appearances of the lungs themselves, however, are highly suggestive, and, for descriptive purposes, may be thus grouped:

1. Cases with (a) extensive confluent lobular solidification of the lower lobes; (b) circumscribed or partially confluent consolidation of the lobules of the upper lobe, and (c) areas of acute vesicular emphysema. These cases without exception represented examples of rapidly fatal pneumonia.

2. More prolonged cases characterized by complete or almost complete consolidation of all or most of the lobes of both lungs, areas of acute vesicular emphysema occurring as an inconspicuous feature.

3. Those cases in which the pneumonic process is obviously subsiding.

THE ACUTE CASES

(a) The lower lobes of both lungs were always involved in company, never, in my experience, alone. The lower lobes were enlarged, heavy and extensively, often almost completely, consolidated. The involved areas presented a deep slate blue color mottled at intervals by slightly elevated pinkish or cream colored subpleural patches in which the inflammatory process had not progressed to its customary conclusion, or by areas of vesicular emphysema in which the dilated vesicles appeared as streaks or patches of minute, glistening, beadlike bodies. Petechial hemorrhages into the pleura or larger, splotchlike extravasations of blood were practically constant. As a rule, the extreme edges of the lung were spared by the solidifying process, the air vesicles undergoing, however, marked compensatory emphysematous changes. On section the substance of the lung cut readily. The cut surface presented a deep bluish or bluish black appearance, the substance was friable but less easily broken than that of the lung in croupous pneumonia, and the surface was of the smoothness of velvet, not a trace of fibrin being seen or felt. Scattered over the deep slate blue

background were occasionally to be seen small, pinkish, granular-looking, firm patches in which, however, no suggestion of fibrinous granulations were apparent to the touch or microscopically. Pressure on the consolidated lobe released huge quantities of deeply blood stained serum in which there was a distinct milky tint due to the escape of leukocytic exudate from the vesicles. The cut ends of the smaller bronchi were sometimes to be distinguished by the escape of droplets of pus, oftener by frothy serum. The mucosa of the trachea and larger bronchi was greatly swollen, deep bluish red, and velvety, with an occasional grayish fleck of pseudomembrane lying on the surface. The peribronchial lymph nodes were markedly edematous and hyperemic, forming a mass around the root of the lung that sometimes attained remarkable proportions.

Microscopic examination of the deep bluish, firmly solidified portions of the lower lobe revealed the presence in the alveoli of huge numbers of red cells and polymorphonuclear leukocytes, either alone or in combination, and coagulated serum. Fibrin was absent. In many alveoli were quantities of large, rounded cells corresponding to desquamated vesicular epithelium. The interalveolar capillaries were intensely injected, as were those of the walls of the bronchi and bronchioles. The bronchioles were, for the greater part, filled by polymorphonuclear leukocytes, among which were clumps of desquamated epithelium.

(b) The upper lobes presented a somewhat different picture. The lowermost portions were divided into lobules of different sizes, some of them bluish and firm, others pinkish or reddish and less firm in consistency, while the uppermost parts and the extreme edges were markedly emphysematous and feathery. The microscopic changes in the solidified lobules varied, according to the degree of consolidation, from simple exudation of serum to distention of the vesicles by red cells or leukocytes or both. In other words, the pneumonic process in the upper lobes may be found in all stages of advancement, but the richly injected interalveolar capillaries and the frequent and abundant escape of red cells into the vesicles are apt to dominate the picture as a whole.

I shall not risk repetition in order to afford verification from an independent source of the similarity between the pulmonary changes in pneumonic plague and those of the prevailing pandemic of influenza as we have observed them at Bellevue Hospital. Suffice it to say that one has only to consult the admirable description of the lungs contained in Crowell's monograph¹ on plague, as he saw it in the Manchurian epidemic, to confirm the impression that the pulmonary changes in pandemic influenza are of the same essential variety, the constant pleural exudate in plague and the almost constant acute vesicular emphysema in influenza serving as the main points in the anatomic differentiation. Moreover, the colored illustrations that accompany Crowell's paper substantiate the resemblance to which I have ventured to call attention.

(c) The areas of acute vesicular emphysema so constantly to be found in association with the lobular pneumonia of pandemic influenza are of considerable clinical interest. For example, in two of our cases, rupture of distended air vesicles had taken place, probably near the apex of the lung, and the soft tissues in the supraclavicular spaces were crepitant with infiltrated air. In another case rupture had occurred,

1. Crowell: Philippine Jour. Sc., B, 1812, 7, 203.

apparently in the vicinity of the root of the lung, since the soft tissues of the posterior aspect of the pericardium were permeated by myriads of emphysematous bullae varying in size from the head of a pin to that of a small marble. Gaseous particles extended thence into the soft tissues of the precordial area, downward toward the pericardial attachment to the central tendon of the diaphragm, forward into the retrosternal region, and thence through the upper aperture of the thorax into the neck and on to the lower portions of the face and downward into the subcutaneous tissues as far as the crest of the ilium on the left and the lower level of the costal slope on the right. In still another case, rupture had occurred directly into the left pleural cavity with the production of pneumothorax. In none of these cases was it possible for us to demonstrate at necropsy the actual point of rupture.

MORE PROLONGED CASES

In the Willard Parker and Bellevue Hospital necropsies we have several times observed almost complete consolidation of both lungs, particularly in individuals who had presented clinical indications of pneumonia for a relatively prolonged period. It was in two of these cases that the pleura presented localized patches of fibrinous exudate. In all of them the pulmonary substance was so extensively involved by the inflammatory process that the peripheral areas of vesicular emphysema were scarcely noticeable. In cases of this sort, also, the cut section of the lung sometimes showed pinhead sized or larger, rounded or irregularly outlined, grayish or cream colored bodies corresponding to confluent vesicular exudations of leukocytes, or there were areas in which, scattered over a considerable extent, the cut surface of the consolidated lung was marked by a network of grayish or grayish red lines surrounding deeply congested islands of consolidated tissue.

CASES IN WHICH PNEUMONIC PROCESS IS SUBSIDING

I have had an opportunity to study the lung in one case in which the pneumonic process was apparently subsiding. The patient was a man, about 30 years of age, who gave a history of having passed through a typical siege of influenzal pneumonia. He returned to work at an ill advised moment of convalescence and died suddenly. At necropsy the right side of the heart was greatly dilated and the muscle tissue was flabby. Both kidneys were large and congested, the tufts standing out as minute, reddish points. The spleen was enlarged and congested, weighing 275 gm. Both lungs were greatly increased in size. The upper lobes were emphysematous and feathery in consistency. The lower lobes were congested. In the lower lobe on the right side was a patch of consolidated tissue about the size of one's thumb, and similar but smaller areas were found to the extent of two or three lying in different parts of both lower lobes. These patches were deep bluish, firm, airless, and, on section, presented a perfectly smooth, velvety appearance, and quantities of semipurulent fluid could be squeezed from them. Scattered over the lower lobe, beneath the pleura, were several thumb-nail sized, pinkish patches, and it was observed that the pleura covering each of them was finely wrinkled. Evidently these patches represented areas in which the lung had undergone acute emphysematous alterations without complete loss of tone in the elastic fibrils, so that restitution was progressing.

Microscopic examination of the solidified patches in the lungs revealed intense congestion of the interalveolar capillaries together with the presence in the air vesicles and smaller bronchi of dense collections of polymorphonuclear leukocytes. No red cells were apparent, and no fibrin.

Finally, I may be permitted to call attention to the occurrence of one instance in which the changes in the lungs of a soldier dead of influenza were identical with those originally described by Delafield as constituting an acute productive bronchopneumonia, and more recently studied by MacCallum² among the American troops in Texas. This variety of pneumonia is fairly common as a sequel of measles, and, according to MacCallum and Cole, is caused by a hemolytic streptococcus. It is marked by the presence in the lung of myriads of pin head sized, grayish white foci which are irregularly rounded or angulated and in the center of which a minute opening or depression may be discerned. In the case that I had an opportunity to study these spots were present literally in countless numbers scattered through both lungs, lying in a deep bluish red background and bearing a resemblance to miliary tubercles. On microscopic examination it was found that each whitish spot corresponded to a small bronchus whose lumen was partially or completely filled by polymorphonuclear leukocytes and clumps of desquamated epithelium. The connective tissue framework of the bronchus supported numbers of dilated and deeply injected capillary vessels between which were round cells. The alveoli in the vicinity or at a distance were filled either by polymorphonuclear leukocytes or by leukocytes and desquamated cells, some of the latter containing brownish yellow pigment granules. The interalveolar capillaries were universally injected. In short, the histologic changes were those of a very early stage of Delafield's, acute productive bronchopneumonia, the later stages of which, according to the original observations of the distinguished American pathologist,³ are attended, among other things, by the growth of new connective tissue in the smaller and medium sized bronchi, in the interalveolar septums and thus by permanent changes of a productive nature.

THE CIRCULATORY SYSTEM

In the prevailing pandemic influenza, clinical indications of circulatory disturbances are numerous. For example, the nasopharynx is deeply congested, the skin is not uncommonly the seat of erythematous eruptions of various sorts, duskiness and cyanosis are common, the blood pressure is often alarmingly low, and the pulse is slow. At necropsy the signs of congestion are more intense and widespread than in any acute infective disease with which I am acquainted. The mucous membrane of the upper respiratory tract is swollen and deep red, the pulmonary capillaries, with scarcely a detectable exception, are crowded with red cells, and hemorrhages into the pleura and lung are common, the spleen is always deeply congested, the capillaries of the kidney from pelvis to capsule are filled to distention, the medulla of the suprarenals is frequently swollen and deep bluish red, the mucosa of the gastrointestinal tract presents isolated or diffuse areas of injection, sometimes giving rise to hemorrhage by diapedesis, the lymph nodes are swollen and hyper-

2. Cole, Rufus, and MacCallum, W. G.: Pneumonia at a Base Hospital, *THE JOURNAL A. M. A.*, April 20, 1918, p. 1146.

3. Delafield: Lectures on the Practice of Medicine, Part 2, p. 229.

emic to an unusual degree, the capillaries of the liver are injected to their fullest capacity, and the smaller vessels of the brain are likewise involved. In addition, the right side of the heart is dilated, especially the auricle, and the heart muscle is diffusely bluish and its capillaries are universally distended. Both the naked eye and microscopic appearances of the heart muscle fibers, however, are in the majority of cases indicative of a surprisingly excellent state of preservation. Cloudy swelling, in my experience, is exceptional.

The anatomic and histologic changes in the circulatory apparatus are of importance as indicating the necessity for stimulation from the instant that the diagnosis of influenza is made. Clinically, there are excellent reasons for believing that these changes are present from the earliest moments of infection. Moreover, from the opportunity that I have had to observe these cases at necropsy and in the living patient, it appears to me to be probable that the prevailing pandemic influenza is attended by pneumonic lesions from the beginning. Thus it has been shown that patients in whom it is impossible to detect signs of consolidation by ordinary methods of diagnosis, if subjected to roentgen-ray examination, reveal defects in the lower lobes that are to be interpreted only as areas of consolidation, subsequent developments confirming this view. Moreover, the distribution of the pathologic changes in the lungs is such as to suggest that the infection is introduced by way of the respiratory tract and that, in many cases, the initial lobular consolidations are situated deep in the substance of the lung, the process later developing in such fashion as to include the periphery. In those cases in which death has occurred twenty-four or thirty-six hours after the development of detectable pneumonic signs, it is scarcely conceivable that the massive solidification of the lungs found at necropsy could have taken place with corresponding rapidity. The suggestion naturally follows that, if one is to err at all let it be on the safe side, and that every case of pandemic influenza should be regarded from the outset as pneumonic, and so treated.

THE KIDNEYS

Microscopic examination of the kidneys reveals diffuse congestion of the capillary network throughout the entire organ, together with cloudy swelling of the tubular epithelium, most marked in the convoluted tubules and not infrequently well marked in the epithelium of Bowman's capsule. In this way the lumina of the tubules become partly occluded by granular debris, and similar material is to be found in the interval between capsule and tuft.

THE BRAIN

In those cases attended by delirium, the meninges of the brain are richly infiltrated by serous fluid and the capillaries are injected. Microscopic examination of the brain substance shows marked hyperemia. In one of our cases the convolutions of the brain were flattened and the brain tissues were noticeably dry. In another case purulent meningitis of pneumococcal origin was present.

JAUNDICE

In seven of the twenty cases investigated postmortem at Bellevue and Willard Parker hospitals, slight jaundice was present. Inquiry into this feature has shown that the mucous membrane of the duodenum is

congested and swollen and that the exit of bile through the papilla of Vater is impeded to an extent sufficient, in part at least, to account for its retention in the bile capillaries and liver cells. Moreover, microscopic examination reveals the liver cells in such an advanced state of cloudy swelling that the bile capillaries are obstructed, the bile accumulating in the cells as minute greenish particles, finally being diverted, no doubt, into the circulation. In addition, the bile itself is extremely viscid, the contents of the gallbladder consisting of material of gelatinous consistence.

THE SPLEEN

In seven of the twenty cases of fatal influenza the spleen was normal in size, in nine it was slightly increased, and in the remaining four the organ was distinctly enlarged, three times to the extent of 300 gm. or over. The organ is deep blue; there is, in fact, a strong resemblance between the color of the spleen and that of the consolidated lower lobes of the lungs as seen through the pleura. On section the substance of the spleen is deep blue, friable rather than grumous—in which respect the consistence differs from the spleen of sepsis as commonly observed—and the follicles are unusually numerous.

ABORTION

The observation of Ball⁴ that pregnant women are apt to abort as a result of influenzal infection is confirmed by our experience at Bellevue Hospital. The subject is now being investigated and will be made the object of a subsequent report.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, SECRETARY.

LUTEIN-H. W. & D.—The fully developed corpora lutea of the hog freed from foreign material, dried and powdered. One part lutein-H. W. & D. represents approximately four parts of the fresh substance (see N. N. R., 1918, p. 237).

The following dosage form has been accepted:

Lutein Tablets-H. W. & D., 2 Grains.—Each tablet contains lutein-H. W. & D., 2 grains.

4. Ball, M. W.: Abortion as a Sequela of Influenza, *THE JOURNAL A. M. A.*, Oct. 19, 1918, p. 1336.

France the Pioneer of Child Welfare Work.—Within the past few generations, we find that modern child welfare work, as we know it at the present time, has all started in Europe. France has had a declining birth rate for many years and to France we owe every child welfare movement we have, from its inception of school medical inspection in 1842 to the establishment of the first infant milk stations in 1890. All legislation for the protection and help of expectant mothers, including the feeding of children and of pregnant women, the day nursery, indeed, practically everything that we know of that is modern in child welfare work started in France, and not because of humanitarian impulses, but because it was absolutely necessary for France to keep alive and well every child born in that country.—Josephine Baker, M.D., *Health News*, New York.

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SATURDAY, NOVEMBER 2, 1918

WAR NEPHRITIS AND ALKALI THERAPY

Only those who cultivate an intelligent familiarity with the aims and methods of modern experimental medicine can appreciate to what degree it has become responsible not only for much needed improvements in the domain of diagnosis but also for changes in practical therapy. Illustrations abound on every side. A few years ago it was a conventional procedure to attempt to "flush out" the kidneys for all sorts of ills. Today it is fortunately realized by many clinicians—we wish that one could truthfully say by all—that in acute nephritis, for example, it is quite useless to give the patient large quantities of water to stimulate elimination, as this merely tends to irritate unnecessarily the kidneys, whose excreting powers are already crippled.

A further highly significant example of the wholesome outcome of research—animal experimentation, be it noted—may be cited in the work of MacNider¹ of the University of North Carolina on the renal functions. In the nephropathic condition induced by poisoning with uranium, he has shown not only that there is an association between the degree of kidney injury and the severity of the acid intoxication induced by this metal, but also that the intravenous use of an alkali in these animals will protect the kidney against the toxic effect of uranium and increase the efficiency of various diuretic substances. The stability of the acid-base equilibrium in any individual appears to be a factor of no small importance in relation to nephropathies. Earlier studies of MacNider² indicated that age may not be without significance in relation to the ease with which animals with kidney lesions develop acid intoxication. He has since demonstrated¹ that in contrast with normal subjects, naturally nephropathic

animals have an unstable acid-base equilibrium. When the mechanism that controls this was subjected to the action of an agent, such as chloroform, which tends to induce an acid intoxication, the naturally nephropathic animals very rapidly developed such an intoxication, and became anuric. Normal animals, however, gave no evidence of acid intoxication, and in them the formation of urine was unaffected by the anesthetic. Furthermore, evidence has been presented to show that the naturally nephropathic animals, like those suffering from renal lesions experimentally induced, can be protected in varying degrees against toxic influences by the use of alkaline solutions. When failure to protect a damaged kidney occurs, it seems to be associated with rapid depletion of the alkali reserve of the blood and the development of acid intoxication. The degree of protection conferred by such alkalis as sodium carbonate is associated with the ability to maintain a normal acid-base equilibrium of the blood. Ordinary saline solutions have no such power.

MacNider's demonstrations have already caused alkali therapy to be given extensive trial in suitable human cases of war nephritis. By this is not meant an acute disease following a focus of infection, but rather that type of the renal disorder which shows an abrupt onset, with symptoms of dyspnea and edema. Unusual opportunity for such tests has been afforded among the troops in active service, where in contrast with the comparative rarity of acute nephritis in civil life large numbers of cases of this condition have been observed. Thus Keith and Thompson,³ reporting from a base hospital in France to the British Medical Research Committee, assert that acidosis of moderate degree, measured by the alveolar carbon dioxide tension and the alkali reserve of the blood plasma, is generally present. One group of cases, designated as the resolving type, usually shows rapid improvement, disappearance of acidosis and reestablishment of good renal function through rest and simple dietotherapy. In the more severe nonresolving type of cases, however, alkali therapy seemed to be of distinct service in restoring both the normal acid-base relationship and improving the renal function.

Although acidosis was always accompanied by retention of substances normally excreted by the kidney, and spontaneous recovery from the acidosis followed the rapid elimination of these substances, the British investigators are of the opinion that the degree of acidosis encountered in war nephritis is secondary to impaired renal excretion. In this respect they agree with students of chronic nephropathies who have reached the conclusion that the acid intoxication developing in these conditions is a retention acidosis, and that the accumulation of nonvolatile

1. MacNider, W. deB.: The Stability of the Acid-Base Equilibrium of the Blood in Naturally Nephropathic Animals and the Effect on Renal Function of Changes in This Equilibrium: I, A Study of the Acid-Base Equilibrium of the Blood in Naturally Nephropathic Animals and of the Functional Capacity of the Kidney in Such Animals Following an Anaesthetic; II, A Study of the Efficiency of an Alkali to Protect the Naturally Nephropathic Kidney Against the Toxic Effect of an Anesthetic, *Jour. Exper. Med.*, 1918, **28**, 501, 517.

2. MacNider, W. deB.: A Consideration of the Relative Toxicity of Uranium Nitrate for Animals of Different Ages, I, *Jour. Exper. Med.*, 1917, **26**, 1; Concerning the Influence of the Age of an Organism in Maintaining its Acid-Base Equilibrium, *Science*, 1917, **46**, 643.

3. Keith, W. M., and Thompson, W. W. D.: War Nephritis—A Clinical Functional and Pathological Study, *Quart. Jour. Med.*, 1918, **11**, 229.

acids is not responsible for the primary renal injury.⁴ But when the acid substances accumulate, a further degeneration of epithelium may follow whereby the functional capacity of the kidney is arrested. It is this associated kidney injury which maintenance of acid-base equilibrium through administration of alkali seems to prevent.

DIET AND MILK SECRETION

Not long after the demonstration that beriberi is a disease attributable to a deficiency of the dietary came the announcement that the nursing infants of mothers who were suffering from the malady might also exhibit the symptoms. Judging from the ordinary chemical analyses there was no reason to assume that the milk furnished by the victims of beriberi was deficient or unusual in its content of the ordinary nutrients. Fats, proteins, carbohydrate and mineral salts seemed to be present in the usual proportions. Soon it began to appear that milk is the carrier of something more than these familiar ingredients. Milk contains vitamins of more than one type. Evidently these may fail to be transmitted to the secretion under certain conditions of malnutrition in the lactating mother. Thus we are brought face to face with the unanticipated possibility that a product, milk, highly prized as an almost ideal food, may be of excellent quality as judged by the traditional standards of purity and value, and yet may lack something quite as essential as the calory-yielding ingredients.

To what may the failure to produce perfect milk be charged? Does the synthetic capacity of the mammary gland fail in its duty, or is the production of nutritively imperfect milk associated with the diet of the lactating individual? The latter assumption seems somewhat unlikely in view of the now current doctrine that it is "breed" rather than "feed" which determines the character of the milk of any species. The mammary gland is not merely a filter which separates indiscriminately the varying pabulum brought to it by the blood stream. It seems to yield a product of almost invariable character despite profound alterations in the food intake of its bearer. This has been found to be true of cattle; and it was long ago reported that during the siege of Paris in 1870 young and vigorous women maintained and in some cases even induced gains in their suckling infants while these mothers themselves were actually or nearly starving.⁵

Nevertheless, the synthetic powers of the mammary gland have evident limitations. Underfeeding and faulty diets are not without effect on the milk secretion; but it has remained for the more recent methods of biologic analysis—as it has been termed in

contrast with ordinary chemical examination—to reveal the more subtle deficiencies that are the expression of the relation between improper food supply and milk production. The substantiated facts in this connection have recently been summarized by McCollum and Simmonds⁶ of the newly established School of Hygiene and Public Health at Johns Hopkins University, to whom are due fundamental researches in this field. The evidence, they state, seems conclusive that there is no special synthetic power of the mammary tissue by virtue of which amino-acids that are not found in the food can be formed. It is true that the milk contains proteins of uniquely good nutritive quality so that young animals may grow far better on a small concentration of these than on a much larger intake of plant proteins, for example. What happens, however, is this: The maternal organism selects certain of the amino-acids from the digestion products of the food and presents them in the milk incorporated in proteins in such proportions as make a very efficient transformation into the tissue proteins of the young. To quote McCollum and Simmonds, the mother "makes from her large intake of protein of rather poor quality a smaller output of protein of exceptional biologic value in the milk." This involves no synthesis of amino-acids *de novo*—only a selective absorption and reconstitution of the amino-acids which circulate in the blood, into complexes, the milk proteins, which in turn act as food that is very efficiently converted into body proteins for growth.

Similarly, according to McCollum, Simmonds and Pitz,⁷ the mammary gland picks up from the blood the as yet chemically unidentified vitamins and passes them into the milk. They cannot be produced synthetically, for when they are absent from the mother's diet the vitamins are not found in the milk. The demonstration of the production of an otherwise normal milk poor or lacking in the fat-soluble or water-soluble vitamin or both, and therefore not capable of inducing growth, is an item of great moment for the science of nutrition. It deserves to be emphasized prominently that "milk production may take place under dietary conditions such that the product is deficient in certain complexes necessary for growth." And it is a seemingly logical inference from this that deficiencies in the supply of certain inorganic nutrients to the mother may lead to consequent imperfections in the milk she secretes. The quality of milk needs to be evaluated from new standpoints.

Today we know that many of the items in the food supply of the less well to do may be poor in vitamins. Breads and other products prepared from highly milled cereals, refined sugar, vegetable fats, butter substitutes and meats belong to the staples in the

4. Sellards, A. W.: The Essential Features of Acidosis and Their Occurrence in Chronic Renal Disease, *Bull. Johns Hopkins Hosp.*, 1914, **25**, 141. Peabody, F. W.: Clinical Studies on the Respiration, II, The Acidosis of Chronic Nephritis, *Arch. Int. Med.*, December, 1915, p. 955.

5. Decaisne: *Gaz. m d.*, 1871, p. 317.

6. McCollum, E. V., and Simmonds, N.: The Nursing Mother as a Factor of Safety in the Nutrition of the Young, *Am. Jour. Physiol.*, 1918, **46**, 275.

7. McCollum, E. V.; Simmonds, N., and Pitz, W.; *Jour. Biol. Chem.*, 1916, **27**, 33.

rations of these people. Perhaps, therefore, there is no undue exaggeration in this contention of the Johns Hopkins biochemists:

There are tens of thousands of human mothers who are attempting to nurse infants on diets derived too largely from the seeds of plants and their milled products. Such diets produce inferior milks and may be the cause of grave disorders in the very young.

The remedy lies in the suitable extension of the dietary, in the use of green vegetables and fruits, and the inclusion of milk as far as economic conditions and financial resources allow.

INDICATIONS OF PHYSICAL OVEREXERTION

No one will dispute the general principle that exercise is essential to the well being of the human organism. Lack of use of a part or structure adapted to energetic functioning is likely to lead to poor nutrition and perhaps even to atrophy of the organ concerned. The phenomena of overexertion are not so generally recognized, although it would not be difficult for any physician to recall instances of damage thereby, particularly in relation to the circulatory apparatus. In other words, both overexertion and disuse of vital organs represent extremes of undesirable personal behavior. Perfect health demands a performance that shall steer a safe course between deficient exercise and undue effort.

The foregoing comments have an added import in connection with the problem of athletic sports. So long as these are in sole charge of untrained "trainers" there will be an element of danger in the win-at-all-costs attitude that is inculcated into the competitors in athletic games. In more recent years, protests against the possible sacrifice of health through undue exertion and break-neck strenuousness have begun to be heard. The "athletic heart" was the first symptom to awaken the exponents of unrestrained and indiscriminating effort in sports to the possibility of a real danger. Latterly the "athletic kidney" has commanded a little attention from the sober minded lovers of exercise in the form of sport; and it might not be amiss to assume the further possibility of a complex of disturbances involving the circulation as a whole and attributable to improper athletic effort. The kidney function has not as yet been taken into account as carefully as the heart activities, doubtless because it is somewhat less readily subjected to critical diagnostic analysis than are the cardiac performances.

The questions that perplex the student of the physiology of athletic exercise may for the most part be raised with equal propriety in connection with the work of the soldier. Military training has become a sort of nationalized athletic exercise in which the work to be done is not infrequently associated with tremendous exertion. Forced marches with heavy equipment, arduous toil at the guns on land and sea, and speeding-

up moves at every turn of unexpected events in the uncertainties of war are experiences that mean a burden of physical effort to thousands of briefly trained young men. The problem of highest efficiency in war work as well as in peace play is bound up to some degree with the determination of the limit at which normal functioning ceases and the abnormal response manifests itself.

The military hygienist, therefore, not only is concerned with the conditions that determine the onset of fatigue, the enemy of all progress, but also asks how much the heart can endure and the kidneys tolerate without deterioration or impairment. There is, however, a category of persons who may well give him added concern. An army has its retinue of convalescents whose value for service depends on the ultimate degree of their recovery. A recent investigation by Feigl¹ at Hamburg shows that the usual clinical signs that the older methods of physical diagnosis depend on may not always be reliable indexes. He examined a considerable number of soldiers between the ages of 25 and 40 years who had regained a satisfactory state of nutrition and strength after prolonged stays in a military hospital. Most of them had experienced kidney disturbances as an involvement of the disease that invalidated them, and had regained the status of being reported "practically well" when the tests were made. The task was a military march of 17 kilometers in three hours—not an unduly exacting trial for a soldier in good trim. The kidney functions were tested not only by an examination of the urine for protein and cellular structures but also by an analysis of the blood for evidences of retention of metabolites. The nonprotein nitrogen, urea, creatinin and uric acid were estimated. Incidentally it may be pointed out that the technic employed on these German soldiers was entirely that of made-in-America procedures. The results indicate that strenuous exercise which will not affect the functions of a well trained healthy person may nevertheless call forth evidences of imperfect restoration of capacity in apparently cured patients. Thus the newer and more subtle tests, such as the chemical micro-analysis of the blood affords, present information that warns—as THE JOURNAL has often warned before—of the danger of overstepping the physiologic limits of endurance in any physiologic activity.

1. Feigl, J.: Biochemische Untersuchungen über den Einfluss von Marschanstrengungen auf die Zusammensetzung des Blutes, *Biochem. Ztschr.*, 1917, 84, 332.

Fly Prevention in the B. E. F.—Tangle-foot wire instead of paper is used to catch flies in hospitals, convalescent camps and like places. Pieces of hay-baling wire, 2 feet long, have a hook bent on one end and by dipping or with a brush are coated with a hot mixture of 4 pints of castor oil and 9½ pounds of crushed resin. The oil is heated and the resin gradually stirred in. When these wires are hung up, the flies alight on them and stick fast. When the wires become covered they are burned off and recoated for use again.

Current Comment

IT IS A WISE PHYSICIAN WHO KNOWS HIS OWN DANGER

Last week the deaths of 81 physicians were recorded in *THE JOURNAL*, occupying three pages. This week the deaths of 174 physicians are recorded, occupying five pages. The total number of deaths recorded in these two issues is 255, and of these 154 are definitely known to have been due to influenza or pneumonia; undoubtedly in the majority of instances in which the cause is not given, it was influenza. These obituaries are records of sacrifice to duty. A layman may, if he desires, keep from exposing himself to any infection; but the physician must go when called without thought of consequences to himself. However, as one considers the list one wonders whether or not some of these deaths might have been prevented by adopting some of the simple precautionary methods that have been suggested, such as the wearing of the face mask. This thought arose when we received a letter from a physician who, in sending in the names of two physicians who had died, said: "Dr. A. visited at the Great Lakes Naval Training Station an old patient who had influenza. Two days after his return home, Dr. A. came down with the disease. Dr. B. was called to see Dr. A. and examined his throat, Dr. A. coughing in his face. Two days later Dr. B. had the typical manifestations of the disease." It is proverbial that physicians, like preachers, give advice which they themselves do not consistently follow. It is a wise doctor who knows his own danger.

DIGESTIVE ABSURDITIES AGAIN

In the Correspondence department of this issue is a letter from a company whose "aromatic digestive tablets" had failed to measure up to the standard of strength declared on the label. In its defense, the company offers the excuse that aromatic digestive tablets are of such a nature that they cannot "be expected to test up to labeled strength." This argument cannot be accepted unconditionally because the firm is engaged in a professional, as well as a commercial enterprise. Scientific investigation has demonstrated beyond any doubt the irrationality, one might even say absurdity of such combinations of digestive ferments as go to make up the various brands of aromatic digestive tablets, and all chemists and manufacturing pharmacists are familiar with these facts. The excuse for manufacturing them is that there is a call for them. That is to say, in spite of the demonstrable absurdity of the combinations of pepsin and pancreatin, etc., physicians continue to call for, and to waste their patients' money on, these ridiculous mixtures. Pharmaceutical concerns that wish to continue to sell aromatic digestive tablets, even though the scientific men on their staffs know that the preparations are absurd and that the ferments that are put into them will, in all probability, destroy each other before they can reach the patient, should be made to

date such products. After all, though, it is a question whether the physician who ignorantly prescribes aromatic digestive tablets is not more morally culpable than the pharmaceutical house that supplies what such physicians demand.

NO SPECIFIC "CURE" FOR INFLUENZA

The present epidemic, as was to be expected, has given rise to the publication in the newspapers of all kinds of "sure cures." Their number is legion, and they vary in character from those with a semiscientific basis to others with no basis whatever. Some could be classed under the term ridiculous. Many persons recommend certain methods of treatment from purely altruistic motives, others for financial gain. Almost all of the proponents of alleged specific methods are bombastically enthusiastic. Hyperenthusiasm applied to moral or esthetic ideals is a praiseworthy emotion, but as related to medical science is usually a delusion and a snare. The research worker should view his results with a cold, dispassionate conservatism, before considering publication with resultant harm to himself and the public. Many of the alleged cures and remedies now being recommended probably will do more harm than good. The United States Public Health Service, having been besieged with inquiries regarding this and that method of treatment, has issued a special bulletin in which it is emphasized that there is no specific cure for influenza yet known and that the chief reliance must be placed on good hygiene, good nursing and symptomatic treatment.

BARLEY WILL CONSERVE WHEAT

"Barley," says M. Hindhede,¹ the Danish exponent of economy in nutrition, "is too valuable as a human food to be used in these hard times as fodder for pigs or in the production of beer." This conclusion was based on extended dietary experiments on men in which barley, margarin, sugar, milk and fruit represented the range of variety in the food intake. The cereal was used mostly in the form of coarse groats, yet it was utilized almost as well as comparable coarse whole wheat bread; and doubtless a better milled or better cooked product would have shown even superior digestibility. The availability of the very coarse cereal used was by no means equal to that of the finest wheat bread or similar refined products, but its wholesomeness seemed to be beyond question. An exclusive diet of cereals is never ideal, whatever the source of the grain used. But many persons have depended so largely on wheat in the past that they fail to recognize the equivalent merits of its substitutes. We have already spoken a good word for barley in support of the well founded contentions of the U. S. Food Administration. Barley is extremely hardy, and is grown as far north as the Arctic Ocean in Russia and as far south as the Nile and the equator in eastern Africa. Its drought-resisting qualities make it particularly valuable as a crop in somewhat arid regions. Barley

1. Hindhede, M.: Ernährungsversuche mit Gerstenwassergrütze. Skandin. Arch. f. Physiol., 1918, 35, 294.

is believed to have been one of the first cereals used by man and is today probably the best of the substitutes for mixing with wheat in bread-making.

Medical Mobilization and the War

Government Purchase for Laboratory School at New Haven

The government has recently purchased the property of the Elm City Hospital Corporation, New Haven, and is using it for work in connection with the Yale Army Laboratory School and the medical side of the Chemical Warfare Service. All candidates for positions in the various base, field, and mobile laboratories overseas will be sent to New Haven for intensive training. About 400 men are enrolled and are under the command of Lieut.-Col. Charles F. Craig, M. C., U. S. Army. Work has been commenced on a temporary building on the New Haven Hospital grounds for the Army Laboratory School.

New Publication of Camp Wheeler Hospital

The United States Base Hospital at Camp Wheeler, Ga., has just begun the publication of a semimonthly, the *Camouflage*, devoted to the interests of the Medical Department. It is a twelve-page publication excellently printed, and with an artistic cover. The name, the *Camouflage*, seems particularly apt since the first issue contains several items taken from, and which were original in, the "Tonics and Sedatives" department of THE JOURNAL without credit. They are signed by Sarg. this and Sarg. that.

Honors Awarded

The Distinguished Service Cross has been awarded to Capt. George E. McGinnis, One Hundred and Tenth Ambulance Company, One Hundred and Third Sanitary Train, of Clarendon, Pa., who on "The night of August 9, with complete disregard of his personal safety made a reconnaissance under fire and located a line of evacuation for ambulances from Fismette, and on the morning of August 10, under shell fire personally repaired the bridge between Fismes and Fismette thereby making possible the evacuation of twenty-eight wounded men," also to Asst. Surg. Ogden D. King, U. S. Navy, Albemarle, N. C., attached to U. S. Marine Corps, "In action near the Bois de Belleau, June 9 and 10, in two successive days the regimental aid station in which Surgeon King was working was struck by heavy shells, and in each case demolished. Ten men were killed and a number of wounded badly hurt by falling timbers and stones. Under these harassing conditions this officer continued without cessation his treatment of wounded, assisting in their evacuation, and setting an inspiring example of devotion and courage to the officers serving under him."

Rehabilitation of Soldiers and Sailors

The federal board for vocational education has begun the work of placing disabled soldiers and sailors for reeducation, according to the *Vocational Summary* for October. The rehabilitation division of the board has opened offices, for the purpose of reeducating and placing disabled men, in seven different districts. District 1 comprises the New England States, except Connecticut; District 2, New York, New Jersey and Connecticut; District 3, Pennsylvania and Delaware; District 4, West Virginia, Virginia, Maryland and the District of Columbia; District 5, Florida, Georgia, North Carolina, South Carolina and Tennessee; District 6, Louisiana, Mississippi and Alabama, and District 7, Indiana, Ohio and Kentucky. Other districts will be created and offices opened as soon as the proper personnel can be obtained. In dealing with the disabled man the board expects to treat him throughout as a civilian needing advice and assistance, to approve his choice of occupation unless, after careful investigation, sound opinion shows it to be in the end not advisable to train him to meet the needs of the occupation he has elected, to urge him to make the most of his opportunity to overcome his handicap by taking thoroughgoing instructions, to help him to secure desirable permanent employment, and to keep in close touch with him after he goes to work.

Officers Needed in Sanitary Corps, U. S. Army

A communication from the office of the Surgeon-General announces that for the purpose of meeting the requirements of a considerably enlarged program of service, both in the Army camps in this country and with the American forces overseas, the Sanitary Engineering Section of the Sanitary Corps is in need of a number of officers of the following types: sanitary engineers of broad training and experience in water supply and its purification, sewerage and sewage disposal, and other engineering activities related to public health; engineers with practical experience in drainage and mosquito control operations; epidemiologists with good training in preventive medicine and qualified to institute and administer practical measures for the prevention or control of contagious disease; municipal health officers or sanitary inspectors with sound training in the fundamentals of sanitation and with a record of successful experience in handling men and in the sanitation of closely occupied areas, such as cities and industrial communities; water chemists and bacteriologists skilled in field and laboratory examination of water and with practical experience in water and sewage problems. The present and prospective work of this section will require the services of both commissioned and non-commissioned officers, and of a relatively small number of privates. Applications for information and for service should be made to the Surgeon-General, Washington, D. C.

VOLUNTEER PHYSICIANS FOR UNITED STATES PUBLIC HEALTH SERVICE

THE JOURNAL has published several announcements asking for volunteers for permanent work as acting assistant surgeons in the Public Health Service. In addition, the Public Health Service is in urgent need of physicians for temporary duty in connection with the influenza epidemic. This work is being organized by states in connection with the state boards of health. Physicians who wish to make themselves available for temporary emergency work at a salary of \$200 per month and \$4 per diem allowance for subsistence should communicate with the Surgeon-General, U. S. P. H. S., indicating their desire to serve, or communicate directly with the Public Health Service officer in their own state. A list of such public health officers follows:

Alabama—P. A. Surg. Robert Olesen, City Hall, Montgomery.
Arizona—Field Director O. Harry Brown, Supt. Public Health, Phoenix.
Arkansas—Asst. Epidem. J. C. Geiger, City Hall, Little Rock.
California—Surg. W. C. Billings, 76 New Montgomery St., San Francisco.
Colorado—T. D. E. E. Kennedy, Sec. State Board of Health, Denver.
Connecticut—Hdqs. at Boston, Mass., State House, R. 167-C, Boston.
Delaware—A. A. Surg. J. W. Richards, c/o St. Bd. Health, Wilmington.
District of Columbia—Asst. Surg. E. S. Mustard, Webster School, 10th and H Sts., N.W.
Florida—Asst. Surg. O. H. Cox, State Bd. of Health, Jacksonville.
Georgia—Asst. Epidem. C. C. Applewhite, 78 Marietta St., Atlanta.
Idaho—Field Director E. T. Bower, State Health Officer, Boise.
Illinois—Senior Surg. J. C. Cobb, 4141 Clarendon Ave., Chicago.
Indiana—A. A. Surg. W. F. King, State Board of Health, Indianapolis.
Iowa—Asst. Surg. W. C. Witte, Box 912 (Telegrams U.S.P.H.S.) Des Moines.
Kansas—Collab. Epidem. S. J. Crumbine, State Health Officer, Topeka.
Kentucky—Surg. L. D. Fricks, 519 Custom House, Louisville.
Eastern Kentucky—Surg. John McMullen, P. O. B. Lexington.
Louisiana—Surg. C. M. Corput, Marine Hospital, New Orleans.
Maine—P. Asst. Surg. Paul Preble, c/o State Health Officer, Augusta.
Maryland—A. A. Surg. C. Hampson Jones, State Dept. Health, 16 W. Saratoga St., Baltimore.
Massachusetts—State House, R. 167-C, Boston (Headquarters).
Michigan—Field Director R. M. Olin, Sec., State Bd. of Health, Lansing.
Minnesota—Collab. Epidem. R. M. Bracken, Sec. State Bd. H., St. Paul.
Mississippi—Collab. Epidem. W. S. Leathers, State Bd. H., Jackson.
Montana—Collab. Epidem. W. F. Cogswell, Sec. State Bd. H., Helena.
Nebraska—Field Director W. F. Wild, Com. of Health, Lincoln.
New Hampshire—State House, R. 167-C, Boston, Mass. (Hdqs.)
New Jersey—P. A. Surg. W. L. Treadway, State Bd. Health, Trenton.
New Mexico—Surg. J. W. Kerr, Castenada Hotel, Las Vegas.
New York—Field Director Hermann M. Biggs, Com. of Health, Albany.
North Carolina—Prof. C. W. Stiles, State Board of Health, Raleigh.
North Dakota—Field Director C. J. McGurren, Sec. Bd. H., Devils Lake.
Ohio—A. A. Surg. E. W. Scott, U.S.P.H.S., State Bd. Health, Columbus.
Oregon—A. A. Surg. A. C. Seely, State Board Health, Portland.
Pennsylvania—P. A. Surg. W. F. Draper, State Dept. H., Harrisburg.
Rhode Island—(Hdqs. Boston, Mass.) State House, R. 167-C, Boston.
South Carolina—P. A. Surg. C. V. Akin, State Bd. Health, Columbia.
South Dakota—Field Director Park S. Jenkins, Supt. Health, Wanbay.
Tennessee—P. A. Surg. R. C. Derivaux, State Bd. of Health, Nashville.
Texas—Surg. C. H. Gardner, State Board of Health, Austin.
Utah—A. A. Surg. T. B. Beatty, State Bd. Health, Salt Lake City.
Vermont—(Hdqs. at Boston, Mass. State House, Room 167-C).
Virginia—Sc. Asst. W. L. Wood, State Board of Health, Richmond, Va.

Washington—A. A. Surg. T. D. Tuttle, c/o State Board of Health, or 930 Henry Bldg., Seattle.

West Virginia—A. A. Surg. Alston Maxwell, 16 Masonic Bldg., Charleston.

Wisconsin—Field Director C. A. Harper, State Health Officer, Madison.

Wyoming—Field Director C. Y. Beard, Sec. State Bd. H., Cheyenne.

Pennsylvania—Surg. Edward Francis, Armory, Chester, Pa.

The Twenty-Sixth Annual Meeting of the Association of Military Surgeons

The twenty-sixth annual meeting of the Association of Military Surgeons was held at Camp Greenleaf, Chickamauga Park, Ga., under command of Col. W. N. Bispham, October 14 to 16. The attendance (about 400) consisted of representative medical officers from the U. S. Army, U. S. Navy, and the Public Health Service. Among the papers presented were those of Lieut.-Col. George E. deSchweinitz, showing how eyes are saved and thereby limiting the number of cases of blindness. Conditions of the ear, nose and throat, whereby the hearing and sense of smell and taste were saved in many instances, were shown by Col. H. P. Mosher of Boston, and also by Col. W. J. S. Lyster.

The Surgeon-General's Office of the Navy was represented by Capt. George A. Lung, commanding officer, U. S. Naval Hospital, Brooklyn, who is in charge of the largest naval hospital in the world. To a large extent many of the members of the Marine Corps from the Chateau Thierry and Soissons sector are under his care. Captain Lung, as president of the organization, read a most instructive and interesting paper reviewing the history of the organization and holding forth some of the problems that would have to be presented to the medical officer at the end of the war.

Capt. F. S. Pleadwell, M. C., U. S. Navy, who was medical aide to the commandant of the Norfolk Naval District and for a year naval observer to the allied forces in Europe, presented a most interesting paper on hygiene and sanitation in which he described the improved conditions installed throughout Europe in an endeavor to make "our boys" have healthy surroundings. He described how their quarters were made habitable, and how diseases which were responsible for a large number of deaths during the Spanish-American War were entirely eliminated. Captain Pleadwell was elected third vice president.

Capt. F. T. McCullough, fleet surgeon of the Atlantic fleet, read a most instructive and interesting paper relative to the handling of our sick and wounded boys in their being transported from the other side to America.

Capt. J. A. Murphy of the Surgeon-General's Office described the importance of the work that is being carried on at Camp Greenleaf under Colonel Bispham, commanding, and its relation to the Navy and the work of the Navy while our troops are transported to Europe.

A most unusual and interesting demonstration was shown by Commander R. S. Bainbridge, M. C., U. S. Navy, in which he showed some moving pictures which have not as yet been shown in America until the present meeting, and demonstrating the advances made in restoring the cosmetic appearance of men who have extensive injuries to the nose, mouth, chin, and about the eyes. Many persons who would otherwise look hideous have had artificial face masks made out of copper netting treated with silver, and molded in such a position as to cover defects in the nose and other parts. Special details are completed by comparing the artificial face with a photograph before the injured went to war. Commander Bainbridge also gave a most interesting talk on the spirit of the Medical Corps, of the soldiers, and of the civilian population behind the battle lines. He described the not infrequent reinvigoration of elderly men, who are taking the places of many of the younger men who were killed in large numbers during the early part of the war.

One of the papers on surgical subjects was presented by Major F. H. Albee, M. C., which gave the importance of using the bone particles in the restoration of lost bone. The subject was beautifully illustrated with moving pictures.

On the afternoon of October 15 the entire command of Greenleaf was reviewed by Colonel Birmingham, president-elect of the association. On the same evening the delegates and visiting members witnessed a minstrel show which was staged for their entertainment. This entertainment was furnished by the enlisted personnel of Camp Greenleaf. A great many members remained until the close of the session, Wednesday evening, when they were entertained with an athletic exhibition, consisting of wrestling, boxing, etc., the music for which was furnished by the 120 piece Camp Greenleaf Medical Department Band.

At the business meeting several important amendments to the constitution were adopted, one of which admits to associate membership acting assistant surgeons of the Army, Navy and Public Health Service, and another provides for a sinking fund committee to consist of the president, treasurer, and three members selected from former presidents of the association. The following officers were elected: president, Col. Henry P. Birmingham, M. C., U. S. Army; vice presidents, Col. Joseph A. Hall, M. C., U. S. Army, Cincinnati (representing the National Guard); Asst. Surg.-Gen. John K. Kerr, U. S. P. H. S., and Capt. Frank L. Pleadwell, Medical Director, U. S. Navy; secretary-treasurer, Col. William J. L. Lyster, M. C., U. S. Army, and members of the sinking fund committee, Surg.-Gen. Rupert Blue, U. S. P. H. S.; Admiral William C. Braisted, Surgeon-General, U. S. Navy, and Col. Van R. Hoff, M. C., U. S. Army (retired). The selection of the next place of meeting was left to the executive council with power to act.

American Expeditionary Forces' Weekly Bulletin

The following paragraphs are taken from the *Weekly Bulletin of Disease*, dated September 23, issued for circulation among American medical officers in France:

PNEUMONIA

Septic pneumonia, due commonly to the *Streptococcus hemolyticus*, has appeared in virulent form in a dozen or more different and widely separated points in France. There has been a high mortality (from 20 to 40 per cent.), deaths occurring in many instances within twenty-four and forty-eight hours of onset of symptoms. The conflict between infection and resistance, once the symptoms are well declared, is apparently but little modified by any treatment provided.

Exhausted, driven, anxious men are easy prey to infection. The condition of the men when exposed to infection is of far greater importance than the care he gets after he is sick in bed. A man is entitled to at least the devoted care given to a horse. The man's resistance is largely at the mercy of his officers, and to them we must look for the greatest measure of prevention.

Here is what energetic and resourceful medical men are doing about the pneumonia situation in the A. E. F., through improvements in sanitation of environment and control of personal habits:

(From Headquarters, 32d Division, Office of Division Surgeon)

For the purpose of prevention and treatment, pneumonia will hereafter be regarded as a contagious disease by the medical personnel of this division.

If a case occurs during an inactive period or while in billets, the following will govern:

1. Send patient to hospital designated.
2. Report the diagnosis to this office by telephone or courier, giving name, number, company, organization, number of contacts and where they may be found.
3. The contacts will be segregated. The term "contacts" will be understood to mean all those who have been in close and more or less permanent relationship with the sick man and those who sleep in nearby and adjoining beds, those who work with him in kitchens, offices, and the like.
4. The surgeon will immediately make an inspection of quarters, reporting number of occupants, cubic feet of air, light, etc. He will arrange for a thorough cleaning and disinfection of the billet and institute efficient preventive measures, such as antiseptic treatment of the nose and throat of all contacts.
5. On arrival in hospital, the patient will be isolated, so far as practicable by screening or otherwise. Attendants will wear gauze masks over the nose and mouth and will be given the same treatment as other contacts.
6. One or more wards, as necessary, will be designated as pneumonia wards. No other cases will be admitted.
7. No visitors will be allowed, except when absolutely necessary.
8. Utensils, linen, etc., will be handled as with other contagious diseases.
9. Pneumonia, as with other respiratory diseases, is spread by careless expectoration and coughing (droplet infection). Effective regulations must be enforced for the prevention of infection by this means. Educate the men as to the dangers of careless expectoration.
10. Battalion surgeons will make frequent inspections of billets and inspections and examinations of men in order personally to know at all times the conditions under which

the men are living and their physical condition. The battalion surgeon who does not know the physical condition of the men at all times is *not* giving efficient service. The daily sick call does not give sufficient opportunity to know the true condition.

Pneumonia is a disease, the result of human contact. It is spread by overcrowding in billets, by exposure to cold and wet, by exhaustion, etc. See that the men have a reasonable air space in billets and that the billets are ventilated. Sleeping with heads placed alternately prevents men from coughing in each other's faces.

The effective strength of this division depends to a large extent on the earnest efforts of all medical officers to improve sanitary conditions. Where such efforts do not bring results, submit report to this office stating action taken, dates, and the names of responsible officers, in order that the matter may, if necessary, be brought to the attention of the commanding general.

(Headquarters, Hospital Center, Rimaucourt)

The commanding officer of each organization will report by memo to this office within two weeks after arrival in camp that each officer, nurse and employee of his organization can correctly recite the answers to the questions as given below:

Q.—What is the greatest danger to which you are exposed in France?

Ans.—Death from such diseases as meningitis, pneumonia, tonsillitis, influenza, measles and diphtheria.

Q.—How can I avoid this danger?

Ans.—1. By preventing comrades from coughing or breathing in my face.

2. By preventing comrades from spitting in and around buildings.

3. By preventing comrades from shutting up buildings so that the air may get close.

Q.—What else shall I do to avoid endangering my comrades?

Ans.—1. I will turn my head when I cough.

2. I will hold a handkerchief in my hand over my mouth when I cough.

3. I will keep my handkerchief and my hands clean at all times.

4. I will fix up a can in which men in my barracks can spit into a disinfecting liquid.

(Headquarters, Base Section No. 2, S. O. S.)

The following directions are given for the guidance of medical officers in the treatment of the disease (epidemic influenza and pneumonia) and to prevent its spread. The situation is serious and demands the utmost effort on the part of medical officers and thorough cooperation on the part of line officers.

(a) Early recognition of the first cases with their prompt and complete isolation.

(b) Every patient should be strictly confined to bed until symptoms have completely abated. Isolation should be maintained throughout convalescence.

(c) The bowels should be evacuated at the beginning of an attack, and liquid or light diet be given.

(d) In case of any spread of the disease in an organization, the organization should be quarantined; all pass privileges should be withdrawn, no troops should be sent elsewhere from an affected organization, and any new troops that are introduced into it while the disease prevails should be isolated so far as possible from the rest of the organization.

(e) It should be remembered that the disease is highly contagious, that it is probably most readily transmitted by the nasal, pharyngeal and bronchial discharges, especially in coughing, sneezing and spitting, but that it may also probably be transmitted by blankets, clothing, mess kits and other articles used by patients.

(f) Public gatherings, such as movie shows, concerts and dances, should be prohibited during an epidemic.

(g) The utmost efforts should be made to prevent overcrowding of the men in quarters during an epidemic. Where feasible, it is well to put men outdoors to sleep if necessary to prevent overcrowding.

(h) Medical officers are directed to report promptly to the chief surgeon of this base any indications of an incipient epidemic among the troops for which they are responsible.

(i) Reports from the French Service de Santé inform us that the disease prevails among the civil population in many localities, notably at Bordeaux, Arcachon, Tarbes, and Bayonne. Commanders of organizations in which the disease does not exist are warned against granting leave to any place where the disease is prevalent on account of the danger of such men introducing the disease into their organization on their return.

Evacuation or Transfer of Pneumonias.—Medical officers are warned against exposing pneumonia patients or patients

with severe pulmonary disease with fever to the fatigue of transportation unless under urgent necessity for space for battle casualties. Complete rest in pulmonary disease is absolutely indispensable.

SPECIAL WARNING

Influenza is as contagious as measles and as dangerous. It is a dangerous disease by reason of the fatal complicating pneumonia. Isolate all cases of influenza, and if severe, hospitalize immediately. Examine daily all contacts for the earliest signs of the disease (pharyngitis, fever and conjunctivitis), and isolate promptly. Watch for the earliest symptoms of pneumonia. These are slight cyanosis, increased respiration, and a continuation of fever beyond the third or fourth day. The early signs of involvement of the lungs in bronchopneumonia may be slight and shown only by hyperresonance and scattered râles. It is imperative that all bronchopneumonia suspects should be removed from influenza wards and isolated separately. Beware of too early evacuation of influenza patients.

COMMISSIONS OFFERED AND ORDERS TO DUTY ON ACCEPTANCE

Alabama

To Army Medical School, Lieut. J. J. HALL, Oak Hill.
To Camp Joseph E. Johnston, Fla., Capt. O. J. BROOKS, Huntsville; Lieut. W. E. WARREN, Fort Payne.
To Fort Oglethorpe for instruction, Capt. R. A. SMITH, Brewton; Lieuts. E. H. WALKER, Birmingham; N. S. JOHNSON, Clanton; J. H. DODSON, Mobile.

Arkansas

To Fort Oglethorpe for instruction, Capt. O. MILLER, Fayetteville.
To Fort Riley for instruction, Lieuts. R. O. SMITH, Reyno; L. GARDNER, Russellville; E. D. BUTLER, Wilmar.

California

To Camp Cody, N. M., base hospital, for instruction, Capt. J. A. McNAUGHTON, Lieut. M. A. FRANK, Los Angeles.
To Camp Fremont, Calif., base hospital, Capt. W. O. MONTGOMERY, San Francisco; Lieut. J. W. DEWITT, Antioch. Base hospital, for instruction, Capt. E. A. KUSEL, Oroville.
To Camp Kearney, Calif., Capt. F. E. BROWN, Los Angeles; Lieut. E. E. DOTSON, Escondido. Base hospital, for instruction, Capt. J. S. GREEN, Oakland.
To Camp Lewis, Wash., Capt. M. M. ARMSTRONG, W. A. DUNTON, Los Angeles; Lieut. H. J. FORBES, Pasadena.
To Denver, Colo., Capt. J. B. FISH, San Leandro; Lieut. R. J. CARY, Livermore.
To Fort Oglethorpe for instruction, Capt. M. W. KAPP, San Jose; Lieuts. W. W. DUTCHER, L. E. WILSON, Los Angeles; E. C. BLACK, San Diego; E. F. HOLBROOK, San Jose.
To Fort Riley for instruction, Capt. R. N. SMITH, Los Angeles; R. O. SHELTON, San Diego; Lieuts. C. F. CRITTENDEN, Alameda; W. C. PRUETT, Oakland; F. R. MUGLER, San Francisco; R. L. HOGG, Saratoga; H. G. ROSENBERGER, Whittier.
To report to the commanding general, Hawaiian Department, Lieut. J. H. HURST, Santa Barbara; Western Department, Capt. A. A. MILLIKEN, Fort Jones; C. H. WALTER, San Jose.
To Sacramento, Calif., Mather Field, Capt. P. de OBARRIO, San Francisco.
To San Francisco, Calif., Letterman General Hospital, Lieut. L. DOZIER, Stockton.

Colorado

To Camp Lewis, Wash., base hospital, Capt. D. G. MONAGHAN, Denver.
To Fort Oglethorpe for instruction, Lieut. L. M. MAITLAND, Drake.
To Fort Riley for instruction, Capt. S. H. BELL, Montrose; W. LUCAS, Pueblo; Lieuts. R. L. DOWNING, Bayfield; G. F. LEE, Denver; C. H. TIDD, Telluride.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. J. A. MOREHOUSE, Idaho Springs.

Connecticut

To Camp Lewis, Wash., Lieut. W. E. COYLE, Waterbury.
To Camp Wheeler, Ga., base hospital, Lieut. C. K. STILLMAN, Mystic.
To Fort Oglethorpe for instruction, Capt. T. F. BEVANS, Waterbury; Lieuts. E. J. S. SCOFIELD, Danbury; F. E. FOLEY, H. J. GIAMARINO, H. W. GRODZINSKY, New Haven.
To Hoboken, N. J., Lieut. D. D. REIDY, Winsted.
To Plattsburg, N. Y., Lieut. E. T. GIBSON, Middletown.

Florida

To Camp Beauregard, La., Lieut. W. F. McGRUFF, Niceville.
To Camp Joseph E. Johnston, Fla., Lieuts. H. BYRD, Princeton; J. HALTON, Sarasota.

Georgia

To Fort Oglethorpe for instruction, Capt. J. P. PROCTOR, Athens; Lieuts. P. M. HOWARD, College Park; A. J. WHELCHER, Cordele; D. J. BARTON, Hartwell; J. GERDINE, Jersey; C. S. FLOYD, Loganville; B. BASHINSKI, Macon; E. P. WHITE, Tignall.

Hawaii

To report to the commanding officer, Hawaiian Department, Capt. H. H. BLODGETT, Honolulu; Lieut. R. C. LICHTENFELS, Hana.

Illinois

To Camp Custer, Mich., Lieut. F. PHILLIPS, Arthur. Base hospital, for instruction, Lieut. H. R. KENNY, Chicago.
To Camp Grant, Ill., base hospital, Capt. L. B. PHELPS, Oak Park. To examine the command for nervous and mental diseases, Lieut. L. G. WRIGHT, Chicago.

To Camp Greene, S. C., base hospital, for instruction, Lieut. R. A. BUCKNER, Gilman.

To Camp Leach, D. C., Lieut. A. M. FROMM, Ramsey.

To Camp McClellan, Ala., Capt. W. H. GAMBILL, Centralia.

To Camp Pike, Ark., Lieut. I. F. FREEMMEL, Jacksonville.

To Camp Sevier, S. C., base hospital, for instruction, Lieut. E. ANDREWS, Chicago.

To Fort Oglethorpe for instruction, Capt. G. OSBORNE, M. M. PORTIS, Chicago; E. W. POTTHOFF, Oak Park; D. P. WIENS, Peoria; Lieut. J. R. BUCHBINDER, E. C. SKEMBARE, E. W. WHITE, Chicago; J. J. CONDON, Danville; W. R. GARDINER, Herrin.

To Fort Riley, Lieut. T. J. LAMPING, Chicago. For instruction, Capt. G. F. BRACKEN, C. L. CONROY, F. A. DAVIS, R. J. DUNN, H. K. GIBSON, J. H. REEVES, Chicago; C. E. HILL, East St. Louis; F. G. HALL, Galesburg; W. A. BALCKE, Pekin; Lieut. C. A. JOHNSON, Barry; L. SMITH, Chapin; C. M. BERNTSEN, N. C. BULKLEY, D. D. BURNS, H. T. CUMMINGS, C. A. DONOVAN, B. E. ELLIOTT, A. O. ELLISON, E. L. EUSTICE, A. H. FERGUSON, G. F. GATES, F. F. HOFFMANN, W. G. JEFFERIES, S. B. KOSITCHER, J. H. KRAMER, S. OCHS, M. PENCHINA, Chicago; F. T. FITCH, Dunlap; G. O. HULICK, East St. Louis; W. T. COLLINS, J. J. GRANT, Freeport; D. S. BOLES, Herrin; H. T. KING, Joliet; T. S. EBAN, Mapleton; S. E. PARR, Ottawa; A. W. SLAUGHTER, Paris; W. M. AVERY, Pawpaw; W. E. FOSTER, Richmond; H. R. ROGERS, Rockford; R. E. VALENTINE, Tallula; R. G. EMPSON, Valmeyer.

To New Haven, Conn., Lieut. M. D. REINHART, Chicago; W. J. WALLINGSFORD, Maywood. Yale Army Laboratory School, for instruction, Lieut. W. J. SCHOLES, Chicago.

To San Francisco, Calif., Letterman General Hospital, Capt. C. F. LARSON, Chicago.

Indiana

To Camp Shelby, Miss., base hospital, for instruction, Capt. H. G. FLEMING, Anderson.

To Fort Oglethorpe for instruction, Capt. W. B. PAGE, Goshen; Lieut. F. G. GREEN, Bloomingdale; J. S. LEFFEL, Connersville; J. A. GARRETTSON, Indianapolis; E. J. EMMERT, Lawrenceburg; C. A. PAVY, Terre Haute.

To Fort Riley for instruction, Capt. C. W. YARRINGTON, Gary; G. A. PETERSDORF, Indianapolis; M. L. ARTHUR, Patoka; Lieut. G. W. PIRTLE, Carlisle; B. G. DUPRE, Fort Wayne; A. M. KAN, Gary; E. F. STEINKAMP, Huntingburg; C. S. WISEMAN, Lakeville; H. G. LIND, Nineveh; J. H. GREEN, North Vernon; T. J. COLLINGS, Rockville; C. E. SAVERY, South Bend; W. A. BAGBY, Utica.

To New Haven, Conn., Capt. W. A. McBRIDE, Indianapolis.

Iowa

To Ann Arbor, Mich., State Psychopathic Hospital, Capt. E. E. HARRIS, Grinnell; for intensive training, Lieut. E. P. BENEDICT, Battle Creek.

To Camp Custer, Mich., Lieut. F. M. KEEFE, Clinton.

To Camp Dodge, Iowa, Capt. H. A. LINDSAY, Independence; Lieut. W. M. SHIRLEY, Carroll.

To Fort Oglethorpe for instruction, Lieut. L. F. TALLEY, Diagonal. To Fort Riley for instruction, Capt. F. R. KING, Farmersburg; E. HENELY, Nora Springs; F. P. LEEHEY, Oelwein; E. R. SHANNON, Waterloo; J. M. SMITTLE, Waucoma; Lieut. E. L. LAMPE, Bellevue; H. P. BENJAMIN, Council Bluffs; J. DUNN, Davenport; W. F. BRINKMAN, Des Moines; I. J. PASCOE, Harvey; G. MARIS, Hull; E. E. KIMMEL, Iowa City.

Kansas

To Camp Sherman, Ohio, base hospital, and for instruction, Capt. W. F. BOWEN, Topeka.

To Fort Oglethorpe for instruction, Capt. L. F. BARNEY, Kansas City.

To Fort Riley, Lieut. E. R. GHENEY, Gypsum. For instruction, Capt. R. J. HARLIN, Erie; Lieut. R. B. McKINNEY, Augusta; W. R. SCOTT, Baxter Springs; W. ROBERTSON, Caldwell; F. W. WHITE, Emporia; T. J. BROWN, Hoisington; H. B. TALBOT, Hoyt; F. D. LOSE, Madison; W. S. HUNTER, Norton; R. E. TEALL, Palso; D. W. MELTON, Preston; W. E. MOWERY, Salina; M. MEHRLE, Walnut; W. R. FISHER, Wichita.

Kentucky

To Camp Zachary Taylor, Ky., Lieut. A. J. DAVIDSON, Louisville. Base hospital, Major D. C. MORTON, Louisville; Capt. J. H. THORPE, Owensboro; G. F. DOYLE, Winchester; Lieut. W. L. SHANON, Newport.

To Fort Oglethorpe for instruction, Capt. J. R. MEEK, Covington; S. J. ROLLOW, Edgott; J. C. LEWIS, Lexington; R. E. GRIFFIN, Owensboro; Lieut. L. E. NICHOLS, Dawson Springs; W. A. ASHBECK, Gage; E. L. GATES, Herndon; E. E. EDWARDS, Irvine; W. E. DALE, Louisville; J. C. TUCKER, McDaniels.

Louisiana

To Camp Joseph E. Johnston, Fla., Lieut. W. K. EVANS, Lake Providence.

To Fort Oglethorpe for instruction, Lieut. A. J. BABIN, G. J. HAUER, C. P. HOLDERITH, A. D. MOULEDOUS, New Orleans; S. B. WOLFF, Opelousas.

Maine

To Colonia, N. J., Capt. L. E. WILLARD, Saco.

To Fort Oglethorpe for instruction, Capt. D. A. McNALLY, Biddeford; Lieut. J. O. PIPER, Selon.

Maryland

To Fort Oglethorpe for instruction, Lieut. R. C. HUME, Adamstown; H. B. AHTEY, C. E. CLARK, W. S. NIBLETT, M. E. SHAMER, Baltimore; W. L. BURNS, Cumberland; W. T. HAMMOND, Easton.

To Newport News, Va., Lieut. H. S. KUHLMAN, Jefferson.

Massachusetts

To Camp Devens, Mass., Lieut. H. F. CURTIS, East Longmeadow; G. H. HICKS, Fall River. Base hospital, for instruction, Capt. A. P. GEORGE, Haverhill; Lieut. G. E. REYNOLDS, Pittsfield.

To Camp Gordon, Ga., base hospital, Lieut. A. A. CUSHING, Brookline.

To Camp Greene, N. C., to examine the command for nervous and mental diseases, Lieut. F. P. MOORE, East Norfolk.

To Camp Sevier, S. C., base hospital, Capt. B. H. CASWELL, Winter Hill.

To Camp Wheeler, Ga., base hospital, Capt. C. A. TETRAULT, Southbridge.

To Fort Oglethorpe for instruction, Capt. A. H. PROUTY, North Brookfield; Lieut. W. R. STEVENS, Abington; J. F. LAWLOR, Beverly; E. J. FITZGIBBON, Boston; H. B. PITCHER, Fitchburg; D. W. HIEFFERMAN, Holliston; J. A. LEVEK, Lawrence; C. A. ROWE, Milton; J. M. SALLES, New Bedford; R. E. FOSS, E. M. VARNEY, Peabody; P. J. FINNEGAN, Salem; R. L. EMERY, Winchester.

To Hoboken, N. J., Lieut. J. F. FALLON, Brookline; L. W. PEASE, Weymouth.

To report to the commanding general, Eastern Department, Lieut. F. A. MURPHY, Taunton.

Michigan

To Camp Custer, Mich., base hospital, for instruction, Capt. A. E. LEITCH, Saginaw.

To Fort Oglethorpe for instruction, Capt. W. J. ANDERSON, Iron Mountain; Lieut. D. M. CLARKE, J. R. RUPP, Detroit; W. A. GRANT, Lyons.

To Fort Riley for instruction, Lieut. A. T. PAULL, Flint; M. M. SEARS, Kalamazoo; I. V. YALE, Sault Ste. Marie.

To Mineola, N. Y., Hazelhurst Field, for instruction, Lieut. R. D. BROWN, Detroit.

To New Haven, Conn., Lieut. E. N. NESBITT, Detroit.

Minnesota

To Camp Custer, Mich., Lieut. J. C. KOCH, Blackduck; F. G. KOHLER, Stewart. Base hospital, for instruction, Capt. F. H. ALDRICH, Belview.

To Camp Dodge, Iowa, to examine the command for nervous and mental diseases, Capt. C. C. BLAKELY, St. Peter.

To Camp Grant, Ill., base hospital, for instruction, Capt. N. H. SCHELDROP, Minneapolis.

To Camp Jackson, S. C., base hospital, Capt. G. B. EUSTERMAN, Rochester.

To Camp Meade, Md., Lieut. P. J. EISENBERG, St. Paul.

To Camp Pike, Ark., base hospital, for instruction, Capt. W. N. KENDRICK, Spring Valley.

To Camp Wheeler, Ga., base hospital, Major G. D. HEAD, Minneapolis.

To Fort Riley for instruction, Lieut. R. E. BECHTEL, Eveleth; G. A. D. EISENGRAEBER, Granite Falls; I. J. MURPHY, M. SHERPER, St. Paul.

To New York, Neurological Institute, for instruction, Lieut. J. A. EVERT, Brainerd.

Mississippi

To Camp Beauregard, La., base hospital, Capt. C. S. MIDDLETON, Clinton.

To Camp Joseph E. Johnston, Fla., Lieut. F. E. BARR, Starkville.

To Fort Oglethorpe for instruction, Capt. J. T. HOSEY, Enterprise; Lieut. H. E. GRIFFIN, Coffeeville; H. H. MECKLIN, Holly Bluff; W. C. POOL, Issaquena; B. R. CLARK, Lorman.

Missouri

To Camp Dodge, Iowa, base hospital, Capt. A. LEVY, St. Louis.

To Camp Lee, Va., Lieut. H. T. ROBINSON, Cumberland.

To Camp Pike, Ark., Lieut. H. J. BLOUNT, Potosi. Base hospital, Lieut. C. W. TOOKER, St. Louis.

To Camp Shelby, Miss., Capt. O. S. WILFLEY, Webb City.

To Fort Oglethorpe for instruction, Capt. A. B. LIBBY, Gardiner; T. T. O'DELL, Marionville; E. S. PORTER, Milan; B. E. MANKOPF, New Haven; G. D. WRIGHT, St. Joseph; Lieut. L. NOE, Novelty.

To Fort Riley for instruction, Capt. E. D. STANDLY, Brookfield; Lieut. A. L. CAMBRE, Atlanta; R. C. ROBERTSON, Aurora; W. L. WOOD, Bolckow; H. B. NORTON, Center; F. S. WEBER, Farmington; A. D. FERGUSON, Hunnewell; L. R. WEIR, Lathrop; C. L. DODSON, Moberly; O. H. LOWDER, Moselle; T. FREEMAN, Piedmont; L. S. SHUMATE, Reeds Spring; R. E. WILEY, Sikeston; R. GZELL, F. W. KIRSCH, W. F. MARTEN, C. P. MARTIN, P. G. MOSKOP, R. A. PHELAN, S. VEZEAU, St. Louis; G. C. BACK, Zahna.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. J. F. BROOKE, Kansas City.

To New York, Neurological Institute, for instruction, Capt. R. D. IRLAND, Kansas City.

Montana

To Fort Oglethorpe for instruction, Lieut. L. W. SMITH, Butte.

To Fort Riley for instruction, Lieut. F. J. WILLIAMS, Butte; B. E. LORD, Great Falls; C. W. WILDER, Lewiston; J. C. DOCTOR, Philipsburg.

Nebraska

To Camp Dodge, Iowa, base hospital, for instruction, Capt. A. R. DESJARDIEN, Lincoln.

To Fort Riley for instruction, Capt. E. E. BOYD, Central City; Lieut. P. R. SCHLUMBERGER, Oakdale; G. BUOL, Ravenna; W. E. LAMB, Sprague.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. A. L. BARR, Omaha.

New Hampshire

To Fort Oglethorpe for instruction, Lieut. W. C. ROWE, Concord; C. M. WIGGIN, Conway.

New Jersey

To Camp Abraham Eustis, Va., Capt. W. BUERMANN, Newark.

To Camp Crane, Pa., Lieut. F. S. PARK, Atlantic City; F. C. WITTE, Riverton.

To Camp Lee, Va., Lieut. A. C. BENEDICT, South Orange.

To Camp Wadsworth, S. C., base hospital, for instruction, Capt. H. F. COOK, Newark.

To Camp Zachary Taylor, Ky., base hospital, Capt. E. B. SUTPHEN, Morristown.

To Fort Oglethorpe for instruction, Lieuts. E. E. LUPIN, E. THUM, Bayonne; W. P. THORNE, Butler; H. H. STRAUB, East Orange; J. A. DERIVAUX, P. H. FEDERMAN, C. L. O'NEILL, Newark; C. G. BUCKMASTER, West New York.

To Hoboken, N. J., Lieut. C. A. PLUME, Succassunna.
To New Haven, Conn., Lieuts. A. A. MUTTER, Arlington; A. E. JAFFIN, Jersey City.

To Newport News, Va., Capt. F. R. SANDT, Paterson; Lieut. L. S. SICA, Trenton.

New Mexico

To Camp Cody, N. M., base hospital, Capt. F. C. BAKES, Albuquerque. For instruction, Lieut. C. F. MONTGOMERY, Roswell.

To Fort Oglethorpe for instruction, Capt. H. J. MUELLER, East Las Vegas.

To report to the commanding general, Southern Department, Lieut. W. R. WASHBURN, Ingleville.

New York

To Camp Custer, Mich., base hospital, for instruction, Capts. E. M. ARMSTRONG, S. ERDMAN, New York.

To Camp Devens, Mass., base hospital, Capt. W. YOUNG, Gouverneur. Base hospital, for instruction, Capt. H. W. VICKERS, Little Falls.

To Camp Dix, N. J., base hospital, Lieut. J. C. O'GORMAN, Buffalo.
To Camp Gordon, Ga., base hospital, Lieut. P. J. DONAHOE, New Hartford.

To Camp Jackson, S. C., Capt. A. E. BARTON, New York. Base hospital, Capt. E. A. STAPLETON, Albany.

To Camp Joseph E. Johnston, Fla., Lieut. D. HERTZBERG, New York.

To Camp Lee, Va., base hospital, for instruction, Capt. R. G. LOOP, Elmira.

To Camp Meade, Md., Lieut. R. O. GREGORY, Elmira. Base hospital, Capt. D. S. BELLINGER, Buffalo.

To Camp Sevier, S. C., base hospital, Lieut. R. A. COOKE, New York.

To Camp Shelby, Miss., base hospital, Capt. R. S. TAYLOR, Buffalo.
To Camp Wadsworth, S. C., base hospital, Lieut. J. J. SHAY, Brooklyn.

To Fort Oglethorpe for instruction, Capts. G. S. KING, Bay Shore; J. S. LEWIS, U. B. STEIN, H. R. TRICK, F. ZINGSHEIM, Buffalo; P. A. BARNEY, Hornell; W. W. BOSTWICK, F. KNOWLES, New York; F. R. PICKETT, Olcott; T. H. CANNING, Port Henry; Lieuts. A. D. HAVERSTOCK, Brooklyn; L. F. ANDERSON, J. S. GIANFRANCESCHI, J. I. KEARNEY, W. S. LYNCH, G. P. MICHEL, F. SEILHEIMER, F. TERRASSE, E. L. VILLIAUME, Buffalo; F. W. GOODRICH, Catskill; E. C. WATERBURY, Croton Lake; R. S. McBIRNEY, Glen Cave; R. C. MOONEY, Gloversville; J. H. ACHE-SON, Hancock; N. MILLS, Mount Vernon; B. LEVINSON, Newburgh; E. J. DOLAN, H. C. DORSEY, M. V. IOVINE, A. B. LEVY, I. M. O'CONNOR, J. SCHECHTER, T. V. STACK, New York; C. A. WISCH, Niagara Falls; R. P. REAGAN, North Tonawanda; L. A. NEWMAN, Port Washington; C. J. GIANFRANCESCHI, Rochester; K. S. CLARK, Schenectady; F. H. STANBRO, Springfield; D. H. BLUESTONE, C. W. DEMONG, Syracuse; C. S. BERGMAN, West Hanerstraw.

To Hoboken, N. J., Lieuts. N. B. WHITCOMB, Vovinia Center; M. ROSENBERG, Brooklyn; F. E. MONTGOMERY, New York; F. F. RONEY, North Rosc.

To New Haven, Conn., Capts. E. G. WHIPPLE, Rochester; P. McPARTLON, Schenectady. Yale Army Laboratory School, for instruction, Capt. C. R. ORR, Lieuts. L. J. STRONG, Buffalo; V. R. EHLE, Gloversville.

To New York, Cornell Medical College, Capt. E. C. KOENIG, Buffalo. Neurological Institute, for instruction, Capt. K. A. ENLIND, New York; for intensive training, Lieut. H. M. BOWLBY, New York.

To Plattsburgh, N. Y., Capts. J. V. HABERMAN, New York; C. J. PATTERSON, Troy; Lieuts. C. G. TAYLOR, New York; W. J. DOUGHERTY, Yonkers.

To Washington, D. C., St. Elizabeth's Hospital, Capt. A. W. KLEIN, New York.

North Carolina

To Fort Oglethorpe for instruction, Capt. C. S. MAXWELL, Beau-
fort; Lieuts. A. L. HYATT, Kinston; I. E. SHAFER, Salisbury.

To New Haven, Conn., Lieut. J. W. WILCOX, Laurel Hill.

North Dakota

To Fort Riley for instruction, Lieut. A. R. SORENSON, Rugby.

Ohio

To Ann Arbor, Mich., State Psychopathic Hospital, Lieut. L. A. LURIE, Cincinnati.

To Camp Abraham Eustis, Va., Capt. C. J. BEEKLEY, Cincinnati.

To Camp Dodge, Iowa, base hospital, Lieut. J. V. GREENEBAUM, Cincinnati.

To Camp Grant, Ill., base hospital, Capt. D. G. SANOR, Columbus.

To Camp Jackson, S. C., base hospital, for instruction, Lieut. R. B. CHAMBERLIN, Twinsburg.

To Camp Leach, D. C., Lieuts. F. BEEKEL, Cleveland; H. L. WILKINSON, Hamilton.

To Camp MacArthur, Texas, base hospital, Lieut. W. H. HODGES, Columbus.

To Fort Oglethorpe for instruction, Capts. A. B. LIPPERT, S. C. NIEMAN, Cincinnati; O. T. THOMAS, Cleveland; E. HERBST, Columbus; J. W. HARBARGER, Jackson; H. H. POSTLE, Newark; J. B. McCORD, Oberlin; A. W. WHEELER, Toledo; K. F. LITTLE, Westwood; Lieuts. A. F. McQUEEN, Amherst; H. E. MYERS, Columbus; C. R. BLOSSER, Dunkirk; E. W. BREYFOGLE, Frankfort; H. J. AUSTIN, Geneva; R. C. ALLEN, Glendale; C. J. HAARLAM-MERT, Loveland; J. A. McCOWAN, Marietta; E. W. WOODRUFF, Martins Ferry; C. W. HOOPEES, Marysville; W. S. RHODES, Nelsonville; D. F. RUSSELL, Paulding; C. T. ATKINSON, Portsmouth; S. R. HUTCHINGS, Springfield; A. H. SYLER, Sugar Creek; O. J. LETHERMAN, Thronville; G. W. DUNLAP, H. G. PAMMENT, Toledo; J. B. FRANCIS, Troy; R. C. HUNTER, Wapakoneta; F. C. METZGER, Waverly; C. J. CHAMBERLIN, West Chester; G. C. AURAND, Weston; L. F. LONG, Zanesville.

To New York, Cornell Medical College, for instruction, Lieut. J. T. MURPHY, Toledo.

Oklahoma

To Fort Oglethorpe for instruction, Capt. W. T. ROWLEY, Miami.

To Fort Riley for instruction, Lieuts. P. B. MYERS, Apache; R. F. BROWN, Headrick; J. T. WHARTON, Picher.

Oregon

To Camp Lewis, Wash., Capt. A. E. TAMIESIE, Pendleton; Lieuts. A. L. RICHARDSON, La Grande; J. A. APPLEWHITE, L. O. ROBERTS, Portland.

To Fort Oglethorpe for instruction, Lieut. G. MOUNT, Oregon City.

To Fort Riley for instruction, Capt. R. S. FISHER, Portland; Lieuts. C. E. WHEELER, Klamath Falls; J. I. McKELWAY, Pendleton; J. F. DITTO, Rainier.

Pennsylvania

To Camp A. A. Humphreys, Va., Lieut. J. BARDY, Philadelphia.

To Camp Crane, Pa., Lieuts. C. O. RICKENBRODE, Farrell; L. L. PORCH, Fairfield; C. C. PARKS, Leechburg; S. R. POSEY, Lititz; D. H. PARKE, New Kensington; M. S. SELL, Pittsburgh; D. B. COOLEY, Pottstown; H. M. LEINBACH, E. Y. SEYLER, Reading; G. H. KIRKPATRICK, Wilkinsburg.

To Camp Custer, Mich., Lieut. A. B. PAINTER, Mill Hill.

To Camp Gordon, Ga., base hospital, Lieut. A. J. DEVLIN, Philadelphia.

To Camp Greene, N. C., base hospital, Capt. J. T. ULLOM, Philadelphia.

To Camp Jackson, S. C., Lieut. C. I. TRULLINGER, Harrisburg. Base hospital, Capt. F. T. BILLINGS, Pittsburgh. Base hospital, for instruction, Lieut. E. V. THOMPSON, Franklin.

To Camp Joseph E. Johnston, Fla., Lieut. D. M. SIDLICK, Philadelphia.

To Camp Lee, Va., Lieut. W. J. L. McCULLOUGH, Washington.

To Camp Sheridan, Ala., base hospital, for instruction, Capt. J. W. DIXON, Wilkinsburg.

To Camp Sherman, Ohio, Lieut. S. L. KOCH, Pittsburgh.

To Camp Zachary Taylor, Ky., base hospital, Lieut. J. E. GROSS, Pittsburgh.

To Fort Oglethorpe for instruction, Capts. J. D. MATZ, Allentown; M. C. O'BRIEN, Philadelphia; F. B. NORTON, Pittsburgh; C. L. LEYDIE, Tarentum; Lieuts. H. P. MEYERS, Confluence; M. T. GILLETTE, Corry; W. F. WEITZEL, Indiana; E. K. CONRAD, Johnstown; S. A. BRUNNER, Krumsville; M. H. YODER, Lititz; C. B. KIRK, Mill Hill; S. P. SIMPSON, New Brighton; B. A. McDERMOTT, A. G. SAMPSON, C. W. WANG, Philadelphia; E. R. BLOUGH, R. C. M. STEWART, Pittsburgh; J. F. BUZZARS, Portage; L. F. MAUGER, Pottstown; R. M. LYTLE, Saltsburg; T. DUFF, Slippery Rock.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. F. W. ST. CLAIR, Indiana.

To Newport News, Va., Lieut. F. G. SCHAEFFER, Allentown.

Porto Rico

To Camp Las Casas, P. R., Lieut. H. C. LEONHARDT, Bayamon.

Rhode Island

To Camp Gordon, Ga., base hospital, Lieut. J. G. WALSH, Providence.

To Camp Jackson, S. C., base hospital, Major F. T. FULTON, Providence.

To Fort Oglethorpe for instruction, Capt. H. B. POTTER, Wakefield; Lieuts. J. B. O'NEILL, Pawtucket; E. T. LEARNED, Providence.

South Carolina

To Camp Greene, N. C., base hospital, for instruction, Lieut. W. E. FULMER, Columbia.

To Fort Oglethorpe for instruction, Capt. W. S. ZIMMERMAN, Spartanburg; Lieut. J. M. HOBSON, Townville.

To report to the Governor of South Carolina, Capt. K. M. LYNCH, Charleston.

South Dakota

To Austin, Texas, Lieut. L. F. BEALL, Irene.

To Camp Custer, Mich., Capt. W. J. BENNER, Willow Lake.

To Fort Oglethorpe for instruction, Lieut. R. J. MORRISEY, Fort Pierre.

To Fort Riley, Lieut. F. N. CLIFE, Milbank. For instruction, Capt. H. A. MURNAN, Gregory.

Tennessee

To Camp Pike, Ark., base hospital, for instruction, Lieut. W. A. HORAN, Nashville.

To Fort Oglethorpe for instruction, Capt. W. G. RUBLE, Morristown; Lieuts. G. B. BROWN, Atoka; J. L. L. BIBB, Chattanooga; E. B. PASCHALL, Cottage Grove; G. G. KEENER, Kingsport; W. A. GRIMMETT, Mason; H. G. HILL, J. C. MOBLEY, Memphis; A. T. CLOP-TON, Milan; C. F. THOMASON, Nashville.

Texas

To Camp John Wise, Texas, Capt. W. O. STEPHENSON, Dallas.

To Camp Logan, Texas, base hospital, Lieut. F. J. HALL, Dallas. Base hospital, for instruction, Lieut. H. R. LEVY, Dallas.

To Camp Travis, Texas, Capt. J. S. TURNER, Dallas. Base hospital, for instruction, Capt. C. L. POWER, Temple.

To Fort Oglethorpe for instruction, Capts. J. W. BOURLAND, Dallas; J. C. DYSART, El Paso; Lieut. J. E. ROGERS, Rocksprings.

To Fort Riley for instruction, Lieuts. W. S. WILKISON, Christoval; W. E. HAMPTON, Ferris; F. W. RUSHING, Fort Worth; S. KENNEDY, Grapeland; W. W. WIMER, Honey Grove; J. E. ADKISSON, Merkel; T. M. MORRIS, Mount Calm; W. E. LONG, Pearland; B. B. LILES, Staples.

To Fort Sam Houston, Texas, Lieut. T. F. HARRIS, New Willard.

Utah

To Camp Dodge, Iowa, base hospital, for instruction, Lieut. S. G. ROTHWELL, Murray.

To Fort Oglethorpe, base hospital, for instruction, Capt. F. L. PETERSON, Salt Lake City.

To Fort Riley, base hospital, for instruction, Capt. F. L. PETERSON, Salt Lake City. For instruction, Capt. S. D. CALONGE, Salt Lake City.

Vermont

To Camp Crane, Pa., Lieut. L. E. McKINLAY, Newbury.
To Camp Hancock, Ga., base hospital, Lieut. C. A. LOFTIS, St. Albans.
To Fort Oglethorpe for instruction, Lieut. H. B. HINMAN, Enosburg Falls.

Virginia

To Camp Meade, Md., Lieut. C. WEISIGER, Cumberland.
To Camp Wadsworth, S. C., Lieut. J. C. BARDIN, University.
To Fort Oglethorpe for instruction, Capt. A. P. DERBY, Monrovia; Lieuts. B. A. RICE, Forest Depot; J. M. LEWIS, Manassas; J. W. ROBERTSON, Onancock; W. P. HOY, Petersburg.
To New York, Neurological Institute, for instruction, Lieut. J. S. WEITZEL, Richmond.

Washington

To Camp Lewis, Wash., Lieuts. J. R. PETERSON, Seattle; E. J. LAWRENCE, Spokane; G. W. WIMBERLY, Toppenish.
To Fort Riley for instruction, Lieut. L. F. LUNDY, Seattle.

West Virginia

To Fort Oglethorpe for instruction, Capts. W. E. GRIM, Cameron; O. S. GRIBBLE, Clarksburg; Lieuts. F. O. MARPLE, Huntington; J. A. BAKER, Shirley; A. R. GIRARD, West Columbia.
To Newport News, Va., Lieut. G. L. STRAUB, Welch.

Wisconsin

To Camp Custer, Mich., Lieut. W. L. HERNER, Milwaukee.
To Camp Dodge, Iowa, base hospital, for instruction, Lieut. R. M. CARTER, Green Bay.
To Fort Oglethorpe for instruction, Lieut. D. B. DISHMAKER, Kewaunee.
To Fort Riley for instruction, Lieuts. A. D. ANDRUS, Ashland; A. M. ROSENHEIMER, Fox Lake; L. J. SIMON, Haricon; G. W. REIS, Junction City; C. L. MCCOLLUM, Manitowoc; S. BERGLAND, Marinette; J. J. EISENBERG, L. J. FOLEY, G. T. SAVAGE, Milwaukee; E. C. CARY, Reedsville.
To New Haven, Conn., Capt. R. L. WILLIAMS, Statesan.

Wyoming

To Fort Riley for instruction, Capt. W. M. LACEY, Cheyenne.

ORDERS TO OFFICERS OF THE MEDICAL CORPS, U. S. ARMY

Alabama

To Camp Crane, Pa., from Camp Hancock, Capt. G. J. WINTHROP, Mobile; from Camp Jackson, Capt. N. P. COCKE, Birmingham. Base hospital, from Camp Lee, Lieut. D. J. LONG, Prichard.
To Camp Devens, Mass., base hospital, for instruction, from Rockefeller Institute, Lieut. M. J. HEATH, Pratt City.
To Camp Grant, Ill., base hospital, from Fort Oglethorpe, Lieut. A. L. GASTON, Ensley. To examine the command for nervous and mental diseases, from Ann Arbor, Lieut. M. L. MOORER, Mount Vernon.
To Camp Lee, Va., as orthopedic surgeon, from Fort Oglethorpe, Capt. E. L. SCOTT, Birmingham.
To Camp Meade, Md., base hospital, from Fort Oglethorpe, Lieut. H. A. LEYDEN, Anniston.
To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Major H. S. WILKINSON, Montgomery.
To Camp Shelby, Miss., from Camp McClellan, Lieut.-Col. J. T. AYDELOTTE.
To Camp Sheridan, Ala., base hospital, from Camp Jackson, Major J. M. DEDMAN, Birmingham.
To Camp Sherman, Ohio, as division surgeon, from Camp Sheridan, Lieut.-Col. W. T. CADE, Jr.
To Fort Oglethorpe, evacuation hospital, from Camp Gordon, Lieut. E. C. HAGLER, Northport; from Camp McClellan, Major J. N. BAKER, Montgomery; from Camp Wadsworth, Capt. W. L. THORNTON, Birmingham.

Arkansas

To Camp Crane, Pa., mobile hospital, from Camp Logan, Lieut. J. L. SMILEY, Siloam Springs.
To Camp McClellan, Ala., from Fort Riley, Lieut. C. M. BROOKS, Roland.

California

To Camp Crane, Pa., from Camp Kearney, Capts. W. H. GILBERT, Los Angeles; V. PLETH, Sonora. Base hospital, from Camp Kearney, Lieut. B. W. JOHNSON, Dos Palos.
To Camp Knox, Ky., from Rochester, Minn., Lieut. F. S. RYAN, San Jose.
To Camp McClellan, Ala., base hospital, from Camp Kearney, Capt. T. C. MCCLEAVE, Oakland.
To Camp Wheeler, Ga., base hospital, from Fort Oglethorpe, Lieut. H. D. WILLIAMS, San Francisco.
To Fort Oglethorpe, from Camp Kearney, Capt. M. P. BURNHAM, Burlingame. Evacuation hospital, from San Francisco, Capt. A. F. HIGGINS, Sacramento.
To Lakewood, N. J., from Boston, Lieut. O. W. BUTLER, Los Angeles.

Colorado

To Camp Crane, Pa., evacuation hospital, from Camp Pike, Capt. T. L. A. SHAFFER, Salida.
To Camp MacArthur, Texas, from Fort Logan, Lieut.-Col. J. R. BARBER.
To Fort Bliss, Texas, base hospital, from Baltimore, Lieut. L. G. BROWN, Colorado Springs.
To Fort Riley for instruction, Capt. W. McCONNELL, Monument.
To Rochester, Minn., Mayo Clinic, for instruction, and on completion to Camp Custer, Mich., from Fort Riley, Lieut. G. A. ASHBAUGH, Central City.
The following order has been revoked: To Camp Crane, Pa., from Camp Cody, Capt. E. G. GRIFFIN, Denver.

Connecticut

To Camp Crane, Pa., base hospital, from Camp Meade, Lieut. J. F. SAGARINO, Hartford; from Fort Oglethorpe, Lieut. E. T. FALSEY, New Haven.
To Camp Dix, N. J., base hospital, for instruction, from Rockefeller Institute, Lieut. J. T. H. POWERS, Bridgeport.
To Camp Gordon, Ga., base hospital, for instruction, from Fort Oglethorpe, Lieut. R. W. LOVE, Ridgefield.
To Camp Grant, Ill., evacuation hospital, from San Francisco, Capt. W. P. BURKE, New Haven.
To Camp Upton, N. Y., base hospital, from Fort Oglethorpe, Lieut. W. F. REARDON, Hartford.
To Lakewood, N. J., Lieut. H. A. SOLOMON, Waterburg.

Delaware

To Camp Greene, N. C., base hospital, from Camp Dix, Capt. S. M. D. MARSHALL, Milford.

District of Columbia

To Camp Crane, Pa., from Fort Oglethorpe, Major A. B. HOOE, Washington.
To Camp Dix, N. J., from Syracuse, Major J. S. HOUGH, Washington.
To Colonia, N. J., for instruction, from Fort Oglethorpe, Lieut. S. BRICKER, Washington.
To Fort Ontario, N. Y., for instruction, from Camp Sherman, Lieut. J. B. G. CUSTIS, Washington.
To Hoboken, N. J., from Walter Reed General Hospital, Lieut.-Col. A. W. MORSE. Evacuation hospital, from Williamsbridge, Lieut. J. A. CAHILL, Jr., Washington.
To Norfolk, Mass., from the Surgeon-General's Office, Major R. R. WILLIAMS, Washington.
To Washington, D. C., Surgeon-General's Office, from Walter Reed General Hospital, Lieut.-Col. H. J. NICHOLS.

Florida

To Army Medical School for instruction, from Arcadia, Lieut. J. W. EDMONDSON, Arcadia.
To Camp Crane, Pa., mobile hospital, from Camp McClellan, Lieut. W. H. WEIRICH, Jacksonville.
To Camp MacArthur, Texas, for instruction, from Fort Oglethorpe, Lieut. F. W. SCHULTZ, Sarasota.
To Fort Oglethorpe for instruction, Capt. D. FORSTER, New Smyrna.
To Rochester, Minn., Mayo Clinic, for instruction, and on completion to his proper station, from Camp McClellan, Capt. W. B. MOON, Lakeland.

Georgia

To Camp Crane, Pa., from Camp Pike, Lieut. C. USHER, Savannah; from Fort Sam Houston, Capt. J. D. MANGET, Atlanta. Base hospital, from Camp Dix, Capt. J. K. TRAIN, Savannah; from Fort McPherson, Lieut. W. P. PHILIPS, Oakhurst; from Fort Oglethorpe, Lieut. W. P. ALLEN, Woodbury; from Fort Slocum, Lieut. H. J. PEAVY, Jr., Byron. Evacuation hospital, from New Haven, Lieut. W. H. MALONE, Villa Rica. Mobile hospital, from Camp Wheeler, Capt. W. F. CROSS, Cassville.
To Camp McClellan, Ala., from Camp Wheeler, Lieut.-Col. A. W. SCHOENLEBER. Base hospital, from Fort McPherson, Capt. J. F. DENTON, Atlanta; from Fort Oglethorpe, Lieut. E. L. BISHOP, Savannah.
To Camp Meade, Md., evacuation hospital, from Camp Devens, Lieut. R. L. RHODES, Augusta.
To Camp Sheridan, Ala., base hospital, from Fort Oglethorpe, Lieut. C. B. GREER, Brunswick.
To Camp Upton, N. Y., Capt. F. F. FLOYD, Statesboro.
To Colonia, N. J., from Boston, Lieut. G. Y. MASSENBURG, Macon. For instruction, from Fort Oglethorpe, Capt. J. M. BARNETT, Albany.
To Fort Oglethorpe, base hospital, from Camp Bowie, Capt. T. H. STEWART, Atlanta. Evacuation hospital, from Camp Gordon, Lieut. J. H. CAMPBELL, Jefferson. For instruction, Lieut. J. T. MOORE, Sycamore.
To Pittsburgh, Pa., Carnegie Institute, and University of Pittsburgh, from Camp Meade, Lieut. W. M. GERTMAN, Hazelhurst.
To Roland Park, Md., Capt. J. D. CROMER, Atlanta.
The following order has been revoked: To report to the commanding general, Southeastern Department, Lieut. T. M. VORBRINCK, Savannah.

Idaho

To Camp Crane, Pa., from Camp Lewis, Capt. W. S. TITUS, Boise.
To Camp Dodge, Iowa, from Fort Logan, Lieut. C. W. SLUSSER, Grangeville.
To Hoboken, N. J., Capt. H. C. MOWERY, Wallace.

Illinois

To Army Medical School for instruction, from Camp Zachary Taylor, Lieut. W. S. NEEDHAM, Hanna City; from Columbus Barracks, Lieut. H. D. THORNBURG, Chicago.
To Azalea, N. C., from New Haven, Capt. T. A. HOGAN, Chicago.
To Camp Bowie, Tex., base hospital, from Fort Oglethorpe, Lieut. W. W. KUNTZ, Baylis. Base hospital, for instruction, from Fort Oglethorpe, Lieut. I. H. CHILCOTT, Chicago.
To Camp Crane, Pa., from Camp Bowie, Capt. M. PFEIFFER, Alton; from Camp Dix, Lieut. S. F. KUBALA, Chicago; from Camp Dodge, Capt. W. F. SCOTT, Melrose Park; from Camp Joseph E. Johnston, Lieut. J. T. GREGORY, Chicago; from Camp Logan, Capt. L. P. KUHN, Chicago; Lieut. H. HOFMANN, Chicago; from Camp Pike, Capt. F. A. NORRIS, Jacksonville, from Fort McHenry, Capt. J. B. MOORE, Zeigler; from Fort Oglethorpe, Capt. F. W. BRIAM, Bloomington. Base hospital, from Camp Cody, Lieut. E. B. MILLER, Chicago; from Camp Zachary Taylor, Major W. W. HAMBURGER, Chicago; from Fort Oglethorpe, Capt. E. L. DAUM, Chicago; from New Haven, Lieut. B. G. R. WILLIAMS, Paris. Evacuation hospital, from Camp Gordon, Capt. G. A. LONGBRAKE, Galesburg. Mobile hospital, from Fort Sill, Lieut. J. E. HUNTER, Chicago.
To Camp Custer, Mich., from Camp Grant, Capt. S. F. HENRY, Ellingham.
To Camp Dodge, Iowa, base hospital, for instruction, from Iowa Falls, Capt. W. F. SCOTT, Melrose Park.

To Camp Grant, Ill., Lieut. T. W. RENNIE, Chicago.
 To Camp Greene, N. C., base hospital, from Fort Oglethorpe, Lieut. G. E. PFEIFFER, Chicago.
 To Camp Hancock, Ga., base hospital, for instruction, from Rockefeller Institute, Lieut. E. H. SEIFERT, Chicago.
 To Camp Lee, Va., to examine the command for nervous and mental diseases, from Ann Arbor, Lieut. H. E. RANDOLPH, East Moline.
 To Camp McClellan, Ala., from Fort Riley, Lieut. R. C. VERNOR, Nashville.
 To Camp Meade, Md., evacuation hospital, from Fort Oglethorpe, Lieut. G. W. ROSS, Watseka.
 To Camp Pike, Ark., base hospital, from Fort Oglethorpe, Capt. W. A. PORTER, Chicago.
 To Camp Sevier, S. C., as orthopedic surgeon, from Fort Oglethorpe, Lieut. S. P. BLIM, Crete. Base hospital, from Fort Oglethorpe, Lieut. J. N. BUCHANAN, Freeport.
 To Camp Shelby, Miss., base hospital, for instruction, from Fort Oglethorpe, Lieut. P. T. DIAMOND, Evanston.
 To Camp Wadsworth, S. C., base hospital, from Camp Cody, Major R. T. WOODYATT, Evanston; from Fort Oglethorpe, Lieut. J. F. DEAL, Springfield.
 To Camp Zachary Taylor, Ky., field hospital, Lieut. S. WOLF, Chicago.
 To Champaign, Ill., from Fort Oglethorpe, Lieut. G. S. GOLFORD, Normal.
 To Colonia, N. J., for instruction, from Fort Oglethorpe, Lieut. D. C. SIGWORTH, Chicago.
 To Detroit, Mich., from Fort Riley, Lieut. H. H. BEIL, Chicago.
 To Fort Oglethorpe, evacuation hospital, from Boston, Capt. W. F. McNARY, East St. Louis; from Camp Beauregard, Capt. D. B. HAYDEN, Chicago; from Camp Gordon, Lieut. A. E. HUBBARD, Peoria; from Camp Joseph E. Johnston, Lieut. G. L. McWHORTER, Chicago. For instruction, Lieuts. A. J. C. SCHWARTZ, Chicago; L. W. FULTON, New Berlin.
 To Fort Ontario, from Camp Lewis, Lieut. R. W. STEARNS, Chicago; from Camp Zachary Taylor, Lieut. F. F. FRAIDER, Chicago.
 To Hoboken, N. J., from New Haven, Lieut. W. A. DANIELSON, La Grange.
 To Jefferson Barracks, Mo., from Fort Oglethorpe, Lieut. R. D. LUSTER, Granite City.
 To Lakewood, N. J., from Boston, Capt. W. E. SHACKLETON, Chicago.
 To Madison Barracks, N. Y., from Williamsbridge, Capt. C. R. SANDERSON, Bloomington.
 To Mineola, N. Y., Hazelhurst Field, from Garden City, Lieut. G. C. OTRICH, Belleville. For instruction, Capt. C. M. ROBERTSON, Chicago.
 To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. I. PILOT, Chicago.
 To Pittsburgh, Pa., Carnegie Institute, and University of Pittsburgh, from Camp Meade, Lieut. W. F. ALLISON, Paris.
 To report to the commanding general, Central Department, from Fort Des Moines, Lieut. H. L. KAMPEN, Monmouth.
 To Saltillo, Va., from Army Medical School, Lieut. H. L. LESAULNIER, Red Bud.
 To San Diego, Calif., Rockwell Field, from Mineola, Major F. CARY, Chicago.
 The following orders have been revoked: To Camp A. A. Humphreys, Va., Lieut. F. E. SENEAR, Chicago. To Camp Gordon, Ga., from Fort Oglethorpe, Capt. W. W. HOYT, Chicago.

Indiana

To Camp Beauregard, La., base hospital, for instruction, from Fort Oglethorpe, Lieut. J. P. GIBSON, Owensville.
 To Camp Crane, Pa., from Camp Zachary Taylor, Capt. A. L. BRAMKAMP, Richmond. Base hospital, from Camp Custer, Lieut. C. J. ADAMS, Kokomo; from Camp Sevier, Capt. F. A. TABOR, Terre Haute; from Fort Oglethorpe, Lieut. W. F. CRAFT, Linton; from Walter Reed General Hospital, Lieut. H. L. BELL, Knox. Evacuation hospital, from Camp Dodge, Lieut. R. C. HAMILTON, Indiana Harbor; from Fort Oglethorpe, Capt. E. M. HOOVER, Elkhart.
 To Camp Jackson, S. C., base hospital, for instruction, from Fort Oglethorpe, Capt. H. H. WHEELER, Indianapolis.
 To Camp McClellan, Ala., from Fort Riley, Capt. C. A. DRESCH, Mishawaka; Lieut. E. O. NEWLIN, Fontanet. Base hospital, from Camp Abraham Eustis, Capt. W. W. ROSS, La Porte; from Fort Oglethorpe, Lieuts. S. F. TEAFORD, Paoli; H. G. WEISS, Rockport.
 To Camp Meade, Md., evacuation hospital, from Camp Pike, Capt. O. L. McCAY, Romney.
 To Camp Travis, Texas, base hospital, for instruction, from Fort Oglethorpe, Lieut. H. L. CUNNINGHAM, Ashley.
 To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Lieut. F. A. METTS, Bluffton.
 To Colonia, N. J., from Walter Reed General Hospital, Lieut. L. C. SAMMONS, Shelbyville.
 To Danville, N. Y., from Ann Arbor, Lieut. E. K. HOLT, Longcliff.
 To Fort Benjamin Harrison, from Camp Dix, Lieut. O. M. JOHNSON, Kokomo.
 To Fort McPherson, Ga., for instruction, from Camp Gordon, Lieut. M. M. MORAN, Portland.
 To Fort Oglethorpe, evacuation hospital, from Camp Gordon, Lieut. L. E. SOMERS, Craigville. For instruction, Lieut. M. M. WELLS, Fairland.
 To Fort Ontario, N. Y., from Fort Oglethorpe, Lieut. R. L. SMITH, Indianapolis.
 To Hoboken, N. J., from Fort Oglethorpe, Lieut. C. B. COMPTON, Michigantown.
 To Madison Barracks, N. Y., from Edgewood, Md., Capt. J. L. ALLEN, Greenfield.
 To Pittsburgh, Pa., Carnegie Institute, and University of Pittsburgh, from Camp Meade, Lieut. H. H. BOTTS, Colfax.
 The following order has been revoked: To Pittsburgh, Pa., from Camp Sevier, Capt. W. E. GEORGE, Indianapolis.

Iowa

To Camp Crane, Pa., from Camp Dodge, Capt. C. S. JAMES, Centerville. Base hospital, from Camp Logan, Lieut. C. H. GRAENING, Waverly. Evacuation hospital, from Camp Devens, Lieut. J. G. CLAPSADDLE, Burt.
 To Camp Grant, Ill., base hospital, from Fort Oglethorpe, Capt. H. E. McCALL, Clearfield.
 To Camp Lee, Va., from May's Landing, N. J., Major G. R. PLUMMER, Cresco.

To Camp McClellan, Ala., from Fort Riley, Lieut. R. J. MATTHEWS, Clarinda. Base hospital, from Fort Oglethorpe, Lieut. J. J. BEATTY, Farragut.
 To Camp Wadsworth, S. C., from Camp Greene, Lieut. G. H. STEELE, Belmont.
 To Camp Wheeler, Ga., base hospital, from Fort Oglethorpe, Lieut. C. O. YENERICH, Rockford.
 To Camp Zachary Taylor, Ky., field hospital, from Fort Riley, Lieut. J. W. SELLARDS, Clarinda.
 To Fort Oglethorpe, evacuation hospital, from Camp Jackson, Capt. G. F. HARKNESS, Davenport.
 To Iowa Falls, Iowa, Ellsworth College, from Camp Dodge, Lieut. C. A. MANAHAN, Marengo.
 To Washington, D. C., for conference, and on completion to Detroit, Mich., from Fort Des Moines, Lieut.-Col. A. T. COOPER.

Kansas

To Camp Crane, Pa., from Camp Gordon, Capt. A. D. JONES, Wichita. Evacuation hospital, from Camp Devens, Lieuts. H. N. ALEXANDER, F. L. LOVELAND, Topeka; from Fort Oglethorpe, Capt. M. G. SHELLEY, Mulvane. Mobile hospital, from Fort Riley, Lieut. C. W. ZUGG, Great Bend.
 To Camp Dix, N. J., from Fort Riley, Lieut.-Col. L. R. POUST.
 To Camp Knox, Ky., from Camp Cody, Lieut. W. G. BURTON, Wichita.
 To Camp McClellan, Ala., from Fort Oglethorpe, Capt. E. A. REEVES, Kansas City; Lieut. R. ALGIE, Linn; from Fort Riley, Lieut. J. B. BLADES, Randall.
 To Camp Zachary Taylor, Ky., field hospital, from Fort Riley, Lieuts. M. HALL, McPherson; E. G. PADFIELD, Saline.

Kentucky

To Camp A. A. Humphreys, Va., from Fort Oglethorpe, Lieut. H. C. BLOUNT, Leesburg.
 To Camp Crane, Pa., from Fort Oglethorpe, Capt. L. H. KAHN, Louisville. Base hospital, from Camp Meade, Lieut. J. W. MARTIN, LaCenter.
 To Camp Meade, Md., as orthopedic surgeon, from Fort Oglethorpe, Lieut. B. A. WASHBURN, Paducah.
 To Camp Sheridan, Ala., base hospital, from Fort Oglethorpe, Lieut. E. L. PIRKEY, Louisville.
 To Camp Zachary Taylor, Ky., base hospital, from Ann Arbor, Lieut. E. MOORMAN, Iarned.
 To Fort Oglethorpe for instruction, from duty as a private, Lieut. J. T. P. WICKLIFFE, Wickliffe.
 To Mineola, N. Y., Hazelhurst Field, from Camp Wadsworth, Capt. G. A. ROBERTSON, Louisville.

Louisiana

To Camp Crane, Pa., base hospital, from Camp Lee, Lieut. T. LATIOLOIS, New Orleans.
 To Camp Custer, Mich., to examine the command for nervous and mental diseases, from Ann Arbor, Capt. T. W. EVANS, Jackson.
 To Camp MacArthur, Texas, base hospital, for instruction, from Fort Oglethorpe, Lieut. C. DEAN, Bogalusa.
 To Fort Oglethorpe, base hospital, from Camp Beauregard, Lieut. E. S. KEITZ, New Orleans. Evacuation hospital, from Camp Shelby, Capt. R. E. WINDHAM, Merryville.

Maine

To Camp Crane, Pa., base hospital, from Camp Devens, Lieut. J. E. POULIN, Augusta; from Camp Dix, Capt. D. W. WENTWORTH, Sanford; from Camp Lee, Major T. O. VANAMEE, Portland.
 To Pittsburgh, Pa., Carnegie Institute, and University of Pittsburgh, from Camp Meade, Lieut. R. W. CLARK, Deer Isle.

Maryland

To Camp Crane, Pa., base hospital, from Camp Meade, Lieut. C. L. LUCKETT, Baltimore.
 To Camp John Wise, Texas, from Fort Bliss, Major J. DIBBLE, Fort Washington.
 To Camp Meade, Md., base hospital, for instruction, from Rockefeller Institute, Lieut. W. A. DARBY, Baltimore.
 To Camp Wadsworth, S. C., base hospital, from Fort Oglethorpe, Lieut. G. B. BROWN, Jr., Baltimore.
 To Cape May, N. J., from New York, Lieut. J. H. BAIRD, Baltimore.
 To Fort Oglethorpe, evacuation hospital, from Camp Cody, Major H. R. CARTER, Jr., Baltimore.
 To Hoboken, N. J., base hospital, from Camp Upton, Lieut. J. G. RUNKEL, Catonsville; from Fort Oglethorpe, Capt. W. H. HOPKINS, Annapolis.
 To New Haven, Conn., Yale Army Laboratory School, from Southern Department, Lieut. W. C. VON GLAHN, Baltimore.
 To Pittsburgh, Pa., from Army Medical School, Lieut. H. H. WARNER, Baltimore.
 To Washington, D. C., Surgeon-General's Office, from Walter Reed General Hospital, Lieut. H. L. QUICKEL, Takoma Park.

Massachusetts

To Aberdeen, Md., from Baltimore, Lieut. H. C. PERKINS, Boston.
 To Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieut. M. L. ALLING, Lowell.
 To Camp Crane, Pa., from Camp Devens, Lieut. A. R. GARDNER, Lowell; from Camp Jackson, Lieut. W. A. BISHOP, Abington; from Walter Reed General Hospital, Lieut.-Col. F. B. LUND, Boston. Base hospital, from Camp Devens, Lieut. G. A. BUCKLEY, Brockton; from Fort Myer, Capt. E. B. FINCH, Greenfield; from Fort Oglethorpe, Capt. E. FLAGG, Boston; from New York, Lieut. A. J. GANLEY, Methuen. Evacuation hospital, from Camp Dix, Lieuts. C. E. ALLARD, F. C. HALL, Boston.
 To Camp Grant, Ill., evacuation hospital, from Camp Beauregard, Lieut. A. N. FREGEAU, Fitchburg.
 To Camp Greene, N. C., base hospital, for instruction, from Rockefeller Institute, Lieut. L. C. DURSTHOFF, Lowell.
 To Camp Meade, Md., base hospital, from New Haven, Lieut. H. M. BAKER, Boston.
 To Camp Sheridan, Ala., base hospital, from Fort Oglethorpe, Lieut. H. E. LYNCH, Holyoke.
 To Camp Upton, N. Y., from Camp Sherman, Capt. H. H. SUMNER, Lowell.

To *Camp Wadsworth, S. C.*, base hospital, from Fort Oglethorpe, Capt. G. H. MANFIELD, Chelsea. Base hospital, for instruction, from Rockefeller Institute, Lieut. J. H. GALLAGHER, Chicopee.
To *Camp Wheeler, Ga.*, base hospital, from Fort Oglethorpe, Capt. R. J. WARD, Worcester.
To *Fort Oglethorpe*, for instruction, Lieut. J. C. WARD, Marlboro.
To *Fort Ontario, N. Y.*, for instruction, from Fort Oglethorpe, Capt. F. K. SHAW, Concord.
To *Lakewood, N. J.*, from Fort Sill, Lieut. W. F. COTTING, Boston.
The following orders have been revoked: To *Camp Crane, Pa.*, base hospital, from Richmond, Va., Capt. G. L. TOBEY, Jr., Boston.
To *Fort Meyer, Va.*, from Camp Wheeler, Lieut. F. C. LEAVITT, Belmont.

Michigan

To *Camp Crane, Pa.*, from Camp Wadsworth, Capt. C. GEORG, JR., Ann Arbor; from New York, Capt. R. C. STONE, Battle Creek. Base hospital, from Camp Meade, Lieut. W. D. RYAN, Detroit; from Fort Oglethorpe, Lieut. C. F. DUBOIS, Detroit. Evacuation hospital, from Boston, Lieut. C. E. TRUESDELL, Denton; from Camp Custer, Capt. C. D. BROOKS, Detroit; from Camp Grant, Capt. R. J. E. ODEN, Cadillac.
To *Camp Grant, Ill.*, evacuation hospital, from Fort Des Moines, Capt. W. K. REXFORD, Ypsilanti. To examine the command for nervous and mental diseases, from Ann Arbor, Capt. P. J. DE PREE, Zeeland.
To *Camp Hancock, Ga.*, base hospital, from Fort Oglethorpe, Capt. F. T. F. STEPHENSON, Detroit.
To *Camp Jackson, S. C.*, base hospital, for instruction, from Fort Oglethorpe, Capt. W. H. FORCE, Ludington.
To *Camp Zachary Taylor, Ky.*, field hospital, from Camp Perry, Capt. H. W. KNAPP, Battle Creek; from Fort Oglethorpe, Capt. J. W. ORR, Flint.
To *Colonia, N. J.*, from Boston, Major N. S. MacDONALD, Houghton.
To *Fort Logan, Colo.*, from Camp Custer, Lieut.-Col. H. M. MELEJAN, Ann Arbor.
To *Fort Oglethorpe*, evacuation hospital, from Camp Hancock, Lieut. L. H. TOWER, Battle Creek. For instruction, from Camp Logan, Capt. N. J. PIKE, Saginaw.
To *Fort Riley* for instruction, Capt. D. V. L. GLEYSTEN, Holland.
To *Mincola, N. Y.*, Hazellhurst Field, from Fort Oglethorpe, Lieut. F. W. HANNUM, Muskegon.

Minnesota

To *Camp Crane, Pa.*, from Camp Dodge, Capt. H. P. BACON, Milaca; from New Haven, Capt. C. R. CHRISTENSON, Starbuck. Base hospital, from Camp Dix, Capt. F. W. BRIGGS, Moorhead; from Fort Oglethorpe, Lieut. F. T. BENOIT, Slayton. Mobile hospital, from Fort Oglethorpe, Capt. A. E. COMSTOCK, St. Paul.
To *Camp Custer, Mich.*, for instruction, from Fort Oglethorpe, Lieut. W. B. MARTIN, Fergus Falls.
To *Camp Knorr, Ky.*, from Camp Cody, Capt. O. H. WILCOX, Minneapolis.
To *Camp Sheridan, Ala.*, base hospital, from Fort Oglethorpe, Capt. C. P. ROBBINS, Winona.
To *Camp Zachary Taylor, Ky.*, field hospital, from Fort Riley, Lieut. S. S. HESSELGRAVE, St. Paul.
To *Columbus, Ga.*, from Camp Lee, Lieut. J. R. McVAY, Rochester.
To *Fort Oglethorpe*, base hospital, from Camp McClellan, Lieut. P. S. EPPERSON, Biwabik. Evacuation hospital, from Camp Sevier, Capt. H. L. ULRICH, Minneapolis.
To *Lakewood, N. J.*, from Washington, Lieut. P. BLANCO, Rochester.
To *Rochester, Minn.*, Mayo Clinic, as instructor, from the Surgeon-General's Office, Col. C. H. MAYO, Rochester.
To *Rockefeller Institute* for instruction in the treatment of infected wounds, and on completion to *Camp Zachary Taylor, Ky.*, base hospital, for instruction, from Fort Oglethorpe, Capt. W. J. COCHRANE, Lake City.

Mississippi

To *Camp Crane, Pa.*, base hospital, from Fort Oglethorpe, Capt. J. CRISLER, Jackson.
To *Camp Forrest, Ga.*, from Camp Shelby, Major H. L. ARNOLD.
To *Camp Greene, N. C.*, base hospital, from Camp Sherman, Capt. J. C. ARMSTRONG, Water Valley; from Fort Oglethorpe, Lieut. F. CHAMPENOIS, Hattiesburg.
To *Fort Oglethorpe*, evacuation hospital, from Camp Gordon, Lieut. H. A. ELKINS, Hardin; from Camp Jackson, Capt. D. L. WALKER, Vicksburg.

Missouri

To *Camp Abraham Eustis, Va.*, from Fort Riley, Capt. J. R. MABEE, Huntsville.
To *Camp Crane, Pa.*, from Camp Custer, Capt. C. L. COOPER, Kansas City; from Camp Hancock, Capt. W. J. FERGUSON, Sedalia; from Camp Logan, Lieut. L. P. FORGRAVE, St. Joseph; from Camp Sevier, Capt. H. E. HAPPEL, St. Louis; from Camp Sheridan, Capt. J. R. GREEN, Independence; from Fort Bliss, Capt. C. T. BELL, Maryville; from Fort Sam Houston, Lieut. A. M. GREGG, Joplin. Base hospital, from Camp Dodge, Capt. O. W. KRUEGER, Kansas. Evacuation hospital, from Camp Lee, Lieut. J. B. MCCUBBIN, Fulton; from Walter Reed General Hospital, Capt. C. H. HECKER, St. Louis.
To *Camp Dodge, Iowa*, from Fort Sill, Major F. W. SHAW, Mount Vernon. To examine the command for nervous and mental diseases, from Ann Arbor, Lieut. T. N. TOOMEY, St. Louis.
To *Camp Kendrick, N. J.*, from Camp Beauregard, Major W. S. LAWRENCE, St. Louis.
To *Camp Meade, Md.*, from Camp Dodge, Major F. W. SHAW, Mount Vernon. Evacuation hospital, from Camp Logan, Capt. G. A. GRIOT, St. Louis.
To *Camp Sevier, S. C.*, base hospital, from Fort Oglethorpe, Capt. R. C. HARRIS, St. Louis.
To *Camp Wheeler, Ga.*, from Fort Oglethorpe, Capt. H. B. GETTYS, St. Louis. Base hospital, from Fort Oglethorpe, Capt. J. L. MYERS, Kansas City; Lieut. J. O'CONNELL, St. Louis.
To *Camp Zachary Taylor, Ky.*, field hospital, from Fort Riley, Capt. F. L. OGILVIE, Bloggett.
To *Chicago, Ill.*, from Fort Riley, Lieut. J. H. YOUNG, Ozark.
To *Colonia, N. J.*, for instruction, from Fort Oglethorpe, Lieut. F. E. CHASE, St. Louis.
To *Fort Oglethorpe* for instruction, from Syracuse, Capt. G. H. MORELAND, Kansas City.
To *Lexington, Va.*, Washington and Lee University, from Nashville, Tenn., Lieut. W. J. BILLETTER, Bynumville.

To *Rockefeller Institute* for instruction in the treatment of infected wounds, and on completion to *Colonia, N. J.*, for instruction, from Camp Dix, Capt. G. D. McCALL, Fulton.
To *Williamsbridge, N. Y.*, from Fort Oglethorpe, Capt. O. W. CLABAUGH, Sedalia.

Montana

To *Camp Crane, Pa.*, evacuation hospital, from Camp Dodge, Capt. A. T. GILHUS, White Sulphur Springs.
To *Fort Oglethorpe* for instruction, from New York, Lieut. A. G. BIDDLE, Butte.
To *Mincola, N. Y.*, Hazellhurst Field, from Camp Joseph E. Johnston, Lieut. C. E. WHITEHEAD, Logan.
The following order has been revoked: To *Fort Oglethorpe* for instruction, Major W. C. RIDDELL, Helena.

Nebraska

To *Camp Crane, Pa.*, from Camp Jackson, Major S. R. HOPKINS, Hastings. Base hospital, from Fort Riley, Capt. C. K. GIBBONS, Kearney.
To *Camp Greene, N. C.*, base hospital, from Fort Oglethorpe, Capt. L. C. BLEICK, Omaha.
To *Camp MacArthur, Texas*, base hospital, from Fort Oglethorpe, Capt. W. P. HANEY, Omaha.
To *Camp Pike, Ark.*, base hospital, from Fort Oglethorpe, Capt. R. P. STOOPS, Scottsbluff.
To *Camp Sevier, S. C.*, base hospital, from Fort Oglethorpe, Capt. I. W. HAUGHEY, Aurora.
To *Camp Wadsworth, S. C.*, base hospital, from Fort Oglethorpe, Lieut. A. J. BOREN, Hastings.
To *Camp Zachary Taylor, Ky.*, field hospital, from Fort Riley, Lieut. F. N. TOWNLEY, Kenesaw.
To *Dallas, Texas*, Love Field, from Fort Omaha, Capt. R. CROOK, Winnetoon.
To *Fort Riley* for instruction, Lieut. A. A. SMITH, Hastings.

New Hampshire

To *Camp Crane, Pa.*, base hospital, from Boston, Lieut. E. A. JONES, Manchester.
To *Camp Sevier, S. C.*, base hospital, from Fort Oglethorpe, Lieut. J. J. BUCKLEY, Milton.
To *Camp Sheridan, Ala.*, base hospital, from Fort Oglethorpe, Capt. P. J. McLAUGHLIN, Nashua.
To *Fort Oglethorpe*, evacuation hospital, from Camp Wadsworth, Capt. G. C. WILKINS, Manchester.

New Jersey

To *Boston, Mass.*, Harvard Graduate School of Medicine, for instruction, from Camp Gordon, Lieut. D. A. CURTIS, Paterson.
To *Camp Abraham Eustis, Va.*, from Jackson Barracks, Lieut. E. S. RAMSDELL, Camden.
To *Camp Bowie, Texas*, base hospital, from Fort Oglethorpe, Lieut. A. W. JUSTIN, Union Hill.
To *Camp Crane, Pa.*, base hospital, from Camp Meade, Capt. F. R. SHEPPARD, Millville.
To *Camp Gordon, Ga.*, base hospital, from Washington, Capt. D. E. WARREN, Passaic. Base hospital, for instruction, from Rockefeller Institute, Lieut. J. N. PANNULLO, Newark.
To *Camp Jackson, S. C.*, base hospital, from Camp Las Casas, Major J. D. LIPPINCOTT, Newark.
To *Camp Lee, Va.*, base hospital, for instruction, from Rockefeller Institute, Lieut. M. KUMMEL, Harrison.
To *Camp McClellan, Ala.*, base hospital, from Camp Greene, Capt. N. K. BENTON, Newark; from Camp Shelby, Capt. E. J. MARSH, Paterson; from Fort Oglethorpe, Lieut. J. S. MARK, Chrome.
To *Camp Meade, Md.*, from Syracuse, Major A. F. THOMPSON, East Orange.
To *Camp Sevier, S. C.*, base hospital, for instruction, from Fort Oglethorpe, Capt. J. W. FARROW, Dover.
To *Camp Wadsworth, S. C.*, base hospital, for instruction, from Fort Oglethorpe, Capt. C. W. EVELETH, West Orange.
To *Fort McHenry, Md.*, from Hoboken, Lieut.-Col. L. J. OWEN.
To *Fort Oglethorpe*, base hospital, from Camp Meade, Major H. D. CORBUSIER, Plainfield. For instruction, Lieut. R. B. JARRATT, Penns Grove.
To *Fort Ontario, N. Y.*, for instruction, from Camp Dix, Capt. J. F. HAGERTY, Newark.
To *Fort Screven, Ga.*, to examine the command for nervous and mental diseases, from Washington, Capt. F. C. HORSFORD, Newark.
To *Hoboken, N. J.*, Major S. PATON, Princeton; from Baltimore, Lieut. W. A. NEWELL, Trenton.
To *Lakewood, N. J.*, from Boston, Lieut. F. H. CARBER, Newton.
To *New York, Cornell Medical College*, for instruction, from Camp Holabird, Capt. F. A. FINN, Jersey City.
To *Pittsburgh, Pa.*, for instruction, from Fort McPherson, Capt. P. E. BRUNDAGE, Grantwood.
To *Plattsburgh Barracks, N. Y.*, from Mineola, Lieut. M. S. PATON, Princeton.
To *Walter Reed General Hospital, D. C.*, from Camp Wheeler, Lieut. J. G. DENELSBECK, Trenton.
The following order has been revoked: To *Camp Hancock, Ga.*, base hospital, from Fort Oglethorpe, Lieut. R. J. VREELAND, Clifton.

New Mexico

To *Camp Abraham Eustis, Va.*, from Camp Upton, Capt. A. C. PRATT, Gallup.

New York

To *Army Medical School* for instruction, from Camp Devens, Lieut. F. F. McGAULEY, Schenectady; from Camp Sevier, Lieut. T. M. CALLADINE, Perry.
To *Azalea, N. C.*, from New Haven, Lieut. J. KAUNITZ, New York.
To *Camp Humphreys, Va.*, base hospital, from Fort Oglethorpe, Lieut. G. KORNFIELD, Brooklyn; M. KUPPERMAN, New York. To examine the command for nervous and mental diseases, from Ann Arbor, Lieut. J. V. SWIERAT, Kings Park; from Washington, Lieut. E. A. EVERETT, Middletown.
To *Camp Abraham Eustis, Va.*, from Fort Oglethorpe, Lieut. S. KULKIN, New York.
To *Camp Crane, Pa.*, from Camp Devens, Lieut. E. F. BRIGGS, Bedford Hills; from Camp McClellan, Lieut. E. W. WILKINS, Albany; from Camp Meade, Lieut. M. BELLIN, Albany. Base hospital, from Camp Devens, Capt. W. M. HALSEY, Oswego; from Camp Lee, Major C. D. NAPIER, Brooklyn; Lieut. N. C. MARVEL, New York; from

Fort Oglethorpe, Capt. H. V. HOLCOM, Bellemore; A. S. ARMSTRONG, New York; J. R. BROWNELL, Perry; Lieut. R. L. COOLEY, Buffalo; from New York, Major B. H. WHITBECK, New York; from West Point, Ky., Lieut. L. D. SOPER, Smyrna. Evacuation hospital, from Camp Custer, Major W. M. FORD, New York; from Camp Devens, Lieut. M. A. THOMPSON, Buffalo; from Camp Sherman, R. W. MORIARTY, New York; from Fort Oglethorpe, Lieut. R. J. SHEA, New York.

To Camp Custer, Mich., from New Haven, Major J. S. BILLINGS, New York.

To Camp Dix, N. J., from New Haven, Major B. F. KNAUSE, Brooklyn.

To Camp Jackson, S. C., base hospital, from Camp Dix, Capt. J. C. BIERWIRTH, Brooklyn. Base hospital, for instruction, Lieut. H. COWAN, New York.

To Camp Joseph E. Johnston, Fla., base hospital, from Camp Jackson, Capt. H. V. GUILLE, New York.

To Camp Lee, Va., base hospital, from Army Medical School, Lieut. R. E. MYERS, Cableskill.

To Camp McClellan, Ala., base hospital, from Biltmore, N. C., Capt. A. V. MOSCHCOWITZ, New York; from Fort Oglethorpe, Lieut. H. A. VOGEL, Albany. On completion to the Surgeon-General's Office, from Washington, Major E. K. DUNHAM, New York.

To Camp Meade, Md., from Syracuse, Lieut. F. N. POTTS, Buffalo. Base hospital, from Fort Oglethorpe, Lieut. G. A. DISTLER, Woodhaven.

To Camp Sherman, Ohio, base hospital, for instruction, from Rockefeller Institute, Lieut. J. G. MORRESSEY, Yonkers.

To Camp Wadsworth, S. C., to examine the command for nervous and mental diseases, from Ann Arbor, Lieut. J. J. LEARY, Utica.

To Camp Wheeler, Ga., from Camp Wadsworth, Major H. R. GAYLORD, Buffalo. Base hospital, from Fort Oglethorpe, Capt. E. W. SHANK, New York.

To Cape May, N. J., from New York, Lieut. S. SILBERT, New York; from Walter Reed General Hospital, Capt. J. KETTERLE, Brooklyn.

To Colonia, N. J., for instruction, from Fort Oglethorpe, Lieut. W. A. BEHAN, Binghamton.

To Columbus, Ga., from Camp Gordon, Major E. A. SOUTHALL, Buffalo.

To Denver, Colo., from New Haven, Capt. H. A. CRAIG, Staten Island.

To Fort Des Moines, Iowa, from Camp Jackson, Major O. M. SCHWERDTFEGGER, New York. For instruction, from Fort Oglethorpe, Lieut. H. C. FALK, New York.

To Fort Oglethorpe, as instructor, from Camp Wheeler, Major J. P. O'BRIEN, Albany. Evacuation hospital, from Camp Gordon, Lieut. P. H. J. BUCKLEY, Buffalo; from Camp Hancock, Capt. H. G. DUNHAM, New York; from Camp Jackson, Capt. I. M. HOLLY, Brooklyn; H. S. FINCKE, Long Island City. For instruction, from Camp Greene, Major D. C. WIGGIN, Rosbank.

To Fort Riley, base hospital, from Fort Oglethorpe, Capt. E. ADAMS, New York.

To Hoboken, N. J., from Camp Dix, Lieut. S. B. DOYLE, Brooklyn; from Fort Riley, Lieut. F. D. KEPPEL, Lincklaen. Base hospital, from Camp Devens, Lieut. W. H. HAWKINS, New York.

To Lakewood, N. J., for instruction, from Fort Oglethorpe, Capt. T. D. BUCHANAN, New York.

To Madison Barracks, N. Y., from Washington, Capt. A. E. SOPER, New York.

To Newport News, Va., from Camp Jackson, Lieut. H. F. GOCKLEY, New York.

To Pittsburgh, Pa., Carnegie Institute, and University of Pittsburgh, from Camp Meade, Lieut. J. F. BROWNE, Rochester. Parkview Station, from Camp Lee, Capt. E. F. SIBLEY, Kingston.

To Plattsburg Barracks, N. Y., from Syracuse, Capt. C. S. LITTLE, Thiells.

To Rahway, N. J., from Boston, Mass., Lieut. T. L. McNAMARA, Corning.

To Richmond, Va., Capt. G. N. SLATTERY, New York.

To San Diego, Calif., Rockwell Field, from San Antonio, Major H. S. BARTHOLOMEW, New York.

To White Plains, N. Y., from Camp Las Casas, Major P. B. CONNOLLY, New York.

The following orders have been revoked: To Fort Oglethorpe for instruction, Lieut. E. C. MONTGOMERY, Brooklyn. To New York, Neurological Institute, for instruction, Lieut. J. RESNIK, New York. To Rockefeller Institute for instruction in the treatment of infected wounds, Lieut. P. T. HARPER, Albany.

North Carolina

To Azalea, N. C., from New Haven, Capt. G. S. MACPHERSON, Highlands.

To Camp Crane, Pa., from Camp Bowie, Capt. A. F. REEVES, Asheville.

To Camp Grant, Ill., from Fort Oglethorpe, Lieut. J. B. LEGWIN, Wilmington.

To Camp Hancock, Ga., base hospital, from Fort Oglethorpe, Capt. R. F. YARBOROUGH, Louisburg; Lieut. C. F. STROSNIDER, Goldsboro.

To Camp Lee, Va., base hospital, from Fort Oglethorpe, Lieut. G. C. BATTLE, Asheville.

To Fort McPherson, Ga., from Fort Oglethorpe, Lieut. G. B. LYNCH, Asheville.

To Fort Oglethorpe, evacuation hospital, from Camp Wheeler, Capt. T. A. HATHCOCK, Norwood.

To Washington, D. C., Surgeon-General's Office, from Biltmore, N. C., Lieut.-Col. W. H. SMITH.

North Dakota

To Camp Crane, Pa., evacuation hospital, from Fort Riley, Capt. O. W. McCLUSKY, Carrington.

To Fargo, N. D., North Dakota Agricultural College, Lieut. C. L. CALLANDER, Fargo.

To Fort Oglethorpe for instruction, Lieut. L. A. SHIPFER, Bismarck.

Ohio

To Camp A. A. Humphreys, Va., base hospital, from Fort Oglethorpe, Lieut. M. D. PRUGH, Dayton.

To Camp Beauregard, La., as orthopedic surgeon, from Fort Oglethorpe, Lieut. E. V. BERRY, Newcomerstown.

To Camp Bowie, Texas, from Camp Sherman, Lieut.-Col. H. B. McINTYRE.

To Camp Crane, Pa., from Camp Jackson, Lieut. J. K. HAMILTON, Youngstown. Base hospital, from Fort Oglethorpe, Capt. G. H. IRVIN, Orville; C. L. JONES, Springfield; Lieuts. D. W. FELLERS, Bloomville; O. C. HENDERSON, Portland. Evacuation hospital, from Camp Dix, Lieut. M. E. WILSON, Cincinnati; from Syracuse, Capt. H. B. BLAKEY, Columbus.

To Camp Dix, N. J., base hospital, from Hoboken, Capt. C. D. HOY, Columbus.

To Camp Gordon, Ga., base hospital, from Fort Oglethorpe, Lieut. H. S. THOMPSON, Cleveland.

To Camp Grant, Ill., base hospital, from Fort Oglethorpe, Lieuts. W. H. MILLER, Columbus; C. R. KING, Toledo. Base hospital for instruction, from Fort Oglethorpe, Capt. W. E. GERNHARD, Cleveland. Evacuation hospital, from Camp Cody, Lieut. A. A. STONE, Cleveland.

To Camp Hancock, Ga., base hospital, from Fort Oglethorpe, Capt. H. M. FLOWER, Toledo.

To Camp McClellan, Ala., base hospital, from Fort Oglethorpe, Lieuts. H. SILVER, Middletown; R. E. SINKEY, E. F. VETTER, Toledo.

To Camp Pike, Ark., from Camp Custer, Lieut.-Col. E. F. McCAMPBELL, Columbus.

To Camp Sheridan, Ala., base hospital, from Fort Riley, Capt. E. R. BROOKS, Cleveland.

To Camp Wheeler, Ga., base hospital, from Fort Oglethorpe, Lieut. J. F. WRIGHT, Toledo.

To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Capt. G. W. WILLIARD, Tiffin.

To Fort McPherson, Ga., for instruction, from Camp Crane, Lieut. G. C. GUTHRIE, Uhrichsville.

To Fort Oglethorpe, base hospital, from Camp Cody, Lieut. R. S. REICH, Cleveland. Evacuation hospital, from Camp Sevier, Capt. H. B. DORNBLASSER, Springfield.

To Jefferson Barracks, Mo., from Fort Oglethorpe, Capt. E. M. BROWN, Zanesville.

To Madison Barracks, N. Y., from Camp Meade, Capt. J. A. GOSLING, Tiffin.

To Mincola, N. Y., Hazelhurst Field, for instruction, from Arcadia, Major C. P. GROVER, National Military Home.

To Plattsburg Barracks, N. Y., from Ann Arbor, Lieut. A. E. KISER, Cincinnati.

To report to the commanding general, Central Department, Capt. E. E. BONSTEEL, Warrensville.

To Washington, D. C., from Fort Sam Houston, Lieut. W. R. CHYNOWETH, Dayton.

The following orders have been revoked: To Camp Crane, evacuation hospital, from Camp Dix, Lieut. A. N. SMITH, Columbus. To Camp Hancock, Ga., base hospital, from Fort Oglethorpe, Lieut. T. HULICK, Cincinnati. To Fort Oglethorpe, base hospital, from Army Medical School, Major R. D. MADDOX, Cincinnati.

Oklahoma

To Biltmore, N. C., from Camp Shelby, Capt. R. E. RUNKLE, El Reno.

To Camp Greene, N. C., base hospital, for instruction, from Fort Oglethorpe, Lieut. S. E. GAYMAN, Tryon. Evacuation hospital, from Fort Oglethorpe, Lieut. C. A. JOHNSTON, Kiowa.

To Camp McClellan, Ala., from Fort Oglethorpe, Lieut. O. G. BACON, Davidson.

North Carolina

To Camp Polk, as sanitary inspector, from Camp Jackson, Capt. J. H. STOLPER, Muskogee.

To Camp Zachary Taylor, Ky., field hospital, from Fort Riley, Lieut. J. R. HOLLIDAY, Oklahoma City.

To New Haven, Conn., Yale Army Laboratory School, Southern Department, Capt. F. B. SORGATZ, Oklahoma City.

To San Antonio, Texas, Kelly Field, from Fort Bayard, Lieut. M. C. COMER, Clinton.

Oregon

To Camp Crane, Pa., from Camp Lewis, Lieut. G. L. BOYDEN, Pendleton. Evacuation hospital, from Camp Lewis, Capt. W. JOHNSTON, Portland.

To Camp Zachary Taylor, Ky., field hospital, from Fort Riley, Lieuts. A. D. MORRISON, Carlton; E. L. ZIMMERMAN, Eugene.

To Madison Barracks, N. Y., from Fort Oglethorpe, Lieut. C. C. PETHERAM, Portland.

To Whipple Barracks, Ariz., from Camp Travis, Lieut. A. T. BLACHLY, Portland.

Pennsylvania

To Camp Abraham Eustis, Va., from Fort Oglethorpe, Lieut. J. G. KOSHLAND, Cassville.

To Camp Bowie, Texas, base hospital, from Fort Oglethorpe, Capt. C. S. AITKEN, Philadelphia.

To Camp Crane, Pa., from Camp Bowie, Capt. S. C. SMITH, Philadelphia; from Camp Hancock, Capt. W. C. MINNICH, McKees Rocks; from Camp Jackson, Lieut. J. D. KEIPER, Johnstown; from Camp Sherman, Capt. W. L. CAMPBELL, New Castle; from Fort Oglethorpe, Capt. T. EVANS, Jr., Pittsburgh. Base hospital, from Camp Jackson, Major E. H. GOODMAN, Philadelphia; from Fort Oglethorpe, Capt. J. B. McMURRAY, Washington; Lieuts. J. M. CORSON, Chatham Run; A. J. CRAIG, Fort Washington; R. J. SAGERSON, Johnstown; from Plattsburg Barracks, Major C. H. HENNINGER, Pittsburgh. Evacuation hospital, from Camp Dix, Lieut. L. C. RUMMAGE, Sweet Valley; from Camp Meade, Capt. O. F. BARTHMAIER, Philadelphia; from New York, Capt. R. J. BEHAN, Pittsburgh; Lieut. R. P. BATCHELOR, Palmerton. Mobile hospital, from Camp Devens, Lieut. J. H. WYATT, Fountain Springs; from Camp Gordon, Lieut. J. W. BURKETT, Moon Run; from Fort Oglethorpe, Lieut. J. H. KREIGER, Harrisburg.

To Camp Custer, Mich., from Camp Grant, Lieut. D. THOMAS, New Kensington.

To Camp Gordon, Ga., base hospital, from Camp Jackson, Major K. A. EMMERLING, Pittsburgh.

To Camp Greene, N. C., base hospital, from Fort Oglethorpe, Capt. W. B. DENSLOW, Pittsburgh; F. S. ULLOM, Waynesburg; Lieut. T. J. McGURL, Minersville.

To Camp Hancock, Ga., base hospital, for instruction, from Fort Oglethorpe, Lieut. A. H. JAHN, Pittsburgh.

To Camp McClellan, Ala., from Camp Upton, Major H. P. BROWN, Philadelphia. Base hospital, from Fort Oglethorpe, Capt. G. F. TUCKER, Pittsburgh.

To *Camp Meade, Md.*, as orthopedic surgeon, from *Camp Beauregard*, Lieut. T. S. MEBANE, Wilkes-Barre. Base hospital, from *Fort Oglethorpe*, Lieuts. C. C. KEMBLE, Erie; B. BOROW, Philadelphia; J. K. WAGENSELLER, Pittsburgh; L. B. ROBERTS, Scranton. Base hospital, for instruction, from *Washington*, Capt. R. R. DECKER, Orbisonia. Evacuation hospital, from *Camp Beauregard*, Lieut. J. CAMP, Foxburg.

To *Camp Sevier, S. C.*, base hospital, from *Camp Custer*, Capt. G. M. BOYD, Philadelphia.

To *Camp Sheridan, Ala.*, base hospital, from *Fort Oglethorpe*, Lieut. J. C. HARTMAN, Philadelphia.

To *Camp Travis, Texas*, base hospital, from *Fort Oglethorpe*, Lieut. J. L. RICHARDS, Philadelphia.

To *Camp Upton, N. Y.*, to examine the command for nervous and mental diseases, from *Ann Arbor*, Lieut. J. M. MIRMAN, Philadelphia.

To *Camp Wadsworth, S. C.*, base hospital, from *Camp Abraham Eustis*, Lieut. J. M. STEWART, Marion Center; from *Fort Oglethorpe*, Lieuts. J. J. SWEENEY, Heckscherville; C. W. RICE, Northumberland.

To *Camp Wheeler, Ga.*, base hospital, from *Fort Oglethorpe*, Lieut. T. H. HARTER, East Brady.

To *Cape May, N. J.*, from *New York*, Lieut. R. C. BUERKI, Philadelphia.

To *Dansville, N. Y.*, from *Ann Arbor*, Lieut. J. A. MERIWETHER, Philadelphia; from *Syracuse*, Lieut. J. E. DWYER, Polk.

To *Fort Bayard, N. M.*, as instructor, from *Camp Fremont*, Major R. BEW, Gettysburg.

To *Fort Benjamin Harrison*, from *Detroit*, Capt. A. B. SHATTO, York.

To *Fort McHenry, Md.*, from *Richmond, Va.*, Major G. C. BOUGHTON, Erie.

To *Fort McPherson, Ga.*, for instruction, from *Rockefeller Institute*, Capt. H. C. UPDEGRAFF, Pittsburgh.

To *Fort Oglethorpe*, evacuation hospital, from *Camp Hancock*, Capt. W. W. HULL, Williamsport; Lieuts. W. H. KELSEA, East Brady; R. W. JOHNSON, Selinsgrove; R. B. McCAY, Sunbury; from *Camp Lee*, Lieut. E. P. LONGAKER, Philadelphia. For instruction, Lieut. K. I. KURZ, Philadelphia; from *Saltville, Va.*, Capt. C. H. CLOUD, Philadelphia.

To *Fort Sill, Okla.*, base hospital, from *Fort Oglethorpe*, Capt. E. L. ERHARD, Glassport.

To *Hoboken, N. J.*, from *New Haven*, Capt. H. K. CAREY, Philadelphia. Evacuation hospital, from *Camp Dix*, Lieut. W. E. GARDNER, Pittsburgh.

To *Lakewood, N. J.*, Lieut. J. M. ODELL, Philadelphia.

To *Madison Barracks, N. Y.*, from *Ann Arbor*, Lieut. W. L. HAIR, Roaring Springs; from *Camp Abraham Eustis*, Lieut. A. R. ROZP-LOCH, Chester.

To *Mineola, N. Y.*, Hazelhurst Field, for instruction, Capt. W. MARSHALL, Pittsburgh.

To *New York*, Neurological Institute, for instruction, from *Washington*, Lieut. C. A. LEY, Pittsburgh.

To *Walter Reed General Hospital, D. C.*, from *Boston*, Lieut. J. L. LIVINGOOD, Philadelphia.

Philippine Islands

To *New Haven, Conn.*, Yale Army Laboratory School, from *San Francisco*, Major H. G. MAUL, Manila.

Rhode Island

To *Camp Crane, Pa.*, evacuation hospital, from *Camp Meade*, Lieut. F. A. COUGHLIN, Providence.

To *Camp Wadsworth, S. C.*, base hospital, from *Fort Oglethorpe*, Lieut. W. W. STREET, Providence.

To *Fort Oglethorpe*, evacuation hospital, from *Camp Sevier*, Major G. W. GARDNER, Providence.

South Carolina

To *Camp Joseph E. Johnston, Fla.*, from *Camp Wadsworth*, Lieut. W. A. BROWN, Georgetown.

To *Madison Barracks, N. Y.*, from *Fort Oglethorpe*, Capt. M. CROOK, Spartanburg.

South Dakota

To *Camp Crane, Pa.*, from *Camp Dodge*, Lieut. R. G. STEVENS, Sioux City; from *Camp Grant*, Lieut. B. H. SPRAGUE, Huron.

To *Camp Dix, N. J.*, base hospital, from *Camp Crane*, Capt. W. D. FARRELL, Aberdeen.

To *Camp Shelby, Miss.*, base hospital, from *Fort Oglethorpe*, Lieut. F. I. PUTMAN, Sioux City.

To *Rochester, Minn.*, Mayo Clinic, for instruction, and on completion to *Camp Grant, Ill.*, base hospital, for instruction, from *Camp Cody*, Capt. R. W. MULLEN, Florence.

Tennessee

To *Columbus Barracks, Ohio*, from *Ann Arbor*, Lieut. J. P. SCHELL, Nashville.

To *Fort McPherson, Ga.*, from *Ann Arbor*, Lieut. P. J. TRENTZSCH, Rives.

To *Hoboken, N. J.*, base hospital, from *Camp Dix*, Capt. S. MEEKER, Memphis.

The following order has been revoked: To *Fort Oglethorpe* for instruction, Capt. J. OVERTON, Nashville.

Texas

To *Azalea, N. C.*, from *Camp Bowie*, Capt. J. W. HALE, Waco.

To *Camp Beauregard, La.*, from *Camp Travis*, Capt. A. M. FREELS, Denison.

To *Camp Bowie, Texas*, base hospital, Lieut. T. A. DICKSON, Houston.

To *Camp Crane, Pa.*, from *Camp A. A. Humphreys*, Capt. W. P. CONNALLY, McGregor; from *Camp Beauregard*, Capt. H. M. LANHAM, Waco; from *Camp Gordon*, Capt. D. A. MANN, Beaumont; from *Camp Pike*, Lieut. W. G. TENERY, Waxahachie; from *Camp Sheridan*, Capt. A. M. McELHANNON, Sherman; from *Syracuse*, Capt. E. B. KENNER, Galveston. Base hospital, from *Fort Oglethorpe*, Lieuts. G. G. CASTLEBERRY, Post; I. E. COLGIN, Waco. Evacuation hospital, from *Fort Oglethorpe*, Lieuts. F. B. SEWALL, Marlin; D. M. STONE, San Antonio. Mobile hospital, from *Army Medical School*, Capt. E. V. POWELL, Fort Worth.

To *Camp McClellan, Ala.*, base hospital, from *Fort Oglethorpe*, Lieut. J. O. ROGERS, Red Oak.

To *Camp Travis, Texas*, from *Camp McClellan*, Lieut. T. P. LYNCH, Coleman.

To *Camp Upton, N. Y.*, to examine the command for nervous and mental diseases, from *Ann Arbor*, Lieut. R. A. THARP, Austin.

To *Charleston, S. C.*, from *Camp Sevier*, Capt. C. B. McGLUMPHY, Galveston.

To *Colonia, N. J.*, from *Boston*, Lieut. O. N. MAYO, Belton.

To *Fort Bliss, Texas*, base hospital, from *Fort Sam Houston*, Lieut. T. C. TERRELL, Fort Worth.

To *Fort Oglethorpe*, base hospital, from *Camp MacArthur*, Lieut. R. M. FANCHER, Houston. Evacuation hospital, from *Camp Logan*, Lieut. W. TRAYLOR, San Antonio.

To *Fort Sam Houston, Texas*, from *Camp Travis*, Lieut. F. A. ALLIN, San Antonio.

To *Lakewood, N. J.*, from *Baltimore*, Lieut. M. H. GLOVER, Wichita Falls.

To *Madison Barracks, N. Y.*, from *Ann Arbor*, Lieut. C. W. STEVENSON, Lorain.

To *Mineola, N. Y.*, Hazelhurst Field, from *Camp Meade*, Capt. L. C. G. BUCHANAN, Big Springs.

To *Rantoul, Ill.*, Chanute Field, from *Fort Oglethorpe*, Capt. H. H. ALLDREDGE, Higgins.

Utah

To *Fort Oglethorpe* for instruction, Lieut. G. W. GOINS, Tocele.

To *Hoboken, N. J.*, from *Fort McHenry*, Major S. C. BALDWIN, Salt Lake City.

Vermont

To *Camp Crane, Pa.*, from *Camp Shelby*, Capt. J. P. GIFFORD, Randolph.

To *Camp Logan, Texas*, base hospital, for instruction, from *Fort Oglethorpe*, Lieut. J. R. GRIMES, Montpelier.

To *Camp McClellan, Ala.*, to examine the command for nervous and mental diseases, Capt. E. O. CROSSMAN, Burlington.

Virginia

To *Azalea, N. C.*, from *New Haven*, Lieut. W. E. BROWN, Salem.

To *Camp Cody, N. M.*, as orthopedic surgeon, from *Boston*, Capt. L. N. HARRIS, Harrisonburg.

To *Hoboken, N. J.*, base hospital, from *Camp Wheeler*, Capt. J. W. WHITE, Norfolk.

To *Middletown, Pa.*, from *Camp Dix*, Capt. G. H. THOMAS, Staunton.

To *Camp Crane, Pa.*, from *Camp Lewis*, Capt. E. L. INGERSOLL, Spokane. Base hospital, from *Camp Custer*, Capt. J. M. HENDERSON, Seattle; from *Camp Lewis*, Major F. P. GARDNER, Seattle; Lieut. J. H. CRAMPTON, Spokane.

To *Washington, D. C.*, from *Vancouver Barracks*, Lieut.-Col. J. W. SHERWOOD.

West Virginia

To *Camp Crane, Pa.*, from *Camp Travis*, Lieut. O. H. GRIFFITH, Parkersburg; from *Fort Oglethorpe*, Lieut. B. H. SWINT, Charleston.

Base hospital, from *Camp Custer*, Major J. E. CANNADAY, Charleston. Evacuation hospital, from *Camp Lee*, Capt. E. A. HILDRETH, Wheeling; from *Fort Myer*, Capt. J. B. KIRK, Bluefield.

To *Camp Dix, N. J.*, base hospital, from *New York*, Major L. C. COVINGTON, Charleston.

To *Camp Wheeler, Ga.*, base hospital, from *Fort Oglethorpe*, Lieut. W. A. NOBLE, Welch.

To *Fort Oglethorpe*, base hospital, from *Camp Bowie*, Lieut. E. B. HENSON, Charleston.

To *Mineola, N. Y.*, Hazelhurst Field, from *Riverside, Calif.*, Lieut. H. R. PARKER, Williamson.

Wisconsin

To *Camp Cody, N. M.*, base hospital, from *Fort Bayard*, Capt. L. J. BENNETT, Port Atkinson.

To *Camp Crane, Pa.*, from *Camp Joseph E. Johnston*, Capt. G. E. THOMPSON, Kenosha. Base hospital, from *Camp Custer*, Capt. J. G. TAYLOR, Milwaukee.

To *Camp Gordon, Ga.*, base hospital, from *Fort Oglethorpe*, Capt. O. H. FOERSTER, Milwaukee.

To *Camp Grant, Ill.*, evacuation hospital, from *Camp Custer*, Lieut. H. McCABE, Milwaukee.

To *Camp McClellan, Ala.*, from *Fort Riley*, Lieut. P. M. ROSS, Milwaukee. Base hospital, from *Fort Oglethorpe*, Capt. N. ANDREWS, Oshkosh.

To *Camp Meade, Md.*, base hospital, from *Fort Oglethorpe*, Lieut. F. M. ROHOW, Ashland.

To *Camp Wadsworth, S. C.*, base hospital, from *Fort Oglethorpe*, Capt. A. O. SANDERS, Superior.

To *Fort Benjamin Harrison*, base hospital, from *Camp Pike*, Capt. E. F. BAUR, Milwaukee.

To *Fort Oglethorpe*, evacuation hospital, from *Camp Zachary Taylor*, Capt. C. U. SENN, Ripon.

To *Mineola, N. Y.*, Hazelhurst Field, for instruction, from *Dallas*, Capt. C. W. ANDREWS, Waupaca.

To *Pittsburgh, Pa.*, Carnegie Institute, and University of Pittsburgh, from *Camp Meade*, Capt. H. A. RICE, Gays Mills.

To *San Antonio, Texas*, Brooks Field, from *San Diego*, Capt. F. W. POPE, Racine.

To *Washington, D. C.*, Surgeon-General's Office, for instruction, from *Fort Riley*, Capt. T. L. HARRINGTON, Milwaukee.

ORDERS TO OFFICERS OF THE UNITED STATES PUBLIC HEALTH SERVICE

Passed Asst. Surg. J. H. LINSON, relieved at Boston, Mass., proceed to Washington for duty in the division of venereal diseases.

Asst. Surg. C. J. McDEVITT, report to Surgeon W. C. Billings for duty in suppression of influenza.

Asst. Surg. G. C. LAKE, proceed to Chicago, Ill., and other necessary points for observation in regard to vaccine against influenza and pneumonia.

Asst. Surg. CHARLES ARMSTRONG, proceed to Albany, N. Y., for duty in measures for the control of influenza.

Asst. Surg. R. C. WILLIAMS, relieved from further duty on Bureau of Mines car. Proceed to Chicago, Ill., for duty in the control of influenza.

Prof. E. B. PHELPS, proceed to Chicago, Ill., and other necessary points in the vicinity of the Chicago Drainage Canal to assist in making plans for sewage disposal.

Acting Asst. Surg., ORLANDO DUCKER, proceed to Richmond, Va., for the duty in control of influenza.

Acting Asst. Surg. GEORGE HAYS, relieved at Chester, Pa., proceed to Columbia, S. C., for duty in influenza control.

Acting Asst. Surg., WILLIAM RICE, proceed to St. Louis, Mo., for duty at the Marine Hospital.

Dr. CAROLINE ROSENBERG, proceed to Wilmington, Del., for duty in influenza control.

Acting Asst. Surg. E. W. SCOTT, proceed to Columbus, Ohio, and other necessary places for duty in influenza control.

Acting Asst. Surg., FRANKLIN F. WALTERS, proceed to Newberry, S. C., for duty in influenza control.

Acting Asst. Surg. W. A. WILSON, proceed to necessary places in the State of New Jersey to organize venereal disease relief measures.

Phar. W. G. BEUCLER, proceed to Washington, D. C., for duty in the office of field investigations of industrial sanitation.

Sanitary Engr. A. F. STEVENSON, proceed to Framingham, Mass., for conference in regard to milk pasteurization.

Scientific Asst. GEORGE A. DECELL, proceed to Washington, D. C., for duty in compiling statistics relative to influenza and other communicable diseases.

Scientific Asst. SAMUEL SAUNDERS, relieved at Brunswick, Ga., proceed to Washington, D. C., for duty in control of influenza.

Regional Field Director G. C. CAREY, proceed to Albany, New York City, Trenton, Wilmington, Baltimore and Washington and other points in the States of New York, New Jersey, Delaware and Maryland for duty in campaign of venereal instruction.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

DISTRICT OF COLUMBIA

Inroads of the War on School Medical Inspection Staff.—Soon after the entrance of the United States into the war, Dr. Prentiss Willson and Dr. Albert Ridgely, medical inspectors of schools, entered the Army Medical Service. During the past summer, Dr. John Thomas was commissioned and sent to camp, and during the past few weeks Dr. Joseph A. Murphy, chief medical and sanitary inspector of schools, was ordered to Camp Jackson, S. C., and Dr. H. C. Macatee, to duty at U. S. Naval Dispensary, Washington, D. C.

Curtailment of Medical Society Activities.—The Medical Society of the District of Columbia has long prided itself on maintaining meetings every week from October to May, always with interesting programs and good attendance. The securing of programs has become increasingly difficult owing to the absence of so many active workers now serving in the Army or Navy and to the increasing professional burdens of those physicians who remain. It has been necessary to abandon the meeting altogether during the influenza epidemic because of nonattendance, and it will probably be necessary to hold semimonthly meetings hereafter because of the dearth of scientific material. The society has remitted the dues of all members in active service with the Army and Navy, and in view of this reduction in the society's revenues it will be necessary to reduce the size or frequency of publication of the *Washington Medical Annals*.

Medical Care of Employees of the Navy Department.—A very large part of the increased clerical force of the Navy Department has been secured by the enlistment of both men and women as yeomen. These employees receive the regular Navy pay for their respective ratings and are given subsistence allowance in lieu of quarters and mess privileges. Being enlisted personnel, they are entitled to medical care and thus the Naval Dispensary has become an important adjunct to the Navy Department. The dispensary has recently removed to commodious quarters near Seventeenth Street and New York Avenue N.W., within easy walking distance of the various buildings housing the Navy Department. There are departments for internal medicine, minor surgery, gynecology, ophthalmology and otolaryngology, dentistry, and a very complete pharmacy. Enlisted men requiring hospital care are sent to the Naval Hospital, while enlisted women are sent to the Georgetown University Hospital under a con-

tract arrangement. The dispensary is under the command of Capt. J. B. Dennis, M. C., U. S. Navy.

Influenza Epidemic Abating.—Washington is emerging from the influenza epidemic as from a bad dream. As is the common experience, the last week in September ushered in the disease and the last week in October finds little to do but clear up the wreckage of the storm. The epidemic found the community totally unprepared to cope with it; the depleted medical profession was unable to meet the situation fully and quickly became further depleted by illness of the doctors themselves; four physicians died, Drs. William E. Turton, Thomas Miller, Jr., Thomas B. Kramer, and Thomas S. D. Grasty, all of these having quickly fatal pneumonia. The local hospitals broke down during the first ten days of the epidemic, partly because overcrowded, but mainly because the nursing staffs suffered so severely from the disease. The Medical Society of the District of Columbia last spring realized the situation that an epidemic would create in this city and urged that a temporary hospital for the civilian population be provided; this recommendation being based on the fact that the population of Washington has been suddenly increased by nearly 150,000, mostly war workers, and that the majority of these people are living as lodgers without the most elementary necessities to cope with an illness. Nothing came of this suggestion, but the present emergency made the need most apparent and the Public Health Service has established a large hospital for the treatment of influenza and this hospital has done a most important work. It is hoped that it may be maintained during the continuance of the war; for its value has already been amply demonstrated. The measures taken to combat the disease were: collaboration between the U. S. Public Health Service, represented by Dr. H. S. Mustard, and the local health department; the declaration of the District of Columbia as a sanitary zone; making influenza a reportable disease and requiring the segregation of persons suffering with it; closing of schools, churches, theaters, and other places of public assemblage; liberal placarding in streets and public buildings and grounds of information and advice regarding the mode of spread of the disease; the establishment of centers under the Public Health Service where immediate medical and nursing assistance could be obtained. In spite of all this the impression is current that the epidemic has simply burnt up all the available susceptible fuel and has passed on to new areas.

GEORGIA

Returns from France.—Major Edward C. Davis, formerly of Atlanta, and organizer of the Emory Unit of the ambulance service, is expected home from France in a short time.

Personal.—Dr. Jarrett W. Palmer, Ailey, was elected president, Dr. Alfred F. White, Flovilla, vice president, and Dr. Charles T. Nolan, Marietta, secretary-treasurer, of the Georgia State Board of Medical Examiners, at its meeting held in Atlanta, October 9.—Dr. Ferdinand N. Ware, Thomson, is reported to be critically ill as a result of a cerebral hemorrhage.

ILLINOIS

Arrest Illegal Practitioner.—Milton A. Chaiken of Joliet was arrested by the Department of Registration and Education of the State of Illinois for writing prescriptions and signing thereto the name of a licensed physician. He was fined \$75 and cost on one charge. Six more charges against him are pending.

Chicago

Tuberculosis Institute.—At the meeting of the executive committee of the Chicago Tuberculosis Institute, held October 24, Dr. Herbert W. Gray was unanimously elected attending physician for the Edward Sanatorium, Naperville. Dr. Gray will also examine all applicants for admission to the institution at his office in Chicago.—Dr. Ethan Allen Gray still continues as consultant to the Edward Sanatorium. The Fresh Air Hospital and the Edward Sanatorium have entered into close cooperation, to the great advantage of the patients and institutions.

Fines and Imprisonments.—Judge Edmund Jerecki of the Municipal court, October 23, had arraigned before him four druggists and three physicians for alleged violation of the state medical practice act. "Dr." Jacob Bond is said to have been fined \$200 and costs, on the charge of two complaints, and to have been sent to Bridewell on account of inability to pay the fine; "Drs." Julian Portes and Lorenz Girmhuber were said to have been fined each \$25 and costs, and four druggists, charged with employing unlicensed men as registered pharmacists, were fined court costs.

INDIANA

Hospital Notes.—Plans are being completed for a hospital in Terre Haute, adjoining the Terre Haute Hospital to accommodate at least 100 patients. It is stated that this building is to be used for the care of invalided soldiers.—The west wing of the old City Hospital, Indianapolis, has been remodeled at a cost of \$3,000. This wing will be used for contagious diseases only.—The Methodist Episcopal Hospital, Indianapolis, has placed one of its buildings in use as an influenza hospital.

Personal.—Dr. U. Willard Reed, Topeka, suffered a slight cerebral hemorrhage recently.—Dr. Edwin W. Dyar, Ossain, was operated on in the Lutheran Hospital, Fort Wayne, for appendicitis, October 21, and is reported to be doing well.—Dr. Carl L. Souder, Columbia City, was operated on in the Lutheran Hospital, Fort Wayne, October 19, for sinusitis.—Dr. Joseph N. Jerome has been appointed city health officer of Evansville, to succeed Dr. William E. Barnes, who has entered the military service.—Dr. Edmund C. Hack, Pence, is under treatment at the Lakeview Hospital, Danville.—Dr. Leo W. Roller, North Manchester, has accepted a position as city physician of Cleveland, Ohio.

KANSAS

Personal.—Dr. Alfred F. Yohe, physician at the Federal Penitentiary, Leavenworth, for nearly thirteen years, a member of the federal parole board, has resigned and has been succeeded for the time being by Dr. Jacob L. Everhardy.—Dr. Thomas J. Carter, Wichita, has been elected president of the Friend's Board of Kansas.

MARYLAND

Personal.—Dr. J. Knox Insley of Baltimore, who has been seriously ill with influenza that developed into pneumonia, is reported, the city health commissioner has partially lifted the Mason Knox, Jr., has returned to his home in Guilford, after a year spent in the Children's Bureau of Civilian Relief Work of the American Red Cross.

Volunteers of America Close Hospital.—After successfully conducting an emergency hospital at the headquarters of the Volunteers of America for the treatment of homeless sufferers from influenza and pneumonia, Capt. John Logan has announced that his hospital is closed, after having been in operation eleven days. During that time thirteen patients died, while thirty-five were discharged as cured.

Influenza Ban Lifted.—Owing to the great decrease in the number of deaths from influenza, as well as of new cases reported, the city health commissioner has partially lifted the ban which has been in effect for about two weeks. Unless there is another outbreak of the epidemic, the public schools, private schools, and colleges will be opened by the middle of the week. The ban has been entirely lifted on places of public worship, while it is partially lifted for department stores, theaters and motion picture parlors. The ban on saloons, cafés, retail liquor stores and nonessential assemblages is still existing. According to the official records at the health department, yesterday, there were 115 deaths reported, where influenza and pneumonia were given as the cause. There were also 257 new cases of influenza, as compared with 136 deaths and 304 new cases for a similar period for the day before. The total number of deaths from all causes announced for this period of time was 150 as compared with 171 for the period of twenty-four hours immediately preceding. The conditions throughout the state were reported by Dr. C. Hampson Jones, Baltimore, of the state board of health, as greatly improved and there were signs of an appreciable abatement in the epidemic.

The Baltimore Fund.—The trustees of the Baltimore fund have made a report on the first year's work on this fund, which was founded in April, 1917. During the year it received pledges amounting to \$700,054.95, cash total, \$323,495.90, and paid out \$280,011.32, for free local charity organizations and the Baltimore Chapter of the Red Cross. Of the disbursements, \$12,942.47 was paid to the Baltimore Chapter of the Red Cross for home service, that is to say, assistance to families of Baltimoreans in the Army and Navy. For the work devoted to babies and the Babies' Milk Fund Association, \$20,273.16 was appropriated. To the Federated Charities for the relief of family distress, \$95,997.12 was expended. The Friendly Inn Association recorded 9,933 "service days" for 710 men, provided 15,461 night lodgings, and 35,133 meals. For restoring a family life to children

\$35,944.16 was appropriated to the Henry Watson Children's Aid Society. The Instructive Visiting Nurse Association expended \$10,030.99 of the fund, visited 11,292 new patients, and made a total of 56,939 visits. To the Prisoners' Aid Association \$13,991.64 was appropriated. Among other agencies in which the trustees of the Baltimore Fund are interested are the Maryland Tuberculosis Association, the Social Service Corporation, the Boy Scouts of America, Public Athletic League neighborhood work for which \$36,138.17 was appropriated. For the problems of mental disorders and of feeble-mindedness \$3,353.49 was appropriated. For the Mothers' Relief Society, which gives medical care for poor mothers, \$2,608.87 was appropriated. The trustees appropriated \$2,135.03 to the Travelers' Aid Society. The Alliance of Charitable and Social Agencies, to unify and coordinate efficiency, economy, and cooperation in social work was given \$15,692.95.

MINNESOTA

Personal.—Dr. Arthur E. Nichols, St. Paul, medical inspector in the state health department, has been appointed director of school hygiene to succeed Dr. William J. Little.

Southern Minnesota Physicians to Meet.—The annual meeting of the Southern Minnesota Medical Association will be held at Mankato, November 25 and 26, under the presidency of Dr. E. Starr Judd, Rochester.

Memorial to Wesbrook.—The faculty of the Medical School of the University of Minnesota, Minneapolis, has adopted a memorial to its former dean, Frank Faurehild Wesbrook, M.A., C.N., M.D., whose death was noted in THE JOURNAL of October 26, page 1428, bearing testimony to his qualities as a scientist in medicine, as a leader and administrative officer, and as a councilor and friend.

NEW YORK

New York City

Personal.—Dr. George H. Chaffee, who practiced medicine for many years in Brooklyn, has removed to Binghamton.—Mr. Robert E. Cusack has brought suit in the supreme court against Dr. Robert T. Morris for \$250,000 damages, charging him with having removed surreptitiously a part of his body during an operation and engrafted the same on the body of an unnamed person. Dr. Morris declares that he operated on Cusack skilfully and successfully for a double hernia and that the allegations are without foundation.

Commission to Study Influenza.—Governor Whitman has appointed a commission to study and report on the cause prevention and treatment of influenza. Among those asked to serve are the Surgeon-Generals of the Army, Navy and Public Health Service; Dr. Rufus I. Cole of the Rockefeller Institute; Dr. Walter B. James, president of the New York Academy of Medicine; Dr. Hermann M. Biggs, New York State Commissioner of Health, and Dr. William H. Park, director of the research laboratories of the New York City Department of Health.

Influenza on the Decrease.—Reports from the health department, October 25, show that the epidemic of influenza is on the wane. A smaller number of cases are being reported and the number of discharges from the hospitals is exceeding the number of admissions. Since the health department began recording epidemic figures about 90,000 cases of influenza have been reported, with 5,984 deaths therefrom. The figures tabulated by the New York State Department of Health show the total number of deaths in the state, exclusive of New York City, for the first twenty-two days of October, as a result of the influenza epidemic, were 4,543, of which 3,313 were attributed to influenza and 1,230 to pneumonia. To the above date 96,110 cases of influenza have been reported in the state outside of the city of New York.

PENNSYLVANIA

Hospital News.—The Ellwood City Hospital, August 12, dedicated its new home which cost upward of \$35,000.—The physicians of Bethlehem have purchased the Weiss property on East Broad Street for \$26,500, and will alter the residence for hospital purposes.

Personal.—Dr. C. M. Richert of Millersville and Harrisburg has been appointed associate chief medical inspector of the state board of health.—Dr. Walter F. Donaldson, Pittsburgh, has been elected treasurer and also director of the Allegheny County Medical Society, to fill the unexpired term of Dr. William C. Bryant, who has entered the service

Influenza in Coal Regions.—Figures from the Anthracite Bureau of Information indicate that there is danger that the 1,000,000 tons gain in the mining of hard coal so far this year over the output of last year may be lost if the epidemic of influenza is not quickly checked. No section of the country has been so hard hit by the epidemic as the southern anthracite district, embracing Schuylkill and Northumberland counties. Reports show that since the epidemic broke out, October 4, there have been 2,200 deaths in these counties, one in every 145 of population. In Schuylkill County there are more than 1,500 orphans and 500 in Northumberland. As a result of the disease in Minersville, with a population of 6,000, there are 200 orphans. A peculiar feature is the fact that the epidemic was particularly virulent in the southern anthracite fields while the northern was not nearly so badly affected. In Wilkes-Barre there have been only fifty deaths. In Hazleton, October 26, there were 1,500 cases in the town, and 2,500 in the surrounding country. In Scranton up to October 25 from the beginning of the epidemic, October 5, there have been 4,250 cases reported, with 239 deaths. A detachment of more than 100 medical officers from Camp Crane, Allentown, have been in the region for ten days but now are gradually being withdrawn. According to reports to the state health department, October 26, the epidemic of influenza was rapidly growing worse in the southern bituminous coal fields and in Somerset County.

Philadelphia

Personal.—Drs. James M. Anders and L. Webster Fox have been elected trustees of the Polyclinic Hospital.—Dr. Charles J. Hatfield, who has served for the last four years as executive secretary of the National Tuberculosis Association, has been made managing director.—Dr. Luther C. Peter was elected secretary of the American Academy of Ophthalmology and Oto-Laryngology at its meeting in Denver, August 5 and 6.

Quarantine Lifted.—Dr. Benjamin F. Royer, Harrisburg, acting commissioner of health, telegraphed Dr. Wilmer Krusen, director of health and charities, that the ban might be entirely lifted, October 30. Although church services are to be permitted, no public funerals will be permitted, in fact the same regulations must govern funerals as are observed in cases where death has resulted from diphtheria or scarlet fever. The deaths from influenza and kindred diseases for the last six weeks have been as follows:

Week ended	Influenza	Pneumonia	Broncho-pneumonia
September 20	8	17	15
September 27	73	44	32
October 4	399	225	78
October 11	1,797	687	251
October 18	2,953	1,199	446
October 25	1,839	776	406
Totals	7,069	2,948	1,228

RHODE ISLAND

Fiske Fund Prize Essay.—At the annual meeting of the Rhode Island Medical Society, June 6, the trustees of the Fiske Fund proposed the following subject for the prize essay for 1919: "Recent Classification and Treatment of Pneumonia." The prize for the best essay is \$200. The conditions of the competition are that each competitor must forward to the secretary of the trustees, on or before May 1 of the year of the competition, a copy of his dissertation with a motto, accompanied by a sealed letter with the same motto on the outside and the name of the competitor on the inside; the successful competitor must transfer to the trustees all his right, title and interest in the essay for the use and benefit of the Fiske Fund before he will receive the amount of the premium. The unsuccessful competitors may have their essays returned. The trustees are Drs. Gardner T. Swarts, John M. Peters and Jesse E. Mowry, all of Providence. Dr. Peters is secretary.

VERMONT

Personal.—Dr. Daniel J. Nolan, Burlington, who has been seriously ill with pneumonia, is reported to be convalescent.

Poliomyelitis.—The bulletin of the Vermont State Board of Health for the quarter ending September, 1918, is devoted almost wholly to a complete analysis of poliomyelitis as it occurred in the state in 1916 and 1917. The article is by the late Dr. Charles S. Caverly, Rutland, president of the state board and contains much valuable information in regard to the disease, the manner in which it was handled and the results.

CANADA

New Hospital.—The Salvation Army has purchased a private residence in Windsor, Ont., and is converting it into a general hospital. A campaign is being conducted to raise \$32,000.

Personal.—Lieut.-Col. Harold C. Parsons, Toronto, who returned from overseas a short time ago, is now working with the committee inspecting Canadian military hospitals. —The following Toronto physicians have been assigned to duty at Basingstoke Hospital, England: Drs. Oliver R. Maybee, Norman T. MacLaurin, Charles W. Clark, Hanna and Robinson.—Col. John W. S. McCullough, Toronto, chief medical officer of health, Ontario, was requested to take charge of the medical unit to Serbia, but the Ontario government considered his services of more worth to the province in his present capacity.—Capt. Leroy J. Snider, Toronto, who was in Mesopotamia for some time, has been reported wounded.

GENERAL

Malaria Meeting Postponed.—On account of the prevailing epidemic of influenza the meeting of the national malaria committee at Asheville, N. C., November 11, has been indefinitely postponed.

Public Health Officers' Reserve.—Legislation authorizing the establishment of an officers' reserve in the United States Public Health Service, was completed, October 21, by the adoption of the conference report to the Senate. The bill is now in the President's hands.

New Tri-State Officers.—At the forty-fifth annual meeting of the Northern Tri-State Medical Association held in Fremont, Ohio, October 8, the following officers were elected: Dr. George V. Brown, Detroit, president; Dr. Charles C. Terry, South Bend, Ind., vice president; Dr. George W. Spohn, Elkhart, Ind., secretary, and Dr. Joseph A. Weitz, Montpelier, Ohio, treasurer.

Influenza.—From most sections of the country by the end of the month the epidemic was reported to be on the wane. In some communities more or less distant from the large centers of population and off the main lines of travel the disease was only beginning to show itself, or had not yet reached its height. It was present, however, in every state in the Union, as confirmed by reports to the Public Health Service.

Association Meeting Postponed.—A letter from the president, chairman of the council and business manager of the Southern Medical Association, under date of October 15, announces postponement for a year, of the twelfth annual meeting of the Southern Medical Association, which was to have been held at Asheville, N. C., November 11 to 14, on account of the widespread epidemic of influenza. The papers which were to have been read will be published during the coming year in the *Southern Medical Journal*.

Anesthetists Hold Meeting.—At the annual meeting of the Inter-State Association of Anesthetists held in Indianapolis, September 26, the following officers were elected: chairman, Dr. Jacob J. Buettner, Syracuse, N. Y.; vice chairman, Dr. William J. Jones, Columbus, Ohio; secretary-treasurer, Dr. F. Hoeffler McMechan, Cincinnati, and directors, Drs. Isabella C. Herb, Chicago; B. H. Harms, Omaha; Henry F. Becker, Danville, Ill.; George B. Winter, St. Louis; Louis H. Maxson, Seattle, and W. F. Dramburg, Milwaukee.

Railway Surgeons Elect Officers.—At the annual meeting of the American Association of Railway Surgeons, held in Chicago, October 16 to 18, the following officers were elected: president, Dr. John P. Kaster, chief surgeon of the Santa Fe Railway, Topeka, Kan.; vice presidents, Drs. James M. Miller, Villa Grove, Ill.; Charles P. Frantz, Burlington, Iowa, and John P. Lord, Omaha; secretary, Dr. Louis J. Mitchell, Chicago (reelected); treasurer, Dr. Henry B. Jennings, Council Bluffs, Iowa, and executive committee, Dr. Clarence W. Hopkins and Guy G. Dowdall, both of Chicago.

Refilling of Narcotic Prescriptions Temporarily Permitted.—Owing to the epidemic of influenza the provisions of Article 11 of Regulations No. 35 prohibiting the refilling of narcotic prescriptions have been modified as follows: Prescriptions calling for morphin, codein or heroin, which are written by registered practitioners for patients suffering from Spanish influenza and any pulmonary or bronchial affections, may, until further notice, be refilled, provided that at the time of issuance by physicians instructions are noted in the body of such prescriptions, "Repeat if necessary," and the druggist filling and refilling the same shall note thereon each and every date on which such prescription is refilled.

New Officers of Southwestern Association.—The thirteenth annual meeting of the Medical Association of the Southwest was held in Dallas, October 14 to 17. Oklahoma City was selected as the next place of meeting and the following officers were elected: president, Dr. Matthew M. Smith, Dallas; vice presidents, Drs. Robert L. von Trebra, Chetopa, Kan.; Oscar B. Hall, Warrensburg, Mo.; Frank W. Jelks, Hot Springs, Ark.; Foster K. Camp, Oklahoma City, and secretary-treasurer, Dr. Fred H. Clark, El Reno, Okla. (reelected). It was decided hereafter to publish the journal of the association in Oklahoma City instead of El Reno, and Dr. Everett S. Lain, Oklahoma City, was selected as the editor-in-chief, pending the return of Dr. Fred H. Clark, who is now in the military service.

FOREIGN

School Inspection.—The minister of public instruction in Spain has obtained from the king a decree establishing medical inspection of schools in Madrid and Barcelona.

Scarcity of Camphor.—A notice in the *Correspondenz-Blatt* warns that the wholesale dealers in Switzerland have long been entirely out of camphor, and that it behooves all to save what supplies are on hand for indispensable uses, as in camphorated oil, and not waste it in liniments, etc. A similar warning has been sent out by the national public health service in Norway, specifying bismuth as well as camphor as requiring the extremest economy in use.

Deaths in the Profession Abroad.—Dr. Paul Lucas-Championnière of Paris, director of the *Journal de médecine et de chirurgie pratiques*.—Dr. M. Holmboe, for twenty-five years chief of the national public health service of Norway, aged 66. He has published much on scientific and administration topics, and was the leader in the movement which resulted in 1900 in the notification of tuberculosis. Also in the transformation of the civilian medical service, which culminated in the law of 1912.—The *Siglo Medico* mentions the death of Prof. G. Gaffky of Berlin, who succeeded Koch as director of the Institute for Infectious Diseases, aged 68.

SOUTH AND CENTRAL AMERICA, MEXICO AND WEST INDIES

For the Prevention of Blindness.—Following the meeting of the Fifth National Medical Congress in Mexico, a National Committee for the Prevention of Blindness has been founded, with Dr. J. Joaguin Izquierdo as secretary.

Influenza in Cuba.—The *Revista de Medicina y Cirugia* of Havana confirms the news item that the Spanish steamer *Alfonso XII* had 800 cases of pneumonic influenza on board, and there had been twenty-six deaths when it arrived at Havana. The epidemic has spread over the entire island, and there have been so many deaths, especially at Camagüey, that the people are much alarmed.

Reciprocity Between Peru and Uruguay.—The *Reforma Medica* of Lima gives the text of the diplomatic agreement between Uruguay and Peru for reciprocity in respect to academic credits in the liberal professions between the two republics. Not only the higher institutions of learning but the preparatory schools are thus enabled to receive students from the corresponding schools of the other country. The students are to matriculate and pay the same and have the same facilities for laboratory and similar work as the native students in each of the two states. The *Reforma* hails the new convention as "another link in the chain uniting the continent in intellectual Americanism." The reciprocity agreement is to remain in force for a year after either one of the contracting parties expresses a desire to withdraw. It is signed by the two plenipotentiaries appointed by the presidents of the two republics for the purpose, and is to be ratified by the respective governments.

CORRECTION

No Infantile Paralysis in Alfred, N. Y.—We are informed by Capt. D. C. Main, M. C., that the item which appeared under "Medical News" in THE JOURNAL of October 26, stating that seventy-seven mild cases of infantile paralysis had appeared in Alfred was incorrect. The newspaper item from which this note was taken probably referred to some mild cases of influenza. Alfred is the site of Alfred University, New York State School of Agriculture. This school has been chosen for a corps of the S. A. T. C., and has had a very low infection and death rate in the influenza epidemic. There has been no infantile paralysis in or near the village.

CUBA LETTER

HAVANA, Oct. 15, 1918.

The Epidemic of Influenza

The Department of Sanitation has been forced to take steps against the epidemic of influenza that has so rapidly spread throughout the republic. We have not, as yet, accurate statistics as to how many cases have occurred in the island, but many thousands have been reported. In Camagüey, where the epidemic seems to be most severe, 1,200 cases are known to exist at present and many have died of pneumonia; physicians and nurses have been sent from Havana to help the physicians of Camagüey and to establish prophylactic measures; all theaters have been closed, all public gatherings forbidden, and confinement of cases has been declared obligatory.

The Society of Clinical Studies

The Sociedad de Estudios Clinicos, September 30, elected new officers for the year 1918-1919. Dr. J. A. Presno was reelected chairman and Dr. L. R. Molina was reelected secretary.

The Medical Press Association

The Asociación de la Prensa Medica de Cuba elected new officers at the September meeting. Drs. J. F. Arteaga and J. B. Pons were elected president and secretary, respectively.

New Medical Journal

Dr. Matias Duque is the editor of the new monthly, *Medicina Cubana*, published in Havana and devoted to general practice.

Personal

Dr. R. P. Vento has been appointed professor of physiology at the University of Havana.

Dr. R. Menocal has been commissioned by the government to represent Cuba in the Congress of American Physicians and Surgeons.

BUENOS AIRES LETTER

BUENOS AIRES, Sept. 6, 1918.

Typhus in Northern Argentina

The commissions sent by the Public Health Service to northern districts have established the presence of typhus in several parts of the provinces of Salta and Jujuy, in the extreme north of the country, close to the border of Bolivia. It has been ascertained that the disease has been endemic there for some time, but in a milder form than at present. This endemic seems to be restricted to the poorest and most remote mountain regions of those provinces, small villages with scarcely any communication with the cities.

A number of villages were found affected by the endemo-epidemic; at Molinos, for example, with 200 inhabitants, 116 were found sick with typhus and 17 had died. It is believed that the low mortality, which averages from 10 to 20 per cent., is due to a relative immunization from previous attacks, but it is possible that the virulence is attenuated. Research is under way with guinea-pigs, and an antiserum is being prepared. It is almost certain that the disease will remain localized as the means of communication with more populous centers are so restricted. The governor of Jujuy has appealed for aid to the national government, which has promised to send a barracks hospital with personnel and equipment.

South American Conference on Hygiene, Microbiology and Pathology

In October the second conference of this kind is to convene at Rio de Janeiro. Drs. Miguel Couto and Carlos Chagas are to preside. The microbiologists and pathologists of the whole of South America have been invited to take part. The Argentine Departamento Nacional de Higiene is to send a delegation which will include Drs. Vidal, Cazes, Itigoyen, Kraus, Carbonell, Roffo, Houssay and Sordelli. At the same time as this conference, is to be held the eight Brazilian Medical Congress to which several Argentine physicians have been invited, among others, Drs. A. Alfaro, Houssay and Mazza.

Sugar Treatment of Tuberculosis

The research in this line by the Italian, Professor Lo Monaco, has attracted much attention on account of the wide publicity given to it by the lay press. Many physicians have been giving a trial to this method of treating tuberculosis with hypertonic solutions of sugar. They have tried it also in whooping cough. The results have not been published as yet, but it may be announced in advance that, in whooping

cough, no success has been realized. In respect to tuberculosis, the best result achieved has been a reduction in the amount of expectoration, and this result has been frequently realized.

University Notes

Dr. J. L. Llambias, *profesor suplente* of pathologic anatomy, has been appointed regular professor of this branch of study in the medical department of the University of Buenos Aires. This appointment has aroused some discussion as he is the *intendente municipal* of the city, and although second in the *terna* was yet nominated by the chief executive, as the universities are state institutions.

The vacancies left by the death of Dr. Ayerza and the retirement of Dr. Molina, have to be filled by the chief executive.

The Facultad de Medicina has proposed for the chair of clinical medicine, Dr. M. Castex as the first choice, Dr. J. J. Viton as the second, and Dr. R. Bullrich as the third choice. For the chair of obstetrics, the choice is, first, Dr. A. Enriquez; second, Dr. P. Ramos, and third, Dr. Trongé.

The Academia de Medicina has opened the lists to fill a vacancy in the section of clinical medicine and one in the surgical section.

LONDON LETTER

LONDON, Oct. 3, 1918.

Physicians in Parliament

It is recognized that our social fabric will be profoundly modified after the war, which will leave nothing the same as it was before. As has been explained in previous letters, the medical profession is looking forward to considerable changes, among which is the establishment of a ministry of health. The need of representation of the profession in Parliament is also felt. A crowded meeting has been held in London, with Sir Henry Morris, president of the Royal Society of Medicine, in the chair, to elect an executive committee to select suitable members of the profession willing to stand as candidates for Parliament. Sir Henry Morris pointed out the great attention now given to public health questions in Parliament and the anomaly that such matters as the endowment of pathologic research should be entirely in the hands of lawyers, shipowners, brewers and other politicians with no medical knowledge. Dr. Addison, minister of reconstruction, moved the resolution. It may be pointed out that he is the only member of the medical profession who ever attained the rank of cabinet minister. Before he entered politics he was not a practicing physician but a lecturer on anatomy. He moved that "in the interests of the national health it is essential that the considered views of the medical profession should be voiced by representative medical men in the House of Commons." He said that there was a wealth of opportunity for advice open to men of the right type and training in matters affecting the homes of the people. In these matters there would be a growing need for the assistance of men who had had the advantage of medical knowledge and practice. The war had revealed what great things could be done in the prevention of sickness and injuries. If medical science had not progressed since the days of the South African War we might by now have had a million or more cases of typhoid, instead of a mere handful. But far beyond those things we found, increasingly, that a similar guidance, gathering continually the results of experience and research, was needed with regard to the events of daily life. The prime minister had said the other day that we could not expect to run an A 1 empire on a C 3 population (referring to the extreme classes in the grading of recruits for the army). It would be true to add that we could not expect to get an A 1 population out of C 3 homes, habits, workplaces or conditions. As a first step it was necessary to bring together the assortment of different departmental responsibilities in health matters, and to secure that the thinking out and development of a systematic health policy, commensurate with urgent national needs, should be made the duty and responsibility of a definite body of men. We should and must be the victims of sporadic disjointed, and often conflicting effort until this was done. The Ministry of Health would not itself be a health service. It would be its duty to secure the development and administration throughout the country of adequate health service. It was an essential part of the project that there should be connected with the ministry certain consultative councils, of which one must be medical, whose duty it would be to advise on proposals, to make suggestions, and to afford the best advice that it could give or obtain. In the budget of 1914, Mr. Lloyd George had provided \$5,000,000 toward improved

health services, but the war interrupted the scheme they then had in their minds. Recent experiences would suggest improvements. Developments of adequate health services would need the good will and help of physicians as well as of those familiar with the problems of local government, insurance and other important services, and if the subject was approached in a proper spirit he was confident that they would be obtained. Those who were concerned with the business of government and administration, whether central or local, would have much to learn and would derive much help from such counsel. Physicians would also learn a good deal. The C 3 class and all that it implied meant that the nation's responsibilities could not end with water supply, drainage, the prevention of the spread of infectious diseases, the adulteration of food, and the like. With the advance of knowledge, science and experience, much could be done to safeguard the personal well-being of our people beyond what we had hitherto attempted, and in devoting its mind to this purpose he believed that the medical profession had a great duty and an unexampled opportunity before it.

The Medical Service of the Air Force

A special medical service is being organized for the air force. Two main divisions of the work will be recognized, namely, (a) care of the effective personnel, and (b) care of the noneffective personnel. The former may be considered to represent the hygiene and preventive side of the work and to include such special subjects as selection and care of the flying personnel, maintenance and improvement of the physical efficiency of all ranks, sanitation, etc. The latter represents the curative side of the work, and certain subdivisions that air force experience has shown to be necessary will be recognized, namely, neurology, surgery of the eye, throat, nose and ear, and plastic surgery, etc., in addition to general medicine, surgery and pathology. Subject to the exigencies of the service, a medical officer will be selected for and eventually allocated to work in the subdivision for which his ability best suits him. Since, however, the success of any special work in the air force will depend on a sound knowledge of the conditions of life of the effective personnel, medical officers will not be earmarked for one of the special subdivisions of the medical service until selected for the higher or Grade A pay. The system of charge pay as in vogue in the navy and army medical services has been replaced in the air force medical service by a system of special merit pay. An officer once selected for Grade A pay will draw such pay for a probationary period of one year, and if then confirmed, will, except in the case of incompetence or misconduct, continue to draw this pay, however employed, until promoted to the next higher rank, when he will be placed in Grade B until again selected for Grade A.

Marriages

ASST. SURG. HENRY DEWITT HUBBARD, Lieutenant (Junior Grade), U. S. Navy, San Jose, Calif., on duty at the U. S. Naval Hospital, Mare Island, Calif., to Miss Cecil Wright of Huntington Park, Calif., at Pleasanton, Calif., recently.

LIEUT. EDWARD BUCKMAN, M. C., U. S. Army, Chicago, on duty with the Eighty-Fifth Division, Camp Custer, Mich., and now overseas, to Miss Alfreda Hartenstein of Vicksburg, Miss., at Battle Creek, Mich., recently.

ASST. SURG. GEORGE LOUGHLIN TULLY, Lieutenant, U. S. N. R. F., Boston, on duty at U. S. Naval Station, Newport, R. I., to Miss Mary Kathleen McCarthy of Newton, Mass., October 12.

LIEUT. MALCOLM KINMONTH SMITH, M. C., U. S. Army, New York City, on duty at Fort Oglethorpe, Ga., to Mrs. Alice Boutell Ladd of Washington, D. C., recently.

LIEUT. RICHARD ROY TURNBULL FURLONG, M. C., U. S. Army, New York City, to Miss Beral M. Hadley of Nova Scotia, at New York City, October 17.

GEORGE G. REINLE to Miss Evelyn A. Kane, both of Oakland, Calif., at Camp Kearney, Calif., September 25.

WILLIAM D. SNIVELY, Rock Island, Ill., to Miss Emma G. Butler of Washington, D. C., September 12.

WILLIS TOWNSEND HINMAN to Miss Hazel Vance, both of Moline, Ill., September 24.

EDWIN CORNNE HOFF, Detroit, to Miss Helen Parlette of Carey, Ohio, October 19.

Deaths

Major Alfred Reginald Allen, Infantry, U. S. Army, Philadelphia; University of Pennsylvania, Philadelphia, 1898; aged 42; a Fellow of the American Medical Association; a member and from 1909 to 1917 secretary and treasurer of the American Urological Association; twice president of the American Psycho Pathological Association, and president of the Philadelphia Urological Society; and American Association of Pathology and Bacteriology; secretary of the American delegation to the Sixteenth International Congress to Budapest, Hungary, in 1909, and to the Seventeenth International Congress in London, in 1913; lecturer in urological electrotherapeutics; associate in neurology and in neuropathology in his alma mater; who when the United States declared war against Germany entered the line rather than the medical corps, went to the Infantry School of Arms at Fort Sill, Okla., and was commissioned as major, and assigned to duty with the Three Hundred and Fourteenth Infantry; was killed in action in France during the heavy fighting northwest of Verdun, September 30.

Edwin Bradford Cragin, New York City; College of Physicians and Surgeons in the City of New York, 1886; aged 58; a Fellow of the American Medical Association, American Gynecological Society and New York Academy of Medicine; professor of obstetrics and gynecology in his alma mater; attending obstetrician and gynecologist to the Sloan Hospital for Women; consulting gynecologist to the Presbyterian, Roosevelt and Lincoln hospitals, the New York Infirmary for Women and Children and St. Luke's Hospital, Newburgh, N. Y.; author of "Essentials of Gynecology," and "A Text-Book of Obstetrics," and one of the authors of the "American Text-Book of Gynecology"; an obstetrician and gynecologist of high rank; died at his home, October 21, from pneumonia.

Leo Smith Petersen, New York City; College of Physicians and Surgeons of the City of New York, 1911; aged 31; a member of the Medical Society of the State of New York; attending anesthetist of the German Hospital, and attending surgeon to the German Dispensary; a member of the staff of the Lenox Hill, and Skin and Cancer hospitals; national president of the Chi Zeta Chi Medical Fraternity; at one time captain in command of the First Field Ambulance, N. Y. N. G., on the Mexican border; died in the Lenox Hill Hospital, New York City, October 22, from pneumonia.

Capt. Fred Scates Towle, M. C., U. S. Army; on duty at Colonia, N. J.; Portsmouth, N. H.; George Washington University, Washington, D. C., 1893; aged 54; a Fellow of the American Medical Association, and president of the New Hampshire Medical Society in 1917-1918; surgeon-general of New Hampshire from 1897 to 1899; city physician of Portsmouth, and chairman of the local board of health; assigned to duty with Base Hospital No. 3, Colonia, N. J.; lost his life in a fire which destroyed the officers quarters at that post, October 9.

Robert Coleman Kemp, New York City; College of Physicians and Surgeons in the City of New York, 1889; aged 53; a Fellow of the American Medical Association; professor of gastro-intestinal diseases in Fordham University, New York City; visiting gastro-enterologist to Fordham University Clinic, and consultant in gastro-intestinal diseases to the Manhattan State Hospital; died at his home, October 23, from pneumonia, following influenza.

Capt. Victor Moreau Rice, M. C., U. S. Army, Batavia, N. Y.; University of Buffalo, N. Y., 1904; aged 38; a Fellow of the American Medical Association, and a specialist on roentgenology; on duty with Company 21, M. O. T. C., Camp Greenleaf, Fort Oglethorpe; died in General Hospital No. 14, Fort Oglethorpe, October 13, from pneumonia, following influenza.

Ernest George Grey, Baltimore; Johns Hopkins University, Baltimore, 1911; aged 34; a Fellow of the American Medical Association; assistant resident surgeon at the Peter Bent Brigham Hospital, Boston, from 1912 to 1916, and at Johns Hopkins Hospital for two years thereafter; also instructor in surgery in Johns Hopkins University; recently appointed under the Rockefeller Foundation director of the surgical clinic of the Peking (China) Medical School and Hospital; died October 12, at Johns Hopkins Hospital, from pneumonia, following influenza.

Lieut. Argo Montague Foster, M. C., U. S. Army, Kaukauna, Wis.; University of Michigan, Ann Arbor, 1910; aged 33; a Fellow of the American Medical Association; local surgeon of the Chicago and Northwestern System and city health officer of Kaukauna; died, September 2, in the North Shore Hospital, Chicago, from streptococcus infection following an operation on the nose.

Act. Asst. Surg. Francis Sherman Echols, U. S. P. H. S., Washington, D. C.; Bowdoin Medical School, Brunswick and Portland, Me., 1915; aged 36; a Fellow of the American Medical Association; who had served during the early part of the war in Middlesex Hospital, London, England; died in the Walter Reed Emergency Hospital in Washington, D. C., October 15, from pneumonia, following influenza.

Lieut. Admont Halsey Clark, M. C., U. S. Army; Johns Hopkins University, Baltimore, 1915; aged 30; assistant professor of pathology in Johns Hopkins University; resident pathologist to Johns Hopkins Hospital; who had done brilliant experimental work in pneumonia and diabetes; one of the most promising of the younger pathologists of America; died in Johns Hopkins Hospital, October 13, from pneumonia, following influenza.

Charles Huff Davis, Knoxville, Tenn.; Lincoln Memorial University, Knoxville, Tenn., 1898; aged 53; a Fellow of the American Medical Association, and American Laryngological Association; vice president of the Tennessee State Medical Association, and once president of the Knox County Medical Society; a specialist on diseases of the eye, ear, nose and throat; died at his home, October 21, from pneumonia, following influenza.

Isaac K. Urich, Annville, Pa.; Jefferson Medical College, 1882; aged 55; a Fellow of the American Medical Association; for two terms representative in the state legislature from Lebanon County; secretary-treasurer of the Calte Quarry Company, Myerstown, Pa.; for twenty years school director of Annville; died at his home, October 14, from bronchial pneumonia.

Lieut. Earle Robinson Ackley, M. C., U. S. Army, Bartow, Fla.; Medical College of Ohio, Cincinnati, 1904; aged 44; a Fellow of the American Medical Association, and of the Cincinnati Academy of Medicine; on duty at Camp Greenleaf, Fort Oglethorpe, Ga.; died in the General Hospital, Fort Oglethorpe, October 13, from pneumonia, following influenza.

Lieut. Max Marowitz, M. C., U. S. Army, Youngstown, Ohio; Chicago College of Medicine and Surgery, 1916; aged 23; a Fellow of the American Medical Association; who arrived in France, June 15, and was transferred in August to the Seventeenth Regiment, British Army; died, September 1, from wounds received while giving first aid to his men.

Lieut. Duncan M. Stone, M. C., U. S. Army, San Antonio, Texas; University of Tennessee, Nashville, 1909; aged 36; a Fellow of the American Medical Association; on duty at the Medical Officers' Training Camp, Camp Greenleaf, Fort Oglethorpe, Ga.; died in General Hospital No. 14, Fort Oglethorpe, October 13, from pneumonia, following influenza.

Lieut. Porter Perry Pillans, M. C., U. S. Army, Orlando, Fla.; Chattanooga Medical College, 1908; aged 38; a Fellow of the American Medical Association; on duty at Camp Greenleaf, Fort Oglethorpe, Ga.; a member of Company 28, M. O. T. C.; died in General Hospital No. 14, Fort Oglethorpe, October 13, from pneumonia, following influenza.



Died in the Service
IN FRANCE

MAJOR ALFRED R. ALLEN, U. S. A.
1876-1918

George Canning Wankel, Deerfield, N. Y.; Cornell University, New York City, 1905; aged 35; a Fellow of the American Medical Association; for three years resident physician at the Sunset Rock Sanatorium, Bloomingdale, N. Y.; for several years health officer of Deerfield, and a member of the staff of St. Elizabeth's Hospital; while assisting the government in the fight against influenza in army camps in Massachusetts was seized with the disease; died in the New England Deaconess Hospital, Boston, October 15.

Albert Tyler Chambers, Baltimore; University of Maryland, Baltimore, 1898; aged 42; a Fellow of the American Medical Association; professor of clinical surgery in his alma mater; for nine years health warden of Baltimore, and for six years a member of the board of school commissioners; died at his home, August 14, from pneumonia, following influenza.

William Winthrop Wellington, Terryville, Conn.; University of Vermont, Burlington, 1889; aged 59; at one time a Fellow of the American Medical Association; a member of the Connecticut State Medical Society; for several years medical examiner (coroner) and town health officer; died at his home, October 7, from pneumonia, following influenza.

Lieut. Waldemar T. Richards, M. C., U. S. Army, New Orleans; Tulane University, New Orleans, 1902; aged 39; a Fellow of the American Medical Association; chief surgeon to the Presbyterian Hospital, New Orleans; at one time editor of the *Pan-American Medical Journal*; died at his home, October 14, from pneumonia, following influenza.

James Morrison Ray, Louisville, Ky.; University of Louisville, Ky., 1882; aged 57; a Fellow of the American Medical Association; professor of diseases of the eye, and clinical professor of diseases of the ear, nose and throat, in his alma mater; ophthalmic surgeon to the Louisville City Hospital; died at his home, October 11, from nephritis.

Lieut. Harry Paul Martin, M. C., U. S. Army, Chicago; on duty at Camp Custer, Battle Creek, Mich.; Rush Medical College, 1916; aged 38; a Fellow of the American Medical Association; on duty with the Fourteenth Sanitary Train, Two Hundred and Fifty-Sixth Field Hospital; died at Camp Custer, October 13, from pneumonia.

Albert Carl Rice, Babylon, L. I., N. Y.; University and Bellevue Hospital Medical College, 1909; aged 36; at one time a Fellow of the American Medical Association; a member of the Medical Society of the State of New York; visiting surgeon to the Southside Hospital, Babylon; died at his home, October 11, from pneumonia.

Edward Middleton Thompson, Brooklyn; University and Bellevue Hospital Medical College, 1899; aged 41; at one time a Fellow of the American Medical Association; assistant surgeon to the New York Orthopedic Hospital and Dispensary, and visiting surgeon to the Kings County Hospital; died at his home, October 16, from pneumonia.

Clarence Currier Day, Newburyport, Mass.; Dartmouth Medical School, Hanover, N. H., 1892; aged 52; a Fellow of the American Medical Association; a member of the medical staff of the Anna Jaques Hospital; for several years city physician of Newburyport; died at his home, October 17, from pneumonia, following influenza.

Abraham Korn, New York City; College of Physicians and Surgeons in the City of New York, 1885; aged 54; a member of the Medical Society of the State of New York; for fifteen years president of the Harlem Property Owners' Association, and an authority on taxation; died at his home, October 13, from pneumonia.

Charles Ryttenberg, Port Chester, N. Y.; College of Physicians and Surgeons in the City of New York, 1906; aged 36; a Fellow of the American Medical Association; and a member of the National Association for the Study and Prevention of Tuberculosis; died in a hospital in New York City, October 16, from influenza.

Samuel J. Ozment, Fort Smith, Ark.; University of Arkansas, Little Rock, 1889; Marion-Sims College of Medicine, St. Louis, 1901; aged 52; a member of the Arkansas Medical Society; for two terms physician of Sebastian County; died in Sparks Hospital, Fort Smith, October 16, from pneumonia, following influenza.

Edwin Eugene Hunter, Elizabethton, Tenn.; Kentucky School of Medicine, Louisville, 1885; aged 74; a member of the Tennessee State Medical Association; for twenty-five years a member of the State Medical Board; was struck by a train at Elizabethton, October 10, and died from his injuries a few hours later.

Lieut. Edmond I. Moquin, M. C., U. S. Army, Fair Water, Wis.; Marquette University, Milwaukee, 1913; aged 30; a Fellow of the American Medical Association; on duty at Camp Greenleaf, Fort Oglethorpe, Ga.; died in General Hospital No. 14, at that post, October 14, from pneumonia, following influenza.

Franklin Wilbur Wilcox, St. Petersburg, Fla.; College of Physicians and Surgeons, Baltimore, 1903; aged 44; a Fellow of the American Medical Association; local surgeon of the Atlantic Coast Line Railroad; died at the home of his brother in Jacksonville, October 17, from pneumonia, following influenza.

Jefferson Davis Chason, Bainbridge, Ga.; College of Physicians and Surgeons, Baltimore, 1888; aged 56; a Fellow of the American Medical Association; chief surgeon of the Georgia, Florida and Alabama Railway; founder of Riverside Hospital, Bainbridge; died in that institution, October 13.

Leonard Cassell McPhail, Brooklyn; New York University, 1876; aged 63; at one time a member of the Medical Society of the State of New York; physician to the Brooklyn Orphan Asylum for twenty-one years; attending physician to the Brooklyn Home for Consumptives; died at his home, October 16.

Lieut. Joseph Clarence Balson, M. C., U. S. Army, Passaic, N. J.; University and Bellevue Hospital Medical College, 1912; aged 29; a Fellow of the American Medical Association, and secretary of the Passaic Practitioners' Club; died at his home, October 11, from pneumonia, following influenza.

Lieut. George Rupp Pretz, M. C., U. S. Army, Lebanon, Pa.; Johns Hopkins University, Baltimore, 1909; aged 38; a Fellow of the American Medical Association; a specialist on diseases of the eye, ear, nose and throat; on duty at Syracuse, N. Y.; died in that city, September 30, from influenza.

Asst. Surg. Robert Harry Scott, Lieutenant (j. g.), U. S. Navy, Brooklyn; Long Island College Hospital, Brooklyn, 1910; aged 33; a Fellow of the American Medical Association; assigned to duty at the Naval Rifle Range, Peekskill, N. Y.; died at Peekskill, October 15, from pneumonia.

Charles Solomon Caverly, Rutland, Vt.; University of Vermont, Burlington, 1881; aged 62; a Fellow of the American Medical Association; professor of the state board of health; professor of hygiene and preventive medicine in his alma mater; died at his home, October 16, from influenza.

Edgar D. Heaton, Lancaster, Mo.; University of Illinois, Chicago, 1904; aged 42; at one time a Fellow of the American Medical Association; was found dead in his office, October 4, from the effects of a gunshot wound of the head, self-inflicted, it is believed, with suicidal intent.

Robert Carleton Hale, Providence, R. I.; Tufts College Medical School, Boston, 1901; aged 38; a Fellow of the American Medical Association; a member of the staff of the Homeopathic Hospital, Providence; died at his home, September 30, from pneumonia, following influenza.

Vernon Lyles Andrews, Mount Gilead, N. C.; University College of Medicine, Richmond, Virginia; aged 35; at one time a Fellow of the American Medical Association; a member of the Medical Society of the State of North Carolina; died at his home, October 13, from influenza.

General Jackson Stone, Spirit Lake, Iowa; Maryland Medical College, Baltimore, 1912; aged 32; a Fellow of the American Medical Association; local surgeon for the Rock Island and Milwaukee systems; died at his home, October 16, from pneumonia, following influenza.

Donald Robertson Jacob, Louisville, Ky.; University of Louisville, Ky., 1898; aged 44; a member of the Kentucky State Medical Association; traveling representative of a wholesale drug house in Texas and Arkansas; died at Texarkana, Ark., October 16, from pneumonia.

Joseph Alexander Trommald, Portland, Ore.; University of Oregon, Portland, 1916; aged 33; for several years a druggist; died at his home, October 12, from the effects of an incised wound of the throat, self-inflicted, it is believed, with suicidal intent, while despondent.

Frank Bacon Cook, Laurel Springs, N. J.; Baltimore Medical College, 1904; aged 42; at one time a Fellow of the American Medical Association; a member of the Medical Society of New Jersey; died at his home, October 9, from pneumonia, following influenza.

Henry Thomas Kurtz, Highland Falls, N. Y.; Cornell University, New York City, 1899; aged 56; a Fellow of the American Medical Association; for several years health

officer of Highland Falls; died at his home, October 15, from pneumonia, following influenza.

Lieut. Homer Coulson Parrish, M. C., U. S. Army, Fort Benton, Mont.; University of Illinois, Chicago, 1908; aged 46; on duty at Camp Greenleaf, Fort Oglethorpe, Ga.; died in General Hospital No. 14, at that post, October 14, from pneumonia, following influenza.

Lieut. Philip Frank Shaffner, M. C., U. S. Army, Chicago; Rush Medical College, 1909; aged 33; a Fellow of the American Medical Association, and a specialist on dermatology; on duty at Fort Riley, Kan.; died at that post, October 21, after an operation for appendicitis.

Lieut. Thomas Riggan Adams, M. C., U. S. Army, Califon, N. J.; Medico-Chirurgical College of Philadelphia, 1915; aged 26; a Fellow of the American Medical Association; on duty at Camp Lee, Va.; died in that place, October 4, from pneumonia, following influenza.

Lieut. Harry Charles McIntosh, M. C., U. S. Army, St. Paul; Chicago College of Medicine and Surgery, 1913; a member of the Minnesota State Medical Association; on duty at Camp Sherman, Chillicothe, Ohio; died at that post, October 6, from influenza.

Lieut. Henry Joseph Roewe, M. C., U. S. Army, Chicago; Northwestern University Medical School, Chicago, 1918; aged 26; a Fellow of the American Medical Association; an intern at Michael Reese Hospital; died in that institution, October 25, from influenza.

Robert Samuel Topping, Rutherford and Newark, N. J.; University and Bellevue Hospital Medical College, 1913; aged 35; a member of the Medical Society of New Jersey; died in the Presbyterian Hospital, Newark, October 11, from pneumonia, following influenza.

Arthur Heustis, Upton, Wyo.; Jenner Medical College, Chicago, 1906; aged 39; a Fellow of the American Medical Association; formerly a practitioner of Chicago; who went to Wyoming on account of tuberculosis; died at his home, October 21, from influenza.

Henry Kingsley Hine, Waterbury, Conn.; Maryland Medical College, Baltimore, 1908; aged 31; at one time a Fellow of the American Medical Association; a member of the Connecticut State Medical Society; died at his home, about October 7, from influenza.

Lieut. William Carlyle Kantner, Jr., M. C., U. S. Army, Seattle; Willamette University, Salem, Ore., 1907; aged 33; a Fellow of the American Medical Association; attached to Base Hospital Unit No. 50; died in France, September 15, from angina pectoris.

Lieut. Clarence Hull Dobbs, M. C., U. S. Army, Jacksonville, Fla.; Atlanta (Ga.) College of Physicians and Surgeons, 1910; a Fellow of the American Medical Association; on duty at Camp Zachary Taylor, Louisville, Ky.; died at that post, October 6.

Reuben Frank Davis, Lexington, Va.; University of Virginia, Charlottesville, 1910; aged 32; a Fellow of the American Medical Association; surgeon to the Virginia Military Institute; died at his home, October 5, from pneumonia, following influenza.

Walter William Lowell, Brooklyn; Cornell University, New York City, 1911; aged 28; a member of the Medical Society of the State of New York; assistant visiting physician to the Jamaica (Long Island) Hospital; died at his home, October 10, from pneumonia.

William Stewart Thompson, Standish, Me.; Dartmouth Medical School, Hanover, N. H., 1882; aged 64; a member of the Maine Medical Association; a member of the state legislature in 1887 and 1918; died at his home, October 2, from acute gastritis.

Clyde James Stormont, Viola, Wis.; Milwaukee Medical College, 1903; aged 37; at one time a Fellow of the American Medical Association; a member of the State Medical Society of Wisconsin; died at his home, October 6, from pneumonia, following influenza.

Walter Warren Kingsbury, Malden, Mass.; Tuft's College, Boston, 1905; aged 44; at one time a Fellow of the American Medical Association; a member of the Massachusetts Medical Society; died at his home, September 15, from pneumonia, following influenza.

Oscar J. Mugge, Cuero, Texas; Tulane University, New Orleans, 1901; aged 42; at one time a Fellow of the American Medical Association; a member of the State Medical Association of Texas; died at the Reuss Memorial Hospital, Cuero, October 12.

Robert A. Dodson, St. Michaels, Md.; University of Maryland, 1859; aged 82; at one time a member of the Medical and Chirurgical Faculty of Maryland; surgeon of the First Maryland Cavalry, U. S. V., during the Civil War; died at his home, recently.

Willis Oscar Davis, Jamaica, N. Y.; University of Louisville, Ky., 1895; aged 59; at one time a Fellow of the American Medical Association; clinical assistant in gastro-enterology at Fordham and Manhattan state hospitals; died at his home, October 4.

Stewart H. Shrock, LaGrange, Ind.; Indiana Medical School, Indianapolis, 1906; aged 36; a member of the Indiana Medical Association; died at the home of his father in La Grange, October 15, from pneumonia, following influenza.

Gardner Byron Young, Geneva, N. Y.; Bellevue Hospital Medical College, 1886; aged 58; a Fellow of the American Medical Association; a specialist in anesthesia; for eight years a member of the Geneva Board of Health; died at his home, October 1.

Lieut. James David Atkins, M. C., U. S. Army, Crichton, Ala.; University of Alabama, Mobile, 1906; aged 38, a Fellow of the American Medical Association; on duty at Camp Lee, Petersburg, Va.; died in that place, October 2, from pneumonia.

Lieut. William Karp, M. C., U. S. Army, Portsmouth, Va.; on duty at Camp Meade, Admiral, Md.; Medical College of Virginia, Richmond, 1915; aged 31; a Fellow of the American Medical Association; died in Camp Meade, October 9, from influenza.

Raymond Lockwood Leonard, Chicago; Rush Medical College, 1872; aged 68; a Fellow of the American Medical Association; died in the Post-Graduate Hospital, Chicago, October 19, from carcinoma of the bladder, following an exploratory cystotomy.

Wilfred Harry Daniels, Lancaster, Pa.; Jefferson Medical College, 1914; aged 32; a member of the Medical Society of the State of Pennsylvania; president of the Lancaster City and County Medical Society; died at his home, October 14, from influenza.

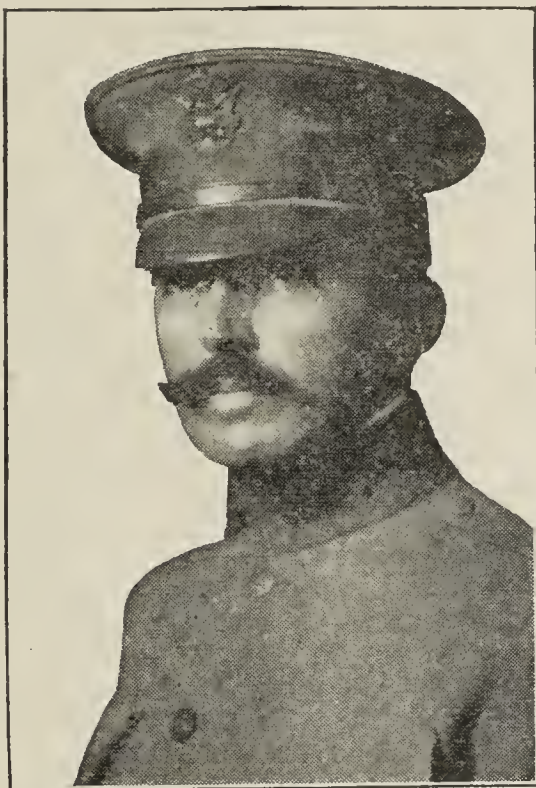
Edward Pilon, Vergennes, Vt.; University of Vermont, Burlington; aged 54; a member of the Vermont Medical Society; for twenty-seven years organist and director of the choir of St. Peter's Church; died at his home, October 14, from nephritis.

Edward Miller Ware, Beatrice, Neb.; University of Nebraska, Omaha, 1907; aged 43; at one time a Fellow of the American Medical Association; a member of the Nebraska State Medical Association; died at his home, October 14, from influenza.

Furman P. Covington, Florence, S. C.; New York University, New York City, 1885; aged 57; at one time a member of the South Carolina Medical Association; a member of the board of commissioners of Florence; died at his home, October 5.

Lieut. David Meyer Rothenberg, U. S. N. R. F., Brooklyn; College of Physicians and Surgeons in the City of New York, 1917; aged 24; a Fellow of the American Medical Association; died in the Jewish Hospital, Brooklyn, October 5, from pneumonia.

Samuel Gavronsky, Harrisburg, Pa.; University of Maryland, Baltimore, 1918; resident physician at the Harrisburg Hospital; died in that institution, October 4, from influenza.



Died in the Service
IN FRANCE

MAJOR CLARENCE FAHNSTOCK, M. C.
U. S. ARMY, 1873-1918

(See The Journal, last week, p. 1429)

Edgar W. Lassiter, Rich Square, N. C.; University College of Medicine, Richmond, Va., 1908; aged 37; a member of the Medical Society of the State of North Carolina; died at his home, October 12, from pneumonia, following influenza.

Henry Ferdinand Steinle, Burlington, Iowa; Gross Medical College, Denver, 1890; aged 51; a Fellow of the American Medical Association; city physician and health officer of Burlington; died at his home, October 15, from heart disease.

Benjamin James Willingham, Wilmington, N. C.; Medical College of Virginia, Richmond, 1906; aged 37; a member of the Medical Society of the State of North Carolina; died at his home, October 5, from pneumonia, following influenza.

Edwin Everett Bond, Stronghurst, Ill.; Northwestern University Medical School, Chicago, 1909; aged 32; a Fellow of the American Medical Association; died, October 5, in the Galesburg Hospital from pneumonia, following influenza.

Preston R. Merrill, Fremont, Utah; Northwestern University Medical School, Chicago, 1906; aged 36; at one time a Fellow of the American Medical Association; died at his home, October 11, from pneumonia, following influenza.

William Donald Braislin, Brooklyn; College of Physicians and Surgeons in the City of New York, 1917; aged 25; resident physician at the Trudeau Sanatorium, Saranac Lake, N. Y.; died at that place, October 5, from pneumonia.

Adolph Morgenstern, New York City; Long Island College Hospital, Brooklyn, 1906; a member of the Medical Society of the State of New York; alternate on the staff of the New York Lying-In Hospital; died at his home, October 7.

Lieut. William C. Buffalow, M. C., U. S. Army, Jacksonville, Fla.; Lincoln Memorial University, Knoxville, Tenn., 1910; aged 33; a Fellow of the American Medical Association; died at his home, October 8, from pneumonia.

Harold Milne French, Freeport, L. I., N. Y.; New York Homeopathic Medical College, New York City, 1913; aged 34; a member of the Medical Society of the State of New York; died at his home, October 18, from pneumonia.

Cora Geneva Yates, Pawtucket, R. I.; College of Physicians and Surgeons, Boston, 1891; aged 66; a Fellow of the American Medical Association, and a specialist in pediatrics; died in her apartment in Pawtucket, September 23.

Green L. Pryor, Frankfort, Ky.; Kentucky School of Medicine, Louisville, 1868; aged 79; for forty-five years a practitioner of Monterey, Ky.; died at the home of his daughter near Frankfort, September 3, from senile debility.

John Forsyth Little, Lawrenceville, N. J.; Jefferson Medical College, 1904; aged 38; while taking care of patients at the Lawrenceville Preparatory School; contracted influenza, and died at his home, October 12, from pneumonia.

N. Van Speece, Quincy, Ohio; Starling Medical College, Columbus, Ohio, 1863; aged 79; at one time a member of the Ohio State Medical Association; a veteran of the Civil War; died at his home, October 15, from senile debility.

Thomas Miller, Jr., Washington, D. C.; George Washington University, Washington, D. C., 1913; aged 30; a Fellow of the American Medical Association; died at his home, October 6, from pneumonia, following influenza.

Herman Gross, Metuchen, N. J.; College of Physicians and Surgeons in the City of New York, 1902; aged 39; a Fellow of the American Medical Association; head of the board of health of Metuchen; died at his home, October 6.

William H. H. Smith, Council Grove, Kan.; Northwestern Medical College, St. Joseph, Mo., 1892; aged 60; at one time a Fellow of the American Medical Association; died at his home, September 28, from cerebral hemorrhage.

John Richard Perkins, New York City; College of Physicians and Surgeons in the City of New York, 1918; aged 26; an intern in the Presbyterian Hospital, New York City; died in that institution, October 9, from pneumonia.

Thomas Nash Broadus, Richmond, Va.; Medical College of Virginia, Richmond, 1911; aged 31; a Fellow of the American Medical Association; died at his home, October 5, from bronchopneumonia, following influenza.

Asst. Surg. Harry Ellsworth Davey, Lieut. (j. g.) U. S. N. R. F., Keene, N. H.; Boston University, 1913; aged 34; a Fellow of the American Medical Association; died at his home in Keene, October 15, from influenza.

Wolf Samuel Schray, Chicago; University of Warsaw, Russia, 1895; Harvey Medical College, Chicago, 1900; aged 49; a Fellow of the American Medical Association; died at his home, October 14, from pneumonia.

Mathis Daniel Linehan, Dubuque, Iowa; St. Louis College of Physicians and Surgeons, 1906; aged 35; a member of the Iowa State Medical Society; died at his home, October 15, from pneumonia, following influenza.

Clifton Norwood De Vilbiss, Laytonsville, Md.; University of Maryland, Baltimore, 1910; aged 33; a member of the Medical and Chirurgical Faculty of Maryland; died at his home, October 15, from pneumonia.

Walter S. Lincoln, Dodgeville, Wis.; University of Illinois, Chicago, 1897; aged 54; a Fellow of the American Medical Association; health officer of Dodgeville; died at his home, about October 14, from pneumonia.

Harry Mayer Schall, Rochester, N. Y.; Jefferson Medical College, 1887; aged 55; a member of the Medical Society of the State of New York; died in the Rochester General Hospital, October 9, from heart disease.

Laura Bell Stoner, Battle Creek, Mich.; American Medical Missionary College, Chicago, 1904; aged 39; a member of the staff of the Battle Creek Sanitarium; died in Atlanta, Ga., October 23, from pneumonia.

John Aimone, Granville, Ill.; University of Illinois, Chicago, 1907; aged 37; a Fellow of the American Medical Association; died at his home, October 4, from bronchial pneumonia, following influenza.

John Frank Marshall, Ashland, Pa.; University of Pennsylvania, Philadelphia, 1907; aged 36; a Fellow of the American Medical Association; died at his home, October 9, from pneumonia, following influenza.

Albert Harry Herr, Okmulgee, Okla.; Chicago College of Medicine and Surgery, 1912; aged 30; a Fellow of the American Medical Association; died at his home, October 8, from pneumonia, following influenza.

Harvey F. Eichman, Chicago; Chicago College of Medicine and Surgery, 1910; aged 40; a Fellow of the American Medical Association; died at his home, October 14, from pneumonia, following influenza.

William H. Wells, Stronghurst, Ill.; University of Illinois, Chicago, 1897; aged 57; a Fellow of the American Medical Association; died in the Galesburg Hospital, October 5, from pneumonia, following influenza.

Nellie S. Hayes, Los Angeles; University of Southern California, Los Angeles, 1904; aged 42; a Fellow of the American Medical Association; died at her home, October 11, from pneumonia, following influenza.

Sigurd Peter Dahl, Decorah, Iowa; Drake University, Des Moines, Iowa, 1913; aged 33; a Fellow of the American Medical Association; died at his home, October 9, from pneumonia, following influenza.

Henry W. Dew, Lynchburg, Va.; College of Physicians and Surgeons, Baltimore, 1886; aged 56; a Fellow of the American Medical Association; died at his home, October 17, from pneumonia, following influenza.

Isadore Jacques Grossman, Brooklyn; University and Bellevue Hospital Medical College, 1915; aged 26; house physician of the Jewish Hospital, Brooklyn; died at his home, October 13, from pneumonia.

James Elmer Chapman, Bloomingburg, Ohio; Starling Medical College, Columbus, Ohio, 1903; aged 46; a member of the Ohio State Medical Association; died at his home, October 5, from influenza.

Carl Neal Etchison, Gaithersburg, Md.; Maryland Medical College, Baltimore, 1908; aged 32; a member of the Medical and Chirurgical Faculty of Maryland; died at his home, October 17, from influenza.

William Garner White, York, S. C.; University of Maryland, Baltimore, 1883; aged 60; at one time a member of the South Carolina Medical Association; died at his home, October 12, from pneumonia.

Joseph Johnston Stevens, Hattiesburg, Miss.; Tulane University, New Orleans, 1890; aged 51; at one time a Fellow of the American Medical Association; died at his home, October 15, from heart disease.

Ernest William Auzal, New York City; University of Vermont, Burlington, 1884; aged 58; a Fellow of the American Medical Association; a specialist in neuropathology; died at his home, October 11.

Henry M. Fagaines, Chandler, Okla.; University of Wooster, Cleveland, 1880; aged 61; formerly a member of the Oklahoma State Medical Association; died at his home, October 12, from pneumonia.

Elizabeth Aileen Lynch Schuler, Winona, Minn.; Milwaukee Medical College, 1910; aged 34; a member of the Minnesota State Medical Association; died at her home, October 18, from influenza.

J. P. Phillips, Florala, Ala.; Memphis Hospital Medical College, 1898; at one time a member of the Medical Association of the State of Alabama; died at his home, October 11, from influenza.

John G. Hoeckh, Buffalo; University of Buffalo, 1907; aged 33; clinical pathologist to the Ernest Wende Hospital, and assistant physician of Erie County; died at his home, October 5, from pneumonia.

Munroe Dart Youngman, Ardmore, Pa.; Hahnemann Medical College, Philadelphia, 1911; aged 32; a Fellow of the American Medical Association; died at his home, October 11, from pneumonia.

Lou N. Byers, Aurora, Ill.; Chicago College of Medicine and Surgery, 1911; aged 33; a Fellow of the American Medical Association; died at her home in Aurora, October 3, from pneumonia.

Lieut. Clark Denike Fanton, M. C., U. S. Army, Riverside, Calif.; State University of Iowa, Iowa City, 1915; aged 30; is reported to have died, recently, at a military camp in California.

David Robert Hancock, Redondo Beach, Calif.; Starling Medical College, Columbus, Ohio, 1892; aged 48; city health officer since 1894; died in Redondo Beach, October 14, from pneumonia.

Robert M. C. Gavin, Tonganoxie, Kan.; Philadelphia University of Medicine and Surgery, 1878; aged 81; for many years a practitioner of Lebo, Kan.; died at his home, October 5.

Edward J. Murray, Scranton, Pa.; Baltimore Medical College, 1910; aged 33; at one time a Fellow of the American Medical Association; died at his home in Throop, Pa., about October 9.

Fred McVey Towles, Fort Wayne, Ind.; Medical College of Indiana, Indianapolis, 1902; aged 45; assistant surgeon of the Pennsylvania System, at Fort Wayne; died at his home, October 8.

Leo Gernand Maury, Chicago; Northwestern University Medical School, Chicago, 1918; aged 23; an intern in Michael Reese Hospital; died in that institution, October 19, from influenza.

John Henry Bender, Wetzell, Ohio; Ohio State University, Columbus, 1912; aged 31; a member of the Ohio State Medical Association; died at his home, about October 9, from influenza.

William Francis Brown, Roxbury, Boston and Nahant, Mass. (license, Massachusetts, years of practice); aged 61; died at his summer home in Nahant, October 2, from heart disease.

Warren B. Rush, Lake City, Fla.; Jefferson Medical College, 1893; aged 70; a Fellow of the American Medical Association; died at his home, September 11, from cerebral hemorrhage.

Jacob Chasan, New York City; Long Island College Hospital, Brooklyn, 1911; aged 34; assistant physician to the Bronx Hospital; died at his home, October 9, from pneumonia.

Jesse D. Hodges, Little Rock, Ark.; Chicago College of Medicine and Surgery, 1914; aged 35; president of the Arkansas Pharmaceutical Association; died at his home, October 15.

Herbert Sumner Reynolds, Clinton, Conn.; New York University, New York City, 1881; aged 58; died in Grace Hospital, New Haven, Conn., October 9, after a surgical operation.

Ancil Gatliff, Williamsburg, Ky.; Hospital College of Medicine, Louisville, Ky., 1876; aged 70; one of the largest coal operators of eastern Kentucky; died at his home, October 14.

Frank Horan Collins, New York City; University of Pennsylvania, Philadelphia, 1906; assistant surgeon to the Throat, Nose and Lung Hospital; died at his home, about October 14.

Charles H. Hunter, Minneapolis, College of Physicians and Surgeons in the City of New York, 1878; aged 65; died at the Eitel Hospital, Minneapolis, October 15, from nephritis.

Abraham James Gordon, Philadelphia; Jefferson Medical College, 1912; aged 29; intern in the Jewish Hospital, Philadelphia; died in that institution, October 6, from influenza.

Lieut. Carl Stoepler, M. C., U. S. Army, Philadelphia; Medico-Chirurgical College of Philadelphia, 1912; aged 36; died in the Polyclinic Hospital of Philadelphia, October 9.

Capt. William Fielding McIsaac, C. A. M. C., Antigonish, Nova Scotia; on duty with No. 9 Stationary Hospital in France, is reported to have died from wounds, recently.

William Harris Corson, Jr., Collegeville, Pa.; Hahnemann Medical College, Philadelphia, 1909; aged 34; died at his home, October 9, from pneumonia, following influenza.

James F. Folz, Philadelphia; Medico-Chirurgical College, Philadelphia, 1897; aged 45; district city physician; died at the Northeast Hospital, October 10, from pneumonia.

Bernard William Junge, New York City; University of Buffalo, N. Y., 1900; aged 49; a Fellow of the American Medical Association; died at his home, October 12.

Walter Arthur Watts, Pawtucket, R. I.; University of Vermont, Burlington, 1910; aged 38; city physician of Pawtucket; died at his home, October 7, from influenza.

George Lewis Smith, Philadelphia; University of Pennsylvania, Philadelphia, 1897; aged 47; died at his home, October 10, from pneumonia, following influenza.

John Francis Munns, Bremerton, Wash.; University of Minnesota, Minneapolis, 1903; aged 46; died at his home, October 13, from pneumonia, following influenza.

Benjamin J. See, Harris, Ill. (license, years of practice, Illinois, 1878); aged 94; a practitioner for sixty-five years; died at the home of his son in Paris, October 11.

Chauncey Benjamin Lambert, Riverside, N. J.; Hahnemann Medical College, Philadelphia, 1904; died at his home, October 8, from pneumonia, following influenza.

Edward Stack Grace, New Britain, Conn.; University of Vermont, Burlington, 1914; aged 29; died at his home, October 8, from pneumonia, following influenza.

Frank Timothy Mara, Boston; Harvard Medical School, 1887; aged 52; died in St. Elizabeth's Hospital, October 3, from pneumonia, following influenza.

Charles Emera James, Laurel, Del.; Jefferson Medical College, 1911; aged 33; formerly of Charptown, Md.; died at his home, October 13, from influenza.

Capt. J. T. Whitworth Boyd, C. A. M. C., Port Arthur, Ont.; Queens University, Kingston, Ont., 1914; is reported to have died from wounds, recently.

Francis M. Yost, Center Point, Iowa (license, Iowa, years of practice, 1887); aged 87; a practitioner of medicine since 1853; died at his home, October 12.

Grant Mitchell, Pittsburgh; University of Illinois, Chicago, 1896; aged 54; a practitioner of dentistry for thirty-two years; died at his home, October 1.

Work A. Streeter, Harrisburg, Pa.; Hahnemann Medical College, Philadelphia, 1916; aged 28; died in Harrisburg, October 14, from pneumonia.

Edward Joseph Therrien, Marlboro, Mass.; Ecole de Médecine et de Chirurgie, Montreal, 1886; aged 62; died at his home, about October 13.

Capt. M. A. McKechnie, C. A. M. C., Walkerton, Ont.; Queens University, Kingston, Ont., 1917; is reported to have died of wounds, recently.

George Whitefield Holmes, Atlanta, Ga.; Atlanta Medical College, 1898; aged 64; died at a private sanitarium, in Atlanta, October 14.

Samuel C. Blair, Philadelphia; University of Pennsylvania, Philadelphia, 1878; aged 64; died at his home, October 9, from heart disease.

Abram B. Patton, Waynesburg, Pa.; Jefferson Medical College, 1877; aged 67; died at his home, October 9, from cerebral hemorrhage.

Robert J. Cuniff, Philadelphia; Maryland Medical College, Baltimore, 1909; aged 37; died at his home, October 7, from pneumonia.

Earl Clifton West, Laurel, Del.; Maryland Medical College, Baltimore, 1912; aged 33; died at his home, October 13, from influenza.

James Mackay Montgomery, Philadelphia; Jefferson Medical College, 1897; aged 55; died at his home, October 7, from influenza.

Robert A. Baldridge, Farmersburg, Ind.; Eclectic Medical Institute, Cincinnati, 1884; aged 82; died at his home, October 3.

Albion Horace Allen, New London, Conn.; Boston University, 1875; aged 81; died at his home, about September 17.

Stephen John Songy, Wallace, La.; Tulane University, New Orleans, 1913; aged 29; died at his home, recently.

Correspondence

THE TREATMENT OF "SPANISH INFLUENZA"

To the Editor:—In a number of cases of influenza and influenzal pneumonia, seen both in my private practice and at the Alexian Brothers' Hospital, I have used a treatment from which my results have been most satisfactory.

The clinical course of the condition may be divided for convenience into three stages. The first lasts from three to four days, and is characterized by chills, fever, muscular pain, etc. The second is of rather uncertain duration, and is characterized by involvement of the respiratory system varying in degree from a slight catarrhal condition to the involvement of a large area of one or both lungs. The third is characterized by disturbances of the circulatory system, dyspnea and cyanosis.

In the treatment, the patient receives as soon as possible from 10 to 20 c.c. of a saturated solution of quinin hydrochlorid. This is given intravenously and is repeated once or twice in twenty-four hours. It is followed for from two to five days by one or two daily injections of the same solution, the quantity depending on the condition of the patient. In addition, the patient receives 4 grains of quinin bisulphate and 6 grains of sodium salicylate over three hours. This may be given either in capsules or solution, but it is important that the two drugs be given together. I make it a rule to continue the intravenous injection until the temperature remains normal or subnormal for at least thirty-six hours; I continue the quinin and the sodium salicylate until the temperature has continued normal or subnormal for three consecutive days. With this treatment, all patients that came under my observation within three days of the onset of symptoms made a rapid and uninterrupted recovery within from one to three days. In no case did they continue into the second stage, or show any complication. Patients that came under my observation in whom the symptoms lasted more than three days, and those of the second stage with respiratory symptoms, all made rapid and uninterrupted recovery in from one to eight days. We also had a very slight mortality in cases of the third stage.

Under this treatment a marked improvement may be noticed in the leukocyte count. In cases in which the leukocyte count was 2,000 before the injection there was a decided rise to 4,000 or 5,000 immediately following the first injection, and after repeated injections even as high as 21,000.

I cannot too strongly call attention to the importance of keeping the bowels open by mild cathartics. Often a lingering temperature disappeared after a brisk flushing of the bowels, and this method greatly aided in shortening the course of the disease.

Some may regard the dosage of quinin given as heroic, but I find that it represents rather the minimum than the maximum amount with which results may be obtained.

H. A. KLEIN, M.D., Chicago.

DEPENDABILITY OF DOSAGE IN TABLETS

To the Editor:—In your article—"Dependability of Dosage in Tablets" (THE JOURNAL A. M. A., July 27, 1918), we feel that an unintentional injustice has been done us. In citing the work done by the Connecticut Agricultural Experiment Station, and stating that "Allowing a tolerance in composition of 10 per cent., one or more products of the following manufacturers were found deficient," our name has been included in this list. In your brief abstract of the matter it was not possible to state that of the twelve samples of tablets of our manufacture (The G. F. Harvey Company and the Harvey Company are one and the same) examined in 1916 and 1917, that while one sample was found deficient in strength, this sample was of such a nature that it could not by eminent authorities be expected to test up to labeled strength.

The sample here referred to is Digestive Aromatic Tablets. Leading authorities on combinations of Pepsin and Pan-

creatin, including the very chemists who made the examinations in question, including also the authorities quoted in your article in the A. M. A., Aug. 20, 1910, on Aromatic Digestive Tablets, concede that there is an interaction when in combination, in tablets made by the generally approved methods.

The general method in making compressed tablets is that after mixing carefully the several ingredients, the mixture is moistened sufficiently to permit of a granulation being made and such granulation is then dried carefully with regulated artificial heat. While it would be possible in this particular tablet to make separate granulations of the incompatible substances and mix such granulations only after each is thoroughly dry, yet the tablets would not be more valuable because the destructive process would ensue after the tablets came in contact with the secretions of the alimentary tract.

In view of these facts, we think we should be exonerated from any adverse criticism on this twelfth sample of ours examined and we thank you most heartily for your spirit of fairness in now calling this matter to the attention of the readers of THE JOURNAL.

THE HARVEY CO., Saratoga Springs, N. Y.

[COMMENT.—The Harvey Company seems to hold the opinion that it does not matter whether or not Aromatic Digestive Tablets contain the amount of ferments claimed on the label, since, in any case, these ferments would mutually destroy each other, as soon as such tablets came in contact with the digestive secretions. No excuse can be, or is, offered for those physicians who prescribe such absurdities as Aromatic Digestive Tablets (THE JOURNAL, Aug. 20, 1910, p. 710), but neither is there any justification for a firm selling a product which it knows will not measure up to the claims made for it. In this connection, it is worth repeating what THE JOURNAL said on this subject as long ago as Dec. 19, 1914:

"Manufacturers are warned by the Department of Agriculture through the Bureau of Chemistry, that combinations claiming to contain digestive enzymes must be active when sold. If preparations tend to deteriorate in a short time, each lot should be dated and not sold after the period when they become inactive. While every manufacturer must be considered innocent until proved guilty and ignorant until proved knowing, it is a matter of knowledge that many manufacturers have marketed their various digestive mixtures with full appreciation of their worthlessness.—ED.]

POINT OF VIEW OF JOHN AMES MITCHELL, PUBLISHER OF LIFE

To the Editor:—I have been greatly interested in a biographic sketch of John Ames Mitchell, proprietor of *Life*, published in the *Harvard Graduates' Magazine*, September, 1918. The biography was written by E. S. Martin of the class of '77 of Harvard University. We all have enjoyed Mr. Mitchell's attacks on the medical profession, which rarely failed to be found in every number of *Life*. The part of the biography which interests the readers of THE JOURNAL is as follows:

He was by no means completely educated. But no one ever is. He was cultivated, his taste was trained, and whether it dealt with art, letters or deportment, it was good taste. But imperfect knowledge of facts, or unwillingness or inability to weigh them, often led him to queer conclusions which he stuck to with the utmost tenacity. About medicine, for example, he was not only a heretic, but a fighting opponent of pretty much the whole scheme of modern medicine. Not only he hated and fought vivisection, against which there is plenty to be said, but all the use of serums was abhorrent to him. He would deny that vaccination had abated smallpox, and say that sanitation had done it. If he could, he would have forbidden inoculation for typhoid.

Modern medicine is not perfect, and assaults on it are not without value. When bleeding was the accepted practice, Molière was scandalous when he ridiculed it. It is quite conceivable that modern medical practice will give way as knowledge advances to something better, but while it lasts it is held to be almost treasonable to doubt it, and whoever attacks it has need of courage.

Mitchell had the courage. He always had the courage to attack anything he thought was wrong, and whether or not it grieved the readers of *Life* or advertisers it never gave him much concern.

All that is good in medicine has never suffered from the wit and sarcasm which Mitchell was constantly hurling at the profession. His biographer has clearly indicated that there was no malice in these missiles. We are all aware of the shortcomings of medicine. The profession will never suffer from attacks, even to a certain extent baseless, which

are made either in a spirit of amusement or from a genuine desire to criticize. I, for one, shall miss Mitchell's arrows, and *Life* will be less interesting by reason of his death. I once had in mind to write to Mr. Mitchell that inasmuch as he was continually attacking the medical profession, whose purpose it is to save life, he ought to change the title of his paper to *Death*. He perhaps would not have acted favorably on my suggestion.

H. W. WILEY, M.D., Washington, D. C.

“THE PROPAGANDA OF THE V. M. S. C.”

To the Editor:—An editorial comment in THE JOURNAL (Oct. 5, 1918, p. 1141) contains a reference to a proposed resolution in the *Bulletin* of the Buchanan County Medical Society bearing on the membership therein as related to the Volunteer Medical Service Corps. The *Bulletin* was in error in stating that the resolution was introduced at the request of the Council of National Defense, Medical Section. It was introduced at the request of the Missouri State Committee of the Council of National Defense, Medical Section.

DANIEL MORTON, M.D., St. Joseph, Mo.
President, Buchanan County Medical Society.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

DELAY IN RECEIPT OF ORDERS

To the Editor:—Please advise me as to the correctness of the information in THE JOURNAL, October 12, concerning Dr. M. W. R. of Missouri. The item stated that Lieut. M. W. R., Missouri, had orders, or was to proceed to Fort Riley, Kan., for a course of instruction. Did I read it right? So far I have not received any orders to report, and am anxious to get them.

M. W. R., M.D., Missouri.

ANSWER.—This question is continually coming in. The orders as published in THE JOURNAL are taken from the carbon copies of the orders sent by the Surgeon-General's Office to the Adjutant-General's Office. Frequently considerable delay occurs in the Adjutant-General's Office. If the order appears in THE JOURNAL but is not received by the officer within a reasonable time, he should write to the Surgeon-General's Office, stating the facts.

DIPHtheria ANTIToxIN TREATMENT OF INFLUENZA

To the Editor:—Please advise me as to the value of diphtheria antitoxin in the treatment of the present epidemic of influenza.

ALWARD H. WHITE, M.D., Shafter, Texas.

ANSWER.—There is no scientific reason to believe that diphtheria antitoxin can have any more value in influenza than an equal quantity of horse serum.

BEST WAY TO KEEP STATIC MACHINES DRY

To the Editor:—In THE JOURNAL, Aug. 31, 1918, M. H. F. makes inquiry as to the best and cheapest method of keeping the air within a static machine dry. If the doctor will keep a dish containing about 1 pound of sulphuric acid (92.5 per cent.) in one end of the machine, he will find that moisture will give him no trouble. The acid must be changed about once in three or four months, as it absorbs so much water in that length of time that it becomes ineffective.

M. G. SLOAN, M.D., Des Moines, Iowa.

Epinephrin in Treatment of Eczema.—The *Riforma Medica* quotes the *Annali di Medicina Navale* of July 22, 1918, to the effect that P. Trapani found that many forms of eczema subsided under subcutaneous injection of epinephrin. He injected it in the buttocks or in the vicinity of the focus, commencing with 1/8 mg. in physiologic solution and increasing to 1/4 mg. He never had to make more than fifteen or twenty injections at most, giving them daily or on alternate days. Even chronic eczema of long standing subsided the same as the acute and partial.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Little Rock, Nov. 12-13. Sec., Regular Bd., Dr. T. J. Stout, Brinkley, Ark.; Sec., Eclectic Bd., Dr. C. E. Laws, 803 1/2 Garrison Ave., Ft. Smith.

CONNECTICUT: New Haven, Nov. 12-13. Sec., Regular Bd., Dr. C. A. Tuttle, 196 York St., New Haven; Sec., Eclectic Bd., Dr. James E. Hair, 730 State St., Bridgeport; Sec., Homoeopathic Bd., Dr. E. C. M. Hall, 82 Grand Ave., New Haven.

DELAWARE: Wilmington, Dec. 10-12. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

IOWA: Des Moines, Dec. 10-12. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.

LOUISIANA: New Orleans, Dec. 2-4. Sec., Dr. E. W. Mahler, 730 Audubon Bldg., New Orleans.

MAINE: Portland, Nov. 12-13. Sec., Dr. Frank W. Scarle, 776 Congress St., Portland.

MARYLAND: Baltimore, Dec. 10. Sec., Dr. J. McP. Scott, 137 W. Washington St., Hagerstown.

MASSACHUSETTS: Boston, Nov. 12-14. Sec., Dr. Walter P. Bowers, No. 1 Beacon St., Boston.

NEBRASKA: Lincoln, Nov. 13. Sec., H. J. Lehnhoff, 514 First Natl. Bk. Bldg., Lincoln.

NEVADA: Carson City, Nov. 4. Sec., Dr. S. L. Lee, Carson City.

OHIO: Columbus, Dec. 3-5. Sec., Dr. H. M. Platter, State House, Columbus.

TEXAS: Dallas, Nov. 19-21. Sec., Dr. M. F. Bettencourt, Mart.

VIRGINIA: Richmond, Dec. 10-13. Sec., Dr. J. W. Preston, 215 S. Jefferson St., Roanoke.

WEST VIRGINIA: Charleston, Nov. 19-21. Sec., Dr. S. L. Jepson, Masonic Bldg., Charleston.

Virginia June Examination

Dr. J. W. Preston, secretary of the Virginia State Board of Medical Examiners, reports the written examination held at Richmond, June 18-21, 1918. The examination covered 9 subjects and included 90 questions. An average of 75 per cent. was required to pass. Of 42 candidates examined, 37, including 1 osteopath, passed, and 5 failed. Thirteen candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Howard University	(1917)	86
Bennett Medical College	(1909)	82
Johns Hopkins University	(1918)	88, 94
Maryland Medical College	(1909) 76; (1913)	78
Leonard Medical School	(1910)	84
Jefferson Medical College	(1915)	93
University of the South	(1901)	81
Medical College of Virginia	(1917) *; (1918) 77, 77, 81, 81, 82, 83, 83, 84, 84, 86, 86, 87, 87, 92.		
University of Virginia	(1918) 86, 87, 87, 89, 91, 91, 92, 93, 93, 96, *		
Queen's University	(1908)	89

College	FAILED	Year Grad.	Per Cent.
Rush Medical College	(1899)	67
University of Nashville	(1904)	62
Medical College of Virginia	(1916) 64; (1917) 69; (1918)	61

*No grade given.

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
George Washington University	(1914)	Dist. Colum.
Louisville and Hospital Medical College	(1908)	Indiana
Baltimore Medical College	(1909)	Dist. Colum.
College of Physicians and Surgeons, Baltimore	(1893)	N. Carolina
Johns Hopkins University	(1911)	Maryland; (1912) Dist. Colum.
St. Joseph Medical College	(1886)	Kansas
University of the City of New York	(1890)	New York
Hahnemann Med. College and Hosp. of Philadelphia	(1901)	Penna.
Medico-Chirurgical College of Philadelphia	(1896)	Penna.
University of Pennsylvania	(1899)	Penna.
Lincoln Memorial University	(1915)	Tennessee
Vanderbilt University	(1915)	Tennessee

West Virginia July Examination

Dr. S. L. Jepson, health commissioner of the West Virginia Public Health Council, reports the oral, practical and written examination held at Wheeling, July 9, 1918. The examination covered 10 subjects and included 100 questions. An average of 80 per cent. was required to pass. Of the 9 candidates examined, 8 passed and 1 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Arkansas	(1918)	83.7
Chicago College of Medicine and Surgery	(1918) 84.4, 84.5, 85.1,		92.1.
Maryland Medical College	(1904)	88.5
Medical College of Virginia	(1918)	90.5
University of Virginia	(1917)	85.7

College	FAILED	Year Grad.	Per Cent.
Meharry Medical College	(1918)	75.9

Book Notices

PRACTICAL GUIDE TO DISEASES OF THE THROAT, NOSE, AND EAR. For Senior Students and Junior Practitioners. By William Lamb, M.D., C.M., M.R.C.P. Fourth Edition. Cloth. Price, \$3.00. New York: William Wood & Co., 1918.

This little volume, intended primarily for the student and general practitioner, is fairly comprehensive, though devoid of much important detail. The subject matter is considered mainly from the standpoint of symptomatology and treatment. The various affections of the throat, nose and ear are not treated as entities but grouped under a few headings. For instance, all symptoms arising from nasal affections are discussed in one or two chapters, and the diagnosis of the different diseases responsible for them indicated according to the predominance of one or more symptoms or group of such findings, following which the treatment is taken up as directed toward this, that or the other combination. The author is conservative in his surgical treatment of tonsillar affections, giving more prominence to tonsillotomy and reserving complete enucleation only for certain well defined cases. This is rather contrary to the generally accepted American view on this subject. Criticism of this attitude, however, should be cautious, as the last word on the tonsil question has yet to be spoken; we are not in the position to say whether the author's views are antiquated or a step ahead of us. Especially meritorious are the chapters on the danger symptoms in suppurative ear diseases and the indications for surgical intervention. These are of high importance to the general practitioner and seldom have been so clearly set forth as in this book. Sufficient of the complex anatomy of the throat, nose and ear is given to make the text more intelligible and to refresh the memory of the general practitioner, to whom these structures have always been more or less of a muddle.

NEUROLOGICAL CLINICS: EXERCISES IN THE DIAGNOSIS OF DISEASES OF THE NERVOUS SYSTEM. Given at the Neurological Institute, New York, by the Staff of the First Division. Edited by Joseph Collins, M.D. Cloth. Price, \$3. Pp. 271. New York: Paul B. Hoeber, 1918.

The subtitle, "Exercises in the Diagnosis of Diseases of the Nervous System," indicates the function of this volume; it consists of a collection of forty-one reports made by the staff of the first division of the New York Neurological Institute. With few exceptions each of the reports is of a single case, and in length they vary from two to twenty-eight pages. Most of the cases are organic, but there is an excellent report (by Naccarati) on obsessions and fixed ideas; one on a case of paramyoclonus multiplex, and three on dementia praecox. The organic cases present a wide diversity, and every one is interesting and instructive. Vascular lesions, syphilis and tumors receive considerable attention, while of the more unusual things may be instanced progressive hemiplegia, astereognosis without hemiplegia, partial blindness from disease of the accessory nasal sinuses, symptomatic tic douloureux, disseminated lesions of the spinal cord due to malaria, and sudden paraplegia after injections of autolysin (Beebe's serum). Neither neurologist nor general practitioner can read this book without edification and benefit; it is a good place to look for help on a puzzling case.

CLINICAL DIAGNOSIS: A MANUAL OF LABORATORY METHODS. By James Campbell Todd, Ph.B., M.D., Professor of Clinical Pathology, University of Colorado. Fourth edition. Cloth. Price, \$3 net. Pp. 687, with 244 illustrations. Philadelphia: W. B. Saunders Company, 1918.

The author has had as his aim in the preparation of this manual a practical work for the student and the practitioner rather than the laboratory worker. Clearness and simplicity are requisites for such a book; clearness in description of tests and processes, simplicity in apparatus and equipment—not too many methods, but judicious selection of those to be emphasized and recommended. This has been attained satisfactorily. The considerable amount of space devoted to the technic of the microscope is worth while, the illustrations, both colored plates and photomicrographs, are good, and the information given is up to date, while the interpretation of findings is of great practical value. In this edition many subjects are elaborated, others added, some omitted, and the whole work thoroughly revised.

Medicolegal**Insufficient Evidence of Malpractice—Results and Requirements**

(*O'Grady v. Cadwallader (Iowa)*, 166 N. W. R. 755)

The Supreme Court of Iowa, in affirming a judgment in favor of the defendant, who was charged with negligence in reducing and treating a fracture of the radius of the plaintiff's left arm, says that this was purely a fact case, with the burden of proof resting on the plaintiff. The allegation of negligence on which recovery was sought was, first, that the defendant was negligent in not reducing the fracture properly, and second, that he was negligent in using only pasteboard splints at first, and afterward inadequate and improper splints, and in not applying proper bandages and appliances to keep the broken ends in alinement or proper apposition. But there was no direct evidence that the fracture was not properly reduced; no direct evidence that the splints and bandages were not the splints and bandages that are usually and ordinarily used by physicians in the treatment of such injuries; no direct evidence that they were not properly placed on the arm by the defendant at the time.

There was only the following showing as a basic fact on which to conclude, deductively, that the fracture was not properly reduced, and that the proper appliances were not made to hold it in position after reduction: Some of the physicians called by the plaintiff testified that from an examination of roentgenograms made a little more than three months and a half after the fracture, when the plaintiff went to another physician, the bone did not there appear to have been placed in proper apposition, that the alinement was not perfect, and that this condition might be due to the manner in which the fracture was reduced in the first place, or to the manner in which it was treated after it was reduced. But it also appeared from the other physician to whom the plaintiff went that these pictures did not show the true condition of the bone, its position and alinement, as it was actually found by him when he made an incision baring the bone, and did not show the true relationship of the radius to the ulna and the true condition of the fracture. His testimony led the mind to the conclusion that the only defect or deformity found was due to excessive callus adhering to the ulna; that this, chiseled away, left the arm with all its functions perfectly normal. Nor was there anything in the record to show that when the plaintiff ceased his treatments at the hands of the defendant the period had passed when the physician, in good judgment, should have resorted to the open method for relief.

On the facts shown in this record, the court feels that any verdict rendered by a jury would rest on the merest speculation, and could find no support in any tangible fact shown by the plaintiff. A verdict for the plaintiff could not stand on this record, and the trial court was justified in directing a verdict for the defendant.

There is no implied guaranty of results, and all the law demands is that the practitioner bring to the service of his patient and apply to the case that degree of skill and care, knowledge and attention ordinarily possessed and exercised by practitioners of the medical profession under like circumstances and in like localities, and it is the general holding of the courts that the bare fact that full recovery does not result, or that a surgical operation is not entirely successful, is not, in and of itself, evidence of negligence; and, in the absence of any showing from those learned in the profession that there was a failure to do that which ought to have been done in the treatment of the injury, or that there was that done which ought not to have been done in the treatment, there can be no recovery of damages. The fact on which negligence is predicated must be shown either affirmatively, by direct evidence, or deductively, by conditions shown to exist after the treatment. But conditions, even though they show bad results, are not in and of themselves sufficient, but such results may form a basis on which an expert, learned in the profession, may be permitted to base an opinion that the operator failed in the full discharge of his duty in the treatment of the case, or the results would not appear as they are.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Ophthalmology, Chicago

September, 1918, 1, No. 9

- 1 Treatment of Blood Cysts of Orbit. H. Gifford, Omaha.—p. 625.
- 2 Management of Cases of Noninflammatory Glaucoma, Classified as Simple Anterior or Simple Posterior Glaucoma. W. R. Parker, Detroit.—p. 628.
- 3 Refractive Differences in Foveal and Parafoveal Vision. D. Ogata and F. W. Weymouth, Stanford University, Calif.—p. 630.
- 4 Conjunctivitis Meibomiana (Elschnig). K. Iliwatari, Kagoshima, Japan.—p. 645.
- 5 Metastatic Endophthalmitis Associated with Epidemic Cerebrospinal Meningitis. H. C. Haden, Galveston, Texas.—p. 647.
- 6 Quinin Poisoning, Its Ocular Lesions and Visual Disturbances. R. H. Elliot, London, England.—p. 650.
- 7 Acute Iritis Developed after Amebic Dysentery. R. P. Luna, Guatemala, C. A.—p. 658.
- 8 Probable Role of Teeth and Tonsils in Etiology of Inflammatory Eye Diseases. W. G. Harrison, Birmingham, Ala.—p. 660.
- 9 Convergent Strabismus Treated by Atropin and Glasses; Cases of Hereditary Strabismus. C. Loeb, Chicago.—p. 667.

American Journal of Medical Sciences, Philadelphia

October, 1918, 156, No. 4

- 10 *Huge Hemangioma of Liver Associated with Hemangiomata of Skull and Bilateral Cystic Suprarenals. R. H. Major and D. R. Black, Rosedale, Kan.—p. 469.
- 11 *Operable Tumor Involving Gasserian Ganglion. C. H. Frazier, Philadelphia.—p. 483.
- 12 Sahli's Volume Sphygmobolometer; Improvement Over Older Pressure Sphygmobolometer. N. B. Potter, Santa Barbara, Calif.—p. 490.
- 13 Diagnosis of Chronic Appendicitis. W. F. Cheney, San Francisco.—p. 494.
- 14 *Multiple Neurofibromatosis (von Recklinghausen's Disease) and Its Inheritance; Report of Case. S. A. Preiser and C. B. Davenport, Cold Spring Harbor, N. Y.—p. 507.
- 15 Teeth and Tonsils as Causative Factors in Arthritis. R. Hammond, Providence, R. I.—p. 541.
- 16 *Experimental Lesions in Cervical Sympathetic Ganglia in Relation to Exophthalmic Goiter. L. B. Wilson, Rochester, Minn.—p. 553.
- 17 *Relationship of Origin of Ectopic Contractions to Ventricular Preponderance as Shown by Electrocardiograph. A. E. Strauss, St. Louis.—p. 557.
- 18 Studies in Cholelithiasis. Immediate Effect of Operations on Cholesterinemia. A. O. Wilensky and M. A. Rothschild, New York.—p. 564.
- 19 *Reinfection with Streptococcus Hemolyticus in Lobar Pneumonia, Measles and Scarlet Fever; Its Prevention. L. Clendening, Fort Sam Houston, Texas.—p. 575.
- 20 Milk. D. R. Mendenhall.—p. 586.

10. **Hemangioma of Liver, Skull and Suprarenals.**—A brief summary of the pathologic findings in this case showed: 1. A huge hemangioma of the liver weighing nearly one half (4.9) of the entire weight of the patient. This hemangioma was a growing tumor, an example of a true hemangioblastoma. 2. Two hemangiomas of the skull, located in the temporal bones. 3. Multiple cysts of both suprarenals, apparently the result of congenital disturbances of growth in which connective tissue lymphatics and blood vessels have all played a rôle. Degenerative changes were very marked.

11. **Tumor Involving Gasserian Ganglion.**—In Frazier's patient the operation was performed within three months of the first symptom. The patient was seen fifteen months after the operation and, apart from certain paresthesias, which might well have been due to avulsion of the sensory root, there were no signs of recurrence. The tumor was an endo-thelioma.

14. **Multiple Neurofibromatosis.**—A description is given by Preiser and Davenport of the occurrence of von Recklinghausen's disease in a father and son, with the necropsy findings in the case of the father, in whom the disease lasted thirteen years. In the case of the son the disease associated with definite mental inferiority and delayed sexual development. A review and analysis of the literature of 243 cases of multiple neurofibromatosis is made, as well as an analysis of thirty cases of the familial type, with charts of families in which there were two or more affected persons in one

family. This establishes its hereditary tendency, showing the hereditary factor to be dominant, there being something in the germ plasm that positively facilitates the production, under appropriate stimulation, of tumors of the nerve sheaths. The relation of neurofibromatosis to malignancy is discussed.

16. **Cervical Sympathetic Ganglia and Exophthalmic Goiter.**—Experiments made by Wilson to determine the effect directly on the cervical sympathetic ganglia and indirectly on the thyroid of various forms of stimulation applied to the ganglia of goats showed that irritation from the presence of certain bacteria within the cervical sympathetic ganglia may produce histologic pictures within the ganglia and in the thyroid which parallel those found in the various stages of progressive and regressive exophthalmic goiter. In Wilson's opinion this evidence supports the suggestion that in exophthalmic goiter the thyroid receives its stimulus to over-function through its nerve supply and as a result usually of a local infection in the cervical sympathetic ganglia.

17. **Ectopic Contractions and Ventricular Preponderance.**—The electrocardiograms of 375 patients who presented some cardiac disturbance (a few were taken on patients in whom no cardiac lesion was suspected), were reviewed by Strauss. Thirty-six per cent. showed evidence of left ventricular preponderance and 10 per cent. showed evidence of right ventricular preponderance, while 2 per cent. showed an apparent change in preponderance at different times and under varying conditions. Premature contractions of all types occurred seventy-six times. In the sixty-three individual cases showing premature beats, eleven showed at least two different types while two cases showed origin in three different foci. Left ventricular premature beats were most frequent, right ventricular, auricular and junctional contractions occurring next in order in diminishing frequency. The greatest percentage of right ventricular preponderance showed right ventricular premature contractions, while the largest percentage of left ventricular preponderance showed ectopic beats arising in the left ventricle. From these facts Strauss deduces a possible etiologic theory to account for the relationship of preponderance and the origin of ectopic beats.

19. **Streptococcus Hemolyticus Reinfection.**—Clendening gives the incidence of *Streptococcus hemolyticus* reinfection in lobar pneumonia, measles and scarlet fever as it occurred at the base hospital, Fort Sam Houston: From Dec. 1, 1917, to March 1, 1918, there were admitted 319 cases of primary lobar pneumonia; forty-four became reinfected with *Streptococcus hemolyticus*. There were ninety-seven cases of empyema with thirty-two deaths. Eighteen of the deaths were due to the streptococcus. There were six cases of delayed resolution with four deaths; one case of lung abscess with profuse expectoration of evil smelling mucilaginous sputum which contained both pneumococci, streptococci and hemolytic streptococci. The patient recovered. Four patients had localized areas of persistent pulmonary infection but finally recovered. During this same period there were admitted to the hospital 716 cases of measles. Many of the cases of otitis media cultured had streptococci present. So also did certain of the tonsillitides, etc. In all there were about 150 cases of otitis; eighty-nine cases of bronchopneumonia (forty-two deaths); twelve cases of articular rheumatism, nonsuppurative, one case of suppurative arthritis, with general sepsis, and two cases of meningitis with general sepsis. All of these may be ascribed to *Streptococcus hemolyticus*. The complications known to be due to *Streptococcus hemolyticus* in measles were ninety-seven. In 134 cases of scarlet fever there were seven cases of streptococcus reinfection. Three of these were pneumonias, with one death.

The procedure now instituted at this hospital is to segregate every case of pneumonia, every case of measles and every case of scarlet fever for a twenty-four hour period. During this time a swab culture is made of the throat. When it has been determined by the laboratory whether or not the patient is a streptococcus carrier he is delivered to a proper ward. Prior to the determination of the presence of the streptococcus in the patient's throat he should have individual isolation—if possible in a room or a tent by himself; if not,

then in a room with as few other patients as possible, separated from them so far as possible, and with the most rigid prevention of contact, by use of screens or sheets between beds. With an adequate number of single rooms in a receiving ward this could be accomplished there, it being the duty of the receiving officer to see that all cases are properly cultured and reported to the proper ward. In addition to this it may be necessary to culture the nonstreptococcus wards at various intervals, probably once or twice a week, as there will be some streptococcus carriers not detected on a single throat swab. Separation of beds by sheets is of course still necessary. The incidence of bronchopneumonia in measles by this method is considerably cut down. The result of separating streptococcus carriers with lobar pneumonia has entirely done away with streptococcus reinfections.

American Journal of Public Health, Boston

September, 1918, 8, No. 9

- 21 Program of War Department Against Venereal Disease. W. F. Snow and W. A. Sawyer.—p. 639.
- 22 Protection Against Food Contamination. C. E. McCombs, New York.—p. 644.
- 23 Ice Cream Epidemics and Model Regulations for Control. H. W. Hamilton.—p. 651.
- 24 Feeble-mindedness and Social Environment. P. H. Bryce, Ottawa, Ont.—p. 656.
- 25 Bacterial Examination of Green Vegetables. F. W. Kurk, Chicago.—p. 660.
- 26 Public Health Instructor—New Type of Health Worker. E. V. Brumbaugh, Milwaukee, Wis.—p. 662.
- 27 Some Public Health Lessons of War. E. C. Levy, New York.—p. 664.
- 28 Bibliography of Field Water Supply. J. J. Hinman, Jr., Iowa City, Iowa.—p. 668.
- 29 Charts and Maps as Used by Health Officers. G. T. Swarts, Jr., Providence, R. I.—p. 674.
- 30 Transport Sanitation. C. W. Berry.—p. 690.

Archives of Ophthalmology, New Rochelle, N. Y.

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- 31 Some Ocular Conditions Affecting Efficiency of Aviator. W. H. Wilmer.—p. 439.
- 32 Need of Ophthalmologic Clinic in Penal Institutions. The Clinic at Sing Sing Prison. C. Berens, Jr., New York.—p. 448.
- 33 Results from One Hundred and Twelve Wassermann Blood Tests in Missouri School for Blind. J. W. Charles and H. D. Lamb, St. Louis.—p. 455.
- 34 Case of Embolism of Central Retinal Artery in Chorea. A. Knapp, New York.—p. 459.
- 35 Histologic Findings in Eyeballs Lost Through Complications Following Sclerocorneal Trephining. W. G. M. Byers, Montreal.—p. 462.
- 36 Spasm of Accommodation. J. W. White, New York.—p. 466.
- 37 Report of Several Pathologic Pupillary Cases, with Especial Reference to what Constitutes a True Argyll Robertson Pupil. J. Dunn, Richmond, Va.—p. 469.
- 38 Cavernous Sinus Thrombosis; Report of Five Cases. D. Smith, Bridgeport, Conn.—p. 482.
- 39 Acute Streptothrix Infection of Conjunctiva. A. Knapp and J. G. Dwyer, New York.—p. 497.

Boston Medical and Surgical Journal

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- 40 Treatment of Organic Heart Disease in Pregnancy and Labor. F. S. Newell, Boston.—p. 465.
- 41 Heart Lesions in Anesthesia. F. L. Richardson, Boston.—p. 470.
- 42 Normal Heart in Navy. G. F. Freeman, Boston.—p. 475.
- 43 Use of Roentgen Ray in Examination of Heart and Aorta. G. W. Holmes, Boston.—p. 478.

Delaware State Medical Journal, Wilmington

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- 44 Leukemia. J. W. James, Dover.—p. 5.

Illinois Medical Journal, Chicago

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- 45 Practice of Preventive Medicine. W. S. Sadler, Chicago.—p. 113.
- 46 Postponing Old Age. C. J. Whalen, Chicago.—p. 120.
- 47 Practical Ideas Regarding Treatment of Acidosis, Commonly Called Uremia. J. H. Stealy, Freeport.—p. 129.
- 48 Congenital Hypertrophic Pyloric Stenosis. C. W. Poorman, Chicago.—p. 133.
- 49 Fallacies of Face Mask in Control of Acute Infectious Diseases. A. L. Hoyne, Chicago.—p. 136.
- 50 Surgical Treatment of Unilateral Renal Tuberculosis; Importance of Early Diagnosis. H. L. Kretschmer, Chicago.—p. 138.
- 51 Study of Physical Condition in Selective Draft of 1917. C. B. Johnson, Champaign.—p. 143.

- 52 Civil Administrative Code of Illinois and Medical Practice Act. F. W. Shepardson, Springfield.—p. 146.
- 53 Exophthalmic Goiter. E. P. Sloan, Bloomington.—p. 155.
- 54 History of Illinois State Medical Society. G. N. Kreider, Springfield.—p. 158.
- 55 Treatment of Mercuric Chlorid Poisoning. B. Fantus, Chicago.—p. 159.
- 56 Prophylactic Use of Pituitary Extract in Nose and Throat Operations Under General and Local Anesthesia. S. Salinger, Chicago.—p. 164.
- 57 Relation Between Public Health, Tuberculosis and Medical Education. W. B. Metcalf, Chicago.—p. 169.

Journal of Experimental Medicine, Baltimore

October, 1918, 28, No. 4

- 58 *Experimental Parotitis. M. Wollstein, New York.—p. 377.
- 59 Encystment of Dysentery Amebae in Vitro. K. Yoshida, Fukuoka, Japan.—p. 387.
- 60 *New Nonpathogenic Tetrigenous Ameba. S. Shimura, Fukuoka, Japan.—p. 415.
- 61 *Rat and Poliomyelitis; Experimental Study. H. L. Amoss and P. Haselbauer, New York.—p. 429.
- 62 Spirocheta Hebdomadis, Causative Agent of Seven Day Fever (Nanukayami). Y. Ido, H. Ito and H. Wani, Fukuoka, Japan.—p. 435.
- 63 *Antimeningitis Vaccination: Agglutinins in Blood of Chronic Meningococcus Carriers. F. L. Gates, New York.—p. 449.
- 64 *Origin of Tumors in Mice: V. Tumor Rate in Hybrid Strains. A. E. C. Lathrop and L. Loeb, St. Louis.—p. 475.
- 65 Stability of Acid-Base Equilibrium of Blood in Naturally Nephropathic Animals and Effect on Renal Function of Changes in this Equilibrium. I. Functional Capacity of Kidney Following Anesthetic. W. deB. MacNider, Chapel Hill, N. C.—p. 501.
- 66 Id.: II. Efficiency of Alkali to Protect Against Toxic Effect of Anesthetic. W. deB. MacNider, Chapel Hill, N. C.—p. 517.

58. **Experimental Parotitis.**—A new series of inoculations into cats of the filtered sterile salivary secretions derived from cases of parotitis was made by Wollstein. They confirm the observations made in 1915-1916 and confirmatory evidence of the filterable nature of the causative agent of mumps has been obtained. It has been determined that the saliva of man and of inoculated cats, and the inoculated glands of the latter animals, contain the filterable, infective agent. The "virus" of parotitis was detected most readily in the saliva during the first three days of the disease, less easily on the sixth day, and not at all on the ninth day. It was detected also in the blood of patients showing marked constitutional symptoms, and in the saliva of a case of recurrent mumps at the periods of enlargement of the parotid glands, but not two weeks after the swelling had subsided. It was not detected in the cerebrospinal fluid.

60. **Nonpathogenic Tetrigenous Ameba.**—In the study of the amebas of dysentery Shimura discovered in the feces of healthy persons a new type of tetrigenous ameba, which, like the dysentery ameba, forms a cyst containing four daughter nuclei, but which differs from it in biologic and morphologic properties. Experiments made on animals and clinical findings have demonstrated the nonpathogenicity of the new organism.

This ameba was observed by the author in six cases; that is, in five persons with a normal condition of the intestine and in one having a chronic catarrh of the large intestine, not dysenteric in character. In every instance the vegetative form of the ameba was found in the saline (Carlsbad salt) diarrheal stools and the cyst in the formed stools. The person failed to show any symptoms of amebic dysentery, even after long purging; on discontinuing purgation they evacuated normal dejecta and showed no manifestations of illness.

61. **Rat and Poliomyelitis.**—The central nervous organs and other viscera of six rats, collected by Amoss and Haselbauer in a district in Greater New York in which many cases of epidemic poliomyelitis occurred, have been proved incapable of inciting, on inoculation, experimental poliomyelitis in *Macacus rhesus* monkeys. The virus of poliomyelitis injected into the brain of white rats does not survive there as long as four days in a form or in amounts sufficient to cause infection when inoculated intracerebrally into monkeys.

The failure of the virus injected into the brain of rats to incite infection in monkeys is not due to the quality introduced, since at the expiration of one and one-half hours after the injection, the excised inoculation site when injected into the monkey caused typical experimental poliomyelitis.

It does not appear probable, therefore, that the rat acts in nature as the reservoir of the virus of poliomyelitis.

63. Antimeningitis Vaccination.—Following an outbreak of epidemic meningitis at Camp Funston, Kansas, in October and November, 1917, a meningococcus vaccine suspended in salt solution was given subcutaneously as a prophylactic to about 3,700 volunteers in three injections of 2,000 million, 4,000 million, and 4,000 or 8,000 million cocci at weekly intervals. These doses rarely caused more than the mildest local and general reactions. Exceptionally a more severe reaction emphasized the presence of an unusual individual susceptibility to the vaccine. In such instances the symptoms were in part those of meningeal irritation and sometimes simulated the onset of meningitis. Specific meningococcus agglutinins were demonstrated in the blood serum of vaccinated men as compared with normal controls. Moreover, agglutinins were demonstrated in the blood serum of chronic carriers of the meningococcus. Evidence is thus brought forward that the relative immunity of chronic carriers to epidemic meningitis may be due to the presence of specific antibodies in the blood stream.

64. Origin of Tumors in Mice.—The results of these investigations confirm the previous conclusion reached by Lathrop and Loeb that in the majority of the crosses observed, the cancer rate is either intermediate between those of father and mother strain, or that it follows the tumor rate of the parent with the higher rate and only in a relatively small number of instances the cancer rate follows that of the parent strain with the lower tumor rate. On the whole, the heredity of cancer rate and cancer age follows the blending type of hereditary transmission.

Journal of Immunology, Baltimore

May, 1918, 3, No. 3

- 67 *Influence of Active Normal Serum (Complement) on Meningococci. I. Opsonic Activity of Fresh Normal Serum Alone and in Combination with Antimeningitis Serum for Meningococci. J. A. Kolmer, I. Toyama and T. Matsunami, Philadelphia.—p. 157.
- 68 *Id. Bactericidal and Protective Value of Fresh Normal Serum Alone and in Combination with Antimeningitis Serum for Meningococci. T. Matsunami and J. A. Kolmer, Philadelphia.—p. 177.
- 69 *Relation of Meningococcal Activity of Blood to Resistance to Virulent Meningococci. T. Matsunami and J. A. Kolmer, Philadelphia.—p. 201.
- 70 *Experiments on Production of Antipoliomyelitic Serum in Rabbits. E. T. H. Tsen, New York.—p. 213.
- 71 Study of Problems of Immunity by Tissue Culture Method. I. Estimating Toxin and Antitoxin. M. T. Burrows and Y. Suzuki, St. Louis.—p. 219.
- 72 *Id. II. Cells and Blood Plasma of Animals which are Naturally Resistant and Others which are Susceptible to Diphtheria and Tetanus Toxins. Y. Suzuki, St. Louis.—p. 233.

67. Opsonic Activity of Fresh Normal Serum.—The phagocytic activity of antimeningitis serum was found most marked while the serum was fresh and active; after heating or after the addition of 0.2 per cent. tricresol to a serum followed by standing at room temperature for four days or longer, the phagocytic activity was diminished to a considerable degree due, presumably, to the loss of labile opsonin or complement. Fresh normal human and guinea-pig serums possess well defined amounts of opsonin for virulent meningococci in final dilutions as high as 1:16 or 1:32; as a general rule human serum has a higher opsonin content than guinea-pig serum. The serums of different persons and guinea-pigs were found to vary to a slight extent in opsonic activity. The addition of fresh normal human or guinea-pig serum to various antimeningitis serums as prepared and marketed for administration, was found to definitely and uniformly increase the opsonic activity for various strains of meningococci. The cerebrospinal fluid in meningococcus meningitis is generally free of complement or contains but traces; normal cerebrospinal fluid is always free of this serum constituent as, likewise, of opsonin for meningococci (Davis).

As based on accepting the opsonic activity of antimeningitis serum in vitro as an index of its curative power, it would appear justifiable to conclude that fresh normal human and guinea-pig serums alone may possess curative properties when brought into direct relation with meningococci and

that the addition of either these normal serums and particularly fresh human serum to antimeningitis serum, as secured in the market, increases opsonic activity. It would appear worthy of clinical test to add 1 c.c. of fresh sterile human or guinea-pig serum to each 9 c.c. of antimeningitis serum, before intraspinal injection and particularly in the treatment of severe and serum resistant cases of meningococcus meningitis, for the purpose of increasing the phagocytosis of the micro-organisms.

68. Bactericidal and Protective Value of Fresh Normal Serum.—The bactericidal activity in vitro of different antimeningitis serums was found to be quite low. Fresh or active antimeningitis serums were somewhat more bactericidal than the same serums after inactivation by heating at 60 C. for thirty minutes. Active normal human and guinea-pig serums are generally slightly bactericidal for meningococci. The bactericidal activity of horse antimeningitis and normal human and guinea-pig serum, is largely independent of complemental bacteriolysis. The addition of active normal human and guinea-pig serum to antimeningitis serum sometimes increased the bactericidal activity of the latter. Whole human and guinea-pig blood found slightly more bactericidal than the serums alone. Normal human and guinea-pig serums frequently agglutinate meningococci in final dilutions up to 1:4, but not in higher dilutions.

Antimeningitis serums containing the largest amounts of agglutinin were found to possess most opsonin and apt to prove most bactericidal in vitro. Normal active human and guinea-pig serums were practically without demonstrable protective value in mice infected with virulent meningococci, although the addition of these normal serums to antimeningitis serum appeared in some experiments to slightly increase the protective power of the latter. Since it would appear that a large part of the curative properties of antimeningitis serum is to be ascribed to the presence of opsonin, it is suggested as worthy of clinical trial to complement the antimeningitis serum by the addition of active human or guinea-pig serum prior to intraspinal injection and particularly in the treatment of severe and serum resistant infections.

69. Meningococcal Activity of Blood.—Bactericidal tests with a strain of virulent normal meningococci and the blood of adult white mice, adult rabbits and young and older guinea-pigs, have shown that the blood of rabbits possesses most bactericidal activity; the blood of old guinea-pigs was found somewhat more bactericidal than the blood of young guinea-pigs and white mice. The blood of young guinea-pigs was generally slightly more bactericidal than the blood of adult white mice. In the virulence tests consisting in the intraperitoneal injection of the same culture in graded doses and according to body weight, rabbits were found most resistant; young guinea-pigs were about as susceptible as adult mice while older guinea-pigs were somewhat more resistant than either.

The results of these experiments indicate therefore, that there is a general parallelism between the meningococcal activity of the blood and resistance to meningococci and that at least one factor in natural immunity to the meningococcus is the presence of bactericidal substances in the blood. The results of these studies indicate that the meningococcal activity of blood of children is somewhat less than that of adults; the bactericidal activity of the latter is comparable to the meningococcal activity of the blood of mice and young guinea-pigs. It is probable that certain persons possess sufficient natural immunity to the meningococcus to afford protection against meningitis and it is highly desirable to discover a simple and accurate clinical test or measure of this resistance comparable to the Schick test for antitoxic immunity in diphtheria, as a means for encouraging active immunization with meningococcus vaccines; the bactericidal test as described while being simple and fairly rapid does not meet these requirements by reason of the possibilities of error and variation, though it possesses definite value as a strictly laboratory procedure in special investigations.

70. Production of Antipoliomyelitic Serum.—Rabbits could not be immunized with poliomyelitis virus to produce serum which could restrain or neutralize the effect of the virus.

72. Cells and Blood Plasma Resistant to Toxins.—Suzuki has been able to show definitely that the natural immunity of rats for diphtheria toxin and chickens for tetanus is due to two factors—a special resistance of at least certain of the cells of these animals and further to the existence of neutralizing substances in their plasma. The plasma of these animals protects not only the cells of these animals against lethal doses of toxin but it also protects the cells of susceptible animals. So far heart muscle and ovary or in other words connective tissue cells have alone been studied. A sufficient number of experiments have not been made to give quantitative results.

Medical Record, New York

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- 73 Treatment of Four Hundred Cases with Radium. R. Duncan, Los Angeles.—p. 617.
- 74 Juvenile Peripheral Gangrene in Infectious Diseases: Diphtheria. F. Robbins, New York.—p. 620.
- 75 Therapeutics of Phenylcinchoninic Acid. R. W. Wilcox, New York.—p. 625.
- 76 Unique Case of Rheumatism and Its Management. W. H. Porter, New York.—p. 627.
- 77 Modern Therapeutics in New York State Hospitals for Insane. S. L. Dawes, New York.—p. 629.
- 78 Mortality Statistics of Diabetes Among Wage Earners. L. I. Dublin, New York.—p. 631.
- 79 Origin of So-Called "Spanish Influenza" in the Pneumonic Plague of North China. J. J. King, New York.—p. 632.
- 80 Action of Chlorin on Suture Material. G. L. Servoss, Reno, Nevada.—p. 634.

Medicine and Surgery, St. Louis

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- 81 Ulcer of Stomach. M. E. Hehfuss, Philadelphia.—p. 603.
- 82 Effect of Disease of Lower Bowel on Rate of Emptying Stomach. F. W. White, Boston.—p. 618.
- 83 Developmental Exercises for Chronic Intestinal Invalid. J. Bryant, Boston.—p. 725.
- 84 Getting Results with Chronic Intestinal Invalid. J. Bryant, Boston.—p. 634.
- 85 Unusual Types of Diarrhea. T. R. Brown, Baltimore.—p. 640.
- 86 Carcinoma of Colon; Early Diagnosis. J. A. Lichty, Pittsburgh.—p. 646.
- 87 Endocrine Functions and Digestive Apparatus. L. F. Barker, Baltimore.—p. 655.
- 88 Fractional Analyses of Gastric Secretion in Ulcer of Stomach and Duodenum. J. Friedenwald and T. F. Leitz, Baltimore.—p. 679.
- 89 Pathology of Chronic Appendicitis. O. Klotz, Pittsburgh.—p. 687.
- 90 Fractional Study of Gastric Contents. G. W. McCaskey, Fort Wayne, Ind.—p. 693.
- 91 Case of Epigastric Tumor. J. C. Hemmeter, Baltimore.—p. 697.
- 92 History of Obstetrics from Earliest Times to Beginning of Seventeenth Century. F. E. Leavitt, St. Paul.—p. 707.
- 93 Treatment of Certain Hemorrhages of Uterus with Radium and Roentgen Rays. H. Schmitz, Chicago.—p. 714.
- 94 Vomiting of Pregnancy. F. L. Adair, Minneapolis.—p. 719.
- 95 Cervicitis and Vaginal Leukorrhea as Etiologic Factors in Neurasthenia and Hysteria in Women. A. R. Hollender, Linden, Wis.—p. 727.
- 96 Conservative Surgery in Operations on Fallopian Tubes with Reference to Future Pregnancies; Two Cases. F. Warner, Columbus, Ohio.—p. 731.

Military Surgeon, Washington, D. C.

October, 1918, 43, No. 4

- 97 *Medical Work with American Expeditionary Forces. R. B. Osgood.—p. 369.
- 98 Foot Problem. T. S. Mebane.—p. 377.
- 99 *Empyema at Camp Lewis. E. W. Rockey.—p. 384.
- 100 *Communicable Diseases in National Guard and National Army During Six Months from September 29, 1917, to March 29, 1918. V. C. Vaughan and G. T. Palmer.—p. 392. To be continued.
- 101 History of Base Hospital, Camp Sherman, Chillicothe, Ohio. C. A. Wood.—p. 445. Concluded.

97. Medical Work with Expeditionary Forces.—Osgood states that the three professional divisions therefore which are represented by their specialists in the combat divisions are genito-urinary, psychiatry and orthopedic surgery. If the cases reach the evacuation hospitals within ten or twelve hours of receipt of their wounds, it is possible to perform primary, delayed primary and secondary suture on nearly 90 per cent. The quick return of the wounded to the evacuation hospital, where the most skilled surgical service can be rendered, thus diminishes the surgery done in the field hospitals and limits it practically to emergencies only. The

wounded men with fractures are coming back in splendid shape to the evacuation hospitals. Thus far the splinting has been excellent. In times of push of course the necessity of moving back cases very quickly prevents such a high percentage of early closures from being attained as is possible in times of comparative quiet.

When the cases can safely be removed from the evacuation hospitals, they go back either to the base hospitals of the advanced zone, the special hospitals of the advanced zone, or sometimes directly to the base hospitals of the intermediate and base zones. The special cases of bone and joint injury are segregated so far as possible and sent to special bone and joint hospitals. One is already established in the advanced zone and several others in the intermediate and base zones. In the advanced zone there are also special psychiatric and genito-urinary hospitals. From the base hospitals in the advanced zone, cases of amputation are sent to a special center and segregated. There the early treatment for weight bearing is begun. There are gradually being established, in orthopedic centers, curative workshops. A certain amount of very simple mechanotherapeutic apparatus is installed in these centers.

Every one who comes in contact with the severely wounded soldier, who has been through hardships and suffered and has emerged in a more or less crippled condition, recognizes the importance of beginning, as soon as possible, to combat the idea of crippledness and to awaken and foster a spirit of future usefulness. If at this stage the soldier can be given something to do with his hands and to occupy his mind as well, and he can come in contact with a simulating personality who is not a soldier and who will not talk battles with him, he gains comparatively quickly the conception of a possible wage-earning capacity and a return to a useful place in the body politic. He recognizes that his duty to the nation does not end with the end of his fighting and that his disability is a disability to be overcome.

99. Empyema at Camp Lewis.—Pneumococcus empyema was treated successfully at Camp Lewis by rib resection and simple drainage. From the progress of the yet incomplete cases (final results will be reported later), Rockey feels that the most efficient method of treating streptococcus empyema has been by thoracotomy, with constant negative pressure. This is shown by: (a) absence of mortality; (b) smooth post-operative convalescence, except in cases of too early removal of drainage tubes; (c) absence of pneumothorax, as proved by roentgen ray; (d) economy of materials and labor.

100. See Abstract No. 42, THE JOURNAL, Oct. 12, 1918, p. 1248.

Modern Hospital, St. Louis

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- 102 An Institution for Free Treatment of Tuberculosis Maintained by Modern Woodmen of America. J. A. Rutledge, Woodmen, Colo.—p. 155.
- 103 How American Red Cross in France Mends Mutilated Faces. K. De Monclos.—p. 158.
- 104 Health Insurance; Its Medical and Hospital Aspects. J. A. Lapp.—p. 160.
- 105 How to Build an Efficient General Hospital for Small Community. E. E. Bailey, Pittsburgh.—p. 165.
- 106 Some Problems of Hospital Management. H. E. Tuley, Louisville, Ky.—p. 169.
- 107 Hospital Accounting. C. A. Porter and H. K. Carter, St. Louis.—p. 173.
- 108 Life Saving Surgical Dressing Squads in France. C. H. Crawford.—p. 178.
- 109 New Experiment in Team Work for Public Health. C. Dinwiddie, Cincinnati.—p. 180.
- 110 Little Journeys to Places and People Worth Knowing. M. J. Robinson, Chicago.—p. 183.
- 111 Mental Hygiene and War. E. A. Prince, New York.—p. 196.
- 112 Trained Attendant. F. Dakin, Middletown, Ohio.—p. 198.

Nebraska State Medical Journal, Norfolk

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- 113 Complement Fixation in Tuberculosis. H. J. Lehnhoff.—p. 265.
- 114 Tuberculosis. A. K. Detwiler, Omaha.—p. 268.
- 115 Early Diagnosis of Cancer of Uterus. P. Findley, Omaha.—p. 273.
- 116 Nuclear Paralysis. F. F. Teal, Lincoln.—p. 276.
- 117 Treatment of Syphilis. C. C. Tomlinson, Omaha.—p. 277.
- 118 Roentgen Diagnosis of Carcinoma of Stomach, Colon and Rectum. A. F. Tyler, Omaha.—p. 280.
- 119 Carcinoma Head of Pancreas. A. Sachs, Omaha.—p. 283.

New Orleans Medical and Surgical Journal

October, 1918, 71, No. 4

- 120 *Sodium Citrate in Treatment of Pneumonia: Cases. W. H. Weaver, New Orleans.—p. 181.
121 Shell Shock—Psychoneurosis of War. C. S. Holbrook, Jackson.—p. 191.
122 Running Ear. G. J. Taquino, New Orleans.—p. 203.
123 Cross-Eyed Child Neglected. J. Hume, New Orleans.—p. 206.

120. **Sodium Citrate in Pneumonia.**—Weaver says that it is highly probable that some who have tried this treatment and have been disappointed in its results have not given the citrate in large enough doses. In an adult, 40 to 60 grains every two and a half to three hours, must be continued day and night until the lung has entirely cleared. If the citrate is discontinued before complete resolution there will be an immediate relapse. This relapse will again clear away under the influence of the citrate. This will be absolute proof that the citrate is responsible for the recovery by lysis. Thirty-six cases have thus far been treated and a rapid recovery has resulted in each instance.

New York Medical Journal

Oct. 12, 1918, 108, No. 15

- 124 *Anti-Influenza Vaccine as Prophylactic. W. H. Park, New York.—p. 621.
125 Pathology of Prevailing Influenza Pandemic. D. Symmers, New York.—p. 621.
126 Clinical Aspects of Influenza. H. W. Berg and J. G. M. Bullowa, New York.—p. 624.
127 Treatment of Influenza. W. A. Bastedo, New York.—p. 626.
128 Concomitant Bronchoscopy and Esophagoscopy. S. Iglauer, Cincinnati.—p. 627.
129 Day Phantasies in Child. A. Stern, New York.—p. 628.
130 Spontaneous Pneumothorax in Pulmonary Tuberculosis. M. Kahn, Brooklyn.—p. 632.
131 Real Value of Fresh Air in Tuberculosis and Many Infectious Diseases. C. Gluck, New York.—p. 632.
132 Improving Sight of Soldiers and Sailors and Relieving Pain. W. H. Bates, New York.—p. 639.

124. **Anti-Influenza Vaccine as Prophylactic.**—Park says that as the investigations have proceeded in Boston, New York, and elsewhere, it has become more and more probable that the primary cause of the disease is the influenza bacillus and that the complicating infections, due to the streptococci and pneumococci, are superimposed. It is fair to assume that the strain of the influenza bacillus responsible for this epidemic is an especially virulent one differing somewhat from the strains previously in Park's midst. The streptococci and pneumococci may be communicated from the sick with the influenza bacillus or they may have been present for some time before the attack. The influenza bacilli have been found in almost every case of clear cut infectious influenza. In the complicating pneumonias, they have been found associated with either the streptococci or pneumococci. In one case the bronchopneumonia was due entirely to the influenza bacillus. The results of the Department of Health of the City of New York, in fact, have closely agreed with those reported from the United States Naval Hospital at Chelsea, Mass., by Dr. J. J. Keegan, in THE JOURNAL, Sept. 28, 1918.

Southwestern Medicine, El Paso, Texas

August, 1918, 2, No. 8

- 133 Syphilitic Aortitis. R. E. Thomas, Phoenix, Ariz.—p. 1.
134 Public Health and War. W. O. Sweek, Phoenix, Ariz.—p. 8.
135 Trench Fever. G. Werley, El Paso.—p. 11.
136 Paralysis of Recurrent Laryngeal Nerve Associated with Pulmonary Tuberculosis. A. D. Wilson, Prescott, Ariz.—p. 14.
137 Cheiloplasty of Lower Lip for Neglected Carcinoma. V. A. Smelker, Nogales, Ariz.—p. 17.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Sept. 21, 1918, 2, No. 3012

- 1 Nature and Symptoms of Cardiac Infection in Childhood. F. J. Poynton.—p. 305.
2 *Association of Rickettsia Bodies in Lice with Trench Fever. J. A. Arkwright, A. Bacot and F. M. Duncan.—p. 307.
3 *Work of Department for Employing Expectant Mothers in Munition Factory. R. H. B. Adamson and H. Palmer-Jones.—p. 309.
4 Three Fatal Cases of B. Aertrycke Infection. A. J. Jex-Blake and W. J. Wilson.—p. 310.

- 5 Ventral Hernia; Use of Filigree to Strengthen Abdominal Wall. H. H. Greenwood.—p. 312.
6 *Boot Heels as Cause of Flatfoot, Soldier's Heart, Myalgia, etc. S. D. Fairweather.—p. 313.

2. **Rickettsia Bodies in Lice and Trench Fever.**—The constant presence, after a suitable lapse of time, of rickettsia bodies in lice which have been fed on a trench fever patient has been confirmed by Arkwright and Duncan. The absence of rickettsia bodies from lice bred in captivity and fed only on healthy men has been shown by them. A very close correlation has been shown to exist between the presence of rickettsia bodies in lice or the excreta of lice and the virulence of these materials when inoculated into men.

3. **Employing Expectant Mothers in Munition Factory.**—Since the outbreak of the present war the numbers of married women of child-bearing age who have entered into industrial employment have steadily increased. Apart from the necessity for engaging in well paid work experienced by these women, various industries have discovered that these married women are valuable servants, who are reliable workers in different processes and who cannot always be replaced by satisfactory substitutes if they leave work. Up to a recent date there has been no fixed routine of procedure in dealing with women factory employees who have become pregnant. In some instances the condition has been ignored and the woman has been allowed to work at any process as long as she has wished to do so without any regard to the suitability of the work on which she is engaged. In other cases the custom has been to dismiss an expectant mother directly her condition becomes apparent regardless of the question of her ability to work to a later date.

The prematernity scheme in Leeds was opened for the transfer of women in April, 1918. The women themselves apply at each factory to their welfare supervisor to be enrolled for employment under the scheme. They fill in a form of application, and sign an agreement to accept the wages offered for this class of work. This form is forwarded to the lady superintendent in charge of the scheme, who notifies the factory medical officer of the applications. The factory medical officer examines all applicants as soon as possible, and sends in a report on them as to date and number of pregnancy, date of expected labor, complications if any, and the grade or work for which they are then suitable, and the desirable dates for transfer to lighter work. From this tabulated list of applicants the lady superintendent of the scheme is able to transfer women to their special work as they become eligible provided there is a vacancy by the delivery of women further advanced in pregnancy working under the scheme. Women on becoming pregnant are very adversely affected by night work apart from any degree of heaviness. For this reason the aim of the scheme is to place expectant mothers on day work only as a routine at the end of the fourth month of pregnancy, and sooner than this date if there is a complaint of great discomfort due to night work. As soon as these women notify their pregnancy, even though they have not reached the end of the fourth month, they are removed from any work involving heavy lifting or sudden strain.

On reaching the end of the fourth month of gestation, or earlier if there is any medical reason, these women are transferred to light sedentary work at a factory engaged in the gaging and assembling of fuse parts. They work from 7:30 a. m. till 5:30 p. m., with the usual factory breaks for meals. They are given the less skilled operations in this factory, as it is not worth while devoting much time to teaching them any work at which they will be employed only a few months. They are paid at the ordinary standard rate for their work. At the end of the seventh month, or earlier if there is any medical reason, these women are transferred from the fuse factory to a department which for convenience is described as the general clothing store and sewing dépôt. Here they work from 9 a. m. till 5 p. m., with breaks for meals as in the factory. They are engaged on the making and mending of the overalls, caps, trouser suits, gloves, etc., supplied by the factory management for the use of their workers. The last hour of the day is given up to the making of clothes for the baby under the help and guidance of the sewing dépôt

forewoman. They are encouraged to lie down in the rest room during part of their dinner hour, and at any time if they are temporarily indisposed. The women make their own arrangements for attendance during confinement. They may remain at work until labor begins, if they wish to do so.

6. **Boot Heels Cause of Flatfoot, Soldier's Heart, etc.**—In a normal barefooted man the balance of the body is so perfect that practically no effort is required to keep erect. The weight rests on the heels and outer sides of the feet, not on the arch or inner sides of the feet. Fairweather says that if the heels are raised from the ground by boot heels even a quarter of an inch thicker than the soles the outer side of the foot is removed from the ground and the weight falls on the arch. The center of gravity is also thrown forward, and in a man of 5 feet 7 inches the head is thrown 9 inches off the vertical by a heel three-quarters inch high. To remedy this, and to prevent falling forward, the back muscles and the extensors of thigh and foot come into action. The peroneus longus and brevis, while extending the foot, also evert it, and the tibialis anticus, which supports the arch and inverts the foot, gets elongated and ceases to act. A soldier, 5 feet 7 inches, weighing 154 pounds, and wearing a heel three-quarters inch thicker than the sole, has to exert strength enough to be constantly lifting 56 pounds, from the ground in trying to retain his balance. In a man loaded with 60 pound equipment this means that he has to support to 116 pounds, nearly doubling the weight he is supposed to carry.

Fairweather is convinced that this is doubtless one factor in the etiology of soldier's heart, as every heart, even if healthy, is not equal to this strain. To preserve the lumbar curve without overtaxing the back muscles women are obliged to use corsets. The use of waist belts by men is similarly explained. The waste of neuromuscular energy in retaining an erect posture when wearing heels is very great, and must play a large part in producing hysteria, neurasthenia, and possibly refraction troubles. Heels are also partly responsible for hammer toes, the long flexors of the toes being supplied by the same nerve as the calf muscles, and getting spastic with them. Fairweather thinks sprained ankles, the stoop of old age, asthma, varicose veins, weak back, and spinal curvature may also be partly due to the effect of heels.

A rational boot should have the soles and heels of the same thickness. Under the arch of the foot the sole should be curved with a convexity upward, but not so convex as to cause pressure on the sole. The leather could be reinforced by spring steel from the heel to the ball of the foot. The inner edge of the boot should be straight, so as to allow the big toe to be in line with the inner side of the arch, as in American boots. In hopeless cases of flatfoot a boot with no heel will at least be more comfortable than the present day boot. The spastic calf muscles will not relax immediately the boot heels are discarded, and consequently at first some awkwardness will be felt in walking. Very soon, however, the tibialis anticus develops, the ankles get stronger, the legs straighter at the knees, the foot gets shorter as the arch recovers, and any tendency to eversion disappears. The figure gets more erect, the chest capacity increases, and walking becomes a pleasure, and as the neuromuscular energy (wasted in neutralizing the forward tilt caused by boot heels) becomes conserved, the health, strength and stamina improve.

Dublin Journal of Medical Science

August, 1918, **146**, No. 560

- 7 Clinical Report of Rotunda Hospital, November, 1915, to October, 1916. W. Smyly, R. D. Purefoy and E. H. Tweedy.—p. 49.
- 8 Relation of Consciousness to Sympathetic System. E. Wooton.—p. 60.

Glasgow Medical Journal

August, 1918, **90**, No. 2

- 9 Trinitrotoluene Poisoning; Five Cases. A. W. Gregorson and F. E. Taylor.—p. 65.
- 10 Polioencephalitis and Epidemic Disease of Obscure Origin. R. M. F. Picken.—p. 81.
- 11 Outbreak of Acute Febrile Disease in Three Factories and Industrial School in Glasgow. A. Maclean.—p. 84.
- 12 Vitiligo; Four Cases. A. W. Harrington.—p. 87.

Journal of Tropical Medicine and Hygiene, London

Sept. 16, 1918, **21**, No. 18

- 13 Dengue-Like Fever in Dutch Guiana. C. Bonne.—p. 189.

Lancet, London

Sept. 21, 1918, **2**, No. 4960

- 14 *Prevention and Arrest of Lice-Borne Diseases by New Methods of Disinfection. W. Hunter.—p. 377.
- 15 *Combined Embarkation and Boat Distribution Scheme. H. Hemsted.—p. 382.
- 16 Case of Sudden Death After an Anesthetic in Latent Case of Shell Gas Poisoning. P. Turner.—p. 384.
- 17 *Typhus. Weil-Felix Serologic Test. C. M. Craig and N. H. Fairley.—p. 385.
- 18 *Intestinal Protozoal Infections. D. L. Mackinnon.—p. 386.

14. **Lice-Borne Diseases and Disinfection.**—Hunter describes in detail the use and construction of two new types of Van disinfectors, following this up with the results obtained in Serbia and in Saloniki as he has already done for the Egyptian campaign.

15. **Embarkation and Boat Distribution Scheme.**—The object of Hemsted's scheme is to segregate patients on embarkation according to diseases, nationalities, ports of debarkation, etc., and to furnish each man immediately with a ticket for his life boat. The Graphic System is adopted and works admirably.

17. **Typhus: Weil-Felix Serologic Test.**—Craig and Fairley claim that this agglutination test is an invaluable aid in the diagnosis of typhus. Frequently the reaction appears only in the disease, and, as a rule, rapidly increases in titer. A rapid agglutination in a dilution of $\frac{1}{10}$ on Garrow's agglutinator, while not absolutely reliable, is sufficiently suspicious to justify the isolation of the case. This is especially true of persons uninoculated with T. A. B. or cholera. The serum of fifty uninoculated natives failed to give a reaction even in a dilution of $\frac{1}{10}$. If the test be repeated at intervals of two days confirmatory evidence will, in the great majority of cases, be obtained. This test is particularly valuable in the case of natives in whom it may be difficult to distinguish clinically between severe relapsing fever and typhus.

18. **Intestinal Protozoal Infections.**—From May, 1917, to March, 1918, 1,680 cases (914 dysenterics and 766 nondysenterics) were examined by Mackinnon for intestinal protozoa. Only 131 had less than six examinations. Thirty-four patients had never been out of England. The rest, with very few exceptions, came from France. But it was found that 447 had at some time been in tropical and subtropical countries. Eight hundred and sixty-four, or 51.4 per cent., were infected with protozoa. *E. histolytica* was found in 209 cases, *E. coli* in 440, *E. nana* in 303, *Giardia intestinalis* in 226, *Chilomastix mesnili* in 85 and *Trichomonas hominis* in 13. The 914 dysenterics yielded 123 carriers of *E. histolytica*; the 766 nondysenterics yielded 86. Among 447 persons (dysenteric and nondysenteric) who had been in the East, 72 were infected with *E. histolytica*; of 1,233 persons from England, France and northern Italy, 136 were infected. Two hundred and eighty dysenterics who had been in the East had among them as many as 56 carriers, whereas 634 French and English dysenterics yielded only 67. Of 131 carriers who were treated for twelve days with emetin bismuth iodid, 69 relapsed after a first treatment. Of 16 who went on to further treatment, 8 were eventually cleared. At least 58 per cent. of the relapses took place in the first week. Observations on 5 cases of *lamblia* dysentery treated in France with methylene blue and declared free of the organism do not suggest that this is an effective treatment.

Medical Journal of Australia, Sydney

Aug. 31, 1918, **2**, No. 9

- 19 Conditions Found in Amputation Stumps. A. T. H. Nisbet.—p. 173.
- 20 Organization and Surgery of Military Orthopedic Hospitals with Special Reference to Nerve Surgery. L. G. Teece.—p. 197. To be continued.
- 21 Treatment of Phthisis by Means of Paratoluene-Sodium-Sulphochloramin (Chloramin-T). F. W. Waters.—p. 200.

Sept. 14, 1918, 2, No. 11

- 22 Associated Study of Clinical and Macroscopic and Microscopic Appearances of Carcinomatous Tumors of Breast. H. C. Rutherford-Darling.—p. 217. To be continued.
23 Organization and Surgery of Military Orthopedic Hospitals, with Special Reference to Nerve Surgery. L. G. Teece.—p. 219.

Archives des Maladies de l'Appareil Digestif, etc., Paris

May, 1918, 9, No. 12

- 24 *Intestinal Bilharziasis. P. Carnot.—p. 661.
25 *Digestive Activity of the Stomach. L. Meunier.—p. 683.
26 *Cancer of Upper Esophagus. E. Cottin and C. Saloz.—p. 689.
27 Colon Reactions. F. Moutier.—p. 697.

24. **Intestinal Bilharziasis.**—Carnot gave daily enemas of thymol in an oil emulsion and gave thymol also by the mouth, with good results in the two cases reported.

25. **Test for Strength of Gastric Digestion.**—Meunier has the patient swallow a pearl of ether, enclosed in a little rubber bag, the neck of the bag tied with a cord of some substance which is digested by gastric juice. When this cord yields to the digestive juices, and the sac thus spreads open, the ether escapes and the patient belches. The length of the interval that elapses between the swallowing of the pearl and the characteristic eructation is an index of the strength of the digestive forces. He used catgut at first to tie the sac, but found *filandre* cord better for the purpose. This *filandre* is made like ordinary catgut from the small intestine of sheep, but whereas catgut is made from the third layer, next the mucosa, the *filandre* is made from the second, the purely muscular tissue layer. This permits more even digestion. The ether pearl is tied in the center of a disk of thin rubber tissue, about 3 cm. in diameter. This is drawn up and held by a fine elastic drain, the ends of which are tied together with the strip of *filandre*. As this yields to digestion by the gastric juice, the ether pearl falls out; as it bursts, the patient feels a peculiar sensation and belches the ether. Taken with an Ewald test meal, the ether eructation occurs in normal conditions in fifty or sixty minutes. Meunier is convinced that the findings with this test are more exact and reliable than with chemical tests, as the latter require the stomach tube, and the information derived from it applies only to that special moment. A series of intubations would be instructive, but this would certainly modify the motor functioning of the stomach and thus secondarily modify gastric secretion. The ether pearl, on the other hand, swallowed with the meal, undergoes digestion along with the food, and gives the warning signal only when the digestion has reached a certain stage. It is thus a true physiologic index.

26. **Cancer of Upper Esophagus.**—Cottin and Saloz remark that the laryngeal form of cancer of the esophagus is the one hardest to diagnose. The dyspnea, the attacks of suffocation, point to the air passages. The intense pain from pressure on the brachial plexus and sympathetic nerve may suggest angina pectoris, while the partial or total aphonia or dysphonia suggest primary laryngeal disease. The diagnosis generally has to be made by exclusion. In a case described, spasms of coughing and of increasing dyspnea were the only symptoms at first. In four months the voice was bitonal, and eating brought on paroxysms of coughing. There was paralysis of the left recurrent nerve, and the disturbances were attributed to this at first, but, by exclusion, the attention was finally focussed on the upper esophagus, and necropsy confirmed the assumption of malignant disease at this point.

Bulletin de l'Académie de Médecine, Paris

Aug. 13, 1918, 80, No. 32

- 28 *Influenza. F. Bezançon.—p. 158.
29 *Scarlatinal Endocarditis. P. Nobécourt.—p. 162.
30 Polymicrobial Antigonococcus Vaccine. G. Baril.—p. 164.

28. **Influenza.**—Bezançon states that the pneumococcus is decidedly the predominant microbe in the prevailing epidemic of influenza at Paris. The frequency and the severity of the bronchopulmonary complications are striking, and also the number of cases of zona that have followed it. In one hospital there were over twelve cases of influenzal herpes zoster in one month.

29. **Scarlatinal Endocarditis.**—Nobécourt ascribes to secondary infections the ulcerative and vegetative forms of endocarditis in scarlet fever. The scarlatinal virus alone induces a simple nonulcerative endocarditis, and this is the more common. Among the soldiers he encountered it in 2.5 per cent. of 278 cases of scarlet fever. The heart was affected, as revealed by auscultation, in 38.5 per cent. of the cases of scarlatinal rheumatism in soldiers. As a rule, scarlatinal endocarditis tends to recovery; the auscultation findings becoming normal once more. It passed into a chronic phase only in two of seven cases in soldiers. The myocardium seems to be left with a tendency to ready dilatation later. Tardy tachycardia is not infrequent. The endocarditis of scarlet fever is thus closely analogous to that of acute rheumatism. With both there are liable to be acute polyarthritis, pericarditis, etc., and, in children, chorea.

Bulletins de la Société Médicale des Hôpitaux, Paris

June 28, 1918, 42, No. 23

- 31 *Tuberculosis of the Heart. Braillon.—p. 668 and p. 669.
32 *Serodiagnosis of Spirochete Jaundice. Martin and Pettit.—p. 672.
33 *Aortic Insufficiency. F. Trémolières and L. Caussade.—p. 675.
34 *Oliguric Heart Disease. O. Josué and M. Parturier.—p. 682.
35 *Latent Microbism. Bergeret and Botelho.—p. 688.
36 *Lethargic Encephalitis. P. Halbron and Coudrain.—p. 692.
37 Diaphragmatic Hernia. L. Giroux.—p. 695.
38 *Epilepsy. Mirallié.—p. 697.
39 Paratyphoid A. De V. de Lavergne and C. Gautier.—p. 700.

31. **Tuberculous Heart Disease.**—Braillon comments on the clinical picture of subacute tuberculosis of the endocardium, the valvular disturbance, mitral rhythm and progressive asystole, in young subjects, with a febrile temperature during the months before death, the fever of the tuberculosis type. The clinical picture differs essentially from that of streptococcus protracted endocarditis, and animals inoculated with blood developed tuberculosis in the two cases analyzed (both previously published).

He discusses further the simple endocarditic phlegmasia, with tubercle bacilli, which is the form of cardiac tuberculosis that develops in the resistant or with mild infection. Under other conditions, the bacilli are arrested in the capillaries and the miliary form of tuberculosis develops from the specific embolisms. In short, he concludes, tuberculosis must be regarded as a cause of chronic heart disease, possibly of as much importance as acute rheumatism and syphilis.

32. **Agglutination Test for Spirochete Jaundice.**—Martin and Pettit report that the Widal test applied to human icterohemorrhagic spirochetosis during the last six months has given conclusive findings from the clinical standpoint. Normal and syphilitic serums have never to date agglutinated these spirochetes, while the course of the case, the spirocheturia and inoculation of guinea-pigs confirmed the positive findings. The earliest date in which the agglutination test proved positive was the tenth day, but the agglutinins long persist in the blood, up to twenty-two months to date in one case, still agglutinating at 1:1,000. The immunisins do not appear till the fifteenth day.

33. **The Murmur of Aortic Insufficiency.**—In 50 per cent. of 82 men with aortic insufficiency examined, the murmur was heard in the left second and third interspaces, and only in 11 in the right second interspace; in 20 at the sternum; in 9 at the xiphoid appendix and once toward the apex. The cases in which it was heard at the left were all recent ones. With an old aortic lesion, the diastolic murmur is heard on the right side, and radiology shows hypertrophy of the left ventricle with dilatation of the right cavities and deviation of the axis of the aorta upward and toward the right. The mechanism of this is explained with diagrams. In the recent cases, with left murmur, the left ventricle is simply hypertrophied, the aorta still vertical. In a little more advanced stage, the murmur is heard at the sternum, and the aorta has begun to slant toward the right.

34. **Oliguria of Cardiac Origin.**—Josué and Parturier report a typical case which confirms that myocarditis is able, alone, to induce oliguria with such retention of fluids in consequence that there is pronounced dropsy. The latter resembles that of renal origin, but the kidneys are sound. The trouble is

merely that the heart cannot pump the fluid to the kidneys in sufficient amounts. A drop in the output of urine is the capital symptom which should suggest a failing myocardium. Even if the kidneys are diseased, the heart may be mainly responsible for the oliguria. The proof for these assertions is provided by the rapid subsidence of the dropsy under digitalis alone.

35. Latent Microbism.—In one of the two cases described, latent infection in a war fracture flared up two years after it had healed. The staphylococcus and an anaerobic streptococcus were responsible for it. In the second case the interval was twenty-three months, and the staphylococcus and streptococcus found were facultative anaerobes.

36. Lethargic Encephalitis.—The aviator of 26 was taken suddenly with headache and torpor. The somnolency was almost continuous, and strabismus and ptosis varied from day to day. For a few days there was hemiplegia and one day clonic movements, but no fever at any time. Lumbar puncture showed limpid fluid, apparently normal except for slight lymphocytosis. The symptoms gradually subsided and complete recovery now impends; the tendency to somnolency persisted for eighteen days, with intermittent headache.

38. Epilepsy.—Mirallié insists that salt should be discarded absolutely as also tea, coffee and alcohol. Then the doses of bromids can be materially reduced, and such improvement may then be realized that it amounts to an actual cure. He gives a moderate dose of the bromid every day, without interruption. When his patients go thus two or three years without a seizure, he reduces the dose of the bromid, but emphasizes that absolute abstention from salt is the main thing. In his first series of 181 cases, only 83 followed his instructions. At that time he ordered merely restriction of salt. In 12 cases the results were negative; in 18 there was improvement and 53 had no further seizures. Since 1912, 52 of a later series of 133 cases followed instructions, and 31 have had no further seizures and 18 have been much improved; more or less benefit has been realized in all but 3 cases. Of 10 men in one institution, all were improved and 5 apparently cured, as also 9 of the 12 women, all showing marked improvement. The youngest of the clinically cured was 7, the oldest 63 years of age. The seizures in one case had been frequent from the age of 7 to 37, but there have been none since this treatment was instituted. The best results were realized in families in which the mother did the cooking, and she was able thus to keep all salt out of the bread, the butter, etc. When this was left to servants, the salt was not banished so rigorously. Full success was realized only in the cases with absolute abstention from salt, tea, coffee and alcohol. Sugar, pepper, vinegar and lemon juice were allowed freely. The benefit was prompter and more pronounced in persons who had previously used much salt. The other symptoms of epilepsy were not modified so early as the actual seizures. The diet, except for the salt and stimulants, can be varied and liberal, but must be served entirely without salt. The failures were always in the wealthy homes.

Journal de Radiologie et d'Electrologie, Paris

March-April, 1918, 3, No. 2. Pub'd August

40 *Mute Tuberculous Cavities in Lung. J. Aimard.—p. 49.

41 *Roentgen Examination of Spondylitis. Péhu and Daguet.—p. 53.

42 *Localization of Deep Projectile. L. Patte.—p. 57.

43 *Bulletin of Radiologic Service.—p. 65.

40. Mute Tuberculous Cavities.—Aimard gives the roentgen findings in a number of cases in which there was nothing to suggest a cavity in the lung otherwise. A silent cavity in the left lung is usually at the apex; in the right lung it may be found at the apex, base or middle of the lung. When the outline is distinct, in clear lung tissue, the cavity is of a fibrous type. An active cavity may show a hazy outline in the midst of infiltration. The outline of an arrested cavity usually grows more and more indistinct until the outline quite disappears. With sclerosis and consequent deformity of the superior interlobe, a shadow may be cast suggesting the floor of a cavity, ribs aiding to form an outline resembling that of a tuberculous cavity at the right apex.

41. Deforming Spondylitis.—Roentgen study of six cases seems to show that chronic spondylitis with tendency to ankylosis, and rhizomelic spondylosis seem to be different forms of chronic rheumatism. The two dorsal and first two lumbar vertebrae are usually first and predominantly affected.

42. Localization of Deep Projectile.—The method described is based on the use of a small diaphragm and measured rotation of the tube.

43. Army Roentgen Bulletin.—This section contains reports of a number of cases interesting from the roentgen standpoint, and a number of modifications in roentgen technic worked out by radiologists in the service. They include twin tubes for locating projectiles, a pedal control for rotating the tube, a simplified table for roentgen work, supplementary diaphragms, etc.

Paris Médical

Aug. 3, 1918, 8, No. 31

44 *Lethargic Encephalitis. A. Netter.—p. 81.

45 *Meningococcemia. P. Sainton.—p. 86.

46 Partial Tetanus. G. Étienne.—p. 91.

47 *Malaria and Malariosis. Aynaud.—p. 95.

48 Colloidal Gold in Paratyphoid. Fortineau.—p. 97.

49 General Vaccination against Typhoid. H. Alliot.—p. 100.

50 Poliomyelitis in the United States. G. and J. Blechmann.—p. 105.

44. Epidemic Lethargic Encephalitis.—Netter gives a detailed history of this disease which he has encountered in ten adults and four children in his private practice and in six children in his service in a children's hospital. In the 105 cases in England, sixty-four were in adults, over 20, and only fifteen were in children under 10. He insists that the clinical picture is not that of a food intoxication nor of a special form of influenza nor of poliomyelitis. He reiterates that it is a *maladie autonome*, the specific agent of which is endowed with an affinity for the nerve centers. The epidemic began simultaneously in France and in England late last January. The normal findings in the cerebrospinal fluid are important for the diagnosis. All the features of the present epidemic are found in the accounts of an epidemic at Vienna in the winter of 1916-1917. An apparently similar epidemic was reported in the *Medical Journal of Australia*, March, 1918. In comparison with poliomyelitis, the mortality is greater, but integral recovery is more common than with poliomyelitis; the cerebrospinal fluid is more nearly normal. In poliomyelitis, he says, the symptoms are almost exclusively bulbar and protuberant, and the nerve cells are found more pathologic, although the microscopic changes are not essentially different in the two diseases. In treatment he relies on hexamethylenamin, giving 1 or 2 gm. in the twenty-four hours. He has had no opportunity yet to give intraspinal injections of convalescent serum such as have proved effectual in poliomyelitis.

45. Meningococcemia.—Sainton describes seven different forms which meningococcus infection of the blood may assume: the fulminating or subacute form, the typhoidal, pseudomalarial, eruptive, articular and metastatic form, and the abortive forms. Herpes is frequent in meningococcus infection. In dubious cases the turbid spinal fluid may give the clue even in the absence of meningeal manifestations. In one case described, the meningococcemia dated from May 6, but meningitis did not develop till July 14. The danger of contagion of others in such a case is obvious. In the pseudomalarial form, the man may come and go freely during the free period between attacks, and thus sow the germs broadcast. Intravenous injection of antimeningococcus serum seems the logical treatment, but there is sometimes a dramatic reaction that might prove fatal. Artificial respiration, venesection and injection of ether were all that saved one of Sainton's patients in such a case. Similar experiences have been reported by Netter and by Marie, so that the intraspinal or subcutaneous route seems preferable.

47. Malariosis.—Aynaud warns that the suggestion exerted by actual injury from an accident or actual malarial disease, plus the talking it over with one's mates, may generate a state of mind in which the accident or the malaria—any accident, any malaria—is regarded as synonymous with indemnity. Soldiers who have had malaria and who get this

"malariosis" are all convinced that they have the absolute right to be exempted from further service to the end of the war, and to be supported after the war. When they are dismissed from the hospital they are told to keep on taking quinin. This means, they think, that they are not cured. If not cured of a disease contracted in the service, then they have a right to be taken care of. At present all they demand is exemption from further service, but the day that peace comes they will claim a pension for disability contracted in the service, and they will present a bunch of hospital cards, etc., with mention of malaria, anemia, etc., often written merely at the man's own dictation, without special examination. Army medical officers must beware of breeding this "malariosis" with its train of pensions and life-long loafing. Men with malaria should be under the care of experts in malaria, and when dismissed they should not be told to continue taking quinin. Every time a man with malariosis comes into the hands of a physician who is not a malaria specialist, the man returns to the hospital for a course of treatment, and always he seeks a different hospital. Malariosis is becoming seriously prevalent, and both medical and military measures are necessary to stamp it out.

Presse Médicale, Paris

Aug. 29, 1918, 26, No. 48

- 51 *Access to Heart. P. Duval and H. and P. Barasty.—p. 437.
- 52 *Clinical Tests of Labyrinth. H. Piéron.—p. 439.
- 53 *General Anesthesia by Intubation. Guisez.—p. 441.
- 54 Histochemical Constitution of Pus. A. Demolon.—p. 443.
- 55 Mercury-Lead Plaster. L. A. Longin.—p. 445.

51. **Median Pericardotomy.**—Duval and Barasty show with illustrations the various methods of access to the heart and the large vessels at the base of the heart. They expatiate on the advantages of a median technic with which the upper end of the sternum is cut across and the body slit lengthwise. The incision is thus in the shape of a T, but the access thus afforded to the mediastinum and upper abdomen is surprisingly extensive as the halves of the sternum are turned back. This bone is of such a spongy nature that it grows together at once without suture, so that this median thoraco-abdominal pericardotomy seems to be the best means of access to this region.

52. **Clinical Tests of Labyrinth Functioning.**—Piéron cites the general laws which govern labyrinth functioning, and describes the mechanism and interpretation of the findings in different pathologic conditions.

53. **General Anesthesia by an Intratracheal Tube.**—Guisez remarks that the advantages of administering the anesthetic through a rubber tube are so great that it has proved possible to materially modify the technic of operations on the face and neck. He has applied it in 330 cases, and there has never been the slightest by-effect from the intubation. An olive tipped sound, No. 26 to No. 30, is introduced by one skilled in direct laryngotracheoscopy, the patient under the influence of a few whiffs of the anesthetic. A spinal spring is wound around the sound where it passes between the teeth, and the sound is pushed in about half way down the trachea. A string fastened to it and tied around the neck holds it in place, and a sponge is packed around it in the nasopharynx. As there is no possibility of blood and secretions getting into the air passages, there is no need to hold the head far back. One unexpected advantage of this technic is the absence of postoperative nausea and vomiting. Only six of the 330 patients had any tendency to vomiting, and in these it was slight; the preoperative first whiffs of the anesthetic were probably responsible for it. These experiences demonstrate that postoperative vomiting cannot be ascribed to a toxic action on the liver. It seems more rational to ascribe it to swallowing of chloroform fumes and of saliva saturated with them. When this is prevented, there is no vomiting. Under the influence of any toxic gas, constant swallowing movements are kept up, asleep or awake, and the swallowed air and fumes amply explain the distension of the stomach walls and irritation of its mucosa. In the gassed, he has found evidences all along in the esophagus of toxic action from the swallowed gas. All of which confirms his assumption that by this intubation technic, preventing all swallow-

ing, we can ward off postoperative nausea and vomiting in the majority of cases, outside of damaged liver and kidneys.

Policlinico, Rome

Aug. 18, 1918, 25, No. 33

- 56 *Adhesive Plaster Treatment of Wounds. C. Mancini.—p. 773.
- 57 Campaign against Malaria. D. Falcioni.—p. 777.
- Aug. 25, 1918, 25, No. 34
- 58 Secondary Arterial Hemorrhage. S. Tarantino.—p. 797.
- 59 Sending Blood for Examination. Domenici.—p. 800.

56. **Adhesive Plaster as Dressing for Wounds.**—Mancini relates that three years' experience has convinced him of the advantages of applying narrow strips of adhesive plaster directly to wounds. They heal under this dressing much faster and better than under gauze dressings, even when the gauze can be kept constantly moist. The strips of plaster are cut long enough to extend for some distance on each side of the wound, and they are drawn tight and pressed down on the wound. Under this combination of pressure, constriction and protection, without any antiseptic, the granulations are held in proper proportions, and the wound heals over fast. The only contraindication is progressing ulceration; under all other conditions, this method has superior advantages, he reiterates. The secretions escape between the strips of plaster. He has seen extensive bed sores heal under this treatment. It acts better when the strips are left unmolested for six or eight or more days. The gauze above can be changed as desired. This plaster treatment has the same protecting action as a paraffin film, but the latter lacks the constriction and pressure possible with the plaster. He uses ordinary adhesive plaster about 2.5 cm. wide. The simplest way to sterilize it, he says, is to leave it in alcohol for a day or two and then burn out the alcohol.

Riforma Medica, Naples

Aug. 3, 1918, 34, No. 31

- 60 *Adequate Diets. F. Bottazzi.—p. 605.
- 61 *Experimental Atheroma. C. B. Farmachidis.—p. 612.
- 62 *Spirochetes in Urine. F. Giugni.—p. 614.
- 63 Welfare Work for Children in Italy. A. Ascarelli.—p. 615.
- 64 Technic for Douching the Nose. G. Gradenigo.—p. 616.

60. **Soldiers' Rations.**—Bottazzi here replies to Baglioni and Rho. Their articles were summarized on pages 692 and 1256. He emphasizes the difference between the calculations of the chemist and the physiologist. Their figures are not interchangeable, for reasons which he explains.

61. **Changes in Myocardium Secondary to Sclerosis of Aorta.**—Farmachidis induced atheroma of the aorta in rabbits, and invariably the myocardium of the left ventricle developed sclerosis in consequence, without any general infection or intoxication.

62. **Spirocheturia.**—Giugni found spirochetes in the urine of a soldier with nodose erythema. This and some other experiences related confirm that spirochetes may be found in the urine without any connection with the disease the man may be having, or even in the healthy.

Rivista Critica di Clinica Medica, Florence

Aug. 3, 1918, 19, No. 31

- 65 Factitious Phlegmons. G. Garin.—p. 361. Conc'n.
- 66 Instrument to Facilitate Pectoral Fremitus. Fabbretti.—p. 364.
- 67 *Toxic Gases in Warfare. C. Capezzuoli.—p. 367. Conc'n.

67. **Gases in Warfare.**—Capezzuoli reviews what has been published on this subject, especially the long array of Italian contributions. In conclusion he mentions that Professor Lo Monaco's experiments have apparently demonstrated that chlorin compound gases can be utilized to preserve meat, fish, etc., and may be destined to aid materially in food conservation in normal times. The gases he has been testing are not toxic, and do not modify the taste when used for this purpose. Specimens of tissue from a lung mummified by the war gas took the stains and responded to other histologic tests like normal tissue.

Amazonas Medico, Manaus

March, 1918, 1, No. 1

- 68 Finger Prints of Brazilian Indians. G. Ramos.—p. 4.
- 69 *Nodular Leishmaniasis. A. Da Matta.—p. 13.

- 70 Fatal Syncope under Chloroform. J. De Moraes.—p. 16.
71 Retrograde Catheterization. T. Beltrão.—p. 23.
72 Ulcerating Granulomas. A. Da Matta.—p. 25.

69. **Nodular Leishmaniasis.**—In Da Matta's case the feet and lower legs were covered with nodules, some of them ulcerating. Some were confluent, and had the "mossy foot" aspect. The pseudoverrucous affection was of several years' standing and had proved rebellious to all other measures but prompt benefit and final healing of all the lesions followed intravenous injections of 1 per cent. tartar emetic, with local application of a 0.5 per cent. solution, and potassium permanganate. Sodium cacodylate was also given between the courses of injections during two months. The cure of the leishmaniasis was then complete; but there is still hypertrophy of the legs, probably from the chronic erysipelas which had developed as a complication.

Annaes Paulistas de Medicina e Cirurgia, S. Paulo

April, 1918, 9, No. 4

- 73 *Urinary Stones in Children. R. Puech and Souza.—p. 73. Cont'n.
74 Syphilitic Facial Diplegia. L. Torres.—p. 89.

73. **Urinary Stones in Children.**—Puech and Souza have compiled thirty-five cases in the state of S. Paulo in the course of ten years, nearly all in the families of immigrant colonists. Only 3 per cent. were in girls; none of the children were less than a year old, and the majority were between 3 and 5. Phimosis was apparent in 70 per cent. of the cases. Suprapubic incision is the best treatment, suturing the bladder at once, but not including the mucosa in the suture. There has been no recurrence in any instance after this operation; the only death in the series was due to other causes.

Archivos Españoles de Enf. del Ap. Digestivo, Madrid

August, 1918, 1, No. 8

- 75 Chemistry of Gastric Juice. L. Usobiaga.—p. 337. Cont'n.
76 Gallbladder Colics. A. L. Ruiz.—p. 358.

Archivos Españoles de Pediatría, Madrid

July, 1918, 2, No. 9

- 77 *Croupous Inspiration. A. Hinojar.—p. 385.
78 *Enlarged Glands in Child's Groin. V. Juaristi.—p. 400.
79 *Aids to Memory in Infant Feeding. R. Eyzaguirre.—p. 404.

77. **Croupy Respiration.**—Hinojar describes some typical cases to show the importance of search for the often unsuspected cause for the *tirage* or croupy wheezing in a child, instead of assuming diphtheria as a matter of course. A physician called him up one night for intubation of a child with membranous croup, but he found that the suffocation was from the tonsils, and he at once cut out both tonsils, with complete recovery. The removal of inflamed tonsils, he adds, is not such a serious matter as some suppose. The clue in this and similar cases was that the child's crying voice and cough were clear, not hoarse. Another child was being treated for diphtheria but intubation proved impossible, and the child was brought to him. The absence of hoarseness in the infant's crying voice led to discovery of a retropharyngeal abscess and of the absence of false membranes. Another child was brought for tracheotomy on account of extreme dyspnea and *tirage*, but the voice was clear and the *tirage* seemed to be at the base of the thorax. Necropsy confirmed his assumption of tracheobronchial adenitis. A hoarse cough, with crying and speaking voice clear, locates the stenosis below the glottis. A clear cough, with hoarse voice, locates it in the glottis. When the cough and voice are both clear, the stenosis causing the *tirage* is above the glottis, in the pharynx. Stenosis inducing croupy inspiration is almost always in the larynx, and in children is acute.

When there are false membranes, these protect the mucosa of the larynx during intubation. Hinojar insists that under other conditions tracheotomy is more prudent, more certain and less dangerous than intubation, which should be restricted to laryngeal diphtheria. Puncture of the cricothyroid membrane is a procedure borrowed from the veterinarians, using the same trocars and elliptical section, the longer diameter transverse. He reiterates that this takes no more time than

intubation, while it is free from its dangers and requires no special technic nor experience. It relieves the patient until the definite tracheotomy can be done. Zorraquin's valve tracheotomy permits free ingress of air but closes against expiration, so that the expired air has to escape through the natural passages. This prevents atrophy, etc., from disuse, while expiration can proceed more forcibly than is possible through the tracheotomy cannula, the vocal cords, etc., yielding more to pressure from below than from above. For these and other reasons stated, this valve tracheotomy seems from the theoretical and experimental standpoint to have numerous advantages, including the partial reestablishing of normal respiration with a positive tension during expiration. This safeguards the heart and lungs. An illustration is given of the valve device, a metal drum with mica disk adapted to the Broca tracheotomy cannula. Hinojar has had no clinical experience with it.

78. **Adenitis in Child's Groin.**—Juaristi says that among his 20 cases of this kind, in 4 the child had been referred to him with the diagnosis of appendicular phlegmon; in 3 others, under the diagnosis of coxalgia, and in 8 others everything had been thought of except the actual affection. The child's gait may deceptively simulate that with coxalgia. In one typical case the 8 months infant seemed to be suffering pain, with fever, but its appetite and digestion were good. Palpation of the contracted abdomen was negative, and no cause for the child's restlessness and crying was discovered until the ninth day, when the left leg was found swollen throughout. This was traced to a phlegmon in the groin, with a chain of five swollen glands.

79. **Calculations for Infant Feeding.**—Eyzaguirre gives the formulas advocated by different pediatricists, based on the age, weight, etc., of the infant. Comby's method seems to be the simplest, namely, to give the child 150 gm. for each kg. of weight, that is, 15 per cent. of its weight. The dilution of the milk is determined by a fraction of which the numerator is the child's age in months, and the denominator is the succeeding month. This for a 1 month child would give one-half milk; 2 months, two-thirds milk; 3 months, three-quarters milk. If this dilution is not enough, the fraction might be modified to a numerator representing the month before and the denominator the actual month of the child's age. A 3 months infant would thus be given two-thirds milk. Under 1 month, one-third milk seems preferable.

Cronica Medica, Lima

July, 1918, 35, No. 661

- 80 Myopathy in Tuberculous Young Man. E. Odriozola.—p. 187.
81 Stuttering. L. D. Espejo.—p. 191.
82 Present Status of Leishmaniasis. E. Escomel.—p. 198. Cont'n.

Gaceta de los Hospitales, Mexico, F. D.

July, 1918, 1, No. 4

- 83 *The Retina of the Horned Frog. I. Ochoterena.—p. 65.
84 Treatment of Phimosis from Chancre. F. Robles.—p. 69.
85 *Ocular Complications of Typhus. J. de J. Gonzalez.—p. 70.

83. **Comparative Neurology.**—Ochoterena's finely illustrated article describes the microscopic findings in the retina of the horned frog, and discusses the evolution of the eye.

85. **Ocular Complications of Typhus.**—Gonzalez states that he had ample opportunity to study the ocular complications during the great epidemic of typhus in Mexico during 1916 and part of 1917. It spread to the remotest hamlet of the central tableland. In his town, Leon, there were more than 8,000 cases of typhus. All ages were affected, including infants a year old, who previously had been deemed immune. He encountered cases of complications from vasodilatation, from local infection, from toxic action, and paralysis or contracture of the oculomotor muscles secondary to toxic action on the nerve centers or meninges. In other cases, syphilitic lesions developed in eyes damaged by the typhus. Still another complication was necrobiosis of the cornea from disturbance in its nutrition in the course of extremely severe typhus. The cases in this last group all terminated fatally, and nothing proved effectual in warding off this necrobiosis of the cornea. On the other hand, the complications from local infection could be warded off with care, tending the

catarrhal conjunctivitis which inevitably preceded the corneal ulcer. The ulceration was always central, the patients lying in their stupor with lids partly open so that the cornea got dried, the epithelium cracked and infection was thus invited. The eyes should be washed out daily with isotonic saline to ward off conjunctivitis; when it developed, a weak solution of a silver salt always proved effectual in his hands.

Gaceta Medica de Caracas, Venezuela

July 31, 1918, 25, No. 14

86 *Balantidium Dysentery in Venezuela. J. A. Tagliaferro.—p. 145; R. G. Rincones.—p. 148.

Aug. 15, 1918, 25, No. 15

87 *Spirochete in Rats at Caracas. J. Iturbe and Gonzalez.—p. 158.
88 Relations Between Brazilian Trypanosomiasis and Endemic Goiter. A. Ayala.—p. 160.

86. **Balantidium Dysentery in Venezuela.**—Tagliaferro describes three cases and some negative attempts to transmit the disease to cats. One of Tagliaferro's patients kept pigs, and various data on record testify to the identity of the *Balantidium coli* found in man, in pigs and in monkeys. Rincones remarks that in the rural districts domestic animals often share the family hearth. He says, "The olfactory orchestra of the foods and exfoods disintegrated by the digestive organs of the various domestic animals, fowls, rats and mice under the family roof, runs the whole scale of odors, and like a dirge rises above the promiscuity of these heedless beings all crowded into one room." He adds that 153 cases of balantidiasis are on record in accessible literature, with a death rate of 23 per cent. In conclusion Rincones describes the method of treating coloproctitis caused by ciliated infusoria, as suggested by F. Smithies of Chicago, and he urges a trial of it in balantidium dysentery.

87. **Spirochete of Hemorrhagic Jaundice Found in Rats at Caracas.**—Iturbe and Gonzalez inoculated guinea-pigs with an emulsion of the kidneys of ten rats and of seven rats. One guinea-pig developed typical hemorrhagic febrile jaundice, and spirochetes were recovered resembling in every respect the spirochetes described by the Japanese and the Belgian writers.

Prensa Medica Argentina, Buenos Aires

July 20, 1918, 5, No. 5

89 Supracondylar Fractures. M. H. Vegas and C. Lugones.—p. 45.
90 Diagnosis of Tuberculosis in Children, especially the Latent and Masked Forms. G. A. Alfaro.—p. 47. Conc'n.
91 Cerebellar Tumor. H. Lea-Plaza.—p. 49.

Repertorio de Medicina y Cirugia, Bogota

July, 1918, 9, No. 10

92 *Scleroderma or Leprosy? J. Aparicio.—p. 510; I. Rodriguez.—p. 522.
93 *Unclassified Tropical Lesions. P. Martinez and Lopez.—p. 525.
94 *Cocain Local Anesthesia. A. E. Marulanda.—p. 534.
95 Metabolism in Diabetes. E. Gomez.—p. 537.

92. **Scleroderma or Leprosy.**—A case is described over which there has been much discussion, as the patches of scleroderma are accompanied by nervous disturbances remote from these patches. The ulnar neuritis, in particular, does not fit into the scleroderma frame. Aparicio's decision therefore is that the case is an incomplete form of nervous leprosy, and that isolation is not required. Rodriguez reports that five applications of electricity in this case improved the skin patches until the scleroderma had nearly disappeared.

93. **Tropical Pathology.**—Martinez and Lopez give illustrations of two cases in which a large tumor had developed just above the ankle, with a smaller tumor on the other side of the leg. They have encountered a number of cases of these juxta-articular nodules near the ankle, knee or hip joint. They seem to be a torpid fibroma growth, close to a large joint, peculiar to the tropics. An illustration is also given of a type of ulceration on the dorsum of the foot with which there is so much retraction of the cicatricial tissue that the foot is drawn up till severe deformity results. These "retractile ulcers" develop after a trauma, as a rule. The resulting deformity may suggest ainhum, or the deformity from retraction in these cases may be equal to that from an

extensive burn of the third or fourth degree. Amputation was required in the two cases illustrated. In a third group of cases the ulcerative process begins between the toes and runs a highly destructive course, the toes dropping off and the destructive process invading the dorsum of the foot. The discharge from it is profuse and fetid, but the tendency to a spontaneous cure excludes malignant disease.

94. **Cocain Local Anesthesia in Abdominal Surgery.**—Marulanda addresses his remarks to physicians in regions without hospitals. He expatiates on the advantages of local anesthesia in these conditions, and especially on the use of cocain for the purpose. In Colombia, the lack of corsets, the numerous pregnancies and the hard manual work of the women favor production of umbilical hernia, and he describes four cases in which he operated for this, under cocain anesthesia, with ease and complete success. Umbilical hernia in women inclined to obesity develops with such alarming symptoms that the physician cannot believe that the hernia alone is responsible for the intense colic pains. They may coincide with digestion, and if the woman has a tendency to neurasthenia, she may experience pains and symptoms which lead the physician widely astray. He warns further that the presence of ascarides is practically certain in the rural districts of his country, and it is almost indispensable to administer a vermifuge the day before the contemplated operation. Otherwise there is liable to be paralysis of the intestine. The inexperienced may feel called on to open up the sutured herniotomy wound, but under 0.2 gm. of santonin all subsides at once. He uses a 1 per cent. solution of cocain, thus anesthetizing a broad zone of the skin.

Revista Española de Medicina y Cirugia, Barcelona

July, 1918, 1, No. 1

96 *Transplantation of Nerves and Neurotropism. S. Ramon y Cajal.—p. 2. Concluded in No. 2, p. 49.
97 Tuberculosis and Antityphoid Vaccination. J. Peset.—p. 9.
98 Drainage in Hydrocephaly. J. M. Bartrina Thomas.—p. 13.
99 A Year's Surgical Work. Id.—p. 13.

August, 1918, 1, No. 2

100 *Cholecystostomy versus Cholecystectomy. S. Cardenal.—p. 57.
101 Stenosis of Duodenum. Urrutia.—p. 65.

96. **Secret of Rapid Repair of Gap in Nerve.**—Ramon y Cajal called attention in 1892 to the ameboidism of newly formed nerve fibers seeking the proper direction for bridging a gap in a nerve. Later he became convinced that some substance in the nerve stump attracted the young fibrils, and thus guided them in the right path. He reviews what others have published on this subject, and reports new experimental research. Everything seems to indicate that the substance which attracts the sprouting fibrils is in the cells of the sheath of Schwann. These cells may act effectually whether they are in the nerve graft or in the peripheral stump. But in order to exert this attraction these cells must be alive and actively functioning. The attraction is the more intense the younger the animal and the greater the vitality of the tissues. It seems to be immaterial whether the Schwann cells are in the stump or in the interposed graft, provided their vitality has not been impaired.

An interposed nerve graft obtained and implanted with the minimum of injury of the tissue cells, materially hastens repair over a gap in the nerve, the sprouting fibrils rapidly running down through the graft and penetrating the peripheral stump. There is more in this phenomenon than merely growth along the lines of least resistance. Dead Schwann cells have none of this neurotropic action. Twelve illustrations show the different behavior of the sprouting fibers under different conditions. For example, if half of the sciatic nerve of a kitten is severed, the other half left intact, the new sprouting fibrils are attracted only by the Schwann cells in the peripheral stump, and very few diverge from the axial direction. But if, when the half of the nerve is severed, the other half is slightly cut with the scissors, then the sprouting fibers crowd sideways into the second half, and very few work down toward the peripheral stump. One illustration shows the rapid repair in the sciatic nerve of a kitten thirteen days after the nerve had been resected and the resected segment slit and replaced at once, before it had had a chance

to get chilled. The sprouting fibrils after passing through the slit graft were attracted by the Schwann cells in the other half of the graft, and turned back into it. Other fibers wandering around in response to the attraction of the Schwann cells were unable to reach them before making a circuit around the graft. Other illustrations show the good results, although less perfect, obtained with a nerve graft from another species, or with a graft taken from another nerve in the same animal.

100. Cholecystostomy versus Cholecystectomy.—Cardenal admits that cholecystectomy is indicated when the gallbladder is inflamed from the presence of stones and the common bile duct is free from obstruction. When the common or hepatic duct is obstructed and this cannot be corrected at once, he advises against cholecystectomy. When the obstruction seems to be permanent, as with cicatricial stenosis, he advises at once an anastomosis between the gallbladder and the stomach or the duodenum. Otherwise he advocates deep cholecystostomy, suturing the gallbladder not to the skin but to the peritoneum. In several cases he has made an opening between the gallbladder and the stomach, and the functional results have been perfect. There was never any disturbance from this emptying of the bile into the stomach. In one case of cancer of the pancreas the patient improved remarkably after this operation, and there were no further disturbances from the biliary apparatus.

Revista del Instituto Bacteriologico, Buenos Aires

April, 1918, 1, No. 3

- 102 *Heterogenous Hemolysins. A. Sordelli and G. Fischer.—p. 229.
- 103 *The Ticks of Argentina. B. Barbará and R. L. Dios.—p. 285.
- 104 Immunity to Anthrax: Fate of Anthrax Bacilli in Normal and Immunized Sheep. R. Kraus and P. Beltrami.—p. 323.
- 105 Cancer in Domestic Animals in Argentina. A. H. Roffo.—p. 333.
- 106 *Action of Snake Venom on Proteins. Houssay and Negrete.—p. 341.
- 107 Hemogregarine in Blood of a Snake. A. Senez.—p. 375.
- 108 *Modification of Gram Stain. A. Senez.—p. 385.
- 109 Toxic Principle of Baccharis. V. Arreguine, Jr.—p. 389.

102. Heterogenous Hemolysins.—Sordelli and Fischer review the literature on the subject of the natural hemolysins and especially the hemolytic properties of certain organs in certain animals for sheep and goat blood. They then report extensive personal research for comparison of the characteristics of isogenous and heterogenous hemolysins from this source. The conclusions are given in detail in English, French and German as well as Spanish.

103. The Ticks of Argentina.—Over four pages of bibliography and three plates accompany this comprehensive article. Four genera of ticks found in Argentina are described, with or without a shell, including eleven species. Twelve genera of ticks are known in all.

106. Action of Snake Venom on Proteic Substances.—Houssay and Negrete tested the action of the venom of different species of poisonous snakes on the various elements of the blood and tissues, on casein and on gelatin. Each venom has its characteristic properties, but all seem to alter the physical-chemical state of albuminous substances, and then digest them later. The proteolytic properties are distinct from the coagulating, agglutinating, toxic and hemolytic properties of the venom. They are much stronger in the venom from certain species than in others.

108. Modification of Gram Technic.—Senez relates that precipitation can be avoided by the technic he describes, while the specimens retain their color much better. The diphtheria bacillus, in particular, takes the stain distinctly and uniformly.

The stain is made by triturating 2 gm. of crystal violet, adding 100 c.c. of distilled water and, when entirely dissolved, adding 1.6 gm. of sodium chlorid. When thoroughly mixed, a pellicle forms on the surface and a precipitate is thrown down. This precipitate is collected on a filter paper and dried in the incubator. The powder thus obtained keeps well in small vials, well plugged. To 0.5 gm. of this powder are added 50 c.c. of alcohol at 95 degrees, and the Erlenmeyer jar is agitated until the powder is entirely dissolved, after which 130 c.c. of distilled water are added. There is

not the slightest precipitation. After fixation of the specimen with heat, it is then stained with a few drops of this fluid for half a minute. It is then drained off, and the specimen is immersed in the Gram solution until the violet stain veers toward black. Then the specimen is treated with 90 per cent. ethyl alcohol, letting it fall a drop at a time on the slide, held slanting, until it does not wash away any more of the stain. The specimen is then rinsed freely in water, and it is ready for the counter stain or for mounting. The fuchsin counter stain is made in the same way, substituting fuchsin rubina B for the crystal violet. The stains thus made are bright in tint; there is no precipitation with them during the staining procedure, and they keep indefinitely. They can be used to advantage in place of Ziehl's solution for simple staining in general, and for restaining specimens treated by Gram's method. Gram positive bacteria stain a dark violet, contrasting well with fuchsin stained elements.

Semana Medica, Buenos Aires

June 6, 1918, 25, No. 23

- 110 Dispensaries for Social Hygiene. E. R. Coni.—p. 633.
- 111 *Identification of Arsphenamin. J. A. Sanchez.—p. 635.
- 112 Gastro-Intestinal Disease in Children. R. Cabrera and T. Scannavino.—p. 640. Cont'n.
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111. Identification of Arsphenamin Preparations.—Sanchez describes the methods in vogue, and gives the details of a volumetric method with molybdic acid; also of a colorimetric technic with sodium nitrite and hydrochloric acid.

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- 114 *Pathology of the Occult. D. A. Gimeno.—p. 585.
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114. Pathology of the Occult.—Gimeno discourses on the many useful surprises which modern symptomatology has revealed. "Who knows what the future may yet reveal in the way of signs and symptoms which now we are too blind to see. The term 'incubation' means only ignorance on our part."

115. Palography Findings.—Gil-Casares gives some palograms of the pulse which seem to sustain his theory as to the mechanism of the production of the pulse wave. This photographic method of registering the pulse wave has thrown light, he says, on certain elements of the wave, as he explains in detail.

116. The Public Health and Social Insurance.—Salazar is inspector general of the Public Health Service. He describes what has been done in the line of social insurance in different countries, reiterating in conclusion that the sanitary redemption of any country is a work of general education, on the one hand, and of the solution of the economic problem of the laboring classes, on the other.

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- 118 *Malaria in Sumatra. H. N. van der Heyden and Schüffner.—p. 1.

118. Malaria in Sumatra.—This entire number is devoted to a study of practical means to combat malaria in a sea-shore district. The report is profusely illustrated, with photographs and maps showing the exact points where various measures are needed. It is emphasized that the general level of ground water must be kept as low as possible; existing trenches must be deepened, and branching channels provided. The terminals in the sea must have valves preventing inflow of the tides. In all drainage works in the Indies, the engineer must be guided by the biology of the mosquito. For example, the floor of the channels must be so arranged that if they should happen to run dry, there should be no crevices or cavities in the bottom that could retain a little water. No one must be allowed to dig trenches or ditches on his own initiative. The profession in malarial regions should be trained in prophylaxis, and the engineering authorities should consult constantly the local physicians.

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MILITARY ASPECT OF STATUS LYMPHATICUS

JAMES EWING, M.D.
Contract Surgeon, U. S. Army
WASHINGTON, D. C.

During the past thirty years it has been the conclusion of many pathologists who have carefully observed the general configuration of the cadaver at necropsy that the fate of the human body is not a matter of chance but in general is controlled by certain intrinsic physical tendencies that are of congenital origin.

This conclusion is merely in line with the doctrine of a constitutional predisposition to disease, the importance of which has been submerged by the advent of the germ theory. Clinical observers, especially in recent times, have not been so much impressed with the importance of constitutional factors doubtless because the most definite evidences of such tendencies are revealed chiefly at necropsy, and possibly also because the modern clinician is greatly occupied by a multitude of laboratory tests and aids to diagnosis and prognosis, which apply without regard to any constitutional basis of disease.

Recently, the experience of the Medical Department of the Army has revealed in a highly impressive way the fact that, under the stress of military life, certain physical factors which escape ordinary physical examination soon declare themselves most emphatically, with the result that numbers of apparently healthy men die, or break down and are incapacitated, and become a burden instead of an asset in the military force. Any one who has the slightest conception of the general factors leading to disease cannot fail to recognize that anatomic defects are chiefly responsible for the recent discoveries of "irritable heart," "irritable thyroid," nervous instability, functional shell shock, etc. It also seems highly probable, and I have some concrete pieces of evidence to show, that in a great variety of conditions the stress of military life is bringing into action the inevitable force of constitutional tendencies in the unexpectedly fatal outcome of many common diseases and traumas.

Since constitutional defects cannot be remedied, it is of practical importance chiefly to inquire whether there is any way in which they can be recognized, and whether there are any means of avoiding their hazards.

In one form of constitutional dyscrasia, status lymphaticus, it is possible to recognize the pronounced forms during life, and to a considerable degree to avoid its special dangers. I believe that it is of con-

siderable importance that the attention of military medical men, beginning with medical exemption boards, be sharply drawn to the stigmata of status lymphaticus, both for the purpose of establishing rules of procedure in the disposition of such cases, and in order to gather new information regarding the significance of status lymphaticus from the military standpoint, and also in order that the military physician may enjoy the intellectual satisfaction of understanding certain events occurring in the course of disease and injury that are generally quite obscure.

ANATOMIC CHARACTERS

Status lymphaticus is characterized by a feminine type of bodily conformation in the male, absence of axillary and deficiency of pubic hair, general delicacy of integument, a tendency toward abundant deposits of subcutaneous fat, evidence of rickets, small size of the heart and thinness of aorta and other arteries, persistence of thymus, and hyperplasia of lymphatic tissues in tonsillar ring, ileum and spleen.

Two phases of these physical characters are recognized, in children and in adults, the latter being a recessive stage of the former. In infants and before puberty, lymphatic hyperplasia, large thymus, and signs of rickets are prominent, while in adults the lymphatic hyperplasia is gradually succeeded by atrophy and by a form of sclerosis which Bartels¹ says is peculiar. In adults the unfolding of the growth tendencies of the body brings out the feminine characters of the male physique, and often the persistence of the thymus, while necropsy discloses hypoplasia of the heart and the arterial system.

The scope of the anatomic changes included by many observers in status lymphaticus is considerable. The body is gracefully formed, the limbs rounded, the thorax long, the pelvis heterosexual. Pribram² includes genu valgum, persistence of epiphyseal lines, flatfoot, and hyperextensibility of the elbow joints. He found that the outstretched arms exceed the body length in 95 per cent. of the cases, but this relation often occurs without status lymphaticus.

The genitals are hypoplastic (46 per cent.), and cryptorchidism may occur (from 2 to 3 per cent.). Kyrle³ observed that the testes were usually normal in the gross, but presented well marked interstitial orchitis, without much disturbance of spermatogenesis or alteration of interstitial cells. In certain cases the testes are atrophic. In fifty-five cases Herrmann⁴ found the ovaries usually enlarged and much elongated from interstitial fibrosis. Axillary and thoracic hair

1. Bartels: Wien. klin. Wchnschr., 1908, p. 1826; Tuberculosis, 1913, 12, 561.

2. Pribram: Ztschr. f. klin. Med., 1914, 81, 120.

3. Kyrle: Centralbl. f. Physiol., 23.

4. Herrmann: Centralbl. f. Physiol., 23.

is scanty or absent, and the pubic hair in the male ends in a horizontal line, as in the female (96 per cent.). The beard is scanty (57 per cent.), and sternal hair absent (90 per cent.). The hair of the limbs is scanty or absent (65 per cent.).

The skin is delicate. There is a tendency toward abundance of subcutaneous fat, and some subjects are distinctly obese. In certain cases with distinctly atrophic genitals, status lymphaticus is associated with eunuchoidism. In the obese eunuchoids described by Tandler and Gross,⁵ persistence of the thymus was believed to exist because of roentgen shadow, but the exact relations of eunuchoidism to status lymphaticus remain to be determined. Very pronounced feminine characteristics belong chiefly to the former condition.



Fig. 1.—Partially developed status lymphaticus in man, aged 21. Patient has shaved only twice. Pubic hair of feminine type. Long, slender thorax.



Fig. 2.—Status lymphaticus of feminine type; genitals apparently normal. Photograph lent by Dr. Charles Norris.



Fig. 3.—Eunuchoidism, a condition probably involving status lymphaticus, in man, aged 22; feminine body; hypoplasia of genitals. (After Saenger.)

In the female the external signs of status lymphaticus may be limited to thinness and delicacy of skin, narrow waist, arched thighs, and scanty hair. Menstruation is usually delayed, the uterus may be infantile, and the breasts poorly developed.

In children the thymus enlargement may be the most prominent feature, and thymic pressure has probably been one of the chief factors leading to the death of infant subjects of status lymphaticus. This organ persists in many young and some older adults, as one of the most significant signs of status lymphaticus. It shows simple lymphoid hyperplasia, and the process may affect aberrant lobes in the neck or in the

thyroid gland. Through its relation to the thyroid it is believed to figure prominently in the cases of status lymphaticus with thyroid manifestations. In most adult subjects the thymus is small or atrophic.

The lymphatic hyperplasia occurs in infants and children up to and sometimes beyond puberty, and is often a most distinctive feature, differing from any other known form of lymphatic overgrowth. The pharyngeal ring of lymph follicles is enlarged (80 per cent.), the lingual follicles being affected more than the faucial tonsils. Rarely the cervical nodes are slightly swollen. Very striking overgrowth of Peyer's patches, especially the lowest, is frequently observed. The splenic follicles are enlarged and plainly visible to the naked eye. Swelling of mesenteric nodes is occasionally seen. The structural changes consist in overgrowth of lymph follicles and lymphocytes. Symmers⁶ emphasizes the presence in many cases of degenerative and even necrotic changes in the centers of follicles, and of sclerosis which follows these changes.

Hypoplasia of the heart and aorta is the most prominent of the conditions found at necropsy. There are no systematic data regarding the weight of the heart in status lymphaticus, but the organ is usually distinctly undersized. The aorta is thin and delicate, often to a striking degree. Delicacy of the entire arterial system may exist and form the basis of apoplexy in young adults, and of various functional disorders. Some observers have attributed to the overstraining of a small heart certain forms of interstitial myocarditis occurring with status lymphaticus. With the hypoplasia of heart and aorta Virchow associated chlorosis, which may occur in subjects of status lymphaticus.

Many other abnormalities in the construction of organs are occasionally seen, as lobulated kidneys, hypospadias, polymastia, abnormal fissures, and congenital angiomas, but they are not sufficiently frequent to be regarded as essential. They seem to support the view that some fundamental defect of development exists in these subjects.

OCCURRENCE

Since there are all grades of status lymphaticus, its frequency will depend somewhat on the attitude of the observer. Two statistical studies are available.

Emerson⁷ analyzed his own and Norris' observations at Bellevue Hospital. Among 3,600 necropsies, 288 (8 per cent.) showed status lymphaticus, 70.2 per cent.

6. Symmers, Douglas: *Am. Jour. Med. Sc.*, 1918, **156**, 40; *The Cause of Sudden Death in Status Lymphaticus*, *Am. Jour. Dis. Child.*, December, 1917, p. 463.

7. Emerson: *Tr. Internat. Cong. Inter. Med.*, 1914, *Med. Sec.*, **6**, Pt. 2, p. 165.

5. Tandler and Gross: *Arch. f. Entwicklungsmech.*, 1910, **29**, 290.

active and 29.8 per cent. recessive; 9 per cent. failed to show any other cause of death, and 242 died of infectious diseases. Recently Symmers has collected the Bellevue Hospital material, finding 457 cases of status lymphaticus among 5,652 necropsies. Of these, 249 were analyzed, showing that 118 were active, 89 recessive and 42 partial or intermediate. It was most frequent between 20 and 40 years. Pribram observed several of the clinical signs of status lymphaticus in 150 among 2,500 patients at von Jaksch's clinic (6 per cent.).

Municipal hospitals, gathering a large number of sudden deaths, show a relatively high proportion. It is obvious that the condition must appear highly important to medicolegal observers, while for the same reasons the general practitioner commonly ignores it, or more often has never had it brought to his attention.

Woodward seems to have suspected that small hearts were connected with sudden deaths. He referred to sudden deaths of convalescents from dysentery, often while the patients were walking about, and in ten of these the heart was noted as small, in four cases weighing $5\frac{1}{2}$ ounces or less. No cause of death was discovered. Among the general cases of undetermined causes of death, twenty showed small hearts, in eight of which the weight fell below $6\frac{1}{2}$ ounces, once to 4 ounces.⁸ I am unable to find any other reference to this condition in reports from the Civil War.

CLINICAL MANIFESTATIONS

Only a brief enumeration of the clinical conditions in which status lymphaticus figures can be attempted within the scope of the present report.

In infants, many cases of unexpected death, occurring instantly, or after rapidly increasing dyspnea or heart failure, have revealed only an enlarged thymus which has mechanically obstructed breathing and heart action. This so-called thymic death is one of the most numerous and best known groups of cases.

Death under anesthesia occurs, in a large proportion of cases, in subjects of well-marked status lymphaticus. Here respiratory failure precedes stoppage of the heart.

Cardiac and arterial hypoplasia dominates the clinical picture in most adult cases. The small heart, even under the most critical estimate, must reasonably be assumed to carry with it defective muscular energy and low metabolism. The subjects tire easily and suffer from palpitation, pain, cardiac dyspnea and low blood pressure, and in many cases of sudden death it has been assumed that the heart stopped beating from exhaustion or from some form of reflex inhibition. Here may be classed the numerous cases of sudden death while bathing, or after trivial mechanical trauma. Many have warned against the careless injection of alien proteins, antisera, vaccines and arsphenamin in subjects of status lymphaticus. While in this field of functional disturbance of the hypoplastic heart the evidence is vague and inconclusive, it may at least be said that these cases are wholly without other explanation, and invite investigation by modern methods. Ortner⁹ was quite sure that the small heart is particularly subject to functional disorders and subsequent myocardial changes.

Precocious apoplexy in young adults is a highly characteristic termination of status lymphaticus, is compar-

atively frequent, and may be expected especially in military service. Norris encountered many such cases at Bellevue Hospital. I have examined several of them collected by my colleague, Schultze, in which the cerebral vessels were extremely delicate and usually free from sclerosis. They are clearly distinguished from nephritic cases in young adults, but nephritis may be added.

In relation to infectious diseases, status lymphaticus appears to have much significance. It has long been known that these subjects do badly under infection. Elser and Huntoon¹⁰ found that in all their fulminant cases of meningitis the patients were subjects of status lymphaticus, and this observation has been supported by others. McNeil¹¹ reports fulminant pneumonia with



Fig. 4.—Hypertrophic thymus in a new-born infant; case of Dr. Symmers.

status lymphaticus. Symmers reports fifty-five necropsies on meningitis, 60 per cent. in subjects of status lymphaticus. In thirty of these cases of known duration the disease was fatal in an average period of 3.4 days, and nine patients died within forty-eight hours. In thirteen subjects of status lymphaticus dying from typhoid fever, the average duration was fourteen days. In his series, about 10 per cent. of all subjects of status lymphaticus presented acute infective lesions of the heart valves. Daut¹² found that more than 25 per cent. of patients dying of diphtheria were subjects of status lymphaticus.

The relation to tuberculosis shows several phases. The combination of rickets, lymphatism and scrofula

8. Woodward: Medical History, War of the Rebellion, Med. Vol. 2, 502.

9. Ortner: Wien. klin. Wchnschr., 1891.

10. Elser and Huntoon: Jour. Med. Research, 1905, 9, 89.

11. McNeil: Brit. Med. Jour., 1914, 2, 576.

12. Daut: Jahrb. f. Kinderh., 1898, 47, 141.

in children is emphasized by Bartels. Subjects of status lymphaticus in general show a high resistance to tuberculosis, which takes the form of caseous lymphatic lesions, solitary brain tubercle, atypical bone lesions, etc. Addison's disease nearly always occurs in subjects of status lymphaticus (Bartels).

In exophthalmic goiter, thymic enlargement is very common, and practically all fatal cases show pronounced hyperplasia of the thymus and often other signs of status lymphaticus. The high mortality of operations on the thyroid may thus receive a partial explanation. Simple goiter is relatively common in status lymphaticus.

The condition in status lymphaticus appears to be identical with none of the specific disorders of the endocrine system, but there are definite indications that these glands are involved in various ways. The bodily configuration has some of the features of adiposogenital dystrophy. Many of the cases of hypophysial dystrophy of Froelich's type are associated with other and pronounced signs of status lymphaticus.¹³ Hypoplasia of the genitals is a common feature in both sexes. The hyperplasia of the thymus can hardly be without some bearing on the question of its supposed internal secretion. Hypoplasia of the suprarenals is repeatedly observed. In this territory may possibly be found the key to the complete solution of the complex situation in status lymphaticus.

The nervous system is essentially concerned in status lymphaticus, but little is known of the nature of its relation. Rokitansky spoke of overdevelopment of the brain in early life in these subjects, and Bartels has noted multiple foci of gliosis with a tendency to glioma. No definite anatomic changes in the brain have been established in status lymphaticus, but the clinical data are in some respects quite impressive. Ohlmacher¹⁴ found that the great majority of fatal cases of epilepsy are subjects of status lymphaticus. The condition is relatively common in the mentally deficient. Not a few cases escape all other hazards, only to end in suicide. Bartels, from a study of 122 cases, concluded that status lymphaticus is practically constant and often pronounced in subjects of suicide. Miloslavich¹⁵ studied 110 cases of suicide in military service, finding 80 per cent. with signs of status lymphaticus, as follows: thymolymphatic, 47 per cent.; lymphatic, 21 per cent.; thymic, 8.5 per cent.; partial, 3.5 per cent.

Symmers found pronounced hypoplasia of heart and aorta in all of five cases of caisson disease. This observation falls in line with others which indicate that the entire cerebral vascular system in these subjects is defective. It may be of importance in aviation.

PATHOGENESIS

The central factors in the origin of status lymphaticus must be found in the congenital hypoplasia of the cardiovascular system, and in hyperplasia of the thy-

mus. Nothing is known of any hereditary element. The small heart and the blood vessels do not grow up with the body, but remain delicate and inadequate. Yet the skeleton, muscular system and organs are often highly developed in these subjects. In some respects this maladjustment may be brought into relation with a persistent and overactive thymus. Gudernatsch has shown that thymus feeding of tadpoles causes overgrowth of the body without corresponding maturation, which may be accelerated by addition of thyroid substance to the diet. Genital hypoplasia, although present in some cases, is not constant or as a rule prominent, but may be connected with a persistent thymus. Henderson¹⁶ and Hatai have shown that the thymus tends to persist in castrated animals.

In subjects of this anatomic constitution there is evidence that external factors play a part in developing the lymphoid hyperplasia. Cameron,¹⁷ who finds that more than 40 per cent. of the children coming to necropsy at Guy's Hospital are subjects of status lymphaticus, attributes the lymphatic hyperplasia to chronic inflammation of the various mucous membranes. He designates early status lymphaticus as status catarrhalis, or the exudative diathesis, finds the cause in poor hygiene and excessive carbohydrate feeding which favors wateriness of the tissues and rickets, and urges the remedy of correct feeding. His views deserve careful attention, but do not remove the necessity of a congenital basis of the condition. Blumer,¹⁸ and especially Symmers, impressed by the presence of irritative hyperplasia of the lymph follicles with degeneration and necrosis, develop the idea of autointoxication, and Symmers thinks the intoxication of anaphylactic type, the system becoming sensitized by repeated discharges of lymphocytic proteins. The adjustment of this line of speculation with established principles of immunology is not entirely clear.

The question whether the enlarged thymus mechanically compresses the trachea in infants seems still undecided. That there is a reflex mechanism which stops the heart under conditions of mild nervous shock seems highly probable. Many clinical observations show that the vasomotor system of these subjects is quite unstable and very sensitive. Laryngismus is common in the children, and many fatalities are preceded by convulsions.

CLINICAL DIAGNOSIS

Well-marked cases of status lymphaticus are easily recognized by inspection of the whole body. An enlarged thymus in children or young adults may be recognized by the roentgen ray, but it is improbable that the lesser size of the simple persistent thymus can be determined by any method. The pharyngeal ring of lymph nodes is too often swollen in other conditions to serve as more than a suspicious sign. The lymphocytosis commonly present is too indefinite to be of any positive diagnostic value. I know of no observations

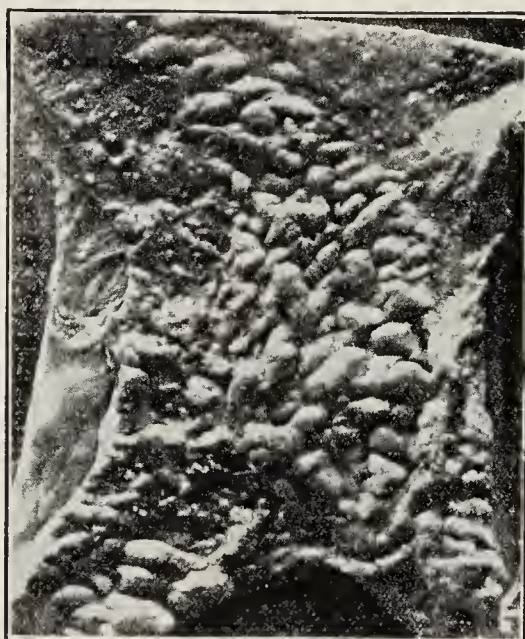


Fig. 5.—Hyperplasia of lowest Peyer's patch in status lymphaticus. From the author's case of chloroform death (1897).

13. Cushing, Harvey: The Pituitary Gland and Its Disorders.
14. Ohlmacher: Bull. Ohio State Hospitals, 1898; New York Med. Jour., 1898, 68, 443.
15. Miloslavich: Virchows Arch. f. path. Anat., 1912, 208, 44.

16. Henderson: Jour. Physiol., 1904, 31.
17. Cameron: Proc. Roy. Soc., 1917, 10, No. 8, Dis. Child., p. 133.
18. Blumer: Bull. Johns Hopkins Hosp., 1903, 14, 270.

by the roentgen ray on the appearance of the hypoplastic heart and aorta, nor of studies on the blood pressure.

The lesser grades and partial forms of status lymphaticus must probably be marked as unsafe territory, especially for the military physician. Nevertheless, when several of these less definite signs can be demonstrated in subjects of slightly developed bodily characteristics, a probable diagnosis of status lymphaticus may often be established with reasonable certainty. None of these limitations apply to the recognition of status lymphaticus at the necropsy, by the systematic examination of all the organs, followed by microscopic control.

On the other hand, the suspicion of status lymphaticus should be entertained by the military clinician, not only in the obvious cases, but in dealing with any of the manifestations mentioned above, such as irritable heart, thyroidism, nervous breakdown, epilepsy, shell shock and fulminant infectious diseases, and this suspicion should be followed to the necropsy table.

With these well-attested evidences that status lymphaticus carries with it a defective vitality that results in sudden and unexpected death in many conditions of trauma and disease, it is obvious that this dyscrasia must be of considerable importance in military medicine. It would seem desirable that intelligent efforts should be made to detect the condition whenever present, that definite procedures should be adopted when it is found, and that systematic study of the material collected by the Army medical forces should be undertaken in order to elucidate many problems that still remain unsolved regarding its origin, nature and significance:

1. In the physical examination of drafted men a pronounced grade of status

lymphaticus ought to be recognized at a glance, and it would seem reasonable that the subject should be rejected as unfit for active military service. Whether it is practically or economically wise to accept such subjects for any form of military service can be determined only by systematic clinical observation of those already in the service. Such a study would occupy years, and ought to be undertaken under the favorable circumstances that exist in the Army and cannot be duplicated elsewhere.

2. In the subsequent examination of men already in the service, the presence of status lymphaticus should be noted, and these men should be assigned to the less hazardous occupations.

3. In the present state of knowledge, the most substantial evidence regarding status lymphaticus and the chief source of material for study that may elucidate its problems must still be obtained from postmortem examinations. The presence of status lymphaticus should be looked for in every postmortem examination, and affirmed or negated in every protocol. The anatomic evidence of the condition should regularly be preserved for further study, and the effort be made to discover any further extensions of the anatomic changes that may possibly occur in the condition.

At present the indications point to the glands of internal secretion as most likely to throw new light on the nature of the condition. In this field histologic studies are required on the thymus, thyroid, hypophysis, pineal gland, carotid gland, pancreas, suprarenal,

testis and sympathetic system. Any undertaking of this sort to be adequate can hardly omit attention to any organ in the body. The bones should be examined for old rickets, and the bone marrow for evidences of hematopoietic disorder. Since the circulatory system long retains the impress of status lymphaticus and is a specially important factor in the adult, observations on the heart, its musculature and nervous apparatus, and on the aorta and arteries are called for.

4. The clinician has an interesting task and a complex function to perform in connection with the study of status lymphaticus and in the employment of the doctrines that have accumulated about it.

The final test of the existence and importance of a bodily constitution of defective general vitality must be clinical. Since the majority of patients survive to middle life, most of them come repeatedly under clinical observation. Since there must be all grades of status lymphaticus, the condition often merges with

that known as the idiosyncrasy of the patient, recognition of and respect for which constitute a substantial part of the art of medicine. In general, the clinician must determine how these subjects react to injury and disease.

Very numerous situations previously stated, showing that many patients react with sudden death, quite sufficiently impress the general clinical importance of status lymphaticus. Of the manifestations of the lesser grades of the condition little is known, and here the need of keen observation and sound clinical judgment is apparent. It would seem easy either to exaggerate or to undervalue the clinical importance of status lymphaticus. It seems not improbable that some of the

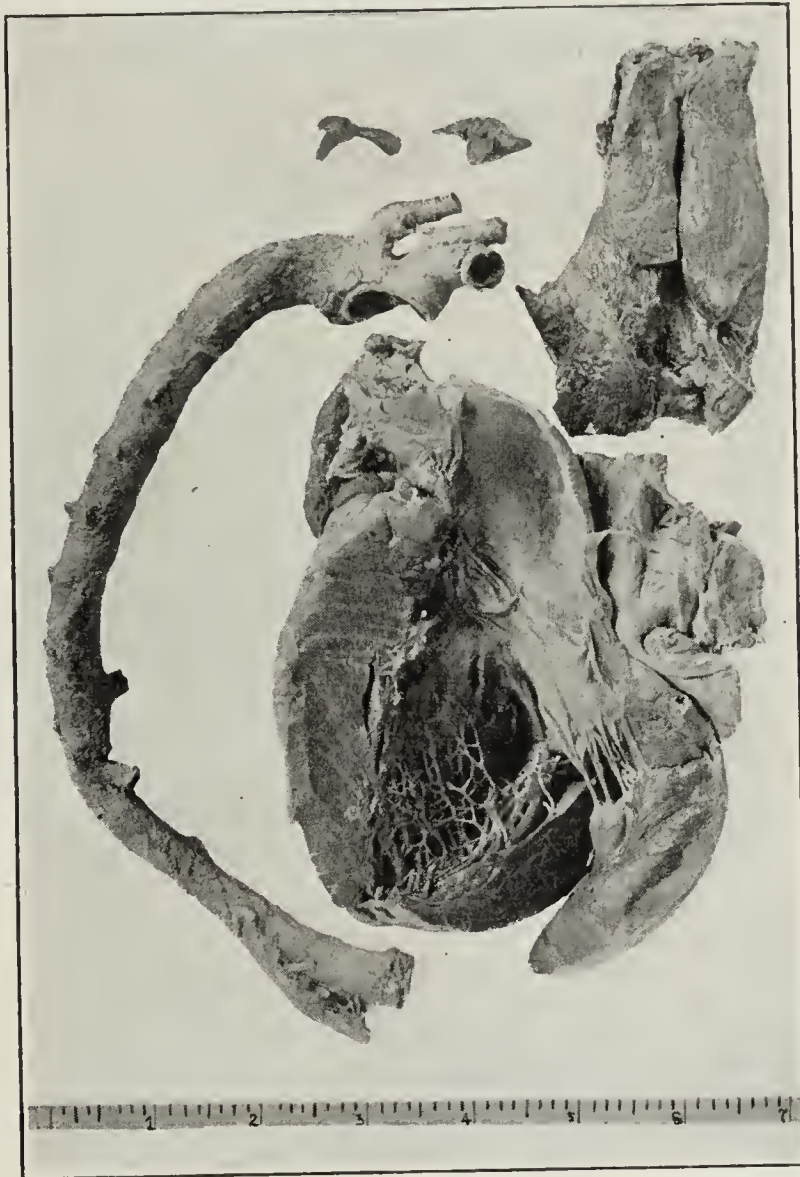


Fig. 6.—Hypoplasia of aorta and suprarenals, and hyperplasia of thymus in a girl, aged 20 years, dying of cerebral hemorrhage. Weight of heart, 307 gm.; thymus, 41 gm.; suprarenals, 10 gm. Aorta, widest external circumference, 5 cm. A case of Dr. Otto Schultze's.

best of the world's work has been done by subjects of status lymphaticus, but in the military field that work must have been fortunately adapted to the physical defects of the worker. Therefore, it seems not necessary for the clinician to condemn every subject showing status lymphaticus, but rather to find the subject's proper place in the military organization.

Speculation which seems legitimate suggests several topics of research that may be profitable from the clinical side.

No surgeon can afford to ignore the importance of status lymphaticus in the choice and administration of anesthetics.

The employment of injections of alien proteins and of arsphenamin should be undertaken with caution in subjects of status lymphaticus.

Further observations on the course of infectious diseases in subjects of status lymphaticus are called for. The idea that a fulminant course of meningitis or pneumonia is largely determined by status lymphaticus challenges the present conceptions of most clinicians and bacteriologists, but cannot be contested except by carefully accumulated clinical data.

The resistance to tuberculosis claimed by Bartels for subjects of status lymphaticus may be determined by the clinician and the pathologist. Not many clinicians will be prepared to accept the statement that Addison's disease occurs almost exclusively in subjects of status lymphaticus, but this question can be determined by the material collected in the Army.

Those who are interested in the doctrines of internal secretions may find profit in pursuing the relations of status lymphaticus to the ductless glands.

The neurologist meets phases of status lymphaticus notably in suicide, epilepsy and possibly in certain forms of mental disturbance. It would be interesting to know if any considerable proportion of patients with shell shock or other forms of nervous breakdown, with or without anatomic lesions, belong in the category of status lymphaticus. Given an overdilated cerebral vascular system, one has an obvious predisposing condition to miliary or microscopic hemorrhages, such as occur in concussion and carbon monoxid poisoning. Almost the entire anatomic picture of status lymphaticus lends itself readily to the explanation of physical and mental breakdown on the battle field.

The irritable heart presents itself as a possible phase of the defective circulatory apparatus of status lymphaticus and one in which clinical observations on a large scale could be carried on.

All of these suggestions, however, must be offered with the greatest caution. Otherwise status lymphaticus may be lost in a maze of minor and ill defined clinical disorders of very doubtful relation to the very substantial anatomic alterations that appear in the bodies of pronounced cases. Such a fate seems to have overtaken neurofibromatosis at the hands of several continental writers, who have attempted to attach to this extremely specific anatomic condition all manner of disorders of the skin and nervous system.

The present conditions in the military service in America, when numerous races and classes are brought under the draft, seem to offer quite unique opportunity of determining the economic and military importance of definite status lymphaticus, and it is to this aspect of the subject, rather than to its possible ramifications, that the present note is directed.

Army Medical Museum.

SUPPURATIVE GINGIVITIS WITH ALVEOLAR INVOLVEMENT

A NEW SURGICAL PROCEDURE *

ARTHUR ZENTLER, D.D.S.

Associate in Oral Surgery, New York Post-Graduate Medical School and Hospital; Surgeon, Department of Oral Surgery, New York Throat, Nose and Lung Hospital (Columbia University, Advanced Courses for Practitioners)

NEW YORK

It is my intention to deal with that phase of the disease commonly known under the confusing name of pyorrhea alveolaris, which as indicated by its histopathology is a purely surgical disease and must,



Fig. 1.—Appearance before operation.



Fig. 2.—Flap lifted and retracted.

therefore, be treated surgically, this alone promising an expedient and a permanent cure.

For the purpose of clear presentation, I shall briefly state that I prefer to call the diseases involving the gingivae and their soft and hard underlying and adjacent tissues by the generic name given them by Talbot, of gingivitis. Further, that for purposes of practical study, I classify gingivitis into superficial, hemorrhagic and suppurative.

The first class of the disease and the less advanced forms of the second and third classes are ordinarily amenable to proper dental treatment (scaling, polishing, etc.) in conjunction with correction of such local and constitutional disturbances as may be present.

The more advanced hemorrhagic cases, and especially the advanced suppurative cases, accompanied by degenerative processes of the alveolar bone and the soft tissues immediately covering it, are usually either traumatic, being due to long neglected accumulations of salivary calculi or other irritants (ill fitting fillings, inlays, crowns, bridges, etc.), or they are a manifestation of a disturbed metabolism due to such diseases as diabetes, syphilis, tuberculosis or chronic or acute

* Read before the Section on Stomatology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

metallic toxemias, when serusal calculi may or may not be found on the roots of the teeth, and, if present, will act as an additional irritant. Whether of traumatic origin or of metabolic or of both origins, these forms of gingivitis are oral foci of infection, to which other systemic disturbances are attributed; but this phase of the sub-

by "cutting away as far, or a little beyond, the point to which the disease has reached, which generally means some cutting away of the margin of the alveolar process as well as the soft tissue." He speaks of there being "considerable variation in results following this treatment. The rule is, however, that something will be gained in reducing the depth of the pocket each time the overlying tissue is cut away."

From this it is seen that while the need of radically dealing by surgical methods with these cases was recognized by Black, the result was not always a success and recurrence took place; hence the need of repeated ("each time") cutting away of the pocket.

Riggs, and others since his time, operated somewhat in the way described by Black. Robitzeck of Vienna, as long ago as 1862, devised an operation for cases involving an area over several teeth, sometimes all the anterior region or

the posterior region or even both regions, consisting in excising with a straight incision through the soft tissues down to the alveolar process, all the abnormally appearing gum tissue. A scraping of the exposed alveolar bone followed the excision of the soft tissue, and the patient was dismissed. In cases in which cures were effected with this treatment, the result of the straight incision was such as to leave a very unsightly aspect of the parts.

After practicing Robitzeck's operation for a number of years, I have found that it was very useful in cases of advanced hemorrhagic gingivitis and often in cases of not very advanced suppurative gingivitis. I found, however, that in somewhat modifying his technic I could obtain a more pleasing ultimate appearance and a local condition more easily kept clean.

My modification consisted in excising the diseased gum tissue, instead of by a straight incision, by following the original festoons of the gums, going well into the healthy tissue, thus leaving behind a scalloped



Fig. 3.—Appearance after removing all soft and hard diseased tissue.



Fig. 4.—Flap replaced and sutured.

ject is not to be considered here, except for the purpose of stating that it is a *sine qua non* that the treatment of the oral condition must go hand in hand with the treatment of the general physical condition; neither can be brought to a successful issue without a rational treatment of both.

A typical report¹ of microscopic examination of specimens of tissues obtained from areas operated on reads as follows:

The exposed connective tissue is of sluggish granulation type, heavily infiltrated by some polynuclear and many round and plasma cells. These last cells are so dense that the stroma is obscured throughout its length inward from the epithelium. The epithelium is not remarkable except at points where it is necrotic and desquamating. There are many congested capillaries and considerable extravasation by red blood cells throughout, and several spicules of alveolar bone are seen.

This shows that the condition present is of such character as clearly to indicate that nothing short of radical removal of all the involved soft and hard structures, going well into healthy surroundings, will render the part receptive of regenerative processes and insure an ultimate permanent cure. It is clear that an essential factor in operating on any part is that its approach be unobstructed, so that before terminating the operation, the surgeon may be certain of having actually removed all that is diseased; it is seldom, if ever, when this is not accomplished, that recurrence does not take place. This probably explains the reasons why, in advanced cases of so-called pyorrhea, very few permanent cures are effected with the treatments as generally practiced at present.

G. V. Black² speaks of the surgical treatment of pockets, describing a method of eradicating the pocket



Fig. 5.—Typical appearance of upper anterior region before operation in an extensive case of suppurative gingivitis, in a patient aged 55.



Fig. 6.—Same patient as is shown in Figure 5, six months after operation.

edge, which I packed tight with a strip of folded iodoform gauze one-eighth inch wide. The ulterior healing would result in an appearance of the gum very much as if it had never been diseased, and with no signs of an operation noticeable; the gingival papillae would be practically restored.

This operation, however, was purposeless in advanced suppurative cases in which the involvement

1. Meeker, L. H.: From the Pathological Laboratory of the New York Post-Graduate Medical School and Hospital.
2. Black, G. V.: A Work on Special Dental Pathology, Chicago, Medico-Dental Publishing Company, 1915, chapter on Treatment of Chronic Suppurative Periodontitis.

of the soft and alveolar tissue was extensive, and recognizing the cause of the failure to be the lack of proper approach to all the involved area, I devised the following operation:

TECHNIC OF OPERATION

The patient is prepared as for all oral surgical operations, performed under procain-epinephrin conductive anesthesia.

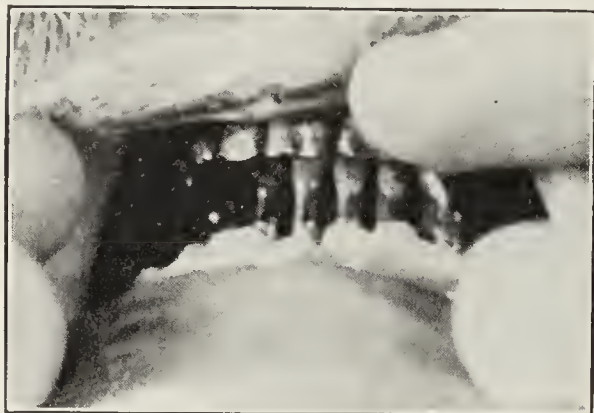


Fig. 7.—Typical appearance of lower anterior region before operation in an extensive case of suppurative gingivitis in a patient aged 55.

The part to be operated on (Fig. 1) is swabbed with tincture of iodine, and a flap is lifted by making two parallel incisions, starting at the cervical free border of the gum, and carrying them apically to the apical region each side of the area over the tooth or teeth involved. The incisions are made so as to penetrate the mucosa and submucosa, and to include the periosteum. This, with the gum tissue overlying it, is lifted with the raspator, retracted, and held in position by the assistant (Fig. 2). Thus the diseased part is well exposed, and with suitable curets and knives, all the inflamed, infected, granulosomatous tissue found, between and surrounding the roots of the teeth, is removed.

Next, with delicate chisels and mallet, the alveolar plate is chiseled away from around the denuded portions of the roots, so as to insure the removal of any and all infected bone covering the roots, which are then well curetted. The rough edges of the remaining alveolar bone covering the roots are well smoothed so as to form an even surface with them (Fig. 3).

The flap is then released, and its inner aspect is inspected for possible adhering inflammatory and granulosomatous

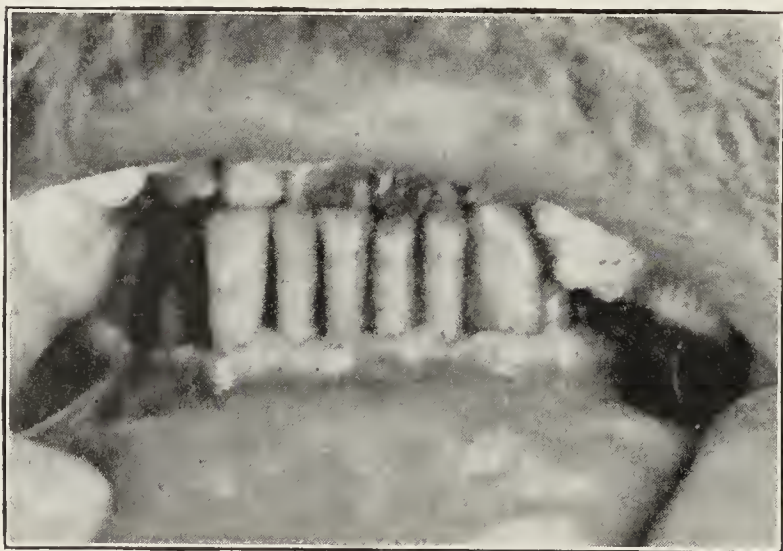


Fig. 8.—Same patient as is shown in Figure 7, four months after operation.

tissue, which is thoroughly curetted away, disturbance of the remaining healthy periosteum being carefully avoided. The parts are washed with physiologic sodium chlorid solution, swabbed with a 50 per cent. solution of the official tincture of iodine, the wound surfaces are freshened up, and the flap is replaced in position and sutured (Fig. 4).

The sutures are taken at each end of the incision, one near the cervical end and the other near the apical end. When

the operation is performed over an area covering more than four teeth, it is well to take one or two additional sutures between the teeth, securing the approximation, for instance, of a labial flap to the palatal gingiva. The parts of the free edge of the sutured flap that appear to be necrotic from lack of nutrition, because of the long existing interposed infection, are cut away with sharp scissors, leaving a clean cut which, when healed, presents a well adhering surface, surrounding the root of the tooth. Before the patient is dismissed, the parts are again swabbed with tincture of iodine and covered with a strip of iodoform gauze, which is changed once or twice at intervals of twenty-four hours. The sutures are removed on the fourth or fifth day, and unless the operation was attempted in an extensively necrotic case, in which removal of the tooth or teeth should have been practiced, there will in time be new bone formation around the roots, complete reattachment of the soft tissues, and quite loose teeth will become firm and stay firm (Figs. 5, 6, 7 and 8).

COMMENT

It is needless for me to say that it is advisable that the mouth be placed in as hygienic a condition as possible before the operation, all exgingival irritants, such as salivary calculi or ill fitting fillings, inlays, crowns, etc., being removed from the area to be operated on, and preferably from the entire mouth. In cases in which, for some reason or other, this was not done prior to operation, the patient must be warned

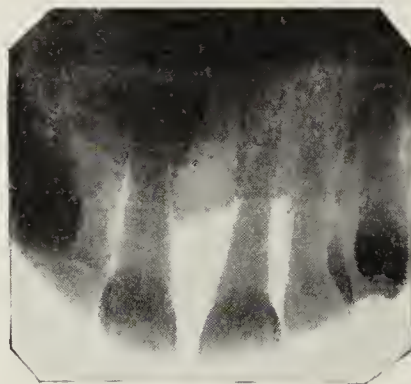


Fig. 9.—Amount of alveolar resorption over upper anterior region in patient on whom operation was performed, shown in Figure 5.

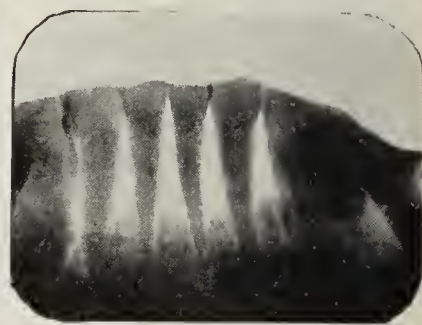


Fig. 10.—Amount of alveolar resorption over lower anterior region in patient on whom operation was performed, shown in Figure 7.

that it ought to be done as soon as the parts have sufficiently recuperated to permit handling them, and the rest of the mouth, for such purposes. This is usually from ten to twelve days after the operation. The patient may then resume the rational care of teeth and gums with tooth-brush and tooth-powder, etc., on the operated area. In the rest of the mouth this need not be interrupted at all, except in rare cases, for one day after operation.

There is usually no discomfort following the operation. At times there is some swelling and pain, after the effect of the procain wears off. The application of an icebag fifteen minutes to the hour, for two or three hours, usually brings prompt relief from pain and reduces the swelling.

All areas of the mouth, without exception, can be operated on as described above. I have extended the operation over as many as six adjoining teeth; but it is advisable when there is a great deal of suppuration in the entire region not to operate at one time over more than three or four teeth, in order to avoid opening up too large an area for septic absorption.

Whenever there are devitalized teeth in the area to be operated on, these must first be thoroughly treated; root canals must be thoroughly, aseptically filled. Apicoectomies may be performed at the same time as the operation for the suppurative periodontal

condition. In multirooted teeth this is not always practicable and, therefore, such nonvital teeth, with periapical and periodontal pathologic conditions, would better be removed.

As in all other oral surgical operations, the roentgenogram (Figs. 9 and 10) is an indispensable adjunct in diagnosis. It is my experience that when the roentgenogram shows that one side of the root is still supported by investment tissue, the case is a good operative risk. Even in cases in which apparently, from the roentgenogram, the investment tissue is lost almost to around the apical region, the tooth, however, responding to the ethyl chlorid thermal test, the operation was successfully performed in a small number of cases attempted for purposes of experimentation.

ADVANTAGES OF THE METHOD

Full exposure of the entire affected area is obtained, and hence facility for a thorough operation. Once the operation has been correctly performed and the patient dismissed after a few days of observation, the parts formerly harboring infection are totally obliterated, and the patient is able with only reasonable care for cleanliness of the mouth to enjoy health in the parts formerly diseased. Some cases that would be pronounced incurable by the ordinary methods now in vogue for treating so-called pyorrhea alveolaris might be successfully treated by this surgical method.

8 West Fortieth Street.

ABSTRACT OF DISCUSSION

DR. ARTHUR D. BLACK, Chicago: I approve of almost all Dr. Zentler presented, yet I cannot see the advantage of bringing back a flap and making a complicated operation instead of simply cutting away the overlying tissue. Scraping the surface of the root and bringing the soft tissue over it is just what we should not do. If the cementum is dead no soft tissue should be left overlying it. It is very easy to remove all of the detached tissue if the pockets are on the labial, buccal or lingual surfaces of roots, but when the pockets are between the teeth, it is necessary to cut away not only the tissue which is detached from the root, but also some of the soft tissue and the bone on the buccal and lingual sides of the interproximal space, in order to promote cleanliness. In most cases it is necessary to cut away a little of the edge of the bone, because the detachment from the root surface is usually deeper than the crest of the bone over the particular area. No matter what form of treatment has been employed, many operators have been deceived by the fact that the tooth, which may have been quite loose, has become much less so, and they have thought there has been a reattachment of the periodontal membrane. The amount of destruction of the periodontal membrane and the looseness of the tooth are not necessarily definitely related one to the other. Inflammations involving the periodontal tissues cause the fibers to lose tone so they do not hold the tooth tightly in its socket. Following almost any treatment by which the inflammation is reduced, the teeth have less motion within a few days. This does not mean regeneration of tissue, but only that the fibers have regained their tone.

Dr. Moorehead might tell you of the experiments on dogs in which he and Dr. Noyes attempted to cut the periodontal membrane away from the cementum. In each case they found, on microscopic examination, that the cementum had not been stripped; that a considerable amount of the soft tissue remained attached to the cementum. When cut in this way the periodontal membrane will heal quite as readily as any other soft tissue.

DR. GEORGE EDWARD FELL, Chicago: I have looked on this as a case of infection which must be overcome and in which the mouth has to be placed in such condition that reinfection cannot take place. It is evident that most of our cases of

gingivitis can be cured if proper methods are employed and carried out radically.

DR. THOMAS L. GILMER, Chicago: Dr. Zentler has indicated that bone is built up on the sides of the roots of these teeth. I would like to have him state rather definitely, if he will, what is the nature of the union between root and tooth. Is it vital, or if nonvital, is it a union similar to that found in implanted teeth; that is, an absorption of the cementum and a building in of the alveolar process?

DR. TRUMAN W. BROPHY, Chicago: When a part is in an abnormal state, put it to rest. So that the very best thing to do in the treatment of a tooth that is inflamed, as described in this case, would be to put the parts to rest. Band the teeth and fix them so they will not be moving about after the operation is done. In the second place, the tooth root that has been deprived of its pericementum by this suppurative process should be opened and the diseased tissue, together with the end of the root, removed. A few days ago a dentist came with his patient, for whom he removed a first lower molar some weeks before. The patient was still in a great deal of pain and distress. He had removed the tooth, the roots of which had two great abscesses. The tooth came away, but the abscesses remained. After curetting the alveoli and removing the diseased tissue the man was very comfortable in a few days.

Precisely the same condition is present in these cases where it becomes necessary to penetrate the alveolar process and remove diseased tissue together with the end of the root. The surgeon would not be regarded as a very wise man or a very conservative practitioner if he would amputate a leg because his patient had an osteomyelitis. The position is exactly the same regarding the teeth. What the doctor showed us here in the excision of diseased teeth and removal of diseased teeth is correct, and by and by there will be sufficient enlightenment on this question so that so many teeth will not be extracted unwisely.

In regard to the entrance of germs after cutting off the root of the tooth and subsequent treatment, you do not try to sew up the socket or gum tissue after you extract teeth. You allow granulation tissue to fill the alveoli, and after a while you have a well-developed alveolar process. The same is true after excising diseased tissue and the end of the root. The cavity should be left precisely as a tooth socket is left following extraction of a tooth. We all know how these sockets have filled in, leaving a good, round, smooth surface. To amputate the apex of a tooth root is right, but to make a flap and close the cavity by stitches, leaving a place where another abscess may form, should not be done. I would make a funnel-shaped opening, remove the diseased root and diseased tissue, getting it free and clean, and then keep it open until granulations fill the cavity and until the healing is complete. In that way you will not have recurrence of the disease.

DR. FREDERICK B. MOOREHEAD, Chicago: The fundamental underlying question in the type of infection suggested by Dr. Zentler is with the hard tissue and not with the soft tissue. The seat of pathology in these cases is in the hard tissue. The most important question in this whole matter is that of a normal circulation. Where you find a proliferating endarteritis associated with a chronic heart or kidney no amount of local treatment will avail. These infections will not clean up in the absence of a healthy circulation, which, of course, cannot be had unless the blood vessels are normal. Any method, therefore, that has for its object the saving of teeth under these special conditions must be contingent on the general condition of the patient. One may undertake to save teeth when the general conditions are good, while he would remove similar teeth where general conditions were poor. The condition of the circulation and the general reparative power of the patient are paramount factors in guiding us between our efforts to save teeth and their immediate removal. The tooth has no analogue and one cannot, therefore, make a comparison between a tooth and other bony structures of the body. One half of a tooth root may be vital because of its investment in periodontal membrane, while the other half may be a foreign body. The portion of the tooth root which has been deprived of its periodontal membrane through infection

will act as a foreign body and not be sequestered. This is not true of any other bone infection in the body. For example, one half of a long bone may be devitalized through infection and be thrown off as a sequestrum. There can be no organic union between a tooth root which has lost its periodontal membrane and the surrounding bone or soft tissue. It would seem, therefore, that these elemental fundamental facts must be our guide in undertaking the management of infected teeth.

DR. E. S. FULLER, Dayton, Ohio: Some years ago, in order to obtain better access for cleaning the root surface of a lower incisor, I made an incision along the axial line of the tooth, cleaned the surface and sutured the gum flaps together. The sutures pulled out and the root surface became exposed. This I thought unfortunate at the time, but now I think it was the best thing which could have happened. During the past three years I have been treating these "pyorrhea pockets" by removing the overlying gum tissue in all cases, excepting those where the pockets were shallow enough to become obliterated by the reduction of the gingival inflammation following the removal of deposits and the cleaning of the root surface. Many cases are seen showing a deep "pyorrhea pocket" on both the mesial and distal proximal surfaces of a tooth—say a bicuspid, for example—the adjoining teeth not being affected. In these cases I frequently extract the diseased tooth rather than resect away the gum tissue from the interproximal space, as a horizontal resection would destroy the attachment of the tooth not involved.

DR. ARTHUR ZENTLER, New York: To understand the character of the union obtained we would have to secure a section embracing all the tissues concerned and submit the whole for histologic examination. It is not easy to obtain human subjects for this. Animal experimentation may be used for the purpose. I believe, however, that we do not have the same conditions in animal as in human mouths. Practical examination shows a union, in operated cases, difficult to penetrate with fine probes. Only by exposing the entire involved area can one eradicate the disease. Simply cutting away the pocket has not proved permanent.

Where I operate at the same time for periodontal and periapical infection, I make the incisions as described in my operation. A month after removing the sutures there is no sign left of these incisions, while with the semicircular incisions for apicoectomies cicatrices are present for a long time. One need not fear to suture the flap in either of these operations, provided the operation is done as aseptically as it should be done. I never had an ulterior infection due to suturing. I thought it understood that only healthy tissue is allowed to remain, and in speaking of reattachment I did not mean a reattachment of pericementum, but a reattachment of soft tissues that had been lifted and then replaced carefully, saving the healthy periosteum. Twice I operated in cases previously splinted. The operations were failures. It was due, I believe, to the lack of normal motion. It interferes with circulation and deprives the part of proper nutrition.

It is true that the fundamental pathology is with the hard tissues and not with the soft, and that is precisely why I felt the necessity of lifting a flap and of getting to the hard tissues underneath. That is why I chisel away a strip of the involved alveolar plate as well as curetting the soft involved tissue which lies over it and surrounds the roots. That is why I pronounced it a poor operative risk to operate when all investing tissue is gone, and advise in such cases removal of teeth.

As to the general condition of the patient, I think it is understood that if it cannot be controlled one need not attempt local treatment expecting success. Both must go hand in hand. The local circulation will be improved by the operation if we remove the infected parts. The general circulation must be taken care of by the patient's physician.

DR. BROPHY: Is there not some vitality left in the cementum?

DR. ZENTLER: Wherever there is cementum left on a portion of the root that had prior to operating a detachment of the investing tissue, it is an open question in my mind whether this cementum is not able to throw off further cells into newly

created healthy surroundings to form some sort of attachment. Where suppuration has intervened I do not believe there will be any live cementum. We get a reattachment of healthy tissue to healthy tissue in approximating them. You need not fear at all to remove some of the healthy tissue if you must do it in order to eradicate all the diseased tissue. The lost healthy tissue will be replaced the same as in any other surgical procedure.

POSSIBILITIES OF FRACTIONAL GASTRIC ANALYSIS *

MARTIN E. REHFUSS, M.D.

PHILADELPHIA

Fractional gastric analysis has for its purpose the determination of the evolution of gastric digestion. The necessity for such extended technic is justified by the fact that gastric digestion is marked by a series of constantly changing phases, so that it may now be definitely stated that an examination of any single phase of the digestive curve gives no information as to what has preceded or what will follow that phase. The most marked changes may occur in comparatively short intervals, so that findings at one period may be doubled or tripled at another period. The main point, however, is the essential fact that gastric digestion is the response of the organ to a definite stimulus, which, in health, evolves in a perfectly methodical and coordinated manner, and in disease evolves with every possible variation. In order, therefore, to interpret gastric disease, we must study the elements governing the response of the organ in health.

NORMAL DIGESTION

From a study of normal digestion with every form of foodstuff, which the entire staff of the chemical department of the Jefferson Medical College was engaged, we arrived at the following conclusions:

Human gastric digestion is divided into a series of recurring cycles which, for the want of better names, we have called the digestive and interdigestive cycles. These succeed each other in health with regularity and represent most perfectly the normal gastric mechanism. The digestive cycle is that portion in response to the ingestion of food of any kind and evolves in a perfectly coordinated manner. There is practically no latent period and there are well marked psychic and chemical phases to secretion. The psychic secretion is very considerable, as we have been able to show, and in health it probably averages 250 c.c., lasting from sixty to eighty minutes and being marked, according to our recent studies, by changes in environment, fatigue, etc. The total acidity averages 97.2 in our series and it is markedly reduced, but does not disappear with atropin administration. The chemical secretion probably commences early but reaches its height later and completes digestion. During this active period, we notice (1) the relaxation of the peristole and the inauguration of peristalsis, and (2) a change from the resting secretion to a pronounced secretion of much higher acidity. Furthermore, we can detect certain regulating mechanisms such as tryptic or duodenal regurgitation regulating acidity. This cycle is constantly changing as each factor comes into play. It is followed by the interdigestive phase characteristic of normal digestion.

* Read before the Section on Gastro-Enterology and Proctology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918

The stomach is never empty, and there is always physiologically active secretion, but the resting secretion or the residuum seen in the interdigestive phase is very different from the digestive secretion. The quantity averages 50 c.c., the total average acidity being only 30 and the free acid 18, while the presence of bile is much more constant (55 per cent); and tryptic regurgitation is almost constant. Instead of peristalsis, we have peristole, tonal, and hunger contractions and a relaxed pylorus. It is the study of these phases so characteristic in health and altered by disease that yields us accurate information regarding gastric disease. All the motility changes only translate themselves by a diminution or increase in the interdigestive period.

We are now prepared to say that there is no one form of curve seen in health, but that the curve of the digestive period may be one of three kinds, depending on the type of individual, hypersecretory or hyposecretory. Further study of healthy persons only emphasizes the necessity for retaining these types. In a résumé of 842 complete curves on various foodstuffs with more than 20,000 titrations, we found that 383, or 45 per cent., exceeded 100 total acidity, and on that study embracing three years' work, we are prepared to state that no acid figures occurred in disease which could not be duplicated in health. In other words, we found that 45 per cent. of all responses in health showed so-called hyperacidity, while 42 per cent. of my ulcer series showed the same thing. In other words, there is no greater incidence of high acid figures in ulcer or in any other gastric disease than in health, a fact that raises the extremely important question as to whether an actual demonstrable hyperacidity ever does occur. We must face these facts squarely before we can make progress in this line. They are facts which may be verified and our ideas must be altered to meet them. Furthermore, we are prepared to state that hypersecretion in some form occurs in about 40 per cent of normal persons.

PATHOLOGIC VARIATIONS

In disease, every variation occurs from a total suppression of the gastric secretion to an exaggeration of all the phases. We might classify the elements into (1) those which are a modification of normal total acidity and free acid of the secretion, showing the presence of duodenal regurgitation, and (2) those which are frankly abnormal, such as blood, pus, mucus, certain organic acids, and pathogenic organisms constantly present. The study of normal digestion emphasizes one important point, namely, that at certain phases certain acidities and quantities of secretion are normal and at other phases these same figures are abnormal. For instance, instead of a coordinated curve after an Ewald meal with its height at the one hour and one and one-quarter hour point, we may have a total displacement of the curve, either a markedly exaggerated phase during the first hour or a slow initial phase, followed by pronounced findings at the end of the second hour. Study of pathologic curves shows that every variation of secretion may occur, instead of perfect evolution of digestion. There may be (1) a delay in digestion, (2) an acceleration in digestion, (3) a disturbance in secretory velocity resulting in hyposecretion or hypersecretion, and (4) alteration of digestion by the addition of frankly pathologic products, such as blood, pus and mucus.

We recognize that alterations may come through the systemic circulation (soluble toxins, bacteria) blood dyscrasias, resulting in altered mucosal conditions and altered secretory digestion, or through disturbances in the portal circulation (cirrhosis). These systemic conditions may stimulate or depress secretory activity. Again we know definitely that a lesion elsewhere in the gastro-intestinal tract (gallbladder, appendix) may increase the irritability of the vagus, inducing the secretory manifestations of vagotonia. In chronic gastritis we recognize as operative not merely the inability of the mucosa to form a complete secretion, but also the mechanism of neutralization of the secretion by the mucus. In ulcer we do not look for pathognomonic curves, for we realize that a nonobstructive ulcer gives a very different picture from pyloric stenosis with ulceration. In all forms there is a tendency toward vagotonia, pyloroplasm, hypersecretion, shortening of the interdigestive period, and increase in protein content. In duodenal ulcer, the most characteristic finding is that of positive blood at the phases of tryptic regurgitation. In a large group of duodenal ulcer cases there is present a late hypersecretion, accompanied by periodic regurgitation of duodenal material giving occult blood reaction. Gallbladder disease gives clean digestion and often high acidity without mucus, pus or blood, and when there is pericholecystitis, with adhesions to the duodenum, the adhesions closely resemble stenotic ulcer at the pylorus. However, there is a group of old gallbladder cases associated with duodenitis, in which a low curve with all the findings of true gastric infection may be detected. Appendicitis is most frequently accompanied by clean digestion, with high figures indicative of vagotonia. Cancer has as its characteristics the uniform and constant depression of secretory activity, together with the presence of its specific products, pus, blood, mucus, lactic acid, soluble protein, etc., each of which plays a part in the composition of the curve that is formed. These facts must be borne in mind. Nerve factors, circulatory toxins, the lack of building material, and direct local disease of the mucous membrane may all produce low acid curves, but they produce the curves very differently. The first and second each give a clean subacid curve, and the third is accompanied by elements such as mucus, pus and blood, which give a clue to its source. Let me illustrate: We can see in a certain anemia a low curve without any mucus, blood or pus; it is simply a subacid curve in anemia. The subacid curve in chronic gastritis is punctuated by the periodic secretion of quantities of mucus. In infectious gastritis, there is not merely mucus, but bacteria, pus and blood, and the same is true in case of carcinoma. Pericholecystitis with adhesions to the duodenum may give the same picture as contrasting pyloric ulcer, but blood and increased protein in the latter serve to distinguish it. We know that gallbladder disease, appendicitis, pancreatitis, intestinal adhesions and pelvic disease may all give reflexly vagotonia and the same gastric picture. It is the correlation of all the data which enables us to make the correct interpretation.

Some factors are important. The amino-acid content seems to run parallel to the curve of tryptic regurgitation. Pancreatic ferments or pancreatic regurgitation occurs independently of biliary regurgitation, particularly in the digestion of carbohydrates. With fats, both are likely to regurgitate.

In the analysis of blood, we attach great significance to the position and type of bleeding. Blood synchronous with periods of active tryptic regurgitation is characteristic of duodenal ulcer. Blood throughout the entire digestive phase of subacid cases is seen particularly in cancer and infected gastritis. Blood in the interdigestive period and not in the digestive cycle is likely to be swallowed blood. With pus we must distinguish between extragastric or swallowed pus and intragastric pus or that formed in the gastric wall. The former is always seen in the interdigestive cycle and is diagnostic; the latter is seen in both cycles.

The problems that confront us in the interpretation of gastric work are legion. Fractional analysis only emphasizes how many there are and offers a method for their solution. In the normal subject, we can produce high acid curves with meat, milk, low acid curves with fruit and vegetables, and we can produce an experimental subacidity or achylia with concentrated salt or glucose solution, or we alter the vagus and the sympathetic tonus by drugs and ductless gland preparations that alter the gastric response. Bacterial, chemical, neural, circulatory, and local mucosal disturbances can alter the gastric output, but only actual local organic disease can produce pus, blood, mucus and soluble protein bacteria.

Fractional gastric analysis already has an enviable record. It has emphasized the importance of the digestive and interdigestive cycles. It has enabled us to study the true residuum and to isolate and easily to diagnose swallowed suppurative material from infected processes higher up. It has enabled us to trace exactly the trend of digestion and depict the factors occasioning disturbance. It has opened up new chapters on psychic secretion, automatic regulation of acidity by tryptic regurgitation, and protein curves, and it has emphasized the fact that no one can guess the nature of gastric work but only painstaking technic will reveal all its details.

TOXINS AS DEPRESSANTS

Toxins of a bacterial nature usually act as depressants to the secretion. There are certain infections in the nose and throat, however, which unquestionably induce increased vagus tone and result in an increased secretion. In the analysis of the gastric curve, many points must be taken into consideration. Anomalies in the gastric secretion may be simply a perversion in secretory output but without the addition of evidence of local disease. For instance, gallbladder, appendiceal, intestinal, pancreatic and nervous conditions may give rise to well marked changes in the curve, either a prolongation of digestion, late hypersecretion, or other changes. But as soon as we have the addition of mucus, pus, blood, or bacteria, we are probably dealing with a pathologic process in the stomach itself.

Take, for instance, the question of delayed digestion, in which evolves a low, slow curve that is clearly pathologic. This curve is encountered in cases of chronic gastritis, late pulmonary tuberculosis, a group of anemias, chronic parenchymatitis, nephritis, a small group of old ulcers, and finally in a very large group of gastric cancer. In each case the mechanism is different, although in all there is the underlying disturbance in the mucous membrane, possibly primary in certain forms of gastritis and carcinoma, and clearly secondary in anemias, nephritis, hepatic disorders,

cirrhosis and tuberculosis. In the cancer group, we see a disproportionate reduction in free acid and the presence of pus, blood, mucus, lactic acid, etc. In chronic gastritis we see simply a disproportionate amount of mucus. In some of the anemias and in nephritis there may be no increase in mucus, and free acid runs proportionate or parallel to total acidity. A cure may follow local treatment, it may follow treatment directed to the heart or kidneys, or again, curiously enough, these secretory delays may suddenly clear up after removal of a focal infection in the teeth, the sinuses, the tonsils, etc. I have case records in which the entire response was altered after such procedure. The whole problem is so complex that painstaking research alone will solve it.

We have been able to show that the delayed curve of acidity may come about (1) through a delayed elaboration of secretion on the part of the mucous membrane, (2) through a strong duodenal regurgitation neutralizing an apparently normal secretory output, and (3) through the neutralization of the secretion by pathologic products, such as mucus, pus and blood. The first form is accompanied by no evidence of either tryptic regurgitation, or mucus, pus and blood, and may be due to anemias or to circulating toxins, or may be the result of disease elsewhere altering the circulation of the nervous supply. The second form is shown by the evidence of regurgitation in laboratory study. The third form belongs to the group of true gastric infections and cancer. All of them are susceptible to careful analysis.

CONCLUSIONS

1. Fractional gastric analysis alone can reveal the evolution of gastric digestion. Gastric digestion, whether normal or pathologic, consists of a series of constantly changing phases. Certain phases are normal, certain are obviously pathologic.

2. Normal gastric physiology consists in a rhythmic series of cycles in which we may differentiate the digestive and the interdigestive periods. In health, they succeed each other regularly; in disease, their sequence is seriously interfered with.

3. The digestive cycle is the response of the stomach to a definite stimulus. The response is partly psychic and partly chemical, but in its essential characteristics, it differs from the interdigestive phase.

4. There is always a physiologically active secretion in the stomach but the characteristics of the two periods are very different. The digestive secretion persisting into the interdigestive period is pathologic.

5. Our studies of healthy men indicate that there is no acidity in disease which cannot be encountered in health, and the diagnostic value of high acidity must be very carefully worked out. Forty-five per cent. of more than 800 cases (normal) gave a total acidity of 100 in excess. Normally, we point out three different secretory types.

6. Pathologically every possible variation in secretory output occurs. At present it seems that there are many possibilities in the analysis of each variety of curve. It is at this point that circumstantial evidence by the study of the protein curve, pus, blood, mucus, bacteria and tryptic regurgitation may throw light on the subject. In every case the extragastric as well as the gastric causes must be reviewed.

7. The gastric response may be shortened, delayed or exaggerated. It may be accompanied by the most

marked variations in secretory and acid concentration output. It may be altered by the addition of pus, blood, mucus and bacteria in every possible way, and these variations may occur only at certain portions of the curve, emphasizing the necessity for complete examination.

8. The investigation of psychic secretion, tryptic and biliary regurgitation, hypersecretion, protein concentration and secretory velocity, and of the evidence of pathologic material is full of promise.

ABSTRACT OF DISCUSSION

DR. A. F. R. ANDERSON, Brooklyn: A study of findings on fractional examination of gastric contents in about 800 patients leads to the following conclusions: The only curve of acidity which is of itself of absolute value in diagnosis is that found in achylia gastrica, a straight base line, representing free hydrochloric acid, running along the zero line, and a slightly varying curve of total acidity. The achylia of malignancy is quite often found to be associated with a high total acidity. The reflex type of curve is also of considerable value as indicating an inflammatory condition somewhere in the abdomen or pelvis, causing a reflex manifestation in the stomach. A finding which we consider typical of duodenal ulcer is the occurrence of blood and bile coincidentally during the fractional examination. Trauma from the tip of the tube catching in the pylorus and being pulled on must be excluded, but sufficient trauma to cause bleeding is exceedingly rare. Pyloric obstruction will show the normal overnight residue and the usual findings of carcinoma or of ulcer. After gastro-enterostomy for ulcer, bile is usually present in considerable amount, and when blood is also present it may mean persistence of the original ulcer, or the presence of a jejunal ulcer. Gastric motility can be determined more accurately by the fractional method than by usual routine roentgen-ray examination. Cases of gastroparesis showing a normal or even a slightly increased motility by the test meal examination often show much residue six hours after the usual sized barium meal. When, subsequently, a smaller barium meal is given, normal emptying may occur.

DR. WILLIAM VAN VALZAH HAYES, New York: The practical question that comes up is, How can we, as gastro-enterologists, employ this sort of technic in the ordinary case? There are many pros and cons on the subject, and up to date I have not used the method very frequently. In the ordinary case, in addition to a careful history and careful physical examination, examination of the stool, etc., we want to find out what the stomach does in the early and in the late stages of digestion. Are we going to put in a tube which will make the patient uncomfortable, which will cause a continuous flow of mucus and other secretions, and more or less obscure certain phases of the gastric activity, or can we, with less trouble to the patient and to ourselves, get the data we need? I believe that in the average case we can get these data by simply giving the test breakfast and taking it out an hour later. Then the following day give a duration test, i. e., two soft boiled eggs, a roll and a glass of water. Three and a half hours later use the tube to see whether the stomach has emptied itself as it should have, or whether there remains a considerable amount of gastric contents, with high acidity and possibly regurgitated blood or bile from the duodenum. Diagnosis is nearly always possible in this way.

DR. FRANK SMITHIES, Chicago: This is a practical method in the diagnosis and treatment of gastro-intestinal ailments. It seems quite impossible that apart from the diagnostic significance of these curves, an individual should fail to appreciate the importance that some of these curves carry with respect to treatment. One of the main points brought up during the past few years is the differentiation of gastric and duodenal ulcer. These curves enable us to differentiate quite easily the postpyloric from pyloric or antral ulcer. It seems that frequently it would be almost impossible in any other way to differentiate this class of case. Regarding the indications for treatment: There is no rule of thumb method of treatment of ulcer of the stomach or duodenum. There

must be intense individualization of treatment. The treatment and the cure do not depend on anomalies of gastric secretion. Other factors come into play. The causes of ulcer indicate that in treatment we must first look to the individual factors in the production of ulcer. Afterward, if we give any medication, we must give it according to our knowledge of what the patient's stomach is doing. In many cases a great deal of medication is not needed. The work of Crohn bears out some of Dr. Rehfuss' observations, namely, that in the giving of alkali we very often cause more harm than good. We simply defeat nature in its attempt to secure in the stomach a restoration to normal.

With regard to the mucus cases Dr. Rehfuss mentioned: In these cases, where we have early secretion by the fractional method, within the first half hour or hour, and then have an accumulation, of a great deal of mucus, we are simply dealing with an instance where the gastric glands are easily fatigued, and the condition represents a form of gastric fatigue, with mucoid secretion instead of the specific secretion of that gland. We have seen it in patients who have been given great quantities of alkali. It is apparent from a knowledge of gastric physiology that what alkali does is simply to urge the stomach first of all to restore the natural reaction of the stomach contents, namely, faintly or definitely acid. To do this it must overcome a foreign body, namely, the excess alkali. It does this by first producing a great deal of acid, then there follows physiologic fatigue, namely, an excessive secretion of mucus, which has to be washed out. If more alkali is given, in the end, the stomach does not produce acids. In periods varying from six to twelve days there is no acid secretion whatever. The glands are putting out a great quantity of mucus. This indicates mucoid degeneration, or physiologic fatigue of the cell.

DR. MARTIN E. REHFUSS, Philadelphia: Regarding Dr. Hayes' suggestion that this seems to be a little too extensive a procedure, a great majority of the men I have met do not think it is at all extensive. I do practically nothing else. My assistants are trained. I do not pass the stomach tube more than a few times a week. You can train nurses to do every little detail covering this work. It is a question of organization to do this work. It is absolutely impossible, by simple examination, to predict anything regarding the stomach. I have seen any number of people who were told that they had a normal stomach after a single examination.

Dr. Smithies mentioned glandular fatigue. We found that in the normal, healthy individual we can give a meal and develop a curve, and give a meal immediately after, developing the same curve, showing there was no glandular fatigue. However, we took students around the examination period, and not only found that we could produce physiologic fatigue, but also a form of nervous fatigue. We found a man who could not coagulate milk, and when he came back after a vacation the milk was beautifully curdled, which shows the effect of giving it to him in that way.

The Asset of Good Health.—I am heartily in favor of this measure [bill for an addition to the Hygienic Laboratory], because it helps in the preservation of health. For years and years the medical men of the world have been trying to impress on the people this fact, that good health is the most valuable asset we possess. It is often said on the floor of this House that this war, as horrible as it is, will teach the American people many valuable lessons. And there is no doubt in my mind but that one of the most valuable lessons that will be taught in this war will be the importance of preventing disease. Today we understand as we never understood before that it is necessary not only to preserve the health of our boys on the firing line, but it is also equally necessary to preserve the health of the people at home, who are united and working earnestly to produce the necessities for these boys on the firing line. I hope that the American people especially will never forget this lesson, and that from now on they will be willing to appropriate the money necessary, so that medical men can experiment and carry on the work that is necessary in order to prevent disease, and not wait until people are sick and then spend ten times more to be cured.—Mr. Lazaro, *Congressional Record*, Oct. 2, 1918, p. 11944.

RENAL COMPLICATIONS OF PREGNANCY FROM THE STANDPOINT OF THE UROLOGIST*

HENRY G. BUGBEE, M.D.

NEW YORK

The important rôle played by the kidneys during pregnancy has long been a matter of serious thought. Recent investigations of metabolism and kidney function have broadened the general knowledge of this subject, but very little has been added by the urologist. The more careful study of pregnancy by the urologist in association with the obstetrician should lead to a diminution in the incidence of renal complications and a more rapid recovery, with less serious sequelae when lesions are found to exist.

The patients whom I have seen during pregnancy have all presented well developed complications, only then recognized. In these cases, one fact has appealed to me, namely, that too little attention is given to the individual woman when she first presents herself to the obstetrician. This fact holds good for private patients, who usually come for examination early in pregnancy, as well as for hospital patients, who present themselves late in term or when in labor. Less may be accomplished with the latter than with the former class. The environment, habits of life regarding exercise, eating, drinking, and the condition of the gastro-intestinal tract all receive little consideration. A complete examination, including the mouth, teeth, tonsils, accessory sinuses, chest and abdomen; careful palpation of the kidney and other viscera, coming lastly to the pelvic organs, should be made but seldom has been made. Often there has been a single analysis of a voided specimen. A chemical and bacteriologic examination of a catheterized specimen of urine, and, if the patient presents any urinary symptoms, a complete urologic examination should be but has not been made. The taking of pelvic measurements, the palpation of the uterus and adnexa, the examination of a voided specimen, and a few words of advice, will not go far toward anticipating and preventing renal complications of pregnancy.

The renal function is such an important factor during pregnancy that it is right to look on the pregnant woman in one sense as a urologic case. This is true to the extent of warding off complications by advice as to the proper management of the case, and actual participation in and continued observation of those presenting renal complications.

ETIOLOGY

Why are the kidneys particularly susceptible to lesions during pregnancy?

1. Being organs of elimination, they are called on to eliminate the toxins of the fetus as well as of the mother.

2. The skin is less active than normal, rendering little assistance.

3. The diminished activity of the woman leads to less activity in the organs of metabolism, poor digestion and sluggishness of the bowels, thus increasing

the amount of toxic material thrown on the kidneys to eliminate.

4. The increase of toxic products passing through the kidney causes kidney irritation, which leads to congestion, thus producing an important predisposing factor to infections.

5. The lowered resistance of the patient allows focal infections to become more active.

6. Coexistent with the foregoing, more bacteria are thrown into the blood stream, and the kidneys, already congested, are fertile soil for infection.

7. Intra-abdominal pressure mechanically interferes with the normal function of the abdominal viscera.

8. When a preexisting kidney lesion is added, such as a renal or ureteral anomaly, renal tumor, or malposition of the kidneys, a chronic infection, chronic nephritis, or a calculus, as well as ureteral lesion interfering with drainage, the urologic aspect of the case becomes most important. Should not the kidneys be relieved of the load so far as possible? How may this be accomplished without a complete examination of the patient and attention to all details of bodily activity?

Recent investigations have given evidence to show that a large percentage of renal infections are hematogenous in origin. A case recently observed clearly demonstrated this point. The woman, seen during her eighth month of pregnancy, was septic. I was asked to see her because of the diminished urinary output, and the presence of large numbers of streptococci and colon bacilli in the urine. Blood cultures showed the same organisms. She died of general sepsis. At necropsy, conducted by Dr. Losee, of the Lying-In Hospital, multiple miliary abscesses were found in the substance of each kidney, sections of which showed the same organisms, while the kidney pelvis presented no lesions.

While the transmission of infection from the colon or the bladder to the kidney by lymphatic extension or directly to the ureter from a diseased appendix or a broad ligament infiltration or along the ureteral mucosa when there is a deficient vesico-ureteral valve, is possible and probably does occur, these cases are rare.

The most important element, next to the supply of bacteria to the kidney, is a lowered kidney resistance from the causes already enumerated, or interference with kidney drainage. Pressure on the ureter from the fetus has been given as an important factor in this connection. The ureters, particularly the right, have been found dilated and filled with urine in about two thirds of the gravidae coming to necropsy. This has been attributed to torsion, stretching or kinking of the ureters due to the enlargement and dislocation of the pelvic organs, but not to compression, since the specific gravity of the pregnant uterus is said to be equal to that of the intestinal mass. The pressure in the pelvis of the kidney is only 10 mm. of mercury, so that slight causes may lead to the stopping of the flow of the urine in the ureter.

Ahlberg found bacteriuria in 15 per cent. of pregnant women. Neibel found the urine sterile in only 25 per cent. of cases, demonstrating the presence of streptococci, staphylococci, and colon bacilli. Bacteriologic examination of the urine of all pregnant women should be made. The establishing of the relationship of bacteriuria to eclampsia and nephritis would be valuable.

* Read before the Section on Genito-Urinary Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

* Because of lack of space, this article is abbreviated in THE JOURNAL by omission of the bibliography. This will appear in the Transactions of the section and in the author's reprints.

The majority of patients whom I have seen have presented active symptoms due to infection. If there was drainage, these symptoms were vesical (frequency, burning, painful urination); if drainage was absent, the symptoms were pain in the flank, tenderness in the costovertebral angle on one or both sides, and often tenderness in front, and in some cases the kidney could be palpated. When drainage is poor, the patient has an elevation of temperature, which is often associated with a slow pulse.

EXAMINATION AND RESULTS

Cystoscopic examination of a pregnant woman is seldom difficult. The patient is usually seen between the fourth month and term. The bladder is flattened from above downward, on account of pressure on the fundus from the enlarged uterus. Enough fluid must be injected into the bladder to elevate the uterus from the trigon, when with a close-vision cystoscope with the beak well depressed, the ureteral orifices are easily distinguished and catheterized. When the ureteral catheter is passed, a moderate amount of pressure may be necessary to advance the catheter on one or both sides. In some cases there is a tendency to an obstruction, and whether due to torsion or kinking of the ureter, or pressure on the ureter, it is found more often on the right than on the left side, and between 10 and 20 cm. from the bladder. When the catheter enters the renal pelvis, there is often a rapid flow of cloudy urine or thick pus, which diminishes in rapidity until it comes down to normal excretion. Complete ureteral obstructions were encountered in the series examined, and demonstrated to be due to calculus, kink, and pressure on the ureter from without. Roentgenograms were taken with catheters in position in certain cases, and in the complete obstructions a thorium injection was made.

In 90 per cent. of the cases observed, the infection was due to the colon bacillus. The bacilli were found on both sides in 75 per cent. of the cases, but in all the infection was more severe on one side than on the other. The kidney function was diminished in all.

A routine pyelo-ureterogram has not been justifiable, owing to the condition of the patients.

It has been my practice to do as little manipulating as possible in these cases. In the infections the patients are often acutely ill, and no more should be done than is necessary to give immediate relief of the symptoms. This means establishing drainage.

UNUSUAL CONDITIONS, WITH ILLUSTRATIONS

Several unusual conditions were encountered, and I shall enumerate them briefly.

One patient, a woman aged 26, presented a unilateral chyluria, with no demonstrable lesion. Aside from the presence of a large amount of chyle in the urine from the left kidney, the examination and pyelograms were negative. This condition had been present when she first menstruated and during the puerperium with her two previous children, but had appeared at no other time.

A woman four months pregnant developed pain in the right upper quadrant, and a firm, irregular mass appeared. A catheter was passed into the right renal pelvis, resulting in a rapid discharge of clear urine, which was free from infection. A pyelogram showed a hydronephrosis. An abdominal exploration revealed a large fibroid attached to the right side of the fundus of the gravid uterus, which pressed on the right ureter.

The fibroid was removed, with relief of symptoms, and the patient went to term.

Urgent bladder symptoms during the fourth month of pregnancy were found to be due to a pyelonephritis occurring in a pelvic kidney, in a woman who had previously complained of no urinary symptoms.

Profuse hematuria, localized as unilateral, occurring in a woman five months pregnant, was not relieved by pelvic lavage, but ceased two weeks after the uterus was emptied. Another case of hematuria, the source of bleeding being the left kidney, came under observation when the patient was two months pregnant. Complete urologic examination showed deficient function of this kidney, but no evidence of infection. The patient had a positive Wassermann reaction. The bleeding ceased after the administration of arsphenamin.

Bilateral polycystic kidneys were demonstrated in a patient five months pregnant, who had not previously noticed any urinary or abdominal discomfort.

A ureteral calculus causing ureteral obstruction was found in two cases during pregnancy. In the one, the calculus was passed following cystoscopic manipulation. In the other the calculus was removed, the patient going on to term.

Sharp angulation at the ureteropelvic junction was demonstrated by pyelo-ureterogram in three cases in which there was a complete blocking of the ureter.

I have drained a perinephritic abscess in two patients immediately following delivery, the infection of the kidney arising during pregnancy, but not being recognized until after confinement.

Pyonephrosis, with an acute infection occurring during pregnancy, and renal calculi have been noted in two cases, in both of which the patients were temporarily relieved by pelvic lavage and were carried to term.

More than 90 per cent. of the cases observed have been acute infections, most marked on one side, occurring during the last three months of pregnancy. The patients were suffering from absorption, high temperature; pain in the side, and urinary symptoms. These patients were all catheterized, given pelvic lavage, and in many the ureteral catheters, one or both, were retained from twenty-four to forty-eight hours. All were relieved and went on to term.

A typical case of this group was a woman, aged 25, with a history of good health until this, her first pregnancy. During the first two months she suffered from severe nausea and vomiting, resulting in irregularity of her diet. She remained in bed most of the time, became constipated, and during the third month had a stool only after taking a cathartic, often going three days without an evacuation of the bowels. During the fourth month she developed frequent and burning urination. When I saw her she had had a chill, followed by fever and slight pain in the back, two days later, tenderness in the loin, and more urgent urinary symptoms. Cystoscopic examination showed the bladder intensely congested. There was retention of urine in the left renal pelvis. This urine contained pus and colon bacilli. The kidney function was diminished. The right kidney showed a milder infection. Pelvic lavage, with retention catheters in the kidneys for thirty-six hours, resulted in a drop of temperature from 103 F. to normal, and complete relief of symptoms. The knee-chest position for the relief of pressure for twenty minutes to an hour a day, a second pelvic lavage at the end of three weeks, and careful attention to the gastro-intestinal tract, gave lasting relief, and the patient went to full term. Six months after confinement specimens taken from each kidney showed only a diminished function of the left kidney. This woman became pregnant a year later. Most careful attention was given to diet, exercise and bowels from the outset. Once

during the third month, slight urinary symptoms appeared, and lavage of the kidney pelvis was given at once, with complete relief. The patient went through this pregnancy with no further complications.

In hospital service, patients often enter the hospital in labor. They seem sicker than normal, and not until after delivery is a renal infection discovered.

Not only is it important for the immediate welfare of the pregnant woman to give her all the relief possible when a renal infection exists, but for her future health. If one takes a complete history of a woman applying for relief of urinary symptoms, very often is it found that the active symptoms date from pregnancy. The possibility of some earlier lesion even from childhood, such as nephritis complicating an infectious disease, or a renal injury, should be ascertained, the existence of which may have rendered the kidney more vulnerable during pregnancy.

The possibility of preexisting but symptomless disease in the kidney, or of actual lesions as enumerated, giving lowered resistance, may play an important rôle in predisposing to kidney lesions during pregnancy.

Movable kidneys due to poor drainage are particularly prone to infection. A kidney previously normal when congested from the irritation of toxic products from the intestinal tract, and of large numbers of bacteria, develops a pyelonephritis which may or may not be recognized during pregnancy, but which leaves the organ permanently damaged to a greater or less degree, leading to future trouble. Therefore, not only should lesions be recognized and immediate relief be given to carry the woman through pregnancy, but after the pregnancy she should be observed until the maximum amount of permanent benefit has been derived by palliative or radical measures. Unquestionably many serious kidney lesions of later life will thus be avoided. Once the seat of an infection, a kidney is always more vulnerable. Few women who have gone through a pregnancy have the same general tone as before. Relaxed abdominal muscles, impaired perineal support, greater tendency to constipation from the foregoing causes, and a more sedentary life predispose to future renal infections, and many of the cases of frequency of urination seen in women later on in life are but relapses of the old infection or reinfection in kidneys once damaged during pregnancy. How easy it is for a bladder, possibly with weakened support, emptying poorly or subject to pressure from pelvic displacements also secondary to pregnancy, to become infected from the urine from such kidneys, and to cause distressing symptoms for years!

TREATMENT

The treatment resolves itself, first, into prophylaxis. Such infections may be prevented by impressing on the obstetrician and general practitioner the important rôle of the kidneys during pregnancy. He should go into the history of his patient more carefully, the catheterized urine should be examined bacteriologically as well as chemically, and any variation from a normal condition should be an indication for a complete urologic examination.

Closer attention should be given to the metabolism of the patient, especially in the intestinal tract, thus eliminating as fast as possible the amount of toxic products of intestinal putrefaction thrown on the kidneys, not by the administration of cathartics, but by exercise, diet, and plenty of fluids. This also means diminution in the number of bacteria passing through

the kidneys. In this connection, the importance of eliminating focal infections, whether oral, nasal or otherwise, cannot be overestimated.

When a pathologic condition in the urinary tract has been found which might predispose to a kidney infection, it should be eliminated early in pregnancy if possible. Patients as a rule withstand treatment and operation during the early months of gestation with remarkably little reaction. Whether or not a woman should attempt to go through a pregnancy with a renal lesion present, thus subjecting the kidneys to the added strain and possibly infection, is a question to be decided in each case.

Renal anomalies, tumors, calculi, and infections come under this consideration, and some surgical measure—nephrectomy or nephrotomy—may be advisable at once.

In the presence of such lesions, relief of the kidney to the extent of diminishing its load is certainly indicated, and consists of the most careful attention to details.

When a kidney infection is already present, the indications are to give relief from the toxemia by establishing drainage, and to cut off the supply of toxins and bacteria. This means kidney drainage with the ureteral catheter, retention of the catheter if necessary, lavage of the kidney pelvis, free fluids by mouth, colonic irrigation, and lastly, urinary antiseptics. If relief is not obtained, termination of the pregnancy is to be considered, and, lastly, some operative procedure, such as drainage of the kidney or nephrectomy, if one kidney is the source and relief cannot otherwise be obtained. Following immediate relief, the patient must have the closest attention during the remainder of the pregnancy to prevent a recurrence of the acute infection. A shifting of the intra-abdominal pressure gained from the knee-chest position is valuable and all other measures noted in prophylaxis are important.

When a patient has passed through the labor, she should be treated as a urologic patient until all damage has been repaired to its fullest extent by treatment or operative procedures. The possibility of future trouble must always be considered and guarded against.

ABSTRACT OF DISCUSSION

DR. HERMAN L. KRETSCHMER, Chicago: My experience has been that these patients come to us very late. The general practitioners who carry these women through pregnancy do not seem to realize the importance of watching their condition carefully and of making routine examinations of the urine. Generally, when we are consulted, the patient gives a history of bladder distress extending over varying periods of time. They are often treated for retained placenta, sepsis, malaria, appendicitis, etc., and the real cause of the symptoms goes unrecognized. Finally, the urologist is called late in the course of the patient's illness, whereas he should have been called in at an earlier stage. In many of the cases I have made a special effort to elicit a history of previous bladder distress. I think that many of these cases are a "lighting up," by reason of the pregnancy, of conditions from which the patient was suffering before becoming pregnant. I found that some of them had had pyelitis in infancy. Several patients have referred back to their school days when they would tell that they had had bladder distress. In several cases patients had indefinite histories; several had been subjected to the removal of the appendix, with or without temporary relief; so that often the real cause of the trouble is not recognized.

I was interested in the effect of pregnancy on pyelitis in patients whom I cured, and who became pregnant again. I have had occasion to see two or three of these women. When

discharged they were cured, as their urines were sterile and free of pus, and they did not develop pyelitis in subsequent pregnancies. The importance of examinations before, during and after pregnancy cannot be emphasized too much.

In approximately 90 per cent. of cases the infection was due to the colon bacillus. In one or two a pure culture of streptococci was obtained. All patients had residual urine, in the kidney or kidneys.

One point deserves special emphasis, and that is the question of treatment. I agree entirely with Dr. Bugbee about prophylactic treatment and about carrying these patients through till they are well. Often they go to the family doctor or to the obstetrician, who knows but one treatment, and that is to empty the uterus, because following this procedure the acute symptoms disappear. These patients are not cured because there is nothing done to cure the infection. At least half of my cases were cases seen in consultation with the obstetrician, and in each and every instance the obstetrician advised immediate emptying of the uterus; and in each instance this procedure was not carried out and the patient went on to full term without any operation.

DR. JOHN R. CAULK, St. Louis: In every locality we seem to have the same trouble with the obstetrician and the general practitioners. We must train them to realize the importance of renal complications during pregnancy, and particularly infections; and teach them to protect their patients by investigation before and during pregnancy in order to avoid focal infections of various sorts. Most of these women probably have had pyelitis before. They may have had an infected kidney or renal retention. Retention more than anything else that predisposes to these infections during pregnancy, and the rapidity of cure depends a great deal on the duration and the extent of the retention, and how much the musculature of the pelvis has been overstretched, just the same as in bladder retention. It is surprising how quickly a kidney which has been overdistended for some time will rapidly come down to its normal capacity, and the temperature and toxic processes will abate. We must get the obstetrician acquainted with the fact that he must quit ascribing everything to pyelitis and giving hexamethylenamin. We have not appreciated the value of ureter catheter drainage. It is not only applicable to pregnancy, but can be applied to all acute renal retentions. In cases with pure pus exuding from the ureteral orifices, with no function on that side, and the other side functioning normally, one unblocking will at times effect a cure. It is surprising that the kidney does not require surgery, resuming its function within a week or ten days. A kidney with retention which shows a very slow phenolsulphonephthalein output, which looks as though it should be attacked surgically, will often come back to normal usefulness by catheter drainage. There is no question that we cannot only save the kidney but the individual, and we will not have the operations or abortions we are having right along.

DR. V. D. LESPINASSE, Chicago: This discussion seems to have drifted more into a discussion of infections of the kidney that occur during pregnancy and are exacerbated by the presence of pregnancy. I have been much interested in the kidney of pregnancy from the standpoint of true renal complications without infection. We were enabled to reproduce this non-infected kidney of pregnancy experimentally by making a symbiosis between a small individual representing the baby and a large individual representing the mother, completely joining their circulations; and in that way we have obtained some very beautiful specimens identical with eclamptic organs. The organs (kidney, liver and spleen) show a cloudy swelling, focal hemorrhages and complete degeneration. When you do this with individuals not of the same blood group you have a much greater effect, a much larger hemorrhage. These changes are not limited to the kidney only, but involve the liver and the spleen—a most intense poisoning. This irritating substance, characteristic of pregnancy, is the material that causes all this lighting up of old and the development of new infections. The kidney, spleen and liver have been compromised, their blood supply is interfered with, and if a colon bacillus is in the neighborhood it localizes in the kidney and produces a so-called pyelitis.

DR. A. E. GOLDSTEIN, Baltimore: Ever since Dr. Caulk's paper two years ago on these cases of pyelitis in pregnancy I have been interested from the standpoint of renal insufficiency, particularly as to the blood urea. In pyelitis there is retention and also decreased function. By the use of ureteral catheters, allowing them to remain in place twenty-four to forty-eight hours, the blood urea decreases and the phenolsulphonephthalein increases, thereby avoiding forced deliveries in many cases of pyelitis of pregnancy.

DR. HENRY G. BUGBEE, New York: I had a patient who gave a history that in thirteen days she had not passed any urine. Three weeks previous to the suppressing she had had a cauterization of the cervix for carcinoma. I found on examination that there was no urine in the bladder and that both ureters were obstructed about 2 c.c. from the vesical openings. We operated on this woman and found that a cicatrix had formed which involved both ureters, closing them off completely. Each ureter was about the size of one's thumb. We cut off each ureter at the lower end as close to the cicatrix as possible, and then implanted it into the top of the bladder. Her kidneys functionated at once and have continued to ever since.

IMPORTANCE OF BEDSIDE INSTRUCTION IN THE TEACHING OF THERAPEUTICS

FRANCIS H. WILLIAMS, M.D.

Senior Visiting Physician, Boston City Hospital
BOSTON

There is, I believe, a gap between the instruction given in materia medica, pharmacology and therapeutics on the one hand, and the requirements of medical practice on the other, which, were it filled, would assist in making therapeutics even more valuable than at present. Let me recall the detailed instruction given to students in the comparatively few things employed in the surgical treatment of patients. An example is afforded by the instruction in the use of splints and bandages. The students are not only taught in a general way how and why these are used, but apply them repeatedly, the work being done in small sections. Students should be trained in a similar manner in the medical treatment of patients. The power in the hands of the physician does not display itself so dramatically as that in the hands of the surgeon, but it is no less essential, and opportunities for its use are more frequent.

Not only must a subject so unusually complex as therapeutics be presented in lectures and recitations, but also more opportunity should be afforded for bedside instruction, given by a physician who has had a training in pharmacology, as well as a clinical experience. To illustrate, let me describe some exercises of the character I would advocate, which I gave about thirty years ago. The students were taken into the wards in small sections, not exceeding eight in number, and standing about the patient's bed were given the diagnosis, together with a brief outline of the case. They were then told to consider that the patient had come to them for treatment, and, after any questions which they wished to ask had been answered, were required to write, on blocks of paper which had been distributed to the section, what they would do if the patient were their own. This was not limited to the use of remedies, but included directions as to diet, occupation, habits of life, etc. These outlines were handed to the instructor, and as some were ready sooner than others, there was sufficient time for him to

look over each paper without delaying the exercise. The papers usually fell into three groups: one in which the students had done well; another in which they had outlined a treatment which was incomplete; and a third in which they had made serious mistakes, for example, in choosing the wrong remedies, or in giving them in an amount or in a way which would fail to be of any value, or in such a way or such an amount that harm might be done. Comments were made freely by the instructor, so that all received the benefit of what was good, as well as the warning involved in the mistakes made. As names were not mentioned, the comments were impersonal and could thus be made more emphatic. A most convincing evidence of the need of instruction of this nature was afforded by the character of many of the answers written at these exercises. After the students had done their best, and had been told why some of their directions should not be followed, they had an opportunity to see how the physician met the situation. At subsequent visits the results of treatment could be noted.

In these exercises the instructor, when prescribing a laxative, a hypnotic or an analgesic, for example, was able to recall briefly to the minds of the students the important members of the group from which it was chosen, and give the reasons for his choice, why it was especially adapted to the patient's condition, and the precautions which should be taken to promote success and avoid harm. In order to emphasize still further the clinical side, the final examination in therapeutics included not only the usual written examination, but also an oral examination, which gave a better opportunity to bring out the proficiency of the students on this side of the subject.

In connection with the exercises described above, but in larger sections, the students had two or three others in which they were shown how a hot-air bath should be given, methods of administering remedies, of feeding, etc., and also some demonstrations by trained nurses. A young practitioner recently confided to me his perplexity when, as a house officer, he was told to give a patient a hot-air bath; he had never seen it done and did not know how to go about it. For a medical student to have an opportunity to see such demonstrations once, with explanations, is sufficient.

This method of instruction, namely, requiring each student of a small group at the bedside to state what he considers the proper treatment for the patient, under the oversight of an experienced physician who has had a training in pharmacology, is not used in our medical schools, so far as I can judge from the catalogues of more than twenty of our best schools. Incidentally, I noted that in more than one half of these there was no professor of therapeutics. This subject is one of the most important in the course, and every medical school should have, I believe, such a professor, who should be in touch with all instruction concerning medical treatment in the school.

Let me quote here a sentence from a statement made about thirty years ago, as a result of my experience with this method, a copy of which I came across recently:

I believe that bedside teaching of therapeutics is of the first importance to students, to practitioners and to the community, that no other method is so well adapted to show students how the obstacles in the way of giving relief to patients are to be overcome, or to have the practitioner know how to distinguish between what is of service to the patient and what is harmful, to have him appreciate the dangers of

new or absurd methods of treatment, and understand how to carry out safely and advantageously the many means of relief which are at our command, and of which it is sometimes very culpable for the practitioner to be ignorant.

This method gives the student an opportunity to realize the limitations of treatment, to appreciate the need of judgment and courage to use a powerful remedy in such amounts and in such a way as the occasion demands, and to gain a sense of values, that is, to see the problem of treatment in perspective, a difficult thing for many minds to acquire in any subject. It also offers another opportunity for joining the experimental method which prevails in the laboratories of chemistry, physiology and pharmacology, with the observational method for which the clinic affords such a wide scope, and leads the student to form habits of thought which make him a better practitioner and more truly a professional man.

In didactic teaching it is impossible to present the subject of therapeutics in a manner suited to the minds of all members of a large class; probably only a minority of them are reached. On the other hand, with small sections, at the bedside, the instructor comes in contact with the individual student and his difficulties, and may thus appreciate what he has failed to grasp. It is an advantage to have the bridge that connects the teaching of therapeutics with its application in practice built and used in the medical school, where the student can have assistance in this difficult task, rather than that unaided he should attempt its construction out of what he has heard in his lectures and recitations on the one hand, and his clinical inexperience on the other.

My plea is for a careful, painstaking rehearsal at the bedside by the student of what he is to do as a practitioner. Let him first be trained without taking responsibility, and when the time comes, this training will help him to give a good account of himself in his fight against disease, and to choose and carry out the proper measures.

The Nightcap.—W. J. B. Selkirk in the *Lancet* (London), Sept. 7, 1918, sets forth the advantages of the nightcap (not the liquid one) for the promotion of sleep. He believes that our grandmothers and grandfathers did not wear the nightcap as a matter of vanity, but that their experience proved that it was an aid in the wooing of Morpheus. He says this experience is confirmed by that of soldiers in the present war who wear the knitted helmet in camp and billet and dugout, and who find its warmth most soothing and comforting and promotive of sleep. He says it might be used with benefit by civilians suffering from insomnia not of gross organic origin. In addition to keeping the head warm, especially for those whose natural head covering has become sadly thinned or has disappeared for the most part, the cap or helmet also acts as a sleep promoter by shutting out extraneous sounds, thus helping to decrease the intensity of sense impressions which distract the would-be sleeper from the work in hand. In this connection he calls attention to the custom of soldiers (and many civilians too, perhaps) of imitating the habit of the dog which sleeps curled up, with his nose covered, and of the bird which sleeps with its head under its wing, in pulling the blanket completely over his head to facilitate sleep. In this manner he not only keeps his head warm and shuts out disturbing noises and other exciting sense impressions, as by the use of the nightcap, but by rebreathing his own carbon dioxide he half anesthetizes himself so that he sleeps soundly and wakes slowly, even passing through a more or less confused phase resembling the waking from a brief anesthetic state. While not to be recommended from the standpoint of healthful, refreshing sleep as in fresh air, this habit does promote sleep as does the now discarded nightcap of our grandparents.

THE PROBABLE ENDOCRINE ORIGIN
OF PEPTIC ULCER*

G. A. FRIEDMAN, M.D.

Clinical Professor of Medicine, New York Polyclinic Medical School
and Hospital; Gastro-Enterologist, Gouverneur Hospital
NEW YORK

The consensus of opinion is that chronic ulcer in man develops from the acute ulcer, and that the acute ulcer must necessarily be preceded by an initial lesion. Once the initial lesion is formed, its further development through the various stages into the chronic ulcer is attributed to the corrosive action of the hydrochloric acid of the gastric juice. However, intrinsic causes, such as the mechanical irritation of food on the ulcerated area, and extrinsic causes, such as epigastric pressure from abnormal posture, are other agents helping to produce chronicity. The presence of hyperchlorhydria in conditions other than ulcer, and the absence of ulcer in true achylia gastrica, though occasionally lesions in the stomach may be present in the latter condition, are facts suggesting that hydrochloric acid is a secondary, though prominent, factor in effecting the beginning of an ulcer. It is not the main etiologic factor.

Various theories have been advanced explaining the cause of peptic ulcer. Of these, the hypothesis based on the endocrine origin of ulcer is most probable. It attributes the initial lesion primarily to a disturbance in internal glandular secretion, which causes a disturbed equilibrium in the vegetative nervous system, both vagus and sympathetic, and consequently, functional disturbances in the various organs supplied by these nerves. Eventually, the continued functional disorder produces pathologic lesions and clinical symptoms.

CAUSES OF INITIAL LESION

Briefly stated, the initial lesion is attributed to an interference with the blood supply in a limited area of the gastric or duodenal mucous membrane. The circulatory disturbance may be, first, an ischemia of that part of the mucous membrane involved as a result of a spastic contraction either of the small artery or of the musculature surrounding that artery, both instances causing the occlusion of the artery; or the circulatory disturbance may be, second, a stasis of the blood in the small artery, either through vasodilatation or through pull on the vessel wall by relaxation of the musculature surrounding that vessel. Be it stasis or spastic contraction, there is an interference with the blood supply and hence with nutrition. To this is attributed the origin of the initial lesion, and subsequently ulceration takes place.

Because of an irritation arising from disturbances of internal secretion, the terminal nerve fibers of the vagus may produce a spastic contraction of the muscularis mucosae in localized areas, causing an occlusion of the smallest arteries contained in those particular areas. This continued spastic contraction of the musculature gradually causes an ischemia of the area supplied by the blood vessel. This ischemia interferes with the nutrition and, with the aid of the corrosive action of the hydrochloric acid, ulceration results. The same is true for spastic contraction of the vessel wall

itself. The initial lesion, however, need not necessarily arise from vasoconstriction. It may originate from dilatation of the vessel. Because of reduced stimulation of the splanchnic nerve or through pull on the vessel walls by relaxation of the surrounding musculature from the diminished vagus stimulation, stasis of the blood in the smallest arteries occurs with an interference to nutrition. The next step is ulceration. But the vegetative nervous system, vagus and sympathetic, is fundamentally the main etiologic factor, for it originally affects the blood vessels or muscles causing the constriction or dilatation, contraction or relaxation. The vegetative nervous system in turn is dominated by the glands of internal secretion.

What may be assumed possible for small areas of musculature is a well known fact for larger areas. Gastropasm, pylorospasm, etc., or gastric atony exist without the presence of ulcer. The fact that peptic ulcer is associated frequently with hypertonic or spastic stomach does not permit the assumption that the hypertonicity or spasticity is due to the ulcer. Were this true, one would not find ulcer associated with the subtonic stomach. It is not unreasonable to suppose, however, that the ulcer, once developed, sustains the spasm. Disturbances in motility, therefore, occur independent of ulcer.

Gastric atony or gastric spasticity is attributed to gastric neurosis, due to a disturbed equilibrium in the gastric nerves. This may manifest itself independent of the ulcer, but the existence of the ulcer is impossible at least without the local neurosis. This gastric neurosis is due to a disturbance in one or more of the endocrine glands. The disturbance is purely a functional one and has been termed ductless gland neurosis. To recapitulate briefly, the initial lesion of ulcer is due to (1) the ductless gland neurosis; (2) the influence of this neurosis on the vegetative nerves, resulting in the (3) gastric neurosis with atony or spasticity; (4) the disturbed circulation, caused by (a) ischemia from vasoconstriction of the small arteries or from pressure by the spastic contraction of the muscularis mucosae, or (b) stasis from vasodilatation, or by pull of the musculature on the vessel wall; (5) subsequent ulceration; (6) etiologic factors in the production of chronicity.

ETIOLOGY

Ductless gland neurosis was first emphasized by Bauer¹ and later by Hemmeter,² who states that there are cases of exophthalmic goiter which were characterized by all the phenomena of that disease, but which were not relieved by thyroidectomy and in which parts of the removed thyroid were found to be normal. No hyperplasia of secreting vesicles, no liquefaction of colloid material and no small round cell infiltration were noted. Cases are reported in which the full clinical picture of exophthalmic goiter developed in women with a rather sudden onset due to mental excitement.

According to Canon,³ violent emotion causes an output of epinephrin from the suprarenals. Such repeated functional disturbances in the suprarenals may lead eventually to cessation of gastro-intestinal

* Read before the Section on Gastro-Enterology and Proctology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918

1. Bauer, J.: Zur Funktionsprüfung des vegetativen Nervensystems, *Deutsch. Arch. f. klin. Med.*, 1912, **107**, 39.

2. Hemmeter, J. C.: Hypertonicity and Hypotonicity of the Vagus and the Sympathetic Nervous System, *New York Med. Jour.*, 1914, **99**, 101.

3. Canon, W. B., and de la Paz, D.: Emotional Stimulation of Adrenal Secretion, *Am. Jour. Physiol.*, 1911, **28**, 64.

movement, dilatation of the bronchi, increased blood pressure and glycosuria. All these phenomena may be produced experimentally by the intravenous injection of epinephrin.

So, too, exophthalmic goiter, at least at the very beginning, must be a functional disease. Likewise, glycosuria or mild diabetes may show the islands of Langerhans in the very early stages of the disease to be normal; or even achylia gastrica, which is probably at first a true neurosis, may be at the very start a functional disturbance, but later on may show a pathologic lesion, namely, atrophy of the glands.

Depressive states, on the contrary, may produce suppression of the thyroid secretion or suppression of the epinephrin secretion. It seems that in exophthalmic goiter not only excessive quantities of sympathetic and vagal products pass into the blood stream, but also epinephrin. This is proved from the researches of Leo Adler⁴ and others who found in the blood serum of all patients suffering from exophthalmic goiter a high percentage of epinephrin. The symptoms and signs therefore in exophthalmic goiter will vary, depending on the excesses of the various chemicals entering into the blood stream from the thyroid.

The effect of the various secretory products of the thyroid on the gastro-intestinal tract is of vast importance. The thyroid has a double innervation, sympathetic and vagus. If the sympathetic products predominate, a condition which occurs in the majority of cases of exophthalmic goiter, anacidity or hypacidity will be found, since sympathetic products inhibit gastric secretions to a great extent. In instances in which the sympathetic and vagal products are discharged in equal quantities into the circulation, hyperchlorhydria may be found. The pure vagotonic type of exophthalmic goiter, although assumed by Eppinger and Hess,⁵ is rare. However, in many cases of exophthalmic goiter the effect of vagal excitation is evident, namely, gastro-intestinal disturbances, vomiting and profuse diarrhea, all being manifestations of a thyrotoxicosis.

Crotti⁶ states that the stomachs of patients with exophthalmic goiter in whom the gastro-intestinal symptoms are most pronounced, on repeated fluoroscopic examinations, show a state of more or less constant spasticity. There are, however, those patients with exophthalmic goiter who are obstinately constipated. In such persons few vagal signs are noted, and the constipation may be due to increased intestinal inhibition from the sympathetic excess. Furthermore, Iscovesco⁷ has isolated from the thyroid a lipid substance, injections of which into animals produced the typical picture of thyrotoxicosis. All these facts indicate that exophthalmic goiter is a mixed neurosis attributed to an overproduction of sympathetic and vagal products of the thyroid. Thus the sympathetic overflow manifests itself chiefly on the secretions of the stomach, and the vagal on the peristalsis. All grades of functional disturbances may occur from very severe to very mild. Again, there may be an overproduction of the sympathetic products or there may occur a disturbance in the thyroid gland in which the vagal products will be produced in

larger quantities than the sympathetic, or both vagal and sympathetic may be manufactured in excessive amounts, as happens in cases of exophthalmic goiter with severe gastro-intestinal disturbances. Small quantities of vagal products, due to minor disturbances in the thyroid, may lead to marked alteration in the peristalsis and secretion of the stomach. Such a mild vagal neurosis may be the underlying cause of the gastric neurosis.

Suprarenal insufficiency, however, may influence the peristalsis and secretion in the same manner as occurs in vagal thyroid neurosis, for the sympathetic impulses are diminished, and, as has been discussed elsewhere, suprarenal deficiencies mean various grades of vagotonia. There are no reports of fluoroscopic findings in Addison's disease, but in two cases, the gastric analysis showed hyperchlorhydria, and in addition, blood examination showed an eosinophilia, both findings being common in vagotonia.

The sluggish digestion and atony of the stomach and the bowels in myxedematous patients are quite characteristic. Anacidity and hypochlorhydria is the rule in this condition. The cause of the diminished secretion is slightly different from that observed in exophthalmic goiter, since in the latter it is caused by sympathetic inhibition, while in the former by diminished vagal excitation.

The decreased peristalsis of the gastro-intestinal tract in a myxedematous patient is attributed to an absence of the vagal products of the thyroid in the blood stream, as a result of depressive causes leading to the vagal neurosis in that gland. Lane,⁸ for instance, believes that intestinal stasis is due to subthyroidism. Since epinephrin inhibits intestinal and gastric peristalsis, a condition similar to the peristalsis observed in myxedema should be expected in hyperfunction of the suprarenals or in the suprarenal neurosis of suprarenalemia.

Parathyroid insufficiency seems to lead to spasticity of the stomach. In two cases of ulcer with tetany, Bine⁹ reported the presence of pylorospasm. Thus, parathyroid hyperfunction must have an inhibitory effect on peristalsis.

The pituitary body, the action of whose products are on the extended vagus or pelvic nerves, may be excluded from consideration in regard to gastric peristalsis, and, hence probably plays no rôle in the origin of the initial lesion of ulcer.

Hypersecretion or hyposecretion are secretory disturbances found in gastric neurosis and peptic ulcers. The secretion of the duodenal mucosa shows its effect on pancreatic and intestinal secretion through the blood stream, and Edkins gastrin, or as Starling calls it, "gastric secretin," shows its effect through the same route on gastric secretions. The secretins are endocrine products of the gastric and duodenal mucosa. Gastrin belongs to the same class of hormones as the duodenal secretion, which, according to Fürth and Schwarz,¹⁰ is a mixture of several substances possessing the properties of exciting secretion, of which the most important is cholin. Cholin is essentially a vagotrope substance, which in excess may excite the secre-

4. Adler, Leo.: Untersuchungen über den Adrenalinegehalt des Blutes, *Deutsch. Arch. f. klin. Med.*, 1914, **114**, 283.

5. Eppinger and Hess: *Die Vagotonie*, Berlin, Hirschwald, 1910.

6. Crotti, André: *Thyroid and Thymus*, Philadelphia, Lea and Febiger, 1918.

7. Iscovesco, quoted by Crotti: *Thyroid and Thymus*, p. 51.

8. Lane, quoted by McGarrison: *The Thyroid Gland in Health and Disease*, William Wood and Co., New York, 1917, p. 188.

9. Bine, René: *Duodenal Ulcer and Tetany*, *THE JOURNAL A. M. A.*, May 5, 1917, p. 1315.

10. Fürth and Schwarz, quoted by Biedl, Arthur: *The Internal Secretory Organs*, English translation by Linda Forster, New York, William Wood & Co., 1913, p. 439.

tory vagus fibers, and in deficient quantities may cause suppression of gastric secretion.

Although these products, or, as Starling calls them, chemical messengers, act directly on the glands through the blood stream, they may also influence the secretory fibers of the vegetative nerves. Since the true ductless glands exert their influence on the vegetative nerves, the influence of these glands directly on the secretions of the stomach and the bowels is probable.

One must not, however, deny the influence of the central nervous system on the gastric secretion. This is evident from the effect of the sight, smell, and taste of food on the secretion of gastric juice. Through the epoch-making works of Starling, Pawlow, Canon¹¹ and others, it became a known fact that the maintenance of the body is to a large extent independent of the central nervous system.

Through the plexuses of Meissner and Auerbach, acting conjointly with the sympathetic ganglions, the central nervous system has apparently a minor influence on the gastro-intestinal tract, but the processes of digestion are still controlled by hormones. In regard to the gastro-intestinal peristalsis, however, the central nervous system, together with a reflex mechanism, must be considered. Thus, for instance, the acid secretion which is elaborated in the gastric mucosa, causes the pyloric sphincter to relax at regular intervals; and also, as another example, the movement of the intestines is provoked by the bowel contents. It is not unreasonable to assume that there is also a nervous reflex, which is set in motion by the secretion of the gastric and intestinal mucosa to control peristalsis. Still, one must admit that the movements of the stomach and bowels are chiefly regulated by the chemical communication from one part of the intestine to another or through the agency of products from the endocrine glands circulating in the blood stream and acting directly on the nerves or musculature.

Altered function in the endocrine glands, therefore, will lead to altered peristalsis. This possible dependence of the disturbed peristalsis on the products of internal secretions was suspected by William Mayo,¹² in a paper of 1907, in which he said: "The curious blending of the sympathetic with the ductless glands is exemplified in the suprarenals, thyroids and parathyroids. Here we may possibly get an explanation of that close association which exists between pyloric spasm, atonic dilatation, prolapse of the stomach and gastric neurosis."

The excesses or the deficiencies of products of the endocrine glands, producing manifestations of the ductless gland neurosis, passing through the blood stream, act directly on the muscle, causing pylorospasm, gastrospasm, hour-glass stomach or cardio-spasm—various grades of atony. These excesses or deficiencies may also show their effects on minute limited areas of the muscularis mucosae or the mediums of the vessels producing the ischemia or stasis, either of these conditions leading to circulatory interference and altered nutrition. From these localized areas of ischemia or stasis, lesions occasionally form probably in the entire intestinal tract, as

well as in the stomach and duodenum, but, on account of the absence of the hydrochloric acid, ulceration does not occur, at least with the characteristics of *ulcus rotundum*. These latter lesions may become the site of bacterial invasions, as in the appendix, for instance. The bacteria may become pathogenic and lead to a true appendicitis. Aschoff¹³ and others do not believe in the bacteriologic origin of appendicitis, and, also, according to Hertogne,¹⁴ appendicitis is due to thyroid insufficiency. Further, the frequent association of peptic ulcer, gastric or duodenal, with appendicitis, suggests that appendicitis is due also to an endocrinous origin.

That a neurosis precedes the ulcer is evident from reliable statistical data. Many authorities have compiled statistics and reports of cases in which neurosis preceded the ulcer. Cackovic¹⁵ carefully analyzed histories of 172 cases of operatively demonstrated ulcer. In 18.5 per cent. of the patients, the initial symptoms appeared between the ages of 10 and 19 years; in 32 per cent., between the ages of 20 and 29 years; in 29 per cent., between the ages of 30 and 39 years, and in 18 per cent., after 40 years. The initial symptoms of ulcer are found in the third decade of life, at a time when neurosis is most frequent, but the operative evidence of the presence of an ulcer, however, is for obvious reasons obtained late in life.

Clinical observations prove that many patients afflicted with peptic ulcer present vegetative stigmata as evidence of the general neurosis. Peptic ulcer patients often respond to the pilocarpin test positively, or to the epinephrin test, or to both. Westphal and Katsch,¹⁶ who have made an extensive study of the vegetative stigmata and who have completely enumerated all of them, found these stigmata to be absent only in the middle-aged; and these do not respond to either of the drugs. But signs of a disturbed equilibrium of the stomach, the signs of local gastric neurosis, are common in ulcer patients in all ages. They are hypermotility or spasticity, hypomotility or various grades of atony, and hyperchlorhydria, rarely hypochlorhydria, hypersecretion or hyposecretion. The hypertonic type of stomach and hyperchlorhydria are more often observed than the atonic type and hypochlorhydria.

Symptoms and signs of vagotonia or sympathicotonia or both, pointing to a general or local neurosis, are seen in the patients during the whole course of the disease and frequently persist after the patient has been considered medically or surgically cured. In a recently published paper,¹⁷ it is shown why great value should not be placed on surgical, as well as medical, statistics concerning ulcer cures. The gastric neurosis ceases when the ductless gland neurosis has ceased, and this may often be accomplished by nature, assisted by medical or surgical procedures.

A ductless gland neurosis may, in the course of time, lead to actual pathologic changes within the gland itself, as happens to the islands of Langerhans from slight changes to their complete atrophy as in severe cases of diabetes, or as in the well known changes in

13. Aschoff, L.: *Pathologische Anatomie*, Ed. 3, Jena, Gustav Fischer, 1913, 2, 793.

14. Hertogne, quoted by McGarrison (Footnote 8), p. 188.

15. Von Cackovic, M.: *Ueber das Ulcus ventriculi im Kindesalter und seine Folgen*, Arch. f. klin. Chir., August, 1912.

16. Westphal and Katsch: *Das neurotische Ulcus duodeni*, Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1913, 26. Gustav Fischer, 1913.

17. Friedman, G. A.: *Should Chronic Peptic Ulcer be Treated Medically or Surgically?* Am. Med., 1918, 13, 109.

11. Starling, Pawlow and Canon; quoted by W. J. Mayo (Footnote 12).

12. Mayo, W. J.: *The Contributions of Surgery to a Better Understanding of Gastric and Duodenal Ulcer*, Tr. Cong. Am. Phys. and Surg., 1907, 7, 108.

exophthalmic goiter. This may explain the pathologic changes in the ductless gland found in patients afflicted with ulcer. The pathologist Cesaris Demel,¹⁸ who investigated at necropsies the suprarenals in ulcer cases, found marked gross changes in the five examined.

Finzi,¹⁹ in quoting him, suggests that in all necropsies of ulcer cases, the suprarenals should receive due investigation. Changes should also be looked for and noted in the thyroid.

RESULTS OF ANIMAL EXPERIMENTATION

The results of animal experimentation are also suggestive as to the probable endocrine origin of peptic ulcer. The acute ulcers in animals, produced in former experiments, heal rapidly. Panum and Conheim,²⁰ for instance, found ulcers with all their characteristics after injecting lead chromate into one of the gastric vessels arising from the splenic artery. Such animals, killed within a few days after the experiments, showed the typical acute ulcers, but all animals killed after the second week had a normal mucous membrane. The experimental ulcers heal because the constitutions of animals cannot be changed by experimentation.

Vagotonia, sympathicotonia, or a combination of both, are, according to Eppinger and Hess, constitutional anomalies. Experiments have been performed to alter the constitution in the animals, to imitate in a rather rough manner vagotonia and sympathicotonia in man. Lesions, erosions, or acute ulcers were produced by experimentally causing hyperfunction through injections of products of internal secretions, or by causing deficiencies in some of the ductless glands by partial or complete removal of the glands.

Acute ulcers in the stomach or duodenum, or in both, were obtained after complete or partial removal of the suprarenals by Finzi and myself²¹ in dogs and rabbits, by Elliot,²² in cats, and by Mann²³ in dogs. After partial parathyroidectomy, Carlson and Jacobson²⁴ observed acute ulcers in the stomach and duodenum of dogs, and I observed them in dogs and rabbits. After repeated injections of desiccated thyroid extract, gastric ulcers were noted in dogs and rabbits, and after repeated epinephrin injections, lesions or acute duodenal ulcers were observed in dogs and, occasionally, in rabbits. Peptic ulcers were obtained by Westphal²⁵ after pilocarpin injections in rabbits, dogs and cats. I found gastric ulcers after such injections in rabbits, and gastric and duodenal ulcers or lesions, after injecting into rabbits, pilocarpin and epinephrin alternately.

Pilocarpin closely resembles thyroid extract in its action. Injections of thyroid extract in animals lead to profuse diarrhea, similar to the action of pilocarpin injections. The effect of pilocarpin is greatly reduced in

thyroidectomized animals. By feeding animals or man with thyroid extract, one obtains results which resemble greatly the pharmacologic action on the administration of pilocarpin: diarrhea, perspiration, respiratory disturbances, lymphocytosis and eosinophilia. The cells of the thyroid, according to Wyss and Schafer,²⁶ react to pilocarpin in the same way as the cells of the true secretory glands.

In all the experiments, the lesions or ulcers obtained were often single. In none of the animals were there the characteristics of chronic ulcer noted in man, but the tendency against healing was often evident. This was especially noted in our²⁷ animals in which an ulcer was found several months after the parathyroidectomy was performed. Finzi also emphasizes this lack of healing power after partial suprarenalectomy. That the ulcers obtained in all the animals were really due to an intentional disturbance in the glands, is clear from the fact that in rabbits in which epinephrin was injected or suprarenals implanted (Finzi), after removal of the suprarenals, the mucous membrane of the stomach was found to be intact, the same as the mucosa of the animals used as controls.

As the main purpose of all the experiments in which the endocrine glands were removed or the products of these glands injected was to imitate the constitutional anomalies found in man, such experiments, I believe, are of greater value than those hitherto described. These experiments are especially of great interest and benefit because they demonstrate the possible relation of the lesions or ulcers to a disturbed motility.

The animals, which received repeated injections of thyroid extract for several weeks, suffered from diarrhea, practically after the second injection, and similarly profuse diarrhea was a conspicuous feature in those injected with pilocarpin. The dogs, however, were obstinately constipated on repeated epinephrin injections, during the period of the injections. Constipation was not a prominent feature in rabbits which were injected alternately with pilocarpin and epinephrin. In the rabbits injected with pilocarpin alone, in which a necropsy was done soon after the last injection, the stomach frequently presented the various stages of spasticity, that is, pylorospasm, gastrosplasm, hour-glass stomach and even cardiosplasm. In the animal at necropsy several months after the thyroidectomy, the stomach was often markedly dilated without the presence of any obstruction. The stomach resembled greatly the atonic stomach observed under the fluoroscopic screen in ulcer cases. On histologic examination, sections of the stomach showed fatty infiltration or fatty degeneration in the gastric musculature, especially near or at the pylorus.

One must assume that this infiltration is similar to that observed in the musculature of the tongue and skin in myxedematous patients. Pilocarpin produces irritative conditions in the vagus, resulting in spastic stomach and in increased intestinal peristalsis, and also contracts, according to Pal,²⁸ the mesenteric vessels. Injections of thyroid extract must have a similar effect, namely, diarrhea and spastic contraction of the stomach. The spastic stomach is also observed clinically by fluoroscopy in exophthalmic goiter cases with severe gastro-intestinal disturbances. Irritative states in the

18. Demel, Cesaris, quoted by Finzi (Footnote 19).

19. Finzi, Otello: Ueber die Veränderungen der Magenschleimhaut bei Tieren nach Nebennierenextirpation und über experimentelle erzeugte Magengeschwüre, *Virchows Arch. f. path. Anat.*, 1913, **214**, 413.

20. Panum and Conheim, quoted by Suzuki: Ueber experimentelle Erzeugung des Magengeschwüres, *Arch. f. klin. Chir.*, 1912, **98**, 632.

21. Friedman, G. A.: The Influence of Removal of the Adrenals and One-Sided Thyroidectomy upon the Gastric and Duodenal Mucosa; the Experimental Production of Lesions, Erosions or Acute Ulcers, *Jour. Med. Research*, 1915, **32**, 287.

22. Elliot, T. R.: Some Results of Excision of the Adrenal Glands, *Am. Jour. Physiol.*, 1915, **49**, 38.

23. Mann, Frank K. C.: A Study of Gastric Ulcers Following the Removal of the Adrenals, *Jour. Exper. Med.*, 1916, **23**, 203.

24. Carlson, A. J., and Jacobson, Clara: Further Studies on the Nature of Parathyroid Tetany, *Am. Jour. Physiol.*, 1911, **28**, 133.

25. Westphal, Karl: Untersuchungen zur Frage der nervösen Entstehung peptischer Ulcers, *Deutsch Arch. f. klin. Med.*, 1914, **114**, 327.

26. Wyss and Schafer, quoted from Biedl (Footnote 10), p. 28.

27. Friedman, G. A.: *Jour. Med. Research*, 1918, **38**, 69.

28. Pal, quoted from Biedl (Footnote 10), p. 200.

vagus must exist, as it was explained, in the animals, after partial or complete suprarenalectomy, or after parathyroidectomy, for peptic ulcer cases with tetany and pylorospasm have been observed. Thyroid deficiencies, caused by thyroidectomy, produce hypotonic conditions due to diminished vagal stimulation. Epinephrin injections, as in experimental suprarenalemia, produce hypotonic conditions, due to increased inhibition of the splanchnic nerves.

Therefore, the hypertonic stomach, or the subtonic stomach, in which the presence of an ulcer may be demonstrated, is attributed primarily to a disturbance in the thyroid or in the suprarenals. If the effect is on minute localized areas of the organ, ischemia or stasis, as explained, results. The initial lesion of ulcer gradually develops and through the secondary factors mentioned, the typical ulcer is produced.

CONCLUSIONS

1. The initial lesion of the peptic ulcer is due to vascular changes, such as ischemia or stasis, attributed to contraction or dilatation of limited areas of musculature either of the vessel itself or of the muscularis mucosae surrounding that vessel.

2. The spastic or subtonic stomach of gastric neurosis may lead to these vascular changes. The spastic stomach is caused by deficiencies in parathyroid or epinephrin secretions, or, by excesses of one or more of the thyroid products. The subtonic stomach is due to deficiencies in thyroid products or to excesses in parathyroid or epinephrin secretion.

3. The altered peristalsis in peptic ulcer is produced chiefly by glandular neurosis, either in thyroid suprarenals or parathyroids.

4. The ductless gland neurosis causes secretory disturbances either directly or indirectly, by centering its influence on the pyloric or duodenal mucosae, endowed with endocrine properties.

5. The functional disturbances in the true endocrine glands may, in the course of time, lead to actual pathologic changes in themselves.

6. Acute experimental ulcer after partial parathyroidectomy of partial suprarenalectomy does not show a tendency to heal.

7. The spastic stomach may frequently be produced experimentally by injections of pilocarpin, whose pharmacologic action is similar to that of thyroid extract.

8. Atonic dilatation is observed after partial thyroidectomy.

9. Hydrochloric acid is an important factor in the further development of the acute ulcer from the initial lesion.

10. Clinical observations in conjunction with experimental findings suggest the endocrine origin of the initial lesion of peptic ulcer.

ABSTRACT OF DISCUSSION

DR. FRANK C. MANN, Rochester, Minn.: There is no doubt that the chronic ulcer must have an acute beginning. It is a different question, however, whether or not acute ulcers, from all causes, or from only one or two particular causes, develop into the chronic ulcer as it is seen in man. The relationship of the ductless glands to the production of ulcer is certainly closely associated with the relationship of the nervous system to the production of this lesion. Acute ulcers are quite easily produced by a score or more of methods. My work is in entire accord with the experimental work of Dr. Friedman. It is a different problem, however, to pro-

duce the chronic indurated type of ulcer. In a series of about 200 experiments, in which I removed only one suprarenal, only one chronic ulcer was produced. Extirpation of both suprarenals probably produces ulcer in 95 per cent. of the cases. The part a toxic condition plays in the production of chronic ulcer is not clear. I have received communications from a large number of laboratories, both in this country and abroad, stating that in their work in Pasteur institutes, or in studies of diphtheria toxin, they found that the injection of the toxin produced a double lesion, one in the suprarenals, and one of the mucosa of the stomach (the acute ulcer), and they felt that there was a relationship between the two. I believe it would be very difficult to tell whether the two were dependent on each other, or both dependent on the toxic condition. I am inclined to believe that if we have any severe toxic state, we have the elements for the formation of acute ulcer, and that a chronic ulcer will develop on any of these.

In a small series of cases of Addison's diseases in which I witnessed the necropsy, I have found only one case in which there was a chronic ulcer. In this case there also were a small number of acute ulcers. Certainly, in the formation of these acute ulcers we have two things: first, something in regard to the relationship of the anatomic mechanism of the gastric mucosa and its adjacent muscularis, together with some toxic factor which changes the condition of the cell, and the digestion of the gastric juice. For instance, in these ulcers which follow conditions like double suprarenalectomy, you will not get ulcers if a portion of the lower intestine is implanted into the stomach; in other words, the mucosa of the implanted jejunum will remain normal, although ulcers may occur around the stomach, showing that there is some definite condition in the mechanism of the mucosa of the stomach. And the same fact is true of the upper portion of the duodenum.

DR. V. A. LAPENTA, Indianapolis: We have too great a tendency to crystallize our views of these chronic lesions to infections solely. I believe that it can be stated by all men who have had more or less experience with these lesions, that such patients unmistakably exhibit either a type of vagotonia or sympathicotonia, I have never seen a patient with either acute or chronic ulcer, and especially chronic ulcer, who was not either a vagotonic or sympathicotonic individual. I do not believe that Dr. Rosenow's work disputes Dr. Friedman's findings. In fact, his work in the production of gastric and duodenal ulcer, with special strains of streptococci, by him isolated, is rather corroborative, because in the intravenous injection or parenteral injection of such toxins and proteins, with their peculiar atomic structures, there is caused a disturbance of the suprarenal system, with resultant sympathicotonia or vagotonia. This is the first step in the suprarenal reaction in the molecular processes. The bacteria find in the devitalized piece of gastric mucosa a most suitable place to localize, and ulcer is produced. Dr. Rosenow's work really brings experimental evidence to Dr. Friedman's contention. We must bear in mind another thing: Peptic ulcer is a disease of civilization. You never saw peptic ulcer in imbeciles; it is mostly a disease of very nervous individuals; it is a disease of civilization.

This seems to emphasize the question of the energy intake and the energy output, and the rôle played in the equilibrium by the suprarenal system. In the modern conception the high kinetic drive, the insult to the vasomotor balance that is brought about by these nervous emotions will in the course of time, naturally not months or days, lead to localized angioneurosis, which when present in the gastric mucosa, may result in peptic ulcer.

Several years ago it was pointed out that once an area of decreased resistance is formed in the stomach, gastric juice corrosion will do the rest, and if there are foci of infection, then you have a true cycle, and you are going to have an ulcer, and in nine cases out of ten that ulcer will become chronic. I believe that Dr. Friedman showed very active round cell infiltration in his specimens. This is very suggestive of the final result.

DR. BERTRAM W. SIPPY, Chicago: For half a century it has been generally recognized that ulcer of the stomach or duodenum develops in approximately the following manner: A

small, circumscribed or local area in the mucous membrane of the stomach or duodenum for some reason loses its normal resistance to the peptic action of the juices and becomes digested. This resistance to the normal condition of the peptic action of the gastric juice was first supposed to have been brought about by malnutrition or necrosis. In 1855 Malnekow pointed out that it was a vascular condition of some kind that had to do with the interference of the normal resistance, this corrosive action of the gastric juice. From that time on a large amount of experimental work has been done. Injection of lead salts has tended to prove that if you interfere with the nutrition of the mucosa of the stomach or duodenum a peptic ulcer will result. A large number of means have been used to produce the peptic ulcer, or the ulcer in the stomach or duodenum, but all of them, so far as we can make out, have to do either with spasm or the introduction of some toxic substance, of bacteria, of a ligature or something that interferes with the nutrition of the mucosa. The arteries of the stomach are end arteries entirely; that is, they have very few anastomoses. These experimental ulcers, produced in that way, heal rapidly, relatively speaking. The reason was thought to be, and probably is, that a raw spot is not an ulcer. There is a difference between these experimental ulcers and the clinical ulcers. This experimental ulcer destroys the mucosa. The base of this ulcer may have nothing in it to cause it to lose its normal resistance to the peptic action of the gastric juice, and under such conditions that raw spot will heal just as well in the presence of hydrochloric acid and pepsin as it would if there were no hydrochloric acid and pepsin there. Nothing interferes with the blood supply to that part. In these chronic ulcers, those that do not get well, it is assumed that the tissue had lost its resistance to the peptic action of the gastric juice, and therefore the hydrochloric acid and pepsin would keep it from healing. It is possible that the bacteria in the walls of this ulcer have something to do with lessening the resistance of the tissue to the peptic action of the gastric juices. Corrosion of the gastric juice is the most important factor.

DR. MARTIN E. REHFUSS, Philadelphia: About ten years ago Dr. Leo Loeb and I were engaged in the study of the experimental production of gastric ulcer. We found that we could administer to animals the venom of *Heloderma suspectum*, a form of venomous lizard obtained in New Mexico, and in that way produce an acute ulcer. We injected alkali into the stomach of these animals and found that this alkali reduced the possibility to ulcer formation. We gave the animals herudin. In several instances the animals bled to death in their own stomachs. We then tried other substances, or caused acute toxemia in the animal, tried pilocarpin and atropin, which are supposed to act on the vagotonic system. We tried the effect of hydrochloric acid, phenol, copper sulphate and bacterial toxins. We found that every variety of substance produced an acute ulcer lesion of the stomach; it was something of a hemorrhagic lesion.

I saw some of the animals that Dr. Rosenow used in his experiments, and the lesions which he showed at that time were just the same sort as we succeeded in producing with various toxic substances. Shortly after that I went to Paris to the Pasteur Institute. I collected the stomachs of a very large number of laboratory animals dead of various bacterial infections. It is possible to produce a form of ulceration with almost every toxic substance if you can get the animal in a sufficiently high state of toxicity. In other words, it is my belief, from the experiments we performed, that there is a form of ulcer which is not specific. Whether or not these ulcers become chronic, whether they resemble the chronic ulcer seen in man, I am not prepared to state; but one thing is certain, an acute ulcer, an acute corrosion, can be produced in a great variety of ways. If that be the case, what is the theory we should adopt? The experiments of Rosenow are most convincing. I have adopted the plan in all cases of ulcer treatment to administer at the same time an autogenous vaccine prepared from local foci in the nose, throat, teeth, etc. What that has done I do not know. I have not yet collected the statistics. In almost every instance it is possible to extract a form of streptococcus from the nose, teeth or throat;

and in quite a few instances I have given the stock vaccines and the combined colon bacillus.

Bolton produced localized erosions and ulcer with gastrotoxic serums, and our photographs record that our ulcers are the same, or the areas, the small ulcers, the same as he has shown in his book.

DR. G. A. FRIEDMAN, New York: I was misunderstood by the majority of those who took part in the discussion. My object was not solely to demonstrate experimental ulcers. We know that ulcers may be produced experimentally by various means. I explained in my paper that a condition such as ductless gland neurosis is possible, and that the latter causes the gastric neurosis which leads to spasticity or atony of the stomach. This spasticity or atony may show its effect on small gastric vessels, and in this way the initial lesion of ulcer may take place. I do not know the cause of chronic ulcer. I should first like to know the cause of acute ulcer. My object was to study the latter from a new view point, and it seems that the explanation given here brings the clinical work in close association with the experimental work, which connecting link was, I believe, overlooked by the gentlemen, except Dr. Lapenta.

I have never found chronic ulcer in any of my experiments, but I have observed ulcers without the tendency to heal in animals after parathyroidectomy. The ulcers were frequently found several months after the operations were performed. Similar observations regarding the failure to heal after parathyroidectomy were made by Finzi, an Italian investigator. Since acute ulcers produced by other means heal rapidly, the absence of healing power in the aforesaid experiments prove that constitutional anomalies can be imitated roughly in animals, and that the constitutional changes in man afflicted with ulcer prevent the ulcers from healing. From my experience with infectious diseases and oral sepsis in Russia I have not gained the impression that ulcer is commonly caused by infection. The infectious theory explains only one phase of the ulcer, while the explanation outlined here today covers several phases. Naturally the material which I have presented is not yet complete. I have presented this paper simply to stimulate others to continue this work.

Health Organization and Administration in Rural Districts.—If I were asked the question: "What one step would be of the most importance in the final creation of an adequate public health organization and administration in rural districts?" I should say—the creation of a public health consciousness in rural districts through the education of country boys and girls. If I had my way, I would take Professor Sedgwick from the faculty of the Massachusetts Agricultural College at Amherst and require him to teach public health and biology as a regularly prescribed course; and I would make it sufficiently attractive for Dr. Rosenau to resign his position at the Harvard Medical School and accept a like position on the agricultural school faculty at the University of Maine. In other words, I would appoint on all the agricultural school faculties throughout the United States first-class experts and teachers to teach the subjects of preventive medicine and public health as required courses, and to supervise extension work in these subjects. I would expect the agricultural school boy who is to return to the country life to learn as much about the human body and its diseases, and the methods of public sanitation, as he or she learns about the care and breeding of hogs, the raising of corn and wheat, and the scientific fertilization of the soil. These leaders would return to their respective home communities and plant the necessary seeds which would result in a ripe harvest of public health opinion and adequate organization and administration in rural districts. Furthermore, matters pertaining to personal and public health should be taught to the rural population in general through the agency of the extension divisions of our universities. It is high time for less discussion in Boston and other cities of rural health administration, and for more discussion in Podunk and other country communities of rural health problems and administration!—L. D. Bristol, State Health Commissioner of Maine, *Bulletin*, State Department of Health, August, 1918.

MICROSCOPIC STUDIES OF DISEASED
PERIDENTAL TISSUES *

EDWARD H. HATTON, M.D.

CHICAGO

Most of the material on which these studies are based came from the peridental membrane clinic at the Northwestern University Dental School. In all of these, therefore, there are alterations of a high degree. At the same time, there are portions of each fragment that are only moderately changed. Zenker's fluid was used most often for fixation, and either celloidin or paraffin used for embedding. Paraffin was finally selected as the routine procedure because it was possible to get thinner sections and serial sections were more readily obtained. Hematoxylin and eosin, or methylene blue and eosin were the chief stains used. Occasionally methylene blue was used alone. The serial section procedure has more than paid for the trouble it entails, as it is only in this manner that the changes can be followed straight through the block, and reconstructions of the various parts achieved. An especially good illustration of this is in the transitions that take place in the epithelial layers.

These studies were begun as a routine procedure on all pieces of the gingivae removed to give deep pockets in the subgingival space a better chance to be obliterated, with the idea of seeing just how much destruction of the essential structures had taken place. The studies are confined to a rather superficial portion of the soft tissues investing the teeth, and no pretense is made at this time to present them in any definite relationship to etiologic factors, or to suggest a classification. There seems to be a very definite and constant picture presented in each specimen, only the details varying either as to extent, or as to the circumstances of their origin, which are apparently the result of etiologic factors.

ALTERATIONS IN THE EPITHELIUM

Of all the changes, none are more picturesque than those occurring in the epithelial layers clothing the gingivae of these specimens. With one exception, they are probably not of vital importance, but they deserve description for two reasons, first, because they

are part of the picture, and second, because there is a strong possibility of their being confused with other conditions.

An early alteration is the tendency of the epithelial projections into the subepithelial layers to extend themselves and so exaggerate the length of the papillae. A close examination of these projections will always reveal regions of infiltration along the basement membrane in the adjacent tissues, usually of the small round cell or lymphocyte type. These projections are slender, and as the condition advances, they twist and turn so that sections cut at any angle always have rounded, oval, or cylindrical masses of epithelium which seem unattached to any of the surface epithelium. By studying these in serial sections, we find it always possible to join them to projecting epithelial pegs. Such deformities of the epithelium are frequently found on the surfaces lying outside of the subgingival

space, but they are rarely of any greater extent. It is a chronic or low grade inflammatory process.

But the epithelium, which lines the so-called pus pockets and which formerly was adjacent to the teeth, is always the site of other very noteworthy alterations. As this trough widens and deepens there is a tendency for the epithelium to project itself farther into the subepithelial tissues, and the forms of these projections become progressively more and more chaotic, the deeper they lie in the pocket. At the bottom, the surface continuity is

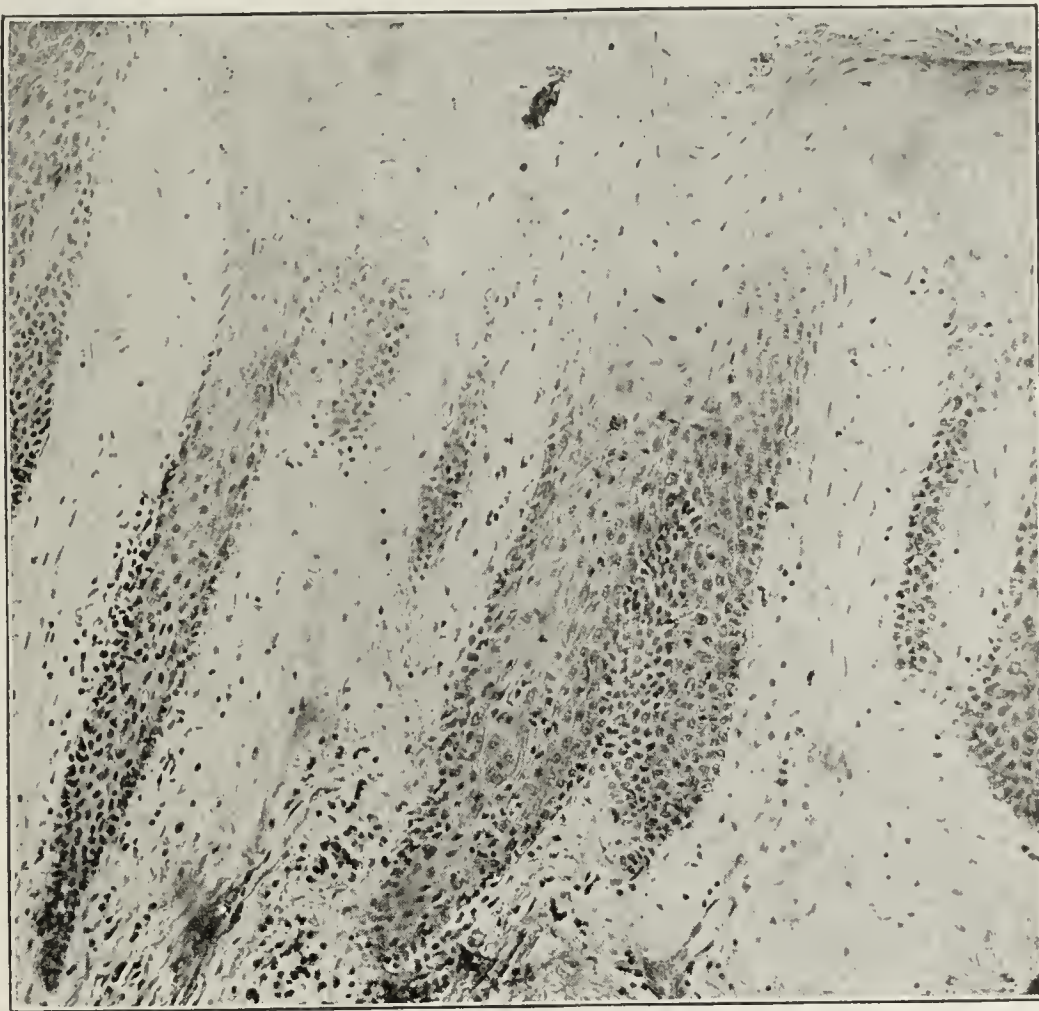


Fig. 1.—Elongated epithelial projections into the underlying tissues with accompanying round cell infiltration.

no longer maintained in every case, but there are still masses of epithelial cells at the very bottom of every pocket examined thus far. These cords and projections are the seat of retrograde, disintegrating changes that begin at their centers. It is assumed that the older epithelial cells are less resistant to the destructive agents than are the new cells. Fragmentation of their nuclei, necrosis, infiltration with polymorphonuclear leukocytes, and other inflammatory cells all take place in a regular sequence, so that as an end-result the cylindric, ovoid, or spherical bodies become thin shells whose walls are composed of very new epithelial cells, and whose contents are more or less purulent fluid or semisolid material.

From the character of the epithelial cells, that is, their age, and their rapid destruction, these regions must be very unstable. The cells are small, with small nuclei which take the blue nuclear stains very deeply. They resemble the cells ordinarily found in the base-

* Read before the Section on Stomatology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

ment membrane. It is easy to assume that these epithelial cells exhibit a negative chemotaxis to the products of this process in the gingival trough, and that they push down into the subepithelial layers stressed by this force. Small blood vessels are found in these regions in great numbers. They are frequently packed with polymorphonuclear leukocytes, and nearly always contain one or several of these cells. Red cells are often found in considerable numbers outside the blood vessels, even to the extent of small hemorrhages. These may be the result of surgical trauma. The cells are often separated as though by fluid. Possibly this is caused by an edema or it may be simply an artefact. All these products are being constantly extended into the subgingival space, which, as a result, becomes a pus pocket. To one not familiar with this type of inflammatory tissue, some of these malformations are strongly suggestive of malignancy. There is apparently no relation at all between the two conditions.

INFILTRATIONS

The subepithelial regions as far as studied are characterized by inflammatory infiltrations which are invariably perivascular. Their distribution is most conveniently seen in buccolingual sections parallel to the long axis of the teeth. If the capillaries that supply the papillae just beneath the deformed and distorted epithelium are traced down into the deeper layers and their course followed even into the larger branches, just these and no others are the site of these infiltrations. In some sections, this border between healthy and infiltrated regions is most abrupt.

The infiltrating cells are most often of the small round cell type. There are large numbers of cells called plasma cells, with deeply stained cytoplasm and eccentrically placed nuclei. Occasional eosinophil cells are found, and polymorphonuclear leukocytes are not uncommon, especially in parts adjacent to degenerated epithelial projections. Unattached endothelial cells are frequently seen.

The vascular supply is very rich. The walls of the small veins and capillaries are often thickened, and many of these vessels are filled with polymorphonuclear leukocytes to the exclusion of the red cells.

The fibers of the gingivae and of the peridental membrane seem to be very susceptible to the destructive action of these forces. One of the first tendencies is for the fibers to lose their affinity for the stains,

and either stain more faintly or react with the nuclear stains. Little by little, the fibers are replaced by the inflammatory infiltration. There are regions about the size of these epithelial ovoids which no longer have any cellular structure, and are occupied by a homogeneous staining substance. This seems to be some product of degeneration, either of dead epithelial cells or from some other necrotic process.

If a buccolingual section is carefully studied as to its form and the relations of its various parts, it will be found that a large portion of the free gingiva has disappeared. There is nearly always a mass of necrotic material lying on the epithelium at this point or just within the inner lip of the pocket. If the surface of the adjacent tooth is approximated, and the curve of the outer surface of the gingiva projected until it intersects with the buccal surface of its tooth,

the amount of destruction may be very accurately estimated. There is a very marked tendency of the new crest to lie near a straight line drawn from the bottom of the pocket or the subgingival space to the nearest unaltered epithelium. If a line is drawn from the last point parallel to the distribution of the ascending capillaries down to the alveolar process, this line will mark the division between the healthy peridental membrane and the region in which there is inflammatory infiltration and destruction of the fibers of it. In the latter region, the infiltration is usu-

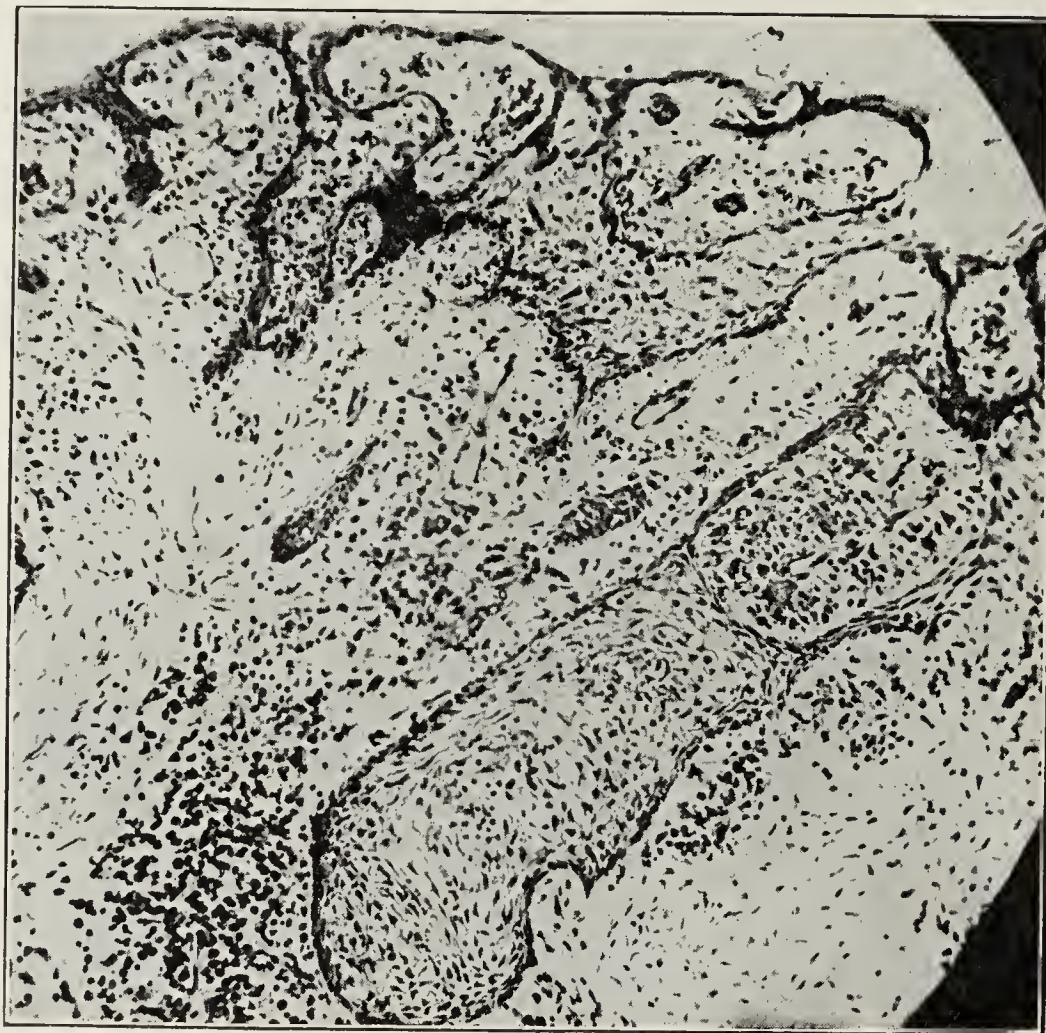


Fig. 2.—Epithelial deformities of the mucous membrane lying within the lining of the pus pocket.

ally so marked as to assure the nearly complete destruction of the fibers, and in these advanced cases which are here described, there is no tendency to any reconstruction of them. As far as these tissues are concerned, when once the fibers are destroyed, they do not seem to be regenerated.

BACTERIA IN THE TISSUES

Bacteria have been demonstrated in various tissues by the newer methods of bacteriology, as well as by the more standard staining processes. Tubercle bacilli are often found in the tissues, as well as typhoid, plague, and the spirochete of syphilis in the lesions which they respectively produce.

More recently cocci have been demonstrated in the tissues during the course of various diseases, such as poliomyelitis and experimental scurvy. Curtis¹ found

1. Curtis, A. H.: Bacteria in the Uterus, Surg., Gynec. and Obst., 1918, 26, 178.

cocci in uteri removed for various causes, and Rosenow² has described an infected root apex about which there was a small region of granulation tissue, in which he was able to demonstrate a latent group of bacteria, which were stimulated to growth by incubation in bouillon for ten hours. Then the tissue was fixed, sectioned and stained.

In spite of the fact that recent work has shown that bacteria invade the blood stream comparatively frequently in many conditions, yet it seems that there must be an easier way for bacteria to reach the peridental membrane and the apical region of the teeth, or even the pulp cavity, than by the blood stream. All these results, as well as the peculiar pathology of the regions about the vessels, stimulated a belief that bacteria could be found in these diseased gingivae.

Cultural methods were tried at first, but the pieces of tissue were so small that, by the time the external surfaces were sterilized by heat or hot oil, there was always a suspicion that the bacteria inside had been destroyed at the same time, that is, granting that they were there, or on the other hand, that contamination from the outside had not been ruled out.

Thus far, bacteria have not been found in any large number of cases, and no attempt has been made to arrive at any conclusions as to the frequency with which they are found. The forms resemble those of the streptococci that have been found quite constantly in the pus pockets. For the great part, they lie about the vessels which are surrounded by the cell infiltrations already described, and are more frequently disclosed near the bottom of the pocket. They may be in small masses, or in groups of two, four, six or eight.

Their relation to the surrounding pathologic changes, or their ability to penetrate farther into the peridental membrane or down to the apical region, is conjecture and a subject for further investigation.

There is a very striking analogy between the location and the distribution of the lesions described in the foregoing and the distribution of the dental lymphatics, as demonstrated by Noyes³ and Schweitzer.⁴ It is known that the lymphatic vessels play an important part in the distribution of infection elsewhere in the

body. With their demonstration in the peridental membrane as well as the pulp in a way that seems beyond equivocation, their importance from the standpoint of the part they play in the pathology of the tissues can hardly be overestimated. The distribution of these pathologic changes here described seems compatible only with the notion that they exactly parallel the distribution of the lymphatics in the same region. It answers the question why the line of progress is always downward and inward, why with a broad shelf-like erosion, as occurs under a salivary calculus, there is a broad band of infiltration, and why there is such an exact and abrupt division between the regions of infiltration and those free and uninvolved.

31 West Lake Street.

ABSTRACT OF DISCUSSION

DR. ARTHUR D. BLACK, Chicago: Those who have studied the work which Dr. Noyes has reported to this section during

the past two years will recognize the important relationship between his studies of the normal tissues, demonstrating the lymphatic channels in the peridental membrane, and Dr. Hatton's studies of the pathologic changes in this membrane. They corroborate each other, and both fit in with the most careful clinical observations of the progress of these infections. I would like to emphasize the difference, observed clinically, in the progressive destruction of tissue in the case of the pus pocket, beginning in the gingival line of the tooth, and of the chronic alveolar abscess, beginning at the apex of the root. In the one beginning at the gingival line we have noted the tendency to progress most rapidly toward

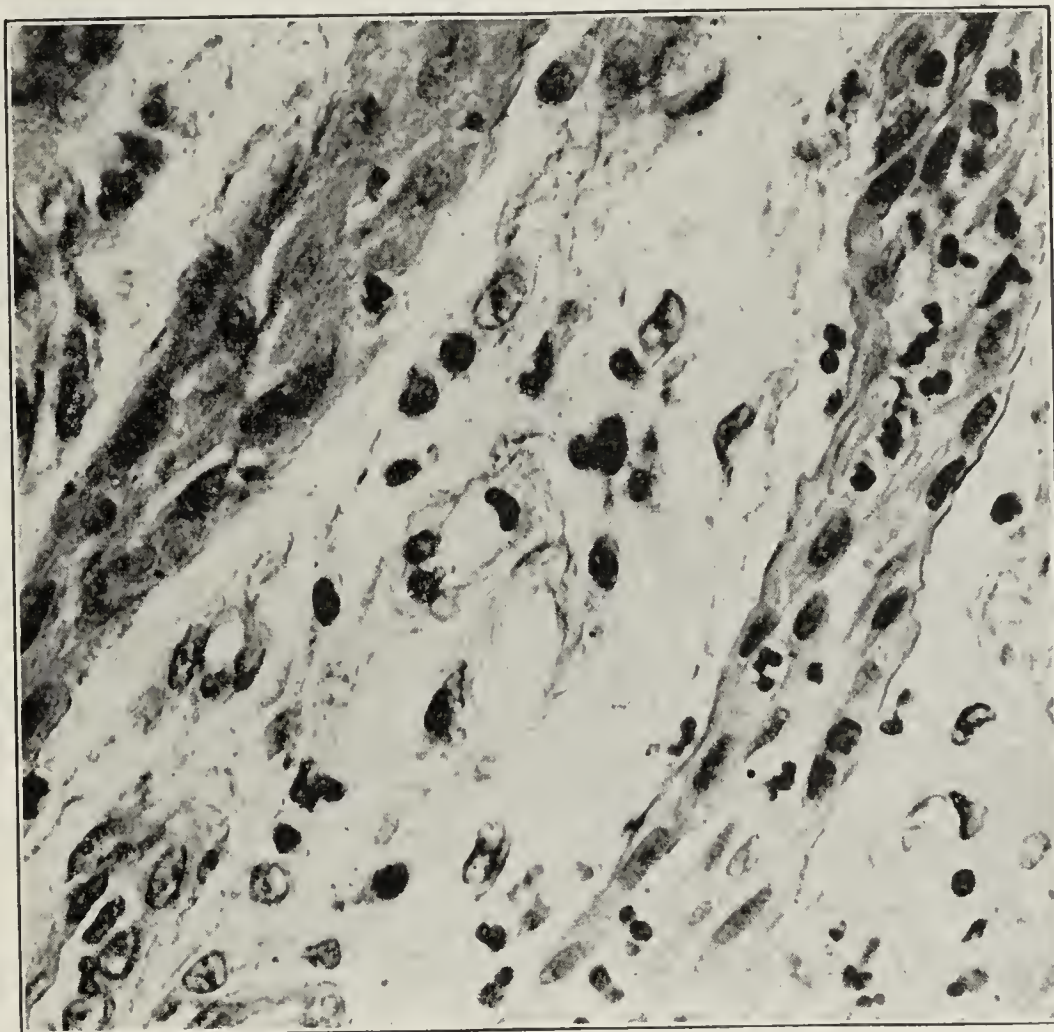


Fig. 3.—Polymorphonuclear leukocytes in the epithelial projections and the intervening spaces.

the apex, forming a deep, narrow pocket, while in the alveolar abscess there has not been the same tendency to progress crownwise. Dr. G. V. Black referred to this as early as 1886, and in his recent book on Dental Pathology there is a paragraph calling attention to the fact that we must have a proper explanation of the difference in the progress of these two types of infection involving the same tissue. If the route of travel is by perivascular lymphatics, the clinical observations in both conditions are explained, because the flow of lymph is from the gingivae toward the apex, which would promote the progress of infection toward the apex in the case beginning as gingivitis and retard a similar progress crownwise in the case of the alveolar abscess.

The study of the movements of the epithelium is very interesting, especially the apparent effort of the epithelium to line the pockets about the sides of the roots. It is possible that in a small percentage of cases pockets along the sides of the roots have been lined by epithelium, and the individuals have thereby been protected from systemic infection. In treating these cases by cutting away the tissues which overlie the

2. Rosenow, E. C.: Jour. Nat. Dental Assn., 1918, 5, 118.

3. Noyes, F. B., and Dewey, Kaethe W.: The Lymphatics of the Dental Region, THE JOURNAL A. M. A., Oct. 12, 1918, p. 1179.

4. Schweitzer, G.: Ueber die Lymph Gefasse des Zahnfleisches und der Zähne beim Menschen und bei Säugethieren, Arch. f. Mikr. Anat., Berne, 1909, 74, 927.

surface of the roots, there occurs a rapid growth of epithelium over the cut surface down to the line of attachment of the root. All of the studies of the tissue changes support this plan of treatment as being the most practical method of eliminating the menace to the general health.

DR. EUGENE S. TALBOT, Chicago: The most interesting part of this paper is the migration of the epithelial cells. These cells will migrate almost anywhere when they get started. The question naturally arises, How far will they extend into other tissues and how far will they extend down through the peridental membrane? My research of these subjects leads me to believe that very little work has been done on the migration of epithelial cells. I think Dr. Hatton will agree with me that it will be impossible for these cells to migrate through bony tissue. All his pictures showed that they are located in soft tissues, so we will have to set down as a fixed point that they cannot migrate through bony tissue.

The next question to settle is, How far will these epithelial cells migrate from the surface down into the soft tissues. My studies showed conclusively that the cells of the external epithelium do extend into the fibrous sac or peridental membrane, or far down to the ends of the roots of the teeth, before the bone begins to form. We have all seen epithelial cells in the peridental membrane at the root of the tooth. Another point that I did settle the other day conclusively and which has been attacked by eminent men is that these epithelial cells migrate into the fibrous sac from the external epithelium. Dr. Hatton and Dr. Black both mentioned the fact in regard to the lymphatics that these cells have a tendency to migrate downward. There is no question about that. In the last four or five years I have been doing extensive operations on dogs by using all the drugs that we use on our patients. You would be surprised to see the effects of these drugs and the absorption that has taken place by the use of a simple alkaline mouth wash by producing an irritation through the end of the root into these tissues, and I have many photographs which show this absorption and then the inflammation and abscess formation between the roots of the molars and also abscesses along the margin of the gum tissue. These experiments showed conclusively that by forcing an irritant through the end of the root an inflammation is set up and an abscess forms, not at the end of the root, but higher up between the roots of the molars and the gum margin.

DR. V. H. MOON, Indianapolis: One or two points of Dr. Hatton's presentation coincide with our experience in the pathology of other tissues; namely, the thinning out and disappearance of fibrous tissue in connection with an acute inflammatory reaction. This phenomenon is found elsewhere, and it may be explained as being due to a proteolytic ferment which is produced by the inflammatory cells, which have the function or capacity for absorbing fibrous tissue. So, in pus formation, where there is actual destruction of tissue, the

liquefaction of the tissue is due, in part, to the proteolytic ferment produced by the cells which infiltrate that region.

As to the migration of epithelial cells, we have learned in other lines of pathology to be conservative in our statements for the reason that the wandering cells of the body, which are found in almost every tissue, so closely simulate epithelial cells in their characteristics that it is difficult to decide whether we are looking at an epithelial cell or at one of these wandering cells. These wandering cells are very common in regions which are subject to chronic infection.

Usually when the fibrous tissue is disappearing as a result of inflammatory reaction, hyaline degeneration occurs, the tissue taking a homogeneous, rather deep pink stain. I have not noticed change of staining to a basic character except occasionally in tuberculosis and syphilis. After the fusing together and hyaline degeneration of the fibers there is a subsequent liquefaction, and the liquefied tissue and inflammatory cells are carried off by the lymphatics.

I did not wish to be misunderstood as referring to the true

proliferation of epithelium to cover a granulating wound surface, which is a regular occurrence on all surfaces that are covered by epithelium. What I referred to was the migration through the tissues of epithelial cells. Epithelial cells will grow very readily from an adjacent epithelial surface. It can be demonstrated in connective tissue cultures in the test tube that as the fibrous tissue proliferates and grows the epithelial cells which are in culture with it will grow and spread along the surface of those fibrous tissue cells. The same thing occurs in the healing of wounds or in any wounds or granulating surface adjacent to the epithelial covering.

DR. FREDERICK B. MOOREHEAD, Chicago: The differentiation between epithelial

cells and epithelioid cells, as Dr. Moon has just suggested, is very important. The proliferation of epithelial cells in continuity, as seen in skin grafting and in the repair of surface wounds, is well illustrated in clinical surgery. I see no reason why the surface epithelium should not grow into the pockets, even to a considerable depth, in the cases Dr. Hatton cited. I believe it will be seen that it is more a question of proliferation by continuity than by cell migration that these spaces are lined by epithelium. In pyorrhea pockets, so called, where the infection has been controlled, the conditions of heat and moisture are present and there is also enough mechanical irritation to stimulate the proliferation of epithelial cells. Moreover, there is always a tendency of epithelial cells to repair and cover defects.

DR. EDWARD H. HATTON, Chicago: The possibility of the migration of epithelial cells has been explained by the other speakers. I believe that in all my specimens those projections are true epithelial cells, because I think that in every case, by means of serial paraffin sections, I am able to demonstrate that they are. I cannot say that I have found any true epithelial migration, except the growth into fluids.

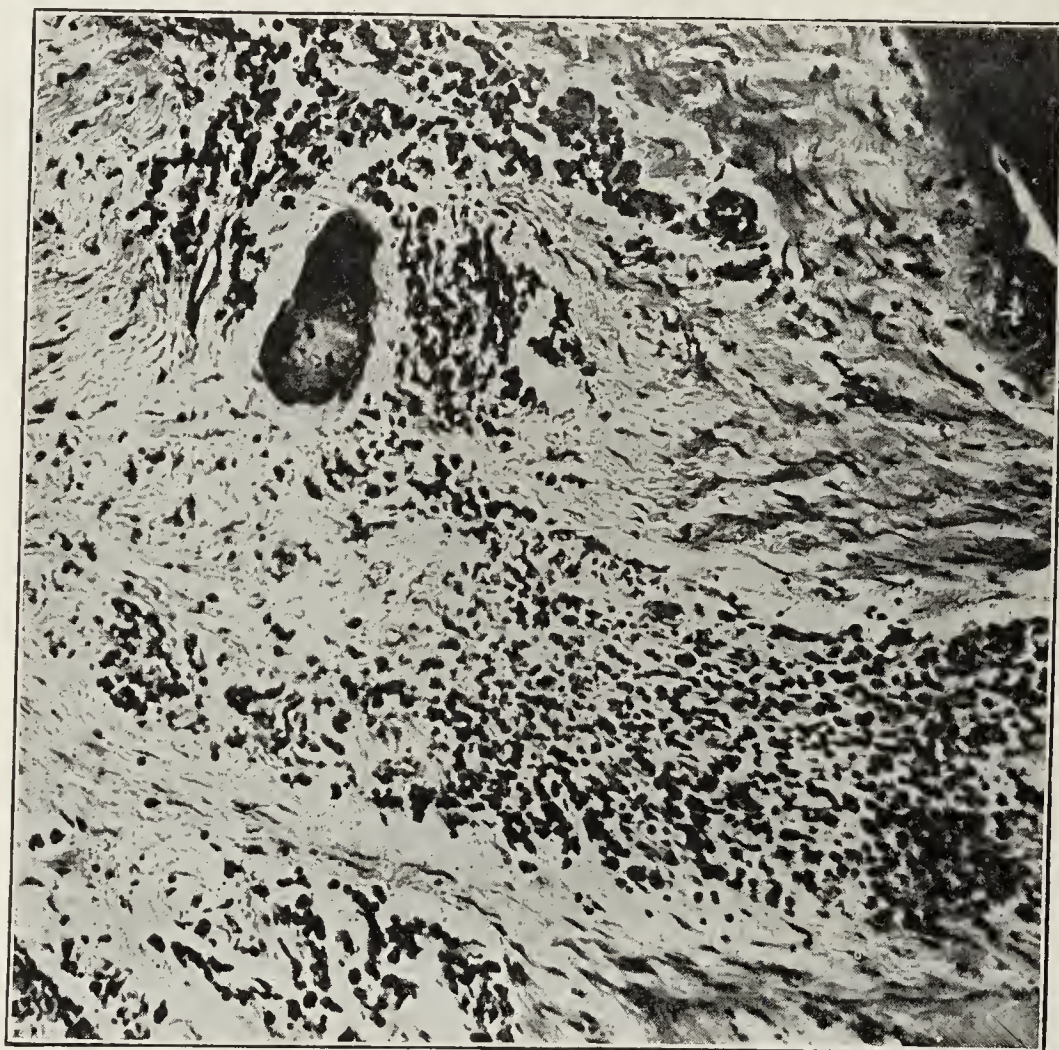


Fig. 4.—Perivascular round cell infiltration of the gingivae with destruction of the fibers of the peridental membrane.

OSTEOMA OF THE FRONTAL SINUS

W. W. BOARDMAN, M.D.

AND

MARY M. DONOVAN, M.D.

Associate Professor of Medicine and Assistant in Medicine, Respectively,
Leland Stanford Junior University School of Medicine

SAN FRANCISCO

The occurrence of osteoma of the frontal sinus is relatively infrequent, as may be judged from the fact that Sewall,¹ after carefully reviewing the literature, found only ninety-two cases. In these cases the diagnosis was based on the presence of anatomic deformities secondary to the osteoma; in only a few had the roentgen ray been used to confirm the clinical impression, and in none had the condition been primarily diagnosed roentgenographically.

During the past six months the following two cases of clinically unsuspected osteoma of the frontal sinus have been discovered in the routine examination of skull plates.

CASE 1.—A man entered the Stanford University Medical School Hospital, complaining of very severe headaches of long duration. In the early stages these had been frontal, but

THE SPREADING POWER OF COAL OILS *

TORALD SOLLMANN, M.D.

CLEVELAND

P. N. Leech¹ and I² independently observed that the addition of a little asphalt to melted paraffin greatly lowered its surface tension toward water, so that a very much thinner and more even film than with pure paraffin is formed, and very much more rapidly. In reflecting on this phenomenon, it occurred to me that it might be utilized to secure rapid and extensive spreading of the oil in fighting mosquito larvae, thus increasing the efficiency and lowering the cost of the oil treatment.

Experiments showed that kerosene has a low spreading power, and that this is actually enormously increased by the addition of asphalt. If kerosene is dropped on a dish of water, it collects into rather small plaques, and spreads very slowly, if at all. If 0.1 per cent. or more of asphalt varnish ("B-asphaltum, Cleveland Window Glass Company") has been added, it spreads at once over the entire surface of the water.

Similar results were observed with gasoline.



Fig. 1 (Case 1).—Anteroposterior view of osteoma of frontal sinus. The tumor occupies the right frontal sinus, although not completely filling it.

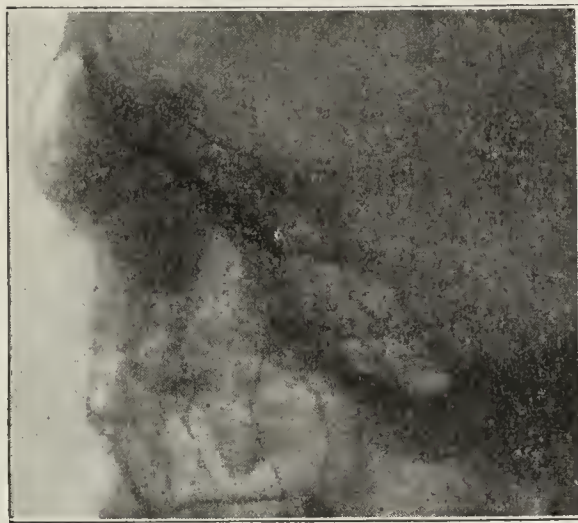


Fig. 2 (Case 2).—Lateral view of osteoma of frontal sinus. The tumor apparently does not quite fill the frontal sinus but extends downward into the ethmoid region. Its irregular shape is striking.

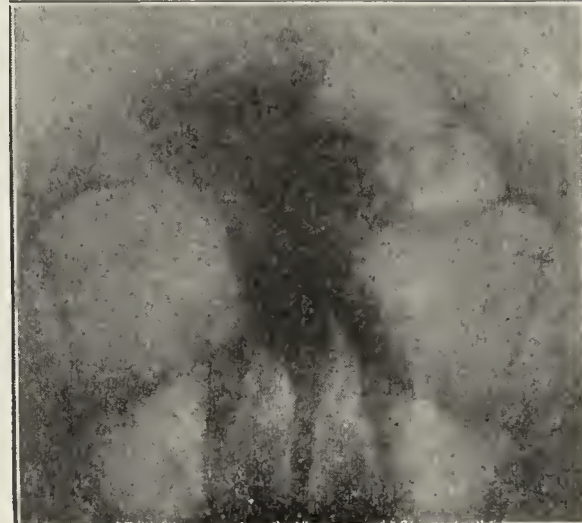


Fig. 3 (Case 2).—Anteroposterior view of same case. The tumor appears to involve one of the frontal sinuses more than the other. Its invasion of the ethmoid region shows plainly.

of late they had been principally occipital. Diffuse brain tumor seemed to be the clinical diagnosis. However, lateral stereoscopic skull plates showed an abnormal area of density in the region of the frontal sinus. Examination of sinus plates showed a uniformly dense, sharply outlined shadow in the right frontal sinus. On these findings a diagnosis of osteoma of the frontal sinus was made. At operation a hard, bony tumor was found firmly wedged into the sinus. It was successfully removed and the patient has been completely relieved of all symptoms.

CASE 2.—A young man came complaining of convulsive attacks, simulating epilepsy, but with no objective deformities suggesting osteoma. Examination of plates of the skull showed a large, dense, irregular shadow occupying the frontal sinus region, extending downward into the ethmoid region and backward into the cranial vault. Operation again confirmed the diagnosis of osteoma of the frontal sinus, but the patient died of a complicating meningitis.

The lesson to be drawn from these cases is not that osteoma of the frontal sinus can be diagnosed by the roentgen ray—that is self-evident—but that roentgenographic study of all doubtful head cases should be made as a routine.²

However, unrefined oils generally spread perfectly without the addition of asphalt. They presumably already contain sufficient asphalt-like products.

The following crude oils spread perfectly without the addition of asphalt:

Pennsylvania Lower District Crude.

Light Tiona Crude.

Kansas-Oklahoma Crude.

Residue oil left after distillation of the lighter product.

A sample of "No. 4 Road Oil" did not spread.

SUMMARY

The "spreading power" of oils on water is important in their use against mosquito larvae. It should therefore be ascertained, at least by the rough test herein described.

The spreading power depends largely on the presence of asphalt-like products. Most crude oils contain these in sufficient quantity. Some, however, and especially refined oils, need the addition of asphalt. Kerosene requires about 0.1 per cent of asphalt varnish.

* From the Department of Pharmacology, Western Reserve University School of Medicine.

1. Leech, P. N.: "Ambrine" and Paraffin Films, THE JOURNAL A. M. A., May 19, 1917, p. 1497.

2. Sollmann, Torald: Suggested Formulas for Paraffin Films, THE JOURNAL A. M. A., April 7, 1917, p. 1037.

1. Sewall, E. D.: Ann. Otol., Rhinol. and Laryngol., 1918, 27, 275.

2. In addition to the reference already given, the following will be found of interest:

De Taranto, I. M.: Les osteomes de l'orbit, thèse de Paris, 1901.

Perthes, George: Arch. f. klin. Chir., 1904, 72, 1022.

Clinical Notes, Suggestions, and New Instruments

BONE-HOLDING FORCEPS *

ROBERT EMMETT FARR, M.D., MINNEAPOLIS

The multiplicity of bone forceps designed to overcome the displacement of bones is sufficient evidence that most of these devices have certain shortcomings. In order to meet the requirements, such a device must have sufficient strength, and adaptability to bones of different diameters. Its application should be simple and it should have means of overcoming displacements by manipulations.

The instrument herein described consists of two long bone-holding forceps which may be readily united to each other by

is assembled, displaced fragments of bone may be brought into any desired position by the manipulation of either of the ratchets or of the forceps handles. The bone-grasping end of the forceps is so designed as to allow their application to bones of any size and to leave free approximately one-third

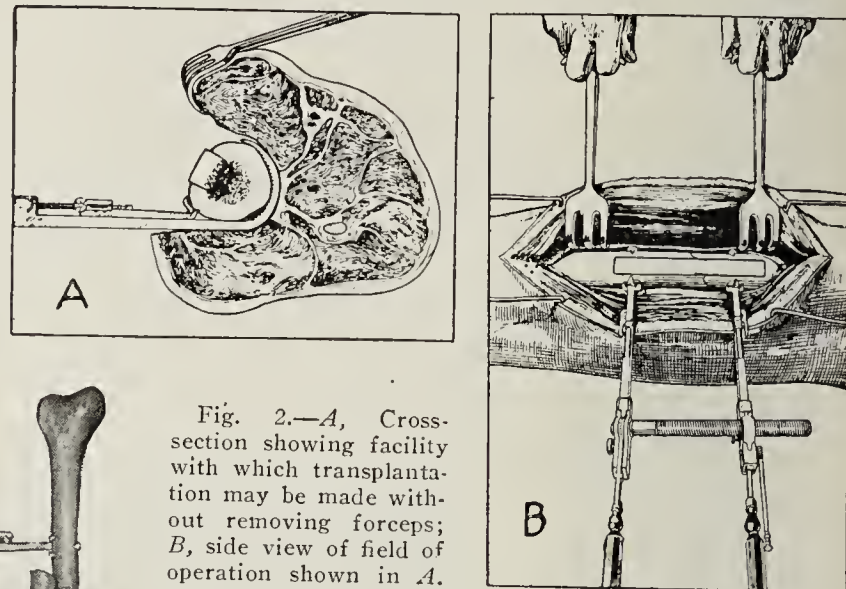


Fig. 2.—A, Cross-section showing facility with which transplantation may be made without removing forceps; B, side view of field of operation shown in A.

of the surface of the bone; these free surfaces lie in the field of operation so that transplants or other mechanical appliances may be used without the necessity of removing the forceps.

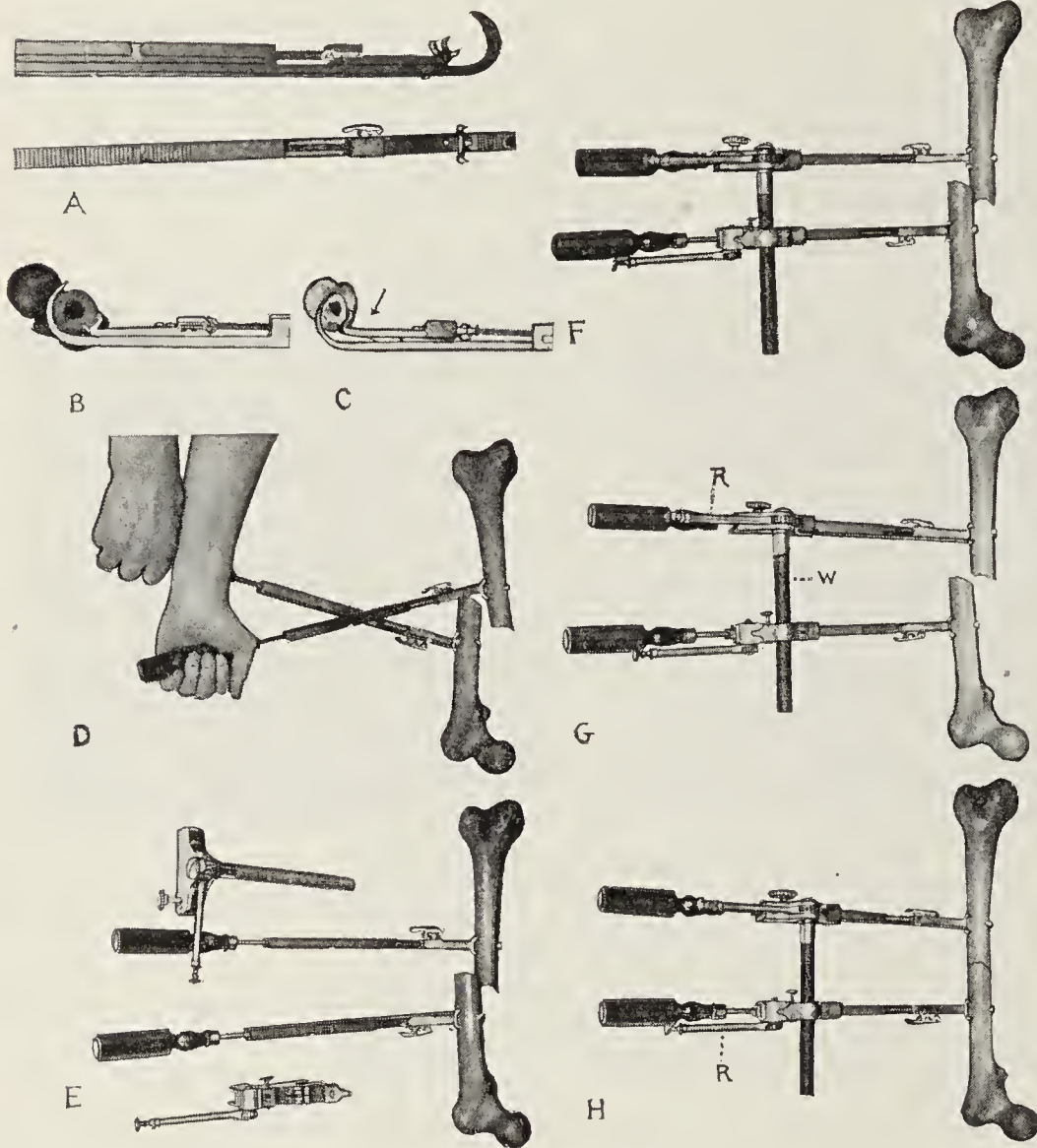


Fig. 1.—A, Bone-grasping parts of forceps; B, forceps grasping large bone (femur); C, forceps grasping small bone (ulna); note change in position of proximal grasping surface, bringing transplant area upward into field; D, forceps applied to femur before assembling; E, forceps parallel; worm drive, split nut and carriage ready for assembling; F, forceps assembled; G, extension applied by means of worm drive (W) propelled by ratchet (R); H, lateral displacement overcome by means of ratchet (R).

a carriage and worm-drive arrangement which requires the forceps to be brought parallel to each other in one plane only. Once assembled, extension may be made by means of the worm drive, which is operated by means of a two-way reversible ratchet. Movement in one plane may then be accomplished by moving the handles of the forceps over the screw, which acts as a fulcrum. Movement in the lateral plane is achieved by means of a ratchet propelling the carriage on one stationary blade of the forceps. It will therefore be seen that once the device

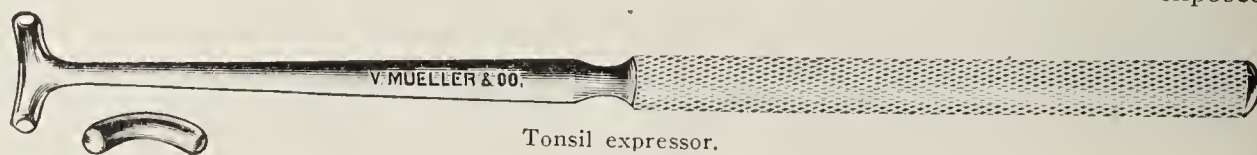
A TONSIL EXPRESSOR

JULIUS H. HESS, M.D. (CHICAGO)
Major, M. R. C., U. S. Army
FORT RILEY, KAN.

Examination of the teeth and tonsils in a large series of cases of endocarditis, rheumatism and chorea has demonstrated that many of the patients are suffering from alveolar abscesses and infected tonsils. The removal of such teeth is a simple matter even during the course of the disease, but only a few men have had the temerity to advise tonsillectomy at the height of the infection in acute cardiac conditions. Believing that much could be accomplished by evacuating the pus which has accumulated in the tonsils in many of these cases by expression and massage of the tonsils, I have devised an instrument which has been found of practical value in our cardiovascular and rheumatic wards for diagnostic purposes and frequently for treatment.

Set at right angles to a 7½-inch steel handle is a cross-piece of steel three-quarters inch in length and three-sixteenths inch in diameter, well rounded on all its surfaces and highly polished. The crosspiece has an anterior-posterior curvature of three-sixteenths inch and a curvature of one thirty-second inch on its upper surface.

The instrument is used by passing it in at the angle of the mouth opposite to the tonsils to be expressed and by applying it first at the superior angle of the fossa external to the pillars and pressing upward and outward. In this way the superior pole of the tonsils is exposed



Tonsil expressor.

and expressed. The remainder of the tonsil can then be exposed by anchoring the instrument by one arm and massaging the tonsils from above downward with the other arm, which is made possible by the concave upper surface of the instrument. At all times the instrument should be kept in front of the anterior pillar.

* Read before the Section on Orthopedic Surgery at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

The advantages of the instrument are that: (1) it offers a simple means of exposing the entire tonsil for diagnostic purposes; (2) it can be used to advantage in expressing pus from the tonsils for bacteriologic examination; (3) the tonsils can be evacuated without an anesthetic without pain to the patient two or three times a week, and the patients rarely object to the repetition of the treatment. In very sensitive throats a 2 per cent. solution of cocain may be used before treatment.

In many cases one or more large pus pockets are present. The most frequent seat of the pus pockets in our cases has been near the upper pole between the anterior pillar and the tonsil. This part of the tonsil is often completely buried behind the pillar and cannot be exposed by simple retraction of the pillar.

Massage and expression of the tonsil in no sense replaces tonsillectomy. It is recommended only as an emergency measure where the radical operation is contraindicated during the height of an infection.

ACCIDENTAL INJECTION OF BILE DUCTS WITH PETROLATUM AND BISMUTH PASTE

ADOLPH REICH, M.D., NEW YORK

Miss J. de M. had a pelvic operation two years before consulting me. A few days after the operation she was taken with pain over the region of the liver, and a swelling, which appeared in the midaxillary line, was incised and discharged pus, leaving a persistent fistula between the tenth and eleventh ribs. She asked to be relieved of this fistula.

In order to know the direction of this fistula, I injected about 2 ounces of petrolatum paste and bismuth with a melting

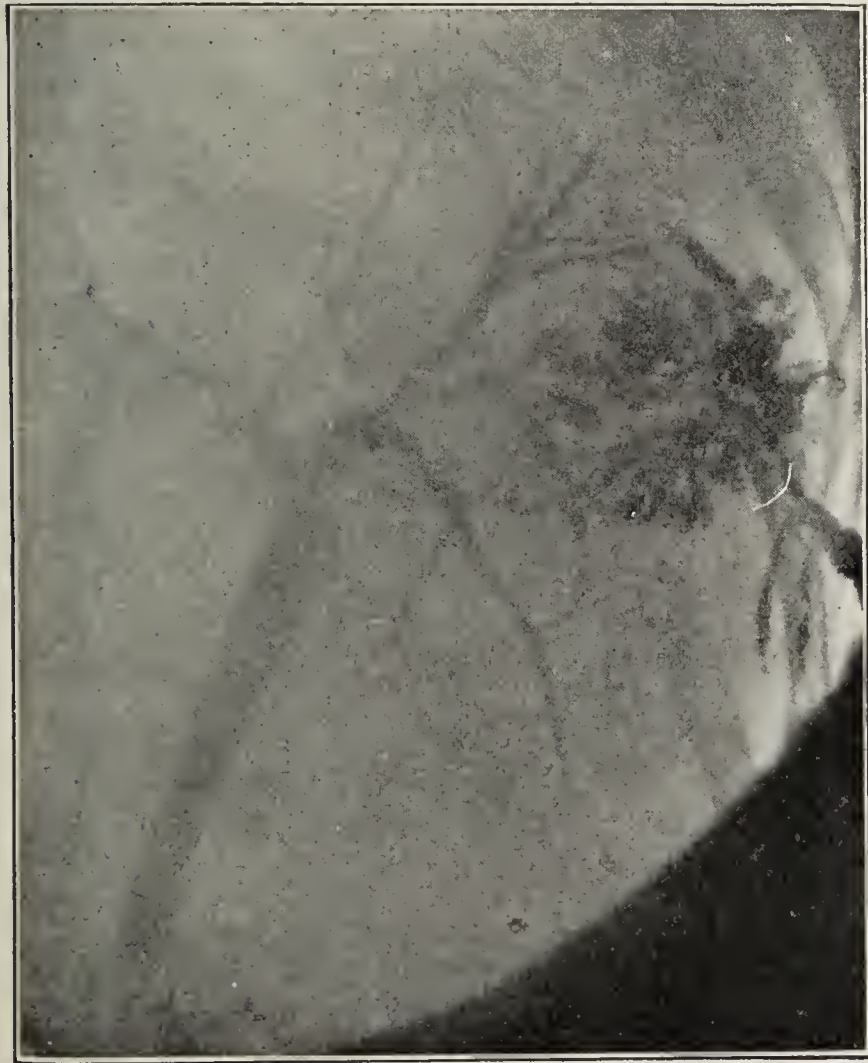


Fig. 1.—Postero-anterior view, showing bile ducts filled with paste down to the duodenum.

point of 110 F. Immediately there was considerable pain in the pit of the stomach, the following day the patient's temperature was 102 by mouth, the urine was dark brown, she was jaundiced, and she could not hold anything on her stomach. Figure 1 shows the bile ducts filled with the paste down to the duodenum.

The treatment consisted of local hot applications, morphin for the pain, calcined magnesia one-half ounce every two hours until the bowels moved freely, and injection of warm olive oil through the fistula, about 1 ounce or more every three hours. The next morning the bowel movements had a dark slate color and kept so for two weeks, and the temperature

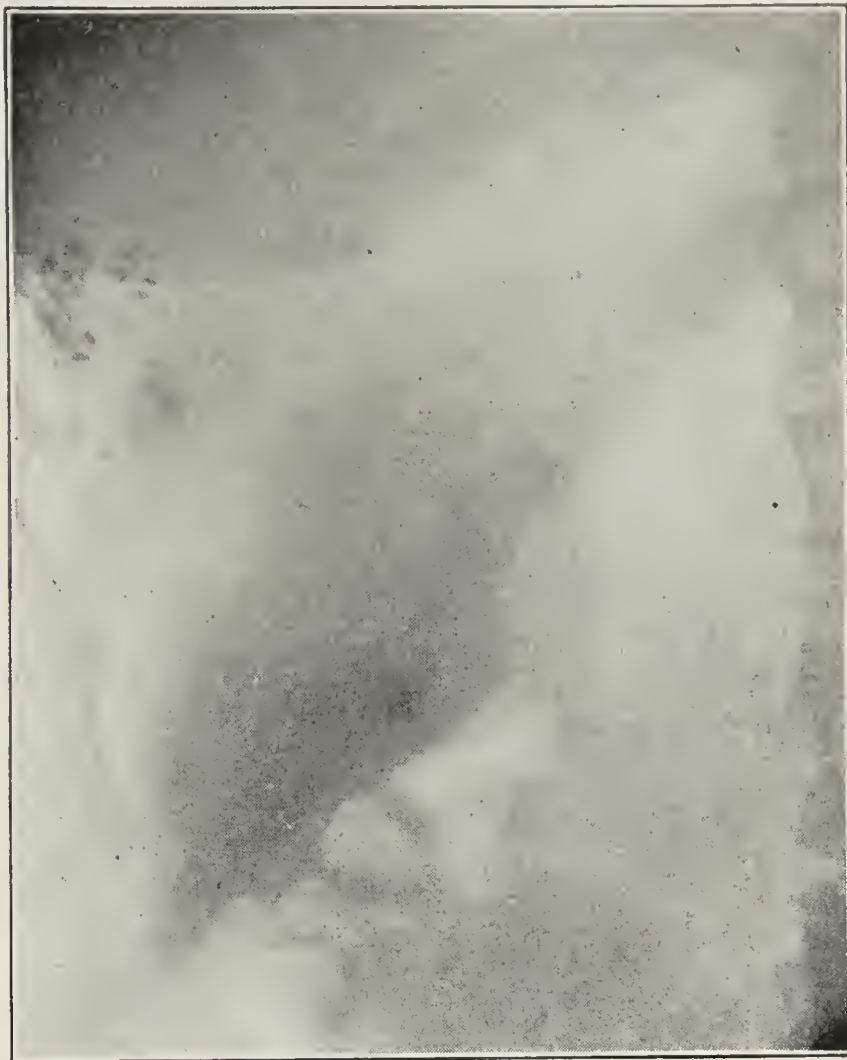


Fig. 2.—Anteroposterior view taken recently; bile ducts free from bismuth; a few grains of bismuth near the opening of the fistula.

fell to normal within one week, and all symptoms of the obstructive jaundice passed off gradually.

Figure 2, taken recently, shows the bile ducts entirely free from bismuth and only a few scattered grains of bismuth near the opening of the fistula. Pus is discharged only occasionally, and some of the bismuth finds its way out.

245 West Twenty-Fourth Street.

STUDIES OF ROENTGENOGRAMS OF THE ACCESSORY NASAL SINUSES

WITH A DESCRIPTION OF A NEW METHOD OF TAKING SUCH PICTURES:
PRELIMINARY NOTE

MAX UNGER, M.D., NEW YORK

In common with other nose and throat specialists, I have felt the disappointment resulting from the lack of help in diagnosis furnished by roentgenograms of the accessory nasal sinuses, especially in cases of suspected ethmoid and sphenoid disease.

The method now employed in the taking of roentgenograms of the accessory nasal sinuses is to put the plate in front of the patient's face and to shoot the roentgen ray through from the back of the head. This gives us an excellent picture of the frontal and maxillary sinuses, but the recognition of the ethmoids and sphenoids is a matter of guesswork. This is due to the fact that the latter cells are small, deeply situated and overlapped by the frontal and maxillary sinuses, the turbinates and the nasal bones.

Accordingly, I have devised a new method of taking roentgenograms of the sinuses. I employ a roentgen-ray film that is cut to the shape and size shown in Figure 1. This film is wrapped in waterproof paper, similarly to dental films. A

piece of card-board is included next the emulsion side of the film for purposes of protection and ease in handling.

When a picture is to be taken the film is inserted into the subject's mouth, the narrow end touching the posterior pharyngeal wall and the broad end projecting from the mouth. The roentgen-ray tube is adjusted above the head so that the rays pass directly downward and at right angles to

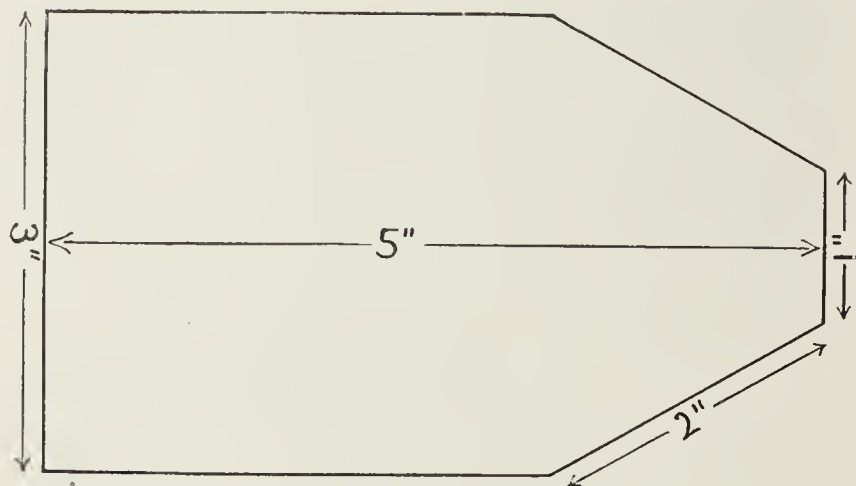


Fig. 1.—Shape of film.

the film. Sometimes a slightly obtuse angle forward is necessary, especially when the film cannot be pushed back completely. Sometimes, also, cocainization of the throat is necessary to overcome gagging.

This method has the advantage that the pictures show all four accessory nasal sinuses in isolated positions, without any overlapping. The ethmoids and sphenoids are shown best, but the frontal and maxillary sinuses are also shown in their horizontal dimensions, knowledge of great value when operations on these sinuses are contemplated. The maxillary sinuses are also shown in their relations to the teeth.



Fig. 2.—Sphenoid at apex; ethmoidal cells in center; antrum around last two teeth on left.

The method should prove of value in the investigation of fractures and the location of foreign bodies, such as bullets, at the anterior part of the base of the skull.

This is a preliminary report and deals only with the use of this method on the cadaver. A later communication will deal with its use on the living.

253 West Forty-Second Street.

AN AUTOMATIC DISTRIBUTOR FOR NEUTRAL SOLUTION OF CHLORINATED SODA (DAKIN'S SOLUTION)

LYMAN J. STRONG, M.D., BUFFALO

The successful use of Dakin's solution (neutral solution of chlorinated soda) depends on its delivery in sufficient quantity to all parts of the infected wound at regular and frequent intervals. These conditions can be obtained by a simple apparatus.

Wounds vary in size; therefore, this apparatus has two controls, one for time and one for quantity.

An irrigator can, *A*, is elevated on the head of the bed. A short piece of rubber tubing connects with a drop tube, *B*. A screw clamp on this piece of tubing controls the rate of flow through the dripping apparatus. For example, to deliver 80 c.c. every two hours, the screw clamp is set so that 10 drops each minute fall from the drop tube.

A large size test tube, *D*, of about 100 c.c. capacity, is fitted with a three hole rubber stopper. This test tube serves as a reservoir to collect the solution from the drop tube. Through one hole of the stopper a piece of glass tubing, placed so that it extends the entire length of the test tube, controls the pressure in the test tube when emptying and filling. Through the other two holes of the stopper are pieces of glass tubing bent in short-armed U's. U Tube 1 and U Tube 2 convey, respectively, Dakin's solution into and out of the test tube.

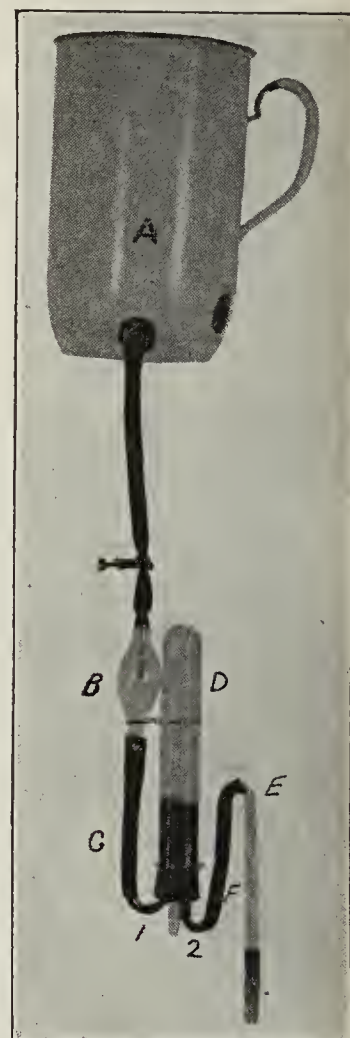
U Tube 1 is connected with the outflow from the drop tube by a rubber tube, *C*. U Tube 2 is connected with U Tube *E*, which has one long arm and one short arm. This is done by a piece of rubber tubing, *F*, to the short arm. This rubber tubing should be long enough for U Tube *E* to be elevated or lowered a distance equal to the length of the test tube. Raising U Tube *E* increases the quantity of fluid discharged into the wound. For example, to deliver 80 c.c. every two hours, the drip is set at 10 drops per minute. U Tube *E* is set three-quarters up the test tube.

The long arm of U Tube *E* connects with regularly used Dakin's tubes that are planted in the infected wound.

As fluid runs from the can through the drop tube; it is conveyed by Tube *C* into the test tube, which stops it from flowing into the wound until it reaches the level of U Tube *E*. When it reaches this level a siphon is formed, and the quantity of fluid in the test tube is expelled at one time into the wound.

This apparatus is practical and has discharged fluid at intervals of one minute and intervals of two hours with the regularity of a good clock. The quantity may be varied from 5 to 100 c.c. It can be made in any hospital or laboratory. It depends entirely on gravity, so that it always works.

482 Williams Street.



Automatic distributor for neutral solution of chlorinated soda.

Conditions Demanding Blood Transfusion.—Positive indications in chronic anemia will be found in the case records (prolonged suppuration, infection and fever, and in sluggish wound healing), in the information derived from repeated blood counts, hemoglobin estimations, and blood pressure determinations.—*Review of War Medicine and Surgery.*

Military Medicine and Surgery

RAPID METHOD FOR DETECTION OF OVA OF INTESTINAL PARASITES IN HUMAN STOOLS

CHARLES A. KOFOID, PH.D., Sc.D.

Major, Sanitary Corps, U. S. Army

FORT SAM HOUSTON, TEXAS

AND

MARSHALL A. BARBER, PH.D.

Major, Sanitary Corps, U. S. Army

CAMP JACKSON, COLUMBIA, S. C.

The military significance of infection by hookworm disease among recruits and troops of the United States Army might be inferred from its known clinical symptoms. That it is characterized by anemia, edema, intestinal disturbances and by a disinclination to physical effort is well known. Testimony and statistics add to these charges the facts that morbidity and mortality tend to be higher among troops from the area of hookworm infection than among those from outside that area. Comparisons of the records of examinations of new recruits from the hookworm area¹ reveal the fact that white men with this infection make lower records than do the noninfected, literate and illiterate. There is also some evidence that hookworm infections tend to impede the progress of recruits in discipline and instruction. The guard house, venereal isolation camp and the hospital show higher rates of infection than does the camp as a whole. Hookworm disease appears to be one of the causes tending to increase the ratio of noninfectives among our troops and to lower the standard of their efficiency.

Because of the numbers to be examined, the nature of the available equipment and the desirability of not encroaching on the duties of a medical staff already occupied with more important work, it was essential that any method used in detecting this infection should be rapid, accurate, simple, adapted to the utilization of a changing personnel in large part, and that it should not require elaborate apparatus or extensive laboratory equipment.

COMPARISON OF VARIOUS METHODS

The direct microscopic examination of a small sample of the fecal specimen is inaccurate because of the minuteness of the sample used, and impracticable because of the length of time required to make a fair examination. The greater efficacy of the brine flotation-loop method in the detection of worm ova as compared with the ordinary smear method is shown in the accompanying table, in which nine-day periods are compared. The salt flotation method is obviously inferior in the detection of *Strongyloides*.

Only hospital cases, based on records at Camp Jackson, are included in the table. The great variability in the daily hookworm percentages is probably due to the varying proportions of patients from the Northern states.

The centrifuge method is at once precluded by the difficulty, if not impossibility, of securing an adequate number of instruments to accomplish a work of such magnitude, and the added difficulty of securing the requisite tubes and other glassware essential to equip

and maintain facilities adequate to care for the number of examinations to be made. It also calls for extraordinary care in cleaning the glassware used, for hookworm eggs are quite adhesive to the surface of glass.

This is a difficulty of considerable importance when laboratory helpers are inexperienced, and adds much to the burden of supervision.

The centrifuge is also inaccurate, probably because of the small size of the samples used. The standard fecal sample collected for this method in the Army is contained in a 2-dram vial. Negatives for hookworm by this method as used by the senior author in the Department Laboratory of the Southern Department were examined by the salt flotation method by us and found in about fifty examinations to show a 40 per cent. increase in infections. That is, the percentage was increased from 10 to 14. This was borne out by the fact that, whereas the percentage of infection by the centrifuge method was about 8 per cent. in 7,000 examinations, it rose to from 14 to 20 per cent. among troops from the same general localities when the salt flotation method was applied.

COMPARATIVE RESULTS IN DETECTION OF OVA

1918 June	Ordinary Number Examined.	Smear Method Positive Hookworm.	Percentage Positive.	Remarks.
10	205	13	6.3	During nine-day period the same total of examina- tions as that of the hook- worm gave the percentages: Ascaris .....1.1 Hymenolepis nana .....0.6 Trichuris .....0.3 Strongyloides .....0.6 Oxyuris .....0.0
11	132	23	17.7	
12	153	24	15.7	
13	135	19	14.1	
14	150	11	7.3	
15	116	9	7.7	
17	144	3	2.1	
18	106	14	13.2	
19	99	11	11.1	
	1,240	127	10.2	
	Brine Flotation-Loop	Method		
20	109	40	37.5	During nine-day period the same total of examina- tions as that of hookworm gave the percentages: Ascaris .....1.1 Hymenolepis .....0.8 Trichuris .....0.8 Oxyuris .....0.08 Strongyloides .....0.0
21	96	34	35.4	
22	146	50	32.1	
24	146	48	34.1	
25	152	39	26.2	
26	128	26	20.3	
27	120	26	21.7	
28	120	22	18.3	
29	116	25	21.6	
	1,133	310	27.1	

The elaborate sieve-sedimentation method of Hall² is not adequate to the military necessities because of the fact that it can be operated only in a well-equipped laboratory and requires an expensive, elaborate and somewhat permanent installation. It seems not to be rapid, and would require great care in cleaning to prevent a carrying on of infection, when the sieves are used in rapidly succeeding examinations. Its accuracy in cases of light infections should also be tested.

The culture method of Looss³ and of Fülleborn⁴ has been used by the senior author in the laboratory of the California State Board of Health. This is an exceedingly accurate method, revealing the lightest of infections. But it requires regulated incubators to run to a schedule of operations, constant supervision and inspection, a delay of about five days before results can be reported, and considerable washing of glassware, including, when paper Petri dishes are used for culture, the centrifuge tube (possibly omitted), Syracuse dish and a pipet. The active larvae make the detection of infections quickly decisive in the case of positives. Skill in differentiating *Strongyloides* larvae from those of hookworm is essential. The use of culture mediums and water free from free-living earth and water nematodes is also a desirable pre-

1. By Capt. P. F. Pittenger of the psychologic board at Camp Travis.

2. Hall, M. C.: Jour. Lab. and Clin. Med., 1917, 2, 347.

3. Looss: Egypt, Min. Educ., Rec. School Med., 1905, 3.

4. Fülleborn: Arch. f. Schiffs- u. Trop. Hyg., 1911, 15, 363.

caution. This method is thus not readily adapted to military conditions by reason of the installation required, the amount of cleaning and the precautions necessary. The delay incident to the hatching period so extends the time between collection of the sample and report of the results as greatly to increase the material on hand under supervision, and the bulk of the clerical work awaiting completion. No opportunity has been afforded to compare it in detail with the brine flotation-loop method as to their relative accuracy in detecting light infections. The culture method detects hookworm and *Strongyloides*, both with free-living stage, but does not give any clue to the presence of the cestodes, and of *Ascaris*, *Trichuris* and *Oxyuris*.

THE BRINE FLOTATION-LOOP METHOD

In view of the difficulties attending the use of the methods enumerated above, under Army conditions, the method here described was devised after considerable experimentation. The senior author in his work on hookworm in the gold mines of California for the California State Board of Health had adopted the culture method after prolonged experimentation with the centrifuge method and unsuccessful attempts to find a satisfactory sedimentation, flotation or filtration method that would effectively utilize a large sample and detect light infections. The junior author had had long experience in Malaysia, China and the Fiji Islands with the International Health Board in the critical use of various methods of examination, especially that of the centrifuge, under field conditions.

The method finally perfected by us may be designated as the brine flotation-loop method. It consists in mixing a large fecal sample thoroughly in concentrated brine, in a paraffined paper can of from 2 to 3 ounces capacity, forcing the coarse float below the surface by means of a disk of No. 0 steel wool, and then allowing the can to stand one hour for the ova to ascend. The surface film is then looped off with wire loops, one-half inch in diameter, and examined on a slide without a cover glass.

The method has been tested in the Southern Department under the senior author's direction in more than 100,000 examinations of varying ratios and degrees of infection by about seventy-five different examiners, under diverse field conditions, and has been found to be efficient and practicable.

TECHNIC

The stools for examination are collected at reveille in the morning at the company latrines by a collecting squad consisting of sixteen enlisted men in charge of a sergeant and under command of a medical officer. The men from a given company are in charge of a line officer. They are marched to the latrine in alphabetical order and the roll is called from the roster by the sergeant in charge of the men. On admission to the latrine each man is identified and given a container, bearing the designation of the organization and his roster number, a sheet of waterproof paper, and half a tongue depressor as a collecting stick. He is instructed to defecate on the paper and to fill the can one third full of feces. Men unable to furnish a specimen are given salts, under the supervision of the medical officer, and are moderately exercised. The men submit their sample to the collector for inspection on leaving the latrine to prevent the passing in of empty cans. Substitution is forbidden. In practice, this squad can collect the specimens from an entire regiment, make the first delivery at the laboratory at 7:30 a. m., and complete the collections at 10 a. m. On an average from 3 to 10 per cent. of the organization on a complete roster fail to furnish specimens by reason of absence, detached service or failure to defecate.

The receptacles used as containers for fecal specimens for examination for ova of intestinal parasites serve not only to receive the fecal specimens at the latrines but also as the mixing dishes from which the ova are subsequently looped for examination, and themselves bear the results of their examination to the recorder's table. The use of glass or tin containers is precluded by the cost, labor of cleaning and danger of carrying over of infection by adhesion of ova to the sides of the dish. We have therefore used paper and pasteboard containers, which may be wasted after use. We have in emergency used paraffined paper drinking cups and standard hospital sputum cups, but have found the most satisfactory container to be the standard 2-ounce paraffined paper drug cans with tin bottom and paper top. Similar cans with paper bottom and top are more liable to be unsealed by the solvent action of the contents. Open drinking cups permit evaporation and increase the odor and liability of carrying over of ova by flies. Heavy paraffined "Kleen Kup" tumbler-shaped containers are satisfactory for shipping specimens some distance.

These cans are about 1½ inches in diameter and 2½ inches high and are made up from specially constructed paper tubing made from stock paraffined on the inner face. Their capacity is normally 2 ounces and varies from 50 to 80 c.c. according to the brand or factory. Certain brands either have no coating or are so lightly coated that it was necessary to treat them to a dipping or to an inside coating of hot paraffin or sodium silicate to render them brine-proof. Paraffin-coated brine-proof cans that will resist soaking up by brine and feces for a number of hours can be obtained from commercial sources at present and are fairly satisfactory for this method of stool examination. The practical advantage of containers of these dimensions is that they will rack snugly in the compartments of the pasteboard fillers which hold three dozen each, of standard shipping cases for eggs, which hold thirty dozen each. To facilitate the handling of a single filler we have used specially constructed pasteboard trays with tape loops for handles into which a single filler fits. These trays are very convenient for use in the preliminary marking of the cans, the arrangement of the numbered cans and for subsequent handling at the latrines and in the laboratory.

In the examination of troops in the Army, each can is marked with the designation of the organization and the roster number of the man whose specimen it is to receive. Thus, 305 Cav. H-16 is for the sixteenth name on the roster of Troop H of the Three Hundred and Fifth Cavalry. Cans were at first marked on both top and side: the former for convenience in picking out a particular can at the latrine, the latter for use in the laboratory. These cans were marked with wax pencils or on strips of adhesive tape in ink on the tin tops, and the sides similarly marked or with lead or colored pencil or in ink. Pasted typewritten labels are unsatisfactory, as they may soak off if wet or peel away if dry. The most satisfactory labeling thus far found is that written in "Eternal" ink. This is not removed by water or brine, and sinks into the paper so deeply that it cannot be rubbed off. It is also clearly visible on the wet can. The cans for a given organization, such as a company of a regiment, are serially numbered, and on receipt at the laboratory from the latrine are usually not in numerical order. In order to detect shortages, eliminate confusion of indistinctly written numbers, and facilitate entering results on the numerically and alphabetically serial roster, the cans are first arranged in numerical order on a number board and then racked in order in the sockets of serially numbered wooden racks holding ten cans each. They are then passed to the mixing table where they are prepared for the examiners.

The stool is prepared for examination by stirring the specimen thoroughly in concentrated brine with a small wooden stick until the brine is considerably discolored and the contained ova released from the feces. The amount of stool to be stirred varies with its consistency and composition. Not more than one third of a canful is ordinarily used; if the sample submitted is too generous, the amount is reduced. The can is filled nearly full with brine, and the stool, if putty-like and resistant, is broken up against the sides of the can.

In some instances of putty-like stools the release of the ova is facilitated by scouring the stool up with steel wool on the end of the stick, against the side of the can. After stirring until the desired consistency is attained, the stick is withdrawn and a circular filter of No. 0 or No. 1 long fiber steel wool is carefully pushed down through the fluid to the bottom of the can with the stick. This effectively removes from the surface the lighter coarser float, breaks up the air bubbles, and leaves the surface clear of coarse particles and suitable for looping of the floating ova. Stirring the stool with the electric soda mixer gives quickly a suspension of the stool, but forms too many air bubbles for satisfactory looping.

If too much wool is used it will interfere with the ascent of the ova. If too little is used it will not remove the float. As a rule a lightly compressed disk, one-eighth to one-fourth inch in thickness, is sufficient. From 1 to 2 pounds are sufficient for 1,000 specimens. Other materials, such as disks of wire netting, excelsior and southern moss will serve the same purpose, but less successfully by far. The southern moss may introduce fresh water nematodes and their eggs and larvae.

Since there is danger of contamination of adjacent cans through stirring and in putting in the wool by splashing over from one can to another, it is a wise precaution to remove the can from the rack during the preparation. As an additional precaution to prevent the accidental transfer of a stick from one can to another during the mixing of a rack of cans, it is customary to place sticks in all of the cans and leave them there when not in use until the entire rack is finished.

The specimen is prepared for microscopic examination by looping off the surface film to an ordinary glass slide. The loops for this operation are prepared from unraveled window screen or similar fine galvanized wire. They can be made up rapidly from 6-inch squares of wire netting by twisting the individual wires into the loops. Each loop is formed around a glass tube or wooden cylinder about one-half inch in diameter, the shorter end twisted around the longer, which forms the shaft to close the loop, which is then bent out at right angles to the shaft. The surface film will usually adhere to the wire when the submerged loop is lifted from the brine. Ova in the film are removed with it. It has been found advisable to loop the surface near the sides as well as the center of the can. For this purpose the loop may be molded to the arc of the can on one side.

The number of loopfuls necessary to make a fair sample for microscopic examination depends on the capacity of the film removed. About ten loopfuls will skim the entire surface of the can and form a pool of brine conveniently handled on an ordinary microscope slide with a mechanical stage. One skimming does not by any means remove all the ova, as they are not all in the immediate surface. If ova are present in any numbers they may be obtained at once, if the stirring has been thoroughly done. It is customary for the cans to stand for one hour to allow the ova to accumulate in the upper layers. Ova may still be found at the surface after twenty-four hours, but their numbers are decreased. In warm weather they may have entirely descended in five hours.

The following test shows the relative hourly abundance of hookworm ova in the surface film on a can mixed with brine at 8:45 a. m., until they disappeared:

The brine and ova were poured off into another can at 9:15, being distributed, by the pouring, throughout the fluid. Four loopfuls were placed on the slide and ten fields were examined. At 9:15 a. m. there were 69 ova recorded; at 10:20, 169; at 11:20, 150; at 1 p. m., 85; at 2:10, 20; at 3:15, only 3, and at 4 p. m. none. The temperature during the period was from 90 to 95. The maximum number of ova appeared at the surface about an hour after they were uniformly stirred, and seven hours after mixing, all had descended from the surface.

From tests made under other conditions it is evident that there is considerable variation in the rate of ascent and descent of the ova in the brine in different stools and at different temperatures.

For a time we marked off an ellipse $1\frac{1}{2}$ inches by $\frac{3}{4}$ on the slide with a wax pencil to assist in confining the pool of brine on the slide, but this was later abandoned as unnecessary.

In the cases of viscid, opaque and fatty stools, considerable dilution may be required. This may be done with a few drops of a mixture of equal parts of glycerin and brine stirred into the pool on the slide. The glycerin clears the more opaque particles and renders the ova more easily visible.

The following modification of the salt flotation-loop method has been used by the junior author at Camp Jackson, S. C., for routine hospital examinations and for a limited number of stools sent from the camp:

Specimens are sent into the laboratory in tin containers provided with lids. Salt flotation and loops are used exactly as in the method describe below, but instead of filtration by steel wool the coarser floating particles are skimmed off by means of a spoon before the ova have time to rise. The spoon is scrubbed with a brush and carefully washed under the hot water tap after each use. When cans are used a second time they are very carefully cleaned and dried.

It is obvious that the sole advantage of this modification is in the saving of materials. Further, it is adapted only to work on a comparatively small scale and in a laboratory supplied with skilled workers and with a hot water tap for the proper cleaning of utensils. It is not to be recommended for field work on a large scale or for any work in which pasteboard containers and steel wool are obtainable.

COMMENT

Contamination of adjacent cans by droplets of the surface film splashing over from an infected can to a negative one may readily occur when the loop catches on a stray fiber of the steel wool and is suddenly released, or when the film in the loop breaks on contact with the slide. For this reason the can and slide should be moved away from the rack while the pool is being looped off. The viscosity of the surface film may vary greatly with the nature of the stool. It is markedly decreased by slight additions of such disinfectants as tricresol and phenol (carbolic acid) or by alcohol, which is useful in removing air bubbles from the surface. Formaldehyd solution tends to curdle the mixture, and delays the ascent of the ova and reduces the numbers in the surface film.

These variables, which affect the opacity and contents of the loop and the number of ova it removes, render any uniformity of looping and resulting thoroughness of examination practically impossible. In practice from three to seven loopfuls are generally used; but the number in the course of numerous examinations will vary from one to twenty. It is obvious that these variables will introduce a margin of error in the detection of ova only among the lighter infections.

The ova of parasites such as *Ancylostoma duodenale*, *Necator americanus*, *Ascaris lumbricoides*, *Oxyuris vermicularis*, *Trichuris trichiuria*, *Taenia saginata*, *Taenia solium*, *Hymenolepis nana*, *Hymenolepis diminuta*, and *Dipylidium caninum* and of trematodes are floated up by the brine into the surface layer of the pool without distortion or noticeable change in appearance during the usual period of examination. Cysts of *Endameba coli* and *histolytica* and of *Giardia intestinalis* are also floated up. Since the ova are at the surface, it is not advisable or necessary to use a cover glass.

The surface of the pool of brine is thoroughly searched with the aid of the mechanical stage. To reduce the amount of focusing, the convexity of the surface of the pool may be reduced by spreading it over the slide and extending the amplitude of the movements of the mechanical stage.

The microscopic equipment most useful is the typical high grade instrument with 16 and 4 mm. objectives and $\times 5$ or 6.4 and $\times 10$ oculars or their equivalents. The searching is done with the low power objective and low power ocular since the latter is less tiring in long-continued examinations. For closer scrutiny the 4 mm. objective may be used with care on objects in the surface film without cover glass.

To render the ova more distinctly visible it is essential that the microscope be provided with a substage condenser and that the illumination be reduced by closing the iris diaphragm or lowering the condenser so as to increase the sharpness of definition of all objects in the field and to bring the egg membranes into relief. This assists in the quick differentiation of ova from objects of similar shape and opacity. The amount of searching necessary to make a fair examination is a function of so many variables that no arbitrary rule can be laid down. The degree of dilution, stirring, flotation, the amount of the surface fluid in the pool, its extent and convexity, the consistency and opacity of the fluid and its solid contents, the nature and number of the particles floated to the surface, the number and size of air bubbles, fat cells, oil globules and starch cells, all combine to complicate the search for ova. It is advisable to search a considerable area rapidly, and especially in the case of opaque fluid and confusing particles, to search a part of the area minutely or make an additional dilution. Experienced examiners on an average give from two to three minutes to the examination of a specimen containing on an average four to five loopfuls spread over an area of approximately a square inch on the slide.

Infected stools, or positives, are usually detected in the first field or first run across the slide examined. In a test case of 550 positives of hookworm, most of them very light infections in Oklahoma and Texas recruits, detected on five consecutive days by five experienced examiners and recorded as found or not in the first run across the slide, there were 180, or 30.5 per cent., reported as seen in the first run. Infections obviously reduce the time required for examination in most cases. In a relatively few cases, estimated at not more than 5 per cent. in our experience with the examination of more than 100,000 men in the Southern Department (Texas, Oklahoma, New Mexico and Arizona), several ova only have been found in the whole slide examined. In rare instances only a single ovum is found. These very light infections and the negatives require more time for a complete examination than do other positives.

It is obvious that the rate of examination and daily score of the examiner will be in part a function of the ratio of positives to the whole and of the average degree of infection. With numerous positives and heavy infections, which are usually coincident, the rate of the expert examiner may easily be doubled over that when positives are few and infections are light. The experience, skill, industry and thoroughness of the examiner are also factors determining his daily score, as well as the nature of the stools as conditioned by diet and modified by the skill or lack of it on the part of the mixers.

A skilled examiner will complete from 150 to 250 examinations daily under average conditions. With the assistance of a looper the rate can be speeded up to one per minute; but the resulting eye strain renders this inadvisable as a daily routine. A staff of fifteen examiners can maintain a rate of from 2,000 to 2,500

examinations daily and attain 3,000 under favorable conditions of cooperation and effective supervision of the mixers. A staff of twenty examiners can complete a full regiment daily. Supplemental aid of approximately one man in the field collecting squad and one man in the laboratory and clerical squad for each examiner is necessary to collect, prepare, record and dispose of the specimens and attend to the policing of the laboratory.

The time required for the physician inexperienced in laboratory work to become efficient in this method is brief. Enlisted men with some experience in college, university or Army laboratories acquire a reliable degree of accuracy with several days' training and supervision, as shown by test, and may in some instances also acquire the speed of an experienced examiner in this time.

In our experience after experimenting with various methods of making records of the results of the examinations we have finally adopted the roster system with special recorders whose only duty is to make the record on the primary roster. Efforts to make a card system were futile, for even with experienced examiners, entries are sometimes omitted or incorrectly made. The difficulty arises from the constant intermixture of the two distinct types of work, microscopic and clerical.

For his own information and for the quick ascertainment of the day's totals and percentages, each examiner keeps a daily score on which is entered the serial number of each rack of specimens examined, the number of cans examined, negatives, hookworm, tapeworm, etc. The totals are quickly cast up, transferred to another sheet and the grand total arrived at.

The results of the examination of the individual cans are indicated by certain conventional signs. A negative can carries only the loop. Positive hookworm is indicated by the inserted slide, dwarf tapeworm (*Hymenolepis nana*) by a mixing stick, and any other infection by the written name on a slip of cardboard. When thus designated the rack is passed to the recorder's table who enters the results on the rosters, using red for hookworm, blue for all other infections, and lead pencil for negatives. Since the cans are arranged in numerical order within the racks, the entries on the roster fall consecutively in variously ordered groups of ten, and the recording proceeds rapidly. The arrangements of the cans in serial order and the entry of the results in sequence tend to eliminate errors arising from misplaced entries and indistinct numbers.

A rubber stamp is used to allocate on the roster a tabulated summary of the results within an organization such as a company or regiment. It provides for entries of infections by hookworm, *Hymenolepis nana*, a blank for writing in the rarer infections, negatives, no specimen, absent, number examined, and total on the roster. Additional spaces provide for revisions as follow-up specimens come in later.

This system reduces the clerical work to a minimum and makes possible the reporting in at the close of the day of the lists of the infected men for treatment. When the work of an organization is closed, the duplicate roster with all the infections and unexamined men indicated thereon is returned to the regimental surgeon and the triplicate similarly marked, to the division, district or camp sanitary inspector, and the primary roster remains as the permanent record for filing with the officer in charge of the hookworm survey.

The accuracy of this method depends on a number of variables, the size and consistence of the specimen, the thoroughness of stirring, the proper amount of steel wool, the care in looping, the opacity of the fluid, and the extent and thoroughness of search made of the material on the slide. Much depends on keeping the focus directly on the surface of the fluid during examination and in training the eye to detect quickly every object resembling an ovum.

The cases of infection which escape detection are the very light ones in which only a few ova can be found on a slide. Some slides prepared from such infections may have no ova, or the ova may be hidden or overlooked.

Reexamination of slides and cans that are reported by an experienced examiner as negative will sometimes reveal a positive lightly infected. Men reported as negative on a first examination may appear as positive on a second specimen and vice versa. This raises the question as to the uniformity of distribution of the ova in the stool and as to the possibility of internal states of host and of parasite influencing the rate of deposition of ova in successive stools.

With a view of testing out the possibility of light infections having been overlooked, a test was made on 100 negatives from colored troops at Camp Travis. Infections in the battalions from whom these negatives were drawn were only sixty-eight in 1,495, or 4.8 per cent. The infections were also light, as a rule. The top fluid of fifty cans was drawn off into a tall cylindric liter graduate and the surface film of this column examined. The cans had stood after stirring for less than three hours, and no brine from thick or viscous stools was used, so as to avoid entangling any ova that might be present. This was repeated on a second fifty and the top fluid of the two lots combined in a slender 50 c.c. graduate. An examination of the surface film of each of these concentrations gave negative results. A subsequent examination within two hours of flotation of 150 negatives by the same method from white troops, showing 219 positives or 8.7 per cent. in 2,505 examinations, revealed one case of ova in one lot of fifty. The other two lots remained negative. In another test of three lots of fifty each from white and colored troops showing 110 infections, or 5.7 per cent., in 1,914 examinations, all remained negative. Thus, in a total of 400 negatives, or eight lots of fifty, of light and therefore presumably easily overlooked infections, only one lot showed evidence of an undetected infection on this test.

It appears from these tests that the number of positives escaping detection by the brine flotation-loop method is small. These tests were made in the negatives from sixteen examiners, eight of whom had had only from three to nine days' experience with hookworm examinations.

No opportunity has occurred for a comparison of this flotation method with the culture method to compare their relative accuracy on identical stools.

ADVANTAGES OF THE METHOD

The great advantage of the brine flotation-loop method lies primarily in the easy utilization of large samples. With large enough containers, receptacles for mixing the entire stool may be utilized, thus eliminating entirely the element of random sampling, except as this may appear in irregular ovoposition or unequal discharge in successive stools. This insures a sufficient number of ova to make detection possible

in light infections which other methods, using smaller samples, may fail to detect in a larger proportion of examinations. The method is for this reason a more accurate one.

The method is also a simple one, requiring only the simplest laboratory equipment, aside from the microscope, using available commercial materials and utilizing unskilled labor in large part for its aids. This facilitates the mobility of field operations far from base laboratories, since a permanent staff only for supervision and training is necessary.

It is also more rapid, being in our experience about 50 per cent. more rapid than the centrifuge method. It is also more rapid than the culture method, in the experience of the senior author, since the time required in the mixing, inspection, watering, concentrating, examining the cultures and in cleaning the pipets and Syracuse dishes is easily double that consumed in the flotation method. This is increased if glass Petri dishes are used for culture instead of paraffined paper ones, which may be wasted.

The flotation method also almost wholly eliminates the labor of cleaning apparatus and containers. The only pieces of apparatus to be cleaned are the wire loops from negative cans which may be salvaged by washing en masse and drying thoroughly, the glass slides, which are rinsed and wiped, and the racks, which are occasionally washed with brush and hose. The container, which serves also as mixing can, the stick and the steel wool are wasted. There is no cover glass or centrifuge tube to be cleaned.

COST

With the exception of the microscope, the use of which is common to all methods, all apparatus and materials used are inexpensive commercial articles. Aside from the microscopes, tables and stools and office fittings, the equipment necessary for handling 2,500 daily costs about \$120. The materials necessary for 1,000 examinations in addition to the containers are 1,000 sheets of buckskin paper, 10 by 15 inches, 500 tongue depressors, 35 pounds of salt, from 1 to 2 pounds of No. 0 steel wool, and a certain amount of wastage on loops and slides. The cost in the Army for the salaries and commutation of the officers and pay and subsistence of the men required to make 2,500 examinations daily in a given instance is 6.2 cents per examination, a total of 7.7 cents. There is also expense for office supplies, some clerical work in the preparation of rosters, and of fuel for incineration, which will increase this amount to about 8 cents per examination. Costs of transportation and other overhead charges not included above will also slightly increase this amount according to the varying circumstances attending the survey. If allowance is made for slack time and reductions in rate of supply of specimens incident to Army conditions, the cost will be materially increased. The estimates given are based on optimal conditions and full capacity.

Another advantage accruing from the simplicity of the method and the nature of the materials used lies in the fact that nontechnical labor may be utilized to a large degree, and competent persons accustomed to the use of the microscope may very quickly become efficient examiners. This renders its use on a large scale in military or industrial establishments or in preventive social sanitation both practicable and possible with a relatively small staff of specially trained persons for supervision and administration.

Laboratory Car Metchnikoff, Fort Sam Houston, Texas—
Base Hospital Laboratory, Camp Jackson, S. C.

PANDEMIC INFLUENZA AND PNEUMONIA IN A LARGE CIVIL HOSPITAL *

JOHN W. NUZUM, M.D.; ISADORE PILOT, M.D.;
F. H. STANGL, M.D., AND B. E. BONAR, M.D.
CHICAGO

Following the reports of a rapidly spreading and highly fatal pandemic of influenza and pneumonia in the Eastern States, and while the epidemic of influenza was raging at the Great Lakes Naval Training Station, a severe outbreak of this disease appeared among the civil population of Chicago. During the past five weeks, from September 23 to October 29, more than 2,000 patients were admitted to the wards of Cook County Hospital. Of these, 642 died, a mortality of 31 per cent. In the accompanying chart, of the first 500 deaths, it will be noted that the age period of highest mortality falls between 25 and 30 years.

Among the total number of admissions during this period there were 122 soldiers, and thus far twenty-one cases have terminated fatally—a mortality of 16 per cent. So far as the admissions to a large charity institution, such as the Cook County Hospital, may be regarded as an index to the prevalence of the recent epidemic in Chicago, it appears that the disease is now definitely on the decline. Accordingly, it seems pertinent to report the results of an intensive study conducted during the past five weeks in the morgue and the laboratory of the Cook County Hospital.

CLINICAL PICTURE

The incubation period varied from a few hours to one or two days. Shortly after the arrival of the first fifty soldiers, five of the nurses in attendance on these patients became violently ill, and during the following two weeks more than fifty nurses and twelve of the resident physicians contracted the disease. Three of the nurses died. Blood cultures, nasopharyngeal and tonsil swabs and cultures of the washed bronchial secretion were immediately taken by the laboratory staff, and four of the laboratory assistants were suddenly taken ill within the next forty-eight hours.

The onset is sudden, with complaint of severe headache, dull, aching pains in the muscles and joints, general weakness and quite commonly dull pains in the lumbar region. Conjunctivitis is not infrequent in the initial stages. Sore throat is unusual. The patient takes to bed with chilly sensations, and the fever rises rapidly from 101 to 104 F. Early prostration is the rule. Epistaxis occurs in a considerable number of patients, in one person as much as a pint of bright red blood gushing from the nostrils. The pulse is accelerated and the respirations vary from 20 to 36 a minute. The second to the fourth day marks the

critical period for the average patient. Remissions may occur, but among our cases more frequently following the crisis the temperature rises rapidly again and a slight bronchial cough develops, productive of small amounts of thick yellow or yellowish brown sputum teeming with gram-positive encapsulated pneumococci. There can be no doubt that the bronchial secretions are highly infectious at this time and that the disease is transmitted by personal contact and by droplet infection occasioned by coughing and sneezing.

Moreover, very early after the onset, careful physical examination of the patient's chest will often reveal scattered râles with areas of consolidation over the lower lobes and especially the right lower lobe. The bronchopneumonic process begins as an intense acute hemorrhagic tracheobronchitis, rapidly extending to the finer bronchioles of the lung. In the acute fulminating cases the patients become markedly cyanosed, and death results from an asphyxiative bronchiolitis with large quantities of frothy blood-tinged fluid exuding from the mouth and nostrils.

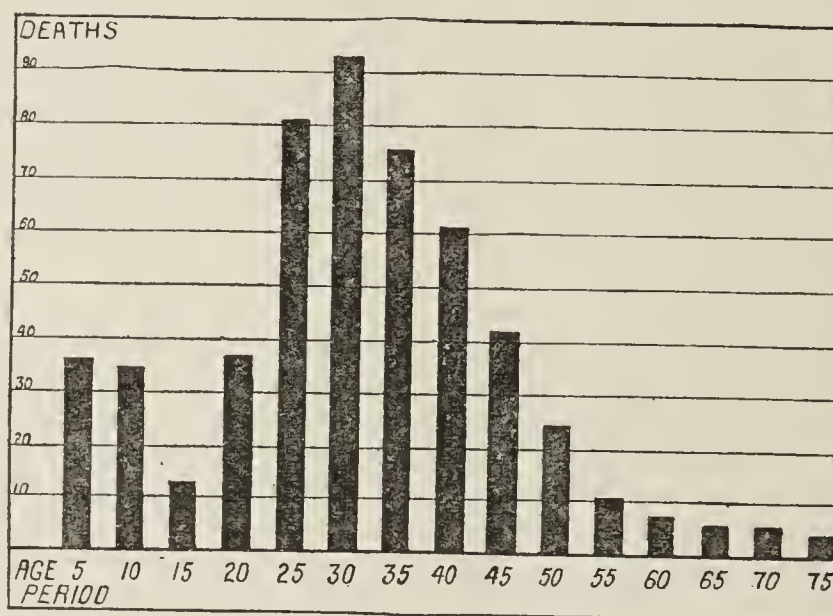
In the more protracted cases, particularly in civilian patients, the bronchopneumonia extends gradually to

the left lower, and right middle and upper lobes, and clinical evidence of a severe toxemia manifests itself. Blood counts taken early after the onset of the initial symptoms exhibit a striking leukopenia as low as 1,800 per cubic millimeter and averaging from 3,000 to 4,000 per cubic millimeter. With the onset of the pneumonia a definite leukocytosis quite commonly appears. The urine shows traces of albumin with hyaline and granular casts. Blood cultures taken early and late in the course of the disease and inoculated into glucose broth and plated in blood agar have remained uniformly sterile in forty-two instances.

MORBID ANATOMY

Of the first forty postmortem examinations made on the bodies of persons dying both early and late of bronchopneumonia, it was possible to obtain cultures from the nasopharynx, tonsils, washed selected bronchial sputum and from the lung parenchyma. Cultures were also obtained from these sites before death. The first eight necropsies were all of acute fulminating cases in young soldiers of excellent muscular development and physique. The course of the disease ranged from three to five days. Death was preceded by marked cyanosis and clinical evidence of acute asphyxiative bronchiolitis.

At necropsy the pleural cavities contained blood-tinged fluids remarkably free from fibrin content and varying from 300 to 1,000 c.c. in amount. The pleura of the lungs was fibrin free and regularly the seat of petechial and confluent hemorrhages. On cutting transversely across the trachea to reflect the viscera from the thoracic cavity, large quantities of blood-



Age period of highest mortality in the first 500 deaths. The ordinates represent the ages in five year periods, the abscissas the total number of deaths per period. It will be noted that the period of highest mortality is between 25 and 30 years.

* From the Laboratory of Pathology of the Cook County Hospital.

tinged, frothy fluid exuded from the air passages. The lining of the trachea and main bronchi presented a deep purplish red, and this intense inflammatory condition extended downward into the finest bronchioles. The consolidation was always lobular in type and involved most frequently the lower lobes, less often the entire middle and lower half of the right upper lobes. Marginal compensatory emphysema presented itself with striking regularity. The peribronchial lymph glands were acutely swollen and edematous. Cut surfaces of the lung presented a mottled, firm, granular appearance with intervening areas of dark red aerated lung tissue. Large quantities of bloody serum bathed the smooth, fibrin-free cut surfaces of the lung. The right heart was acutely dilated, in two instances the tricuspid valve ring measuring 13 and 14 cm., respectively, from cut edge to cut edge. In another body, bilateral symmetrical hemorrhage of rather huge dimensions was present in the tissues of the fatty capsules of both kidneys. The liver and kidneys were heavier than normal and the seat of fatty changes and parenchymatous degeneration. Passive hyperemia of the pia-arachnoidal vessels over the cerebral cortex, and edema of the leptomeninges were not uncommon. We desire to emphasize the fact that the amount of consolidated lung parenchyma was small as compared to the pneumonic consolidation quite regularly present in the more protracted cases among civilians. It will be noted that *B. influenzae* was isolated from only three of the lungs at necropsy in these eight early cases, in one instance in practically pure culture.

In the more protracted cases among civilians the bronchopneumonic process presents a rather uniform bluish gray hue with the cut surface bathed in grayish yellow pus—a massive, confluent, pseudolobar pneumonia. Fibrin is frequently present over the pleura of the lower lobes of the lungs. In only one case was an empyema present. The hemolytic streptococcus was isolated in pure culture and identified in direct smears from the pus.

BACTERIOLOGIC FINDINGS

A careful detailed bacteriologic study of the prevailing epidemic, especially among the civilian population, forms the basis of this paper. Bacteriologic reports of the pandemic in Europe show that the influenza bacillus was found only exceptionally while pneumococci, streptococci and *Micrococcus catarrhalis* were recovered with considerable regularity from the sputum, nose and throat cultures. In Germany a circular letter addressed to the leading bacteriologists requesting the results of their laboratory investigations brought forth the following replies¹: "Pfeiffer had not examined a sufficient number of cases at Breslau, but found his bacillus in some while failing to recover it from others, and was still investigating the causes of this discrepancy." Gruber in Munich and Friedmann in Berlin failed to find the influenza bacillus, and report streptococci and pneumococci as the common agents of the complicating pneumonias. Kolle in Frankfort failed to find *B. influenzae* in any of the cases which he had thoroughly examined.

Among the English observers, Gotch and Wittingham² isolated *Micrococcus catarrhalis*, with which they claim to have produced the disease in man. Little,

Garofalo and Williams³ found a gram-positive coccus which they believe to be the etiologic agent of the disease. From the Eastern States Keegan⁴ in Massachusetts and Park⁵ in New York have isolated the influenza bacillus in a high percentage of cases. These reports concern soldiers and sailors chiefly. Our study was made principally of the civilian population.

During the present epidemic in Chicago, more than 3,000 blood agar plate cultures have been made from swabs of the nasopharynx, tonsils and washed selected bronchial sputum and from the viscera and body fluids at necropsy in search for the influenza bacillus or other micro-organisms of possible etiologic significance. Blood agar plate cultures were made from the swabs of the nasopharynx and tonsils in more than 100 patients approximately equally divided into early and late cases. The washed bronchial secretions from the same patients were both plated and streaked on the surface of blood agar plates. Control cultures from the nose and throats of normal individuals were also made. In both groups a peculiar gram-positive coccus growing in grayish white colonies and exhibiting marked pleomorphism in stained smears was present with considerable frequency. The smaller coccal bodies passed Mandler filters in two instances. This coccus was non-pathogenic both for man and the ordinary laboratory animals.

TABLE 1.—PERCENTAGE INCIDENCE OF VARIOUS BACTERIA ISOLATED FROM THE SPUTUM, NASOPHARYNX AND TONSILS IN 100 CASES OF INFLUENZA

	Pneu- mo- coccus %	B. In- fluenzae %	Strepto- coccus Hemo- lyticus %	Staph- ylo- coccus %	Micro- coccus Catarrhalis %	B. Mu- cosus- latus %	Miscellaneous
Washed bronchial sputum..	70	4	20	40	5	1	Diphtheroids 1%
Naso- pharynx	38	0	4	65	5	1	Leptothrix 2% Meningococcus 2% Diphtheroids 1% Diphtheroids 1%
Tonsil.....	74	0	37	37	7	1	

In Table 1 is shown the percentage incidence of the various organisms isolated from the nose, throat and sputum of 100 patients. The influenza bacillus was recovered in four cases from the washed sputum—in three instances in predominating cultures, but always in symbiosis with staphylococci. It was not present in the nose or throat swabs. The predominating organism was the pneumococcus isolated from the washed sputum in 70 per cent. and from the throat in 74 per cent. of the cases. *Streptococcus hemolyticus* occurred in the washed sputum in 20 per cent., or twenty patients.

To determine how early and with what frequency the various bacteria invade the lungs, a series of lung punctures was made both before and after clinical evidence of pneumonia presented itself. A sterile needle attached to a glass syringe was passed through the intercostal spaces into the lung parenchyma, and lung tissue plus serum was aspirated sufficient to streak the surfaces of blood agar plates at the bedside. In addition, some of the aspirated material was inoculated into poured blood agar plates in each instance. Of thirty-six consecutive lung punctures taken during life, twenty-one were sterile. Eleven yielded the results given in Table 2. Thus the pneumococcus was present

1. Quoted from Bacteriology of the "Spanish Influenza," Lancet, London, 1918, 2, 177.

2. Gotch, O. H., and Wittingham, H. E.: Brit. Med. Jour., 1918, 2, 82.

3. Little, T. H.; Garofalo, C. J., and Williams, P. A.: Lancet, London, 1918, 2, 34.

4. Keegan, J. J.: The Prevailing Pandemic of Influenza, The Journal A. M. A., Sept. 28, 1918, p. 1051.

5. Park, W. H.: New York Med. Jour., 1918, 108, 621.

in pure culture in 72.6 per cent.; hemolytic streptococcus in 19.8 per cent., and *Micrococcus catarrhalis* in 6.6 per cent.

Table 3 gives the findings in cultures of the lung tissue streaked and plated on blood agar at necropsy. *B. influenzae* was isolated in three cases, or 8.7 per cent., in one instance in practically pure culture from both lungs. Again the predominating organism was the pneumococcus, occurring in 75 per cent. of the lungs at necropsy, from ten cases in pure culture, eleven times in predominating culture and in five instances in mixed culture. Of the various types of pneumococci recovered, Type II was present in 30.5 per cent. of the lungs, and Type IV in 50 per cent.

TABLE 2.—LUNG PUNCTURES DURING LIFE *

	No. of Cases	Per Cent.
Pneumococcus, Type I.....	1	6.6
Pneumococcus, Type II.....	2	13.2
Pneumococcus, Type III.....	3	19.8
Pneumococcus, Type IV.....	5	33.0
Hemolytic streptococcus.....	3	19.8
Micrococcus catarrhalis.....	1	6.6

* Incidence of the various bacteria isolated from fifteen lung punctures during life. Pneumococci predominated in pure culture in eleven cases, a total of 72.6 per cent.

TABLE 3.—LUNG CULTURES AT NECROPSY *

	No. of Cases	Per Cent.
Pneumococcus, Type I.....	2	7.6
Pneumococcus, Type II.....	8	30.5
Pneumococcus, Type III.....	3	11.5
Pneumococcus, Type IV.....	13	50.0
Influenza bacillus.....	3	8.7
Hemolytic streptococcus.....	15	43.0
Staphylococcus.....	18	40.0
Micrococcus catarrhalis.....	0	0.0

* Incidence of the various bacteria isolated from thirty-four lung cultures at necropsy. Pneumococci were recovered in pure culture in twenty-six patients, a total of 75 per cent.

TABLE 4.—NUMBER OF INSTANCES THE VARIOUS BACTERIA WERE ISOLATED FROM THE TISSUES AND BODY FLUIDS IN THE FIRST THIRTY-SIX NECROPSIES

	Pneu- mo- coccus	B. In- flu- enzac	Strepto- coccus Hemo- lyticus	Micro- coccus Catar- rhalis	Staph- ylo- coccus
Heart's blood.....	7	0	8	0	0
Pleural fluid.....	15	0	8	0	2
Pericardial fluid.....	8	0	8	0	0
Tracheal mucosa.....	19	1	14	1	15
Lung.....	26	3	15	1	18
Spinal fluid.....	2	0	1	0	3
Peritoneal fluid.....	0	0	1	0	0
Middle ear.....	2	0	1	0	0
Frontal sinus.....	1	0	1	0	0
Spleen.....	0	0	3	0	4

The various strains of pneumococci were identified by morphology, cultural reactions, inulin fermenting properties, bile solubility and, finally, biologically with immune serums. Pneumococcus, Type IV, and allied green producing organisms were found to vary greatly both as regards bile solubility and inulin fermentation. Subsequent study of this heterogeneous group may extend it to include numerous strains of *Streptococcus viridans*. Hemolytic streptococci appear as late secondary invaders and were isolated from 43 per cent. of the lungs at necropsy. Staphylococci were frequently present.

THE INFLUENZA BACILLUS

It is evident from the tables that the influenza bacillus was isolated in only a relatively small percentage of the cases. Thus *B. influenzae* was present in four washed sputums—three times in predominating cultures growing typically as transparent minute colonies in symbiosis with staphylococci. It was recovered in one instance from the tracheal mucosa and three times from the lung cultures at necropsy. Influenza bacilli were never isolated from the lung punctures during life taken by preference from the early cases. On the

other hand, the bacilli were recovered both in smears and in practically pure cultures from each lung in the case of a young soldier dying the fifth day of the disease. It appears that the Pfeiffer bacilli may have been the cause of the pneumonia in this case. In contrast to this single case we have not been able to isolate the bacillus in any considerable percentage of the civilian patients either during life or from acute fulminating cases at necropsy. The early results indicate that the technic employed should have sufficed to recover the organism if it were present in any considerable number of patients.

Furthermore, the high percentage of pneumococci obtained during life and at necropsy and predominating in the sputum, tracheal mucosa and lung tissue both early and late in the course of the disease suggest that this organism is at least the most important secondary invader and is responsible for many of the rapidly fatal pneumonias. It may be that we are dealing with a highly virulent strain of pneumococci sufficient in themselves to produce a rapidly fatal lobular pneumonia.

EXPERIMENTAL

Early in the course of our investigations we were impressed with the paucity of the bacteria in the nasopharynx at the onset of the disease and the marked degree of prostration exhibited in many of the patients. The possibility of a filtrable virus as the cause of the disease suggested the following experiments:

EXPERIMENT 1.—Oct. 2, 1918, the nose and throat of a patient having a typical case of influenza of forty-eight hours' duration was washed with 40 c.c. of sterile physiologic sodium chlorid solution, and the collected washings were diluted to a total bulk of 60 c.c. and shaken for twenty minutes in a sterile bottle containing glass beads. The fluid was immediately filtered through two small tested Mandler filters of medium porosity. The clear Filtrate A was inoculated into the anterior nares of three volunteers in amounts varying from 0.5 to 1 c.c. in each nostril. One of the men thus inoculated complained of slight headache, and presented a moderate conjunctivitis and a temperature of 99 F. twenty-four hours after the inoculation. These symptoms rapidly disappeared, and no further symptoms developed in any of the three subjects.

EXPERIMENT 2.—Oct. 4, 1918, the nasopharyngeal washings in two typical cases of influenza were mixed together and agitated in a sterile bottle containing glass beads for a period of fifteen minutes. The first patient had been ill only ten hours while the second patient was in the fifth day of the disease. The mixture of washings was immediately passed through a Mandler filter as Filtrate A and a second smaller portion filtered through a small Berkefeld candle N as Filtrate B. Filtrate A was inoculated into the anterior nares of two volunteers, and Filtrate B was similarly inoculated into the noses of two additional volunteers. One of the four subjects complained of a slight headache and presented himself twenty-four hours after the experiment with a definite coryza, conjunctivitis and lacrimation. These symptoms had completely disappeared by the following morning, and the men had all remained well when seen two weeks later. Cultures of the clear filtrates were inoculated into glucose broth and in the anaerobic tissue ascitic fluid culture medium of Noguchi. All tubes remained sterile after the expiration of two weeks. From these observations, which confirm those recently reported by Keegan, it may be assumed that the etiologic agent is not filtrable.

EXPERIMENT 3.—Oct. 4, 1918, at 4 p. m., the trachea and main bronchi secured at necropsy from a patient dying on the fifth day of the disease was split parallel to its lumen and the swollen dark red mucosa curetted off and thoroughly ground up with sterile sand in a mortar to make a turbid

suspension in 50 c.c. of sterile saline solution. The suspension was centrifuged at slow speed to throw down the gross particles, and half of the resulting red emulsion was passed through a Mandler diatomaceous earth candle of 12 pounds positive pressure. A *Macacus rhesus* monkey received 5 c.c. of the unfiltered suspension in each nostril, and 20 c.c. of the clear filtrate were injected at the same time very slowly intravenously. No symptoms developed.

EXPERIMENT 4.—Oct. 8, 1918, the monkey received 2 c.c. of the mixture of the nasopharyngeal washings in four early cases of influenza in each nostril after previous swabbing and washing out the protective mucus in the nares. No symptoms developed after seven days' observation.

COMPLICATIONS AND SEQUELAE

During the past five weeks of the present epidemic there were eighty-six pregnant women admitted to the obstetric wards of the hospital affected with influenza or pneumonia. Of this number twenty-one died shortly after miscarriage. Twenty additional deaths occurred before miscarriage could result, and forty-five patients recovered with or without miscarriage. The total maternal mortality has been 45.5 per cent.

Among other complications of the disease, eleven patients have developed a unilateral or bilateral purulent otitis media. Pure cultures of pneumococci were isolated from eight discharging ears, the hemolytic streptococcus in two patients and the *Streptococcus viridans* in the remaining case. One child developed an acute and fatal mastoiditis. Purulent frontal sinusitis was encountered in one instance at necropsy, and cultures yielded pure hemolytic streptococci. It is to be expected that sequelae of still more diverse nature may subsequently develop.

SUMMARY

A severe and rapidly spreading epidemic of influenza and bronchopneumonia first appeared at the Cook County Hospital, September 23. During the past five weeks more than 2,000 patients were admitted to the hospital. The disease is highly contagious, and the mortality among our patients has totaled 31 per cent. The epidemic has seriously crippled the medical and more especially the nursing staff of the hospital. More than fifty of the nurses and twelve of the physicians have contracted the disease, three deaths occurring among the total number.

The influenza bacillus was isolated in only 8.7 per cent. of the total cases and chiefly from a small number of soldiers. In one instance it appears that the influenza bacillus may have caused the fatal bronchopneumonia. Influenza bacilli were isolated only exceptionally from the civilian patients. Pneumococci were the predominating organisms in the sputum, throat cultures and in the lung cultures both during life and at necropsy. Pneumococci of unusual virulence were the most important early secondary invaders, and have sufficed to cause many of the fatal pneumonias.

Experiments indicate that the disease is apparently not due to a filtrable virus.

Liability for Performing Unauthorized Postmortem Examination.—It is held in the Minnesota case of *Woods v. Graham*, 167 N. W. 113, annotated in L. R. A. 1918 D, 403, to be no defense to an action to recover damages caused by a necropsy performed on the body of the daughter of plaintiff, without the consent of the next of kin, that defendant, as the attending physician, was unable to ascertain the cause of death and performed the necropsy for that purpose, so as to be able to give a certificate, as required by law, stating the cause of death.—*Legal Notes*.

INCORRECTNESS OF THE DIAGNOSIS OF DEATH FROM INFLUENZA

PRESENCE OF BRONCHOPNEUMONIA IN PRACTICALLY ALL PERSONS SEVERELY ILL WITH INFLUENZA *

HENRY A. CHRISTIAN, M.D.

Hersey Professor of the Theory and Practice of Physic, Medical School of Harvard University; Physician-in-Chief, the Peter Bent Brigham Hospital

BOSTON

Boards of health, as indicated by newspaper reports, very generally are subdividing their mortality reports from epidemic influenza into deaths from influenza and deaths from pneumonia or bronchopneumonia. This is no doubt based on the death certificate return handed in by the physician in charge of the patient. Is it a correct return? In my opinion it is not. The correct return should be bronchopneumonia and (epidemic) influenza. Whether the bronchopneumonia is part of the influenza or is a complication of that disease; whether the disease is due primarily to the influenza bacillus; whether the pulmonary consolidation is caused primarily by the *Bacillus influenzae* or is the result of concomitant bacteria are questions that cannot be answered on the basis of our present information. However, my own observations on patients suffering from epidemic influenza do justify a vigorous protest against a statistical subdivision of death reports into those dying from influenza without pneumonia and those dying from bronchopneumonia or pneumonia and influenza.

My reasons for believing that in practically all fatal cases of epidemic influenza there is a pneumonic process in the lungs before death are as follows:

1. In 126 consecutive fatal cases of epidemic influenza observed by me and my assistants at the Peter Bent Brigham Hospital, not a single patient failed to show physical signs justifying a clinical antemortem diagnosis of bronchopneumonia.

2. In twenty-two consecutive necropsies at the Peter Bent Brigham Hospital in fatal cases of this group, no single case failed to show pathologic changes in the lung justifying the diagnosis on the part of the pathologist of bronchopneumonia.

3. In patients submitted to necropsy, pulmonary changes are as a rule more extensive than physical signs during life had indicated.

4. Clinical study of nonfatal cases of epidemic influenza justify the belief that with very few exceptions, patients with fairly severe to severe cases have bronchopneumonia.

In making the foregoing statements I do not deny that influenza patients may die from an overwhelming toxemia without pulmonary involvement or from influenzal meningitis or encephalitis or from some other manifestations of the disease. Such fatal cases did not occur at the Peter Bent Brigham Hospital, and in conversation with my colleagues who have had postmortem experience in this disease I have found that their views have seemed to coincide with those expressed here by me. In our admissions to the hospital of patients sent in with the diagnosis of influenza, I have seen cases of meningitis; one case was due to the meningococcus and apparently did not have any com-

* From the Medical Clinic of the Peter Bent Brigham Hospital.

plicating influenza; two patients were tuberculous and may have had influenza, and two cases were due to the pneumococcus in influenza patients with pneumonia. Several patients with influenza and having signs and symptoms suggestive of meningitis showed spinal fluids with normal cell counts and negative cultures. No spinal fluids in our cases showed *B. influenzae*.

The statement made under No. 4 is based on these facts. In 195 unselected cases¹ of epidemic influenza studied in the wards of the Peter Bent Brigham Hospital, 132 showed during their period of observation in the hospital sufficient physical signs to justify the clinical diagnosis of bronchopneumonia. The 132 include practically all severely ill patients and many who were only mildly ill. The only patients in whom the temperature was as high as 101 for more than three days in this series in which no diagnosis of bronchopneumonia was made were fourteen in number. Two of these had complicating otitis media, and one was an asthmatic with chronic bronchitis antedating influenza; eight were patients admitted on the day of their first symptoms, two on the third day of their disease, and one on the fourth day. Of these last eleven patients, none were more than mildly ill, and they appeared to be free of any complications.

The physical signs on which was based the diagnosis of bronchopneumonia were areas of bronchial breathing or consonating râles, usually both, frequently bronchophony and often dulness on percussion. The occurrence of any one of these signs in a localized area appears to justify the diagnosis of bronchopneumonia. In a number of our patients, roentgen-ray examinations were made and invariably showed evidence of consolidation where these physical signs had been observed. Moreover, the roentgen plate as a rule showed more extensive areas of consolidation than clinical signs indicated; and not infrequently it showed consolidation before we had felt justified in diagnosing it on the basis of physical signs. The peculiar snapping consonating quality of the râle in epidemic influenza seems of great significance as indicating consolidation. All who have been listening to the chest in influenza patients will, I am sure, recognize what I mean, though my word picture of the quality of the sound is very inadequate.

The early foci of consolidation in influenza are found almost invariably in the region of the angle of the scapula and the interscapular regions. Here the roentgen ray shows that consolidation begins, i. e., toward the inner lower border of the lung posteriorly rather than anteriorly. From such an early beginning, rapid spread often takes place, leading to very extensive diffuse consolidation and not infrequently giving the clinical picture of a lobar pneumonia, though I believe true lobar pneumonia is really rare in association with influenza.

If the busy clinician—and never were our medical men so overwhelmed with work as in this epidemic—will percuss rapidly the lower lobes in the back and listen in the region of the angle of the scapulae and next in the interscapular regions he will find quickly in most severe cases evidence justifying him in diagnosing bronchopneumonia. Of course, in many cases further examination will yield evidence of much more extensive pneumonic involvement.

I should not be justified in making the extreme statement that all patients with epidemic influenza have bronchopneumonia. Many milder cases certainly give no physical signs of consolidation, and the roentgen ray shows no shadow sufficient to justify the diagnosis of a focus of consolidation. I believe, however, that we are justified in regarding epidemic influenza as a disease involving the respiratory tract and except in the milder cases causing a clinically demonstrable bronchitis and bronchopneumonia in the larger proportion of cases. That as the severity and duration of the disease increases the percentage of patients with bronchopneumonia increases, and that in fatal cases almost without exception bronchopneumonia is present, are conclusions which seem fully justified by the data here presented. A corollary to this is that, in my opinion, it is quite incorrect to consider fatalities in this epidemic as due to influenza uncomplicated by bronchopneumonia except in such exceptional cases as to form a negligible factor in statistical reports of death returns.

AN EPIDEMIC OF INFLUENZA AT MANILA, P. I.*

A. FRANCIS COUTANT, M.A., M.D.

Chief Surgeon, Hospital Ship

ZAMBOANGA, P. I.

During the month of June, 1918, an epidemic of influenza appeared in the Philippine Islands which presented a number of interesting manifestations. At the time I was in charge of St. Luke's, one of the most popular hospitals in Manila, and will attempt to summarize my notes and records during that period. About 300 cases, the majority of which were hospital patients, came under direct observation.

The epidemic, so far as can be determined, began in Manila, although the fact that cases were first noted among longshoremen and other laborers along the waterfront might indicate that it had been brought in from some other part of the world. On the other hand, the statements of Castellani and Chalmers and others that pandemics of influenza have usually started in the Far East further the belief that this epidemic originated here. All of the reports and rumors of influenza occurring elsewhere—in other parts of the Philippine Archipelago, in Japan, Vladivostok, Spain, etc.—that have come to my attention have placed their outbreaks at later dates than the one at Manila, with one exception: Between thirty and forty cases of influenza, with at least one death, occurred on a United States Army transport which left San Francisco shortly before the epidemic appeared in Manila, and arrived here after it was practically over. The Filipino cabin-boys and mess attendants were the most seriously affected on board the transport, although several first-class passengers were also ill.

While the disease in the Manila epidemic affected all classes and races, it was most severe among the Filipinos, less so among the Chinese and Japanese, and still less among the Europeans and Americans. As there was no attempt at isolation, the infection spread rapidly. Within three days after the first cases were noticed, between 70 and 80 per cent. of the longshore-

1. This represents only those patients discharged and having their histories completed and filed in the record room to date. The total of our cases, about 500 in number, will show somewhat the same rates.

* The observations on which this note is based were made under the auspices of the International Health Board of the Rockefeller Foundation.

men, clerks and other workers at the docks were unable to work, with the result that several of the transpacific vessels were delayed in sailing. In two days more, the epidemic had reached the business and residence sections of the city. In one large business firm, 80 per cent. of the native employees were away from work for at least two days, while 50 per cent. of the Europeans were absent for one day. The majority of the business concerns were similarly incapacitated. Two of the newspapers were so crippled that publication was suspended for a day, and the telephone company asked the indulgence of the public for its poor service, explaining that 90 per cent. of its force was suffering from the epidemic.

St. Luke's Hospital, with a normal capacity of seventy patients, accommodated between ninety and ninety-six for several days, the largest number admitted in its history. The work necessitated by this increase was accomplished with great difficulty, as one third of the nursing staff and one half of the orderlies and attendants were ill.

Within ten days after the initial outbreak the great majority of those who had been ill were well enough to be back at work, and business and industrial activities resumed their normal course. However, the hospital continued to be overcrowded with cases diagnosed as influenza for two or three weeks more, and it was not until the advent of a typhoon, which brought with it a great deal of wind and rain, that the last vestiges of the disease were swept away. During the epidemic there was no apparent decrease in the number of admissions to the hospital for other diseases.

Clinically, most of the cases ran the typical course of influenza as described in textbooks, namely, sharp onset, usually with sore throat or upper respiratory tract symptoms, sudden high fever, and headache, with aching and stiffness all over the body. A pronouncedly slow pulse rate, in proportion to the temperature, was remarked to be the rule. This slow pulse, and the absence of a skin rash, together with the lightning-like spread of the epidemic, served to differentiate the disease from dengue fever, the only closely similar condition. The highest temperature recorded was 106.2 F. The patient with this high fever did not suffer, however, nearly as much as many others, and it appeared that the severity of the attack did not depend on the temperature. The majority of the patients also withstood the pain very well, as is the usual thing among these peoples, but the toxemia developed was so great that it made those who were most severely stricken practically collapse. The faces of the patients as a whole, as one looked down the wards, were more miserable-looking during the days of the epidemic than at any other time in my experience.

Of the more unusual features of the disease, it may be mentioned that anorexia, nausea and vomiting were much more common than usual. In 8 per cent. of the hospital cases, repeated emesis was noted. One patient came to the hospital for hiccups which had commenced on the second day of the disease, and had persisted continuously for forty hours before admission. Hemorrhage from the mucous membranes was a fairly prominent feature. Epistaxis occurred in 1 per cent. of the cases, and coughing up of blood from the lower respiratory passages in 1.5 per cent. Two patients vomited fresh blood in small amounts, and four passed noticeable amounts of fairly fresh blood

by rectum. There were neither hemorrhoids nor symptoms of dysentery in the latter cases, and there was no evidence of tuberculosis in the cases in which the hemoptysis occurred.

The patients were all given a routine course of treatment, consisting of calomel and santalin followed by Epsom salt or castor oil, quinin, and occasionally acetylsalicylic acid for headache.

The death rate for the patients admitted to the hospital was very high for this disease, 2 per cent. instead of the usual 0.4 to 0.6 per cent. As one would expect, the mortality rate in the hospital was higher than in the city at large, although thirty-one deaths were reported to the bureau of health during the short period of the epidemic.

All of the patients dying in the hospital developed symptoms of pneumonia, and in one case in which a necropsy was performed, a large very foul-smelling abscess was found in the upper left lobe, while the lower left lobe was in the stage of red hepatization.

There is no question in the minds of the clinicians of Manila that this epidemic was influenza or the grip, but the following personal communication from Dr. J. W. Johnson, M. R. C., U. S. Army, shows that the causative agent was undoubtedly *Bacillus influenzae* of Pfeiffer:

The organism found was small, about 0.5 micron in length by 0.3 micron in width, and had rounded ends. Staining with Loeffler's methylene blue gave best results, allowing the stain to act for not less than five minutes. The organism was gram-negative, and staining by this method had a tendency to be irregular. Blood agar (human blood) or agar streaked with fresh human blood gave best results as a culture medium. Small portions of sputum were picked up with sterile forceps, washed in sterile distilled water, and rubbed over blood agar plates or slants, and these were incubated at 37.5 C. Colonies appeared in about twenty-four hours as very minute transparent droplets, like dew drops, and gave the appearance of frosted glass. Cultures soon died out, and it was found that transplanting every two or three days was necessary. Even then, after three or four subcultures, growth ceased. The organism was recovered from the very first patients who clinically developed the disease. Cultures from the blood remained sterile.

CONCLUSION

An epidemic of the severe or epidemic type of influenza occurred in the Philippines in June, 1918, apparently spontaneous in origin. It was of more than usual severity, especially among the native peoples, and affected a larger proportion of the whole population than is the rule. Although at present we have no definite information that the epidemic has spread farther than to southern Japan, it is easy to imagine that this may be the beginning of another pandemic of the disease. It is highly desirable, therefore, that epidemics in other localities in the near future be promptly recognized and reported, so that the direction of travel and rapidity of dissemination of the disease may be learned. Should a pandemic be approaching the battle fronts, every effort will be necessary to prevent it from actually reaching and playing havoc in the Allied armies.

Complement Fixation Test for Syphilis.—In *Public Health Reports*, Aug. 23, 1918, M. H. Neill of the Public Health Service describes the method of performing the complement fixation test for syphilis as now used in the Hygienic Laboratory of the United States Public Health Service. It is a modification of the Wassermann test and the description is full and complete, with a list of the apparatus and reagents required.

THE MORPHOLOGY OF THE INFLUENZA BACILLUS *

GLADYS HENRY DICK, M.D.

AND

ELEANOR MURRAY

CHICAGO

Pfeiffer¹ described a "true influenza" bacillus and a "pseudo-influenza bacillus." He was unable to distinguish these organisms in direct smears of exudates, where they both appeared as small bacilli with rounded ends. Culturally they were identical. He based his distinction on the fact that smears from cultures of the true influenza bacillus showed small bacilli with few longer forms, while smears made from cultures of the pseudo-influenza bacillus showed long, threadlike organisms. The pseudo-influenza bacillus was isolated by Pfeiffer from three cases of bronchopneumonia.

In bacteriologic examinations of the sputum, blood and lungs during the present epidemic of influenza, both forms of the influenza bacillus have been encountered. In some cases aerobic plates of the sputum have yielded practically pure cultures of the small gram-negative bacillus contaminated only by rare colonies of staphylococcus. Sputum from other cases has yielded equally pure cultures of the long, threadlike organism designated by Pfeiffer as pseudo-influenza bacillus.

This long, threadlike form appeared in the blood culture of a patient whose sputum contained the same type of organism. Aerobic plate cultures of the pneumonic area in a lung showed a pure culture of an organism which at the end of twenty-four hours' growth appeared in smears as a very small, gram-negative bacillus, and at the end of forty-eight hours, as long, wavy or curled, gram-negative threads which would ordinarily be classed as a leptothrix. In every case direct smears of the sputum showed only the small, bacillary form.

These findings suggested that however unlike the two forms appeared in smears made from cultures, there was a possibility that they were the same organism.

In order to determine if the reaction of the medium influenced the morphology of the organism, medium was prepared by adding human blood to a series of tubes containing agar which, after sterilization, titrated 1.5, 1.0, 0.4, 0.2 acid, neutral, 0.2, and 0.7 alkaline expressed in percentages of normal sodium hydroxid with phenolphthalein as an indicator. Seven sets of these tubes were inoculated with different strains of organisms. Four of the strains used were small bacilli, such as Pfeiffer termed true influenza. Three were the threadlike forms which he considered pseudo-influenza bacilli. Smears were made from the tubes at the end of twenty-four and forty-eight hours.

The three strains that resembled leptothrix in the original cultures still showed the long threads in the more acid medium, but on the 0.2 acid and neutral tubes they grew as small bacilli which could not be distinguished from true influenza bacilli. The four strains that grew in the original cultures as small bacilli showed transitions from the longer, sometimes threadlike forms on the more acid medium to the small bacillary forms on the slightly acid and neutral tubes.

Kato² reported a gram-negative leptothrix which he believed to be the cause of pleuropneumonia. In a bacteriologic study of the pneumonia occurring at Camp Pike last winter, Dick³ found leptothrix organisms predominating on plates of the sputum in 6 per cent. of the cases. He described them as "very minute colonies, barely visible to the naked eye, but extremely numerous. There was no effect on blood. The organisms were gram-negative and varied in length from organisms resembling influenza bacilli, to long, slightly wavy organisms extending half way across the field. It was not possible to cultivate these organisms beyond one or two subcultures, and their importance is undetermined."

Where there is such variation in morphology in different cultures of the same strain, it does not seem justifiable to classify influenza bacilli as true and pseudo on the basis of morphology alone. In attempting to isolate influenza bacilli, it is important to recognize the leptothrix-like form as well as the small bacillary form.

NOTES ON THE PRESENT EPIDEMIC OF RESPIRATORY DISEASE *

SOLOMON STROUSE, M.D., AND LEON BLOCH, M.D.

Attending Physician and Associate Attending Physician, Respectively,
Michael Reese Hospital

CHICAGO

From September 20 to October 31, we saw both in our services at the Michael Reese Hospital and in private practice approximately 500 cases of epidemic respiratory disease. The various forms of onset will easily fall into three groups: the first characterized by symptoms of a more or less severe coryza, the second by varying degrees of prostration, backache, headache, chilly sensations and elevated temperature, and the third by a feeling of indefinite discomfort, with no fever, but in a few hours a definite rise of temperature. Careful examination at the beginning of the disease, in all cases, usually revealed few signs, except for a slight reddening of the anterior pillars of the pharynx, and in many instances an intense congestion of the conjunctivae. Many patients who were coughing violently showed no signs of bronchial involvement, the cough probably being due to an intense congestion of the trachea. However, in a large percentage of our cases, careful examination at the onset showed a more or less circumscribed area, sometimes no larger than the bell of a stethoscope, which would manifest râles or dulness or changes in the breath sounds. It is our opinion that all these cases should be considered pneumonia, as a large percentage of this type does not show the drop to normal in three or four days.

DANGER OF PULMONARY SIGNS

One of the most important lessons learned from the epidemic is the potential danger residing in these small pulmonary signs, even when the temperature is normal. In several of our cases, a very slight pulmonary condition, after careless exposure to cold, developed into severe pneumonia. The development of pneumonic symptoms in these patients occurred either (1) after a complete defervescence, following on the footsteps

* From the laboratory of St. Luke's Hospital.
1. Pfeiffer: Ztschr. f. Hyg., 1893, 13, 356.

* From the Medical Service of the Michael Reese Hospital.
2. Kato: Mitt. a. d. Med. Fakt. d. k. Univ. zu Tokyo, 1915, 13, 441.
3. Dick, G. F.: A Bacteriologic Study of the Pneumonia Occurring at Camp Pike, Ark., THE JOURNAL A. M. A., May 23, 1918, p. 1529.

of a more or less severe febrile period, lasting from one to two days; (2) after a drop in temperature, but not to normal, or (3) without a reduction, but instead with an elevation of the temperature on the third or fourth day. In any one of these three forms, the physical signs of bronchopneumonia would be present at the beginning of this phase of the disease, or would appear within a day or two. It is our opinion that the persistence or appearance of a rise in temperature on the third day indicates bronchopneumonia.

The appearance of the patient early in the disease does not betray his condition. Aside from the conjunctivitis and mild pharyngitis, already mentioned, the patient does not appear ill. Later, however, with the advance in the pneumonic process and an increase in the toxemia, cyanosis, sometimes with more or less edema of the face, becomes prominent. Stupor, restlessness and delirium may appear. At times, the uncanny combination of absence of the radial pulse, profuse perspiration and cyanosis, with the patient in full possession of his mental faculties, indicates only too clearly the fatal termination. The low pulse rate, which has been so characteristic of the disease, is a definite sign. Patients seen early with a pulse rate above 100 always evoke a suspicion of some other disease, although occasionally an increased pulse rate may have been caused by too large doses of acetylsalicylic acid. Late in the disease, with an increase in the severity of the condition, a rapid pulse rate is present. One rather striking feature was the inverted type of temperature. Many of our patients would be normal except at 4 or 8 a. m. The combination of the slow pulse, with this inverted type of temperature, sometimes made the diagnosis of influenza, when otherwise the diagnosis would have been difficult to establish.

Perhaps the most common site of the pneumonic disturbance was in the left lower lung, posteriorly, although no portion of the lung was particularly exempt, and no particular site had any special prognostic value. The type of pulmonary pathologic condition varied clinically from the small patch, which ordinarily would be considered merely a bronchitis, to a large massive pneumonia, with general edema of both lungs, and expectoration of bright red blood.

RESPIRATORY RATE

The respiratory rate early was as a rule slow, even though the temperature and pulse rate were increased. The appearance of an increased respiratory rate, from 40 to 50, indicated not only an increase in pulmonary involvement, but what seemed of more significance, an increase in toxemia. At times a definite air hunger, suggestive of a severe acidosis, made its appearance. From our experience, we have come to look on an increased respiratory rate, even though the temperature and pulse did not become elevated, as of more unfavorable significance than almost any other sign. On the contrary, when the temperature was high and the respiratory rate low, the condition was not considered unfavorable.

COUGH AND EXPECTORATION

Cough was a prominent and troublesome symptom in the majority of cases. Generally unproductive at the onset, later it became painful and accompanied by nummular expectoration and abdominal pain, probably muscular, from the strain of coughing. Where bloody expectoration occurred, the cough was not so frequently accompanied by pain.

PLEURITIC PAIN

Actual pleuritic pain, either thoracic or referred abdominal, occurred in a small percentage of cases. In these cases a pleuritic friction rub could be heard. Fluid in the chest, either serofibrinous, bloody or purulent, occurred, more frequently later in the epidemic than at the beginning. The removal of the fluid except in cases of empyema even in small amounts, by exploratory thoracentesis, seems to be followed by definitely favorable changes in the course. Involvement of the accessory sinuses of the nose is probably very common, and a routine examination ought to be established to rule this out. Ear infections, which were so common in the epidemic of 1891, were comparatively rare at the beginning of the epidemic, but apparently are becoming more prominent as late sequelae.

BLOOD PRESSURE

There was a normal or slightly diminished systolic blood pressure in those patients in whom the disease ran a moderate course. The diastolic pressure, however, was considerably lower than was to be expected. A systolic pressure of 100, with a diastolic pressure of 40, was a not uncommon occurrence. When the diastolic pressure was high or comparatively high, some cause was to be found, as a nephritis. One patient whose systolic pressure was 120, diastolic 85, with Cheyne-Stokes breathing during her pneumonic phase, had a systolic pressure of 180, and diastolic of 115 on recovery from the pneumonia. In no case, except when an organic heart lesion had previously existed, was there found a dilated right heart indicative of cardiac failure.

MENSTRUATION

In the women practically all menstruated between the first and third day of the disease, and many of these patients had considerable menstrual difficulty in the period following the disease. It is too early yet to speak definitely on this subject. Many women had considerable difficulty in urination at the beginning of the disease. Anuria of from twelve to twenty hours was not uncommon, so that catheterization had to be resorted to on account of a large urinary bladder tumor. Albumin and casts were found frequently in the later stages of the disease. Intense headache, rigidity of the neck and back, with spinal fluid under high pressure, suggested meningitis. However, cytologic and chemical study of the spinal fluid yielded negative results. The patient made an uneventful recovery.

Although one hears considerable of gastro-intestinal influenza, the large majority of the patients do not have gastro-intestinal symptoms, except when they are severely ill, when nausea, vomiting, and complete anorexia may set in. Many patients, however, complained of intense abdominal pain, which was apparently due to a muscular disturbance from the violent coughing. In the later stages of the epidemic, and likewise perhaps two or three weeks before the epidemic reached Chicago, we saw a number of cases of acute gastro-enteritis which may or may not have been associated with the epidemic. In many instances, the clinical picture was similar except for the location of the disease.

BACTERIOLOGIC FINDINGS

The accompanying table (1) shows clearly the incidence of positive bacterial findings. Positive blood

cultures were without prognostic significance. A leukopenia was the rule, except when an empyema developed. In these cases, a leukocytosis from 10,000 to 18,000 obtained.

We had a number of cases complicating other diseases, and strangely enough these patients were apparently no worse off than others. We had three cases complicated by bronchial asthma, one with a massive pneumonia, and another in which the patient was not so severely ill; all made uneventful recoveries. At least one case, and perhaps more, occurred on top of an old pulmonary tuberculosis. Several patients had organic heart disease, and none of these died. Two cases complicated chronic nephritis; one patient made uneventful recovery and one died.

PERCENTAGE OF TIMES BACTERIA WERE PRESENT IN EXAMINATIONS *

	Number of Exam- inations	B. Influenzae	Streptococci		Streptococcus Hemolyticus	Pneumococcus	M. Catarrhalis	Friedlaender's Bacillus	Diphtheroids	Staphylococcus
			S. Viridans							
			Typical S. Viridans	Narrow Zone of Hemolysis after 24 Hrs.						
Sputum.....	13	8	46	80	8	23	0	8	0	100
Throat.....	125	12	20	70	10	64	17	13	12	80
Nose.....	22	0	10	5	0	18	0	0	0	91
Pleural exu- date.....	8	0	12	38	0	25	0	0	0	0
Blood cul- tures.....	105	...	17	18						
Total.....	273	5.5	20	41	4.4	32	8	7	4	46

* This table was kindly prepared by Dr. Katherine Howell, who will later make a detailed report of her studies.

PREGNANCY AS A COMPLICATION

Perhaps the saddest feature of the whole epidemic was the effect on pregnant women or women with very young children. These cases were unquestionably the most severe in our experience, and many of these patients died. At present it is impossible to collect our statistics. These patients very early became markedly cyanotic, dyspneic, had rapid pulse, and massive (often hemorrhagic) pneumonia, and many of them from the first day of the illness gave an absolutely unfavorable prognosis. One patient in particular, a healthy young woman with two children, seen early in the epidemic, was moribund in twenty-four hours from the onset.

CLINICAL COURSE

The clinical course ranged from a few days to two weeks of acute symptoms. The distressing feature in many cases was that when the patient seemed to be progressing favorably toward an uneventful recovery, suddenly like lightning from a clear sky he would develop an increasing cyanosis, high temperature, high pulse and respiratory rate, a severe toxemia and pass away in from twelve to thirty-six hours. Relapses did not occur, although in two instances that came to our notice, patients died one week later from what appeared to be pulmonary embolism.

Convalescence was often very greatly prolonged, so that at times two or three weeks were required before the patient felt well enough to be up and about.

PROGNOSIS

No disease has ever been encountered in which it was more difficult to outline a prognosis. Patients,

apparently mildly ill, suddenly on the third or fourth day would show a high temperature, cyanosis, rapid respiration and pneumonic consolidation, and would rapidly get worse. On the other hand, quite a number of our cases, especially those seen in the hospital, with cyanosis, lobar pneumonia and extremely toxic symptoms, pulled through to uneventful recoveries, without any special line of treatment. All the cases that were not complicated by pneumonia offer an absolutely good prognosis, but we had to be extremely cautious in all the pneumonic cases. Some factors which we considered of importance for prognosis are immediate taking to bed and keeping warm, with plenty of fresh air in the room and proper bedside care. By proper bedside care we mean absolute bed rest, the patient not being allowed to leave his bed for any purpose whatsoever. In several apparently mild cases pneumonia developed when the patient got up too soon, and it is our opinion that a certain percentage of the mortality from the epidemic might be prevented. Some patients die, no matter how excellent the care they obtain; but such a large proportion of the deaths occurred in patients apparently well who suddenly develop pneumonia, after exposure, that the impression of cause and effect is very definitely produced.

MORTALITY

The hospital statistics for the month of October show 269 admissions of all types, including moribund pneumonia patients. Of this number, forty-seven, or 17 per cent., died, but eleven of the forty-seven were in the hospital less than twenty-four hours, reducing the mortality to 13.4 per cent. From the hospital personnel of approximately 400 there were 107 admissions, of whom three, or 2.8 per cent., died.

TREATMENT

Prophylactic vaccination is as yet of unknown value. We know of at least three instances in which three doses of a vaccine had been given and influenza subsequently developed, and of over twenty instances in which one or two doses had been given, followed later by typical attacks of influenza and pneumonia.

We feel definitely that at present there is no special treatment. The two of us, working on independent services, gradually evolved an identical plan of practically leaving the patient alone and treating symptoms as they arose. We have used acetylsalicylic acid, 10 grains, or powder of ipecac and opium (Dover's powder) 10 grains, or both, with hot alkaline drinks and purgation for the first two days; then if there were any evidences of pneumonia, medication was removed and the patient treated purely for his symptoms. Heroin or morphin were found to be the best sedatives for the violent coughing and to keep the patient in comfort. We found that the administration of large quantities of fluids of all kinds by mouth, and when not retained, by rectum, either as plain tap water or with the addition of glucose, in 5 per cent. solution, and of urging the patient to take as much food as possible, with plenty of fresh air and warm coverings, were the most important factors in the treatment.

Early in the epidemic, we found that the administration of expectorants, salicylates, hexamethylenamin, quinin, etc., were of little value. Hexamethylenamin seems definitely contraindicated because of its tendency to produce hematuria. Cardiac stimulants, as digitalis, caffeine and sodium benzoate, by mouth or hypodermi-

cally, were used, but with questionable value. Camphor in oil, pituitary solution in 7 minim doses, epinephrin in physiologic sodium chlorid solution by hypodermoclysis, and atropin in $\frac{1}{60}$ to $\frac{1}{100}$ grain doses, especially when an edema of the lungs was imminent, did not seem to alter the course of the disease. Whisky, brandy and aromatic spirit of ammonia were all used, but except for a temporary stimulation seemed useless. Champagne served in teaspoonful doses, with ice pellets, was sometimes the only thing the severely ill patients could tolerate without nausea. Oxygen by inhalation relieved the cyanosis, but had no effect on the course.

Convalescent serum (400 c.c.) was administered in one case, without preventing a fatal termination.

CONTAGIOUSNESS

A word as to the element of contagion. All of the interns who became ill had been in close contact with the patients, and many of the nurses who attended influenza patients subsequently became patients themselves, despite the fact that they took precautions to wear face masks while on duty taking care of patients, and to wash their hands in antiseptic solutions before leaving their patients. The air in one of the wards, on culture, yielded the hemolytic streptococcus.

CONCLUSIONS

1. The present epidemic of "influenza" or "influenzal bronchopneumonia" or "epidemic pneumonia" is as yet of unknown etiology.
2. The course of the disease, apparently mild at first, is treacherous, and not associated with any symptoms that might indicate the intensity or the severity.
3. In our hands no specific treatment seemed to have greater value than the induction of symptomatic relief, which we believe should be the hub of the treatment.

TWO CASES OF HUMAN ANTHRAX AT CAMP JACKSON*

OSCAR T. SCHULTZ, M.D. (CHICAGO)

Captain, M. C., U. S. Army

CAMP JACKSON, COLUMBIA, S. C.

Anthrax, a disease of relatively rare occurrence in civil life in this country, has assumed a certain degree of importance because of scattered cases that have appeared in Army camps. A few cases have occurred in camps in this country, and in the British army the cases have been more numerous. Usually it is possible to trace the infection to contaminated shaving brushes. The occurrence of two cases in Camp Jackson within a very short period of each other, the first reported from this camp, appears worthy of record, especially in view of the fact that the first case was so atypical clinically that the nature of the condition could not be suspected without the laboratory findings.

REPORTS OF CASES

CASE 1.—*Clinical Course*.—A private of the One Hundred and Fifty-Sixth Depot Brigade, white, aged 23, was admitted to the base hospital, July 17, 1918. The family and previous history were negative. July 14, while shaving, he noticed a small pimple on the neck. He squeezed out a small amount of fluid; the lesion began to swell and grew worse from this

time. By July 16 the swelling had extended well down on the chest. On admission both sides of the neck were swollen, the swelling extending downward on the chest to 1 inch below the nipple line. There was a small abrasion on the left side of the neck anteriorly. The pulse was weak, the skin was somewhat cyanosed, and respiration was sighing in character. The temperature on admission was 97.2, the pulse 124, respiration 26. The white blood cells numbered 16,500, of which 78 per cent. were neutrophils, 2 per cent. basophils, 13 per cent. small mononuclears, 5 per cent. large mononuclears, and 2 per cent. transitionals. The diagnosis made at this time was cellulitis of the neck. The patient's condition rapidly became worse. At 3 p. m. of the day of admission the swollen tissue was incised and drained, the incision consisting of a 4 inch median longitudinal incision, with a 4 inch subclavicular incision at each side. No pus was present. The incised tissue was edematous. Smears and cultures were made from the fluid that exuded from the incision. A blood culture was taken on the evening of the day of admission; the blood at this time was very thick and dark and coagulated quickly. When the dressing was changed at 3:30 a. m. of the next day a large amount of serum was present, and the swelling of the chest had decreased slightly. The patient appeared very ill. Examination of the cultures made from the incision and of the blood culture showed the presence of *B. anthracis*. At 9 a. m., July 18, the dressing was changed again, a large amount of serum being present. The patient failed rapidly and died at noon, July 18.

Necropsy.—This was done four hours after death. In the region of the upper chest was an open crucial incision that extended through the skin and soft parts to the underlying bone. The longitudinal limb of the incision extended from the sternal notch to the middle region of the sternum. The horizontal limb extended from the middle of the left clavicle to the middle of the right clavicle. The margins of the incision were retracted, and the exposed tissue was found to be covered by a thin layer of grayish white material. Slightly to the left of the midline of the neck and 5 cm. above the clavicular line was an oval superficial skin lesion, 0.5 by 1 cm., covered with a dark crust. The neck was swollen, the swelling extending laterally on each side to the line of the mastoid region. The skin of the swollen region was slightly reddened and felt boggy. The cervical glands were not palpable. In the inferior chest region, below the lower end of the longitudinal incision, the subcutaneous tissue was edematous and gelatinous. The loose tissue of the upper anterior mediastinum was edematous. The spleen was increased in size to about four times the normal. The capsule was tense, free of adhesions, and bluish. The tissue on section was dark red and moderately firm. The malpighian bodies stood out as grayish translucent points up to 1 mm. in diameter.

Microscopic Examination.—In sections from the edematous subcutaneous tissue of the chest, the collagen fibers were swollen, fibrillated and granular, and the tissue spaces were filled with granular, eosin stained, structureless material in which a fibrin meshwork was present. The tissue was richly infiltrated with polymorphonuclear leukocytes, and contained many large gram-positive bacilli, which often formed long threads. In the underlying muscle, some fibers were swollen and faintly stained, and others were compressed and hyaline; most of the fibers had lost their cross striations. Sections of organs and tissues other than the subcutaneous tissue contained a few scattered, large, gram-positive bacilli in the capillaries. In the subcutaneous tissue the bacilli were numerous.

Bacteriologic Examinations.—Cultures from the small local lesion of the neck and from the fluid of the incision, made at the time of operation, gave a pure culture of a gram-positive, nonmotile bacillus, morphologically *B. anthracis*. A blood culture made on the evening of the day before death gave a pure culture of the same organism; 0.1 c.c. of this culture inoculated subcutaneously into a white mouse caused the death of the latter in twelve hours, and from the heart's blood of the mouse *B. anthracis* was again isolated. Smears from the spleen and liver at necropsy showed the same organism

* From the laboratory of the Base Hospital, Camp Jackson, Marshall A. Barber, Captain, S. C., U. S. Army, Chief of Laboratory.

obtained in culture. Cultures from the spleen gave a heavy growth of *B. anthracis*.

Diagnosis.—The findings in the case may be thus summarized: anthrax of the skin; generalized anthrax bacteremia; gelatinous subcutaneous edema of neck and chest; surgical incision of upper thorax; acute splenic tumor; passive congestion of the liver; cloudy swelling of the liver and kidneys.

Cultures were made of the shaving brush, shaving soap and razor strop used by the soldier, but *B. anthracis* was not isolated.

CASE 2.—Clinical Course.—A private of the One Hundred and Fifty-Sixth Depot Brigade, aged 26, white, was admitted to the base hospital, July 27, 1918, with swelling and edema of the right side of the face and neck. He arrived at camp with a group of drafted men, July 27, at 1:30 a. m., having come from Dayton, Ohio. He gave a history of having shaved at Dayton with a new shaving brush, July 24. He noticed a small, pimple-like lesion of the center of the right cheek a day or so later. When admitted there was a black necrotic area one-eighth inch in diameter at the center of the right cheek, surrounded by a red ring with a few broken vesicles. The whole cheek from the eye to the side of the neck was edematous. The supraclavicular glands were enlarged and tender. The temperature on admission was 101, going to 103 at 6 p. m. of the same day. The patient appeared only moderately ill. A diagnosis of probable anthrax was made by Major James S. Stone, chief of the surgical service.

Smears and cultures from the lesion and a blood culture were made immediately after admission. Clear serum in large amounts exuded from the inflamed tissue about the escharotic center. The smears showed the presence of a large, gram-positive, encapsulated bacillus, morphologically *B. anthracis*. From the cultures of the local lesion, *B. anthracis* was obtained. The blood culture showed no growth during the first twenty-four hours, but at the end of a second twenty-four hour period of incubation *B. anthracis* had developed. This material inoculated into a white mouse killed the animal within twenty-four hours, and from the heart's blood of the mouse, *B. anthracis* was again isolated.

Treatment and Result.—At 4 p. m. of the day of admission, 50 c.c. of antistreptococcic serum were given intravenously. The entire treatment was conservative. The lesion was not excised or incised, but was kept covered with a moist Epsom salt dressing. On the day after admission the evening temperature rose to 103.1. The swelling of the face had increased, the right eye was closed, but the general condition was good. On the second day after admission (July 29) the edema of the face had begun to decrease and the patient felt well; the maximum temperature (evening) was 101.2. By July 31 the swelling had decreased to such a degree that the right eye was open, and the temperature and pulse had returned to normal, remaining normal throughout the rest of the course of the disease. Later notes found in the clinical record are: August 4, "Condition good. Pustule cleaning." August 11, "Depression in right cheek, about size of a quarter, looks fine; granulations forming. Swelling subsiding." The further course was uneventful. The blood examination at different times gave:

	Red Blood Cells	White Blood Cells	Hemo- globin	Poly- morpho- nuclears	Small Mono- nuclears	Large Mono- nuclears
Aug. 1.	4,060,000	10,000	90%	76%	22%	2%
Aug. 2.	4,060,000	10,200	....	78%	19%	3%
Aug. 16.	5,300,000	4,000	95%	72%	25%	3%

Cultures were made of the shaving brush, a new one used for the first time, July 24, and not used again thereafter, but *B. anthracis* was not isolated.

Two other cases, proved by laboratory examination to be not anthrax, are of interest because they were clinically so much like anthrax that this was the probable clinical diagnosis on admission. In each case the local lesion was noticed while the patient was shaving or a day thereafter.

In the first of these two cases, in which the patient was admitted a few days after the first patient with anthrax, there

was a reddened area on the anterior portion of the left cheek, and the entire cheek was markedly swollen. Smears and cultures showed the presence of streptococcus. Surgical incision opened a small collection of pus deep in the cheek. Recovery was rapid and uneventful.

The second patient was admitted two weeks after the second patient with anthrax. On the right side of the chin there was a dark, dry, escharotic lesion 0.5 cm. in diameter, surrounded by a red ring, on which were a number of small, superficial vesicles from which much clear serum exuded. The surrounding skin was swollen and hard. The lesion had the appearance of a typical malignant pustule. There were no constitutional symptoms. Smears and cultures made at repeated intervals on the day of admission and on the succeeding day revealed only *Staphylococcus albus*. By the second day the lesion had lost its anthrax-like character and had taken on that of a simple abscess. The further course was that of a staphylococcus abscess, and the lesion healed rapidly without incision.

COMMENT

The cases here reported add two more to the number of cases of anthrax that have occurred in Army camps in this country. In each case the development of the initial lesion bore a relationship to the use of a new shaving brush. Although *B. anthracis* was not isolated from either brush, perhaps because the brushes had been well washed after use, it is probable that the infection in each case was derived from a contaminated brush. Because of the danger of infection by brushes made from the hairs of animals dead of anthrax, the sale of such brushes should be prohibited. Attempts have been made in this laboratory to sterilize shaving brushes on sale at the exchanges in this camp, but the various methods tried result in the destruction of a large part of the brushes, especially the cheaper kind, which are most to blame.

SUMMARY

Two cases of anthrax have recently occurred at Camp Jackson. In each case the infection was probably due to the use of a contaminated shaving brush.

One case was atypical clinically and ended fatally. In the other, which was clinically a typical case of malignant pustule, the patient recovered. In each case *B. anthracis* was obtained in blood culture.

Two other cases simulated very closely the malignant pustule form of anthrax, but were proved by bacteriologic examination to be due to pyogenic cocci.

Every suspicious lesion of the face should be examined early for *B. anthracis*, and the examination should be repeated if negative.

The sale of all shaving brushes in which there is a possibility that the hairs of animals dead of anthrax have been used should be prohibited.

Exclusion of Pylorus by Rubber Band.—A. L. Soresi passes an ordinary rubber band around the pylorus by a thread attached to one end of the cut band. The band is drawn up tight to ligate the pylorus, and the ends are tied with silk or linen thread and are then cut off close. The rubber band is the ordinary office kind, about 3 cm. in diameter and 0.5 cm. wide. The gentle persistent pressure from the band prevents the pylorus from getting a chance to open, and its power of contraction is thus gradually completely lost. The compressed portion becomes anemic, and the tissue on each side of the anemic strip hypertrophies. With any other method of occlusion, as the compressed strip atrophies, the compression grows less, and the pylorus gets a chance to contract. This cannot occur under the continuous elastic pressure which keeps up the same no matter how much the tissues beneath atrophy. His method was illustrated in the *Clinica Chirurgica*, 1917, 25, 386.

INFLUENZA

ABSTRACTS OF FOREIGN LITERATURE COMPILED BY
BRITISH MEDICAL RESEARCH COMMITTEE

[NOTE.—The following abstract on influenza is taken from the Medical Supplement compiled by the Medical Research Committee of Great Britain and issued by the General Staff under date of October 1. It apparently covers all the important recent literature on this subject, and especially German literature, which is not now available in this country.—Ed.]

In spite of the fact that influenza recurs in modern times every twenty to thirty years in explosive waves spreading through whole continents, and that twenty-seven years have elapsed since the last pandemic, there has been neither an intelligent anticipation of the event nor certainty as to the true nature of the gigantic outbreak when it appeared a few months ago.

Responsible authors lamented the coming of a new "Spanish" disease, oblivious of history, which records epidemics of "Spanish catarrhs" as far back as the sixteenth century. Incredible as it may seem, the convenient hypothesis of "collective food poisoning" was not lost sight of. In fact, one cannot but agree with Bergmann of Marburg, who remarks that the present epidemic would not be typical if typical mistakes were not committed again this year. "The meteorologists try again to ascertain the course of the epidemic, the English again recommend quinin as a panacea, and a new erroneous teaching seeks to explain the progress and intensity of the disease (in Germany) by malnourishment, although it does not spare better stocked countries. The epidemic has always adapted itself to the rapidity of the human means of communication. In Turkestan it spreads with the rapidity of a caravan, in Europe with that of an express train, in the wide world with that of an ocean liner, and today perhaps with the speed of a Rumpel-Taube or a Fokker."

The symptomatology is held by certain authors to differ from the pandemic of 1890-1892 in certain respects, as, for example, in that acute nasal catarrh was conspicuous by its absence this year. This raises the fundamental question as to the concept of influenza. Is it the clinical picture down to the least significant symptom or the epidemiologic characters of outbreak and course of spread which make of "influenza" an entity?

EPIDEMIOLOGY

Epidemiologically the extreme contagiousness of the disease was proved to be due to its aerial convection, namely, by means of the "drop infection" from person to person, and not by transportation of the virus through the air at large, through winds, etc.

Thus in July this year in a German field regiment the first battalion to be attacked was that which fought at close quarters with a—presumably infected—American detachment. During a temporary lull companies of the other battalions fell victim to the infection in order as they were sent to relieve one another in a tunnel which was the scene of the fighting. The infection is always bound up with the diseased individual.

HISTORICAL

This infection one was taught since 1892 to regard as being identical with the hemophilic *B. influenzae* discovered by R. Pfeiffer during a secondary recrudescence wave of the last pandemic. It has often been isolated in the interval from sporadic cases or limited outbreaks of nasobronchial affections giving a picture of "grip." It was found, as a rule, in the sputum or the nasal discharge, though records of recoveries from various serous cavities, etc., are also scattered through the bacteriologic literature of all countries. Although Pfeiffer's bacillus was found to be practically nonpathogenic to animals and proved to be a very unreliable antigen, yet its regular plentiful presence in the lungs in fatal cases of bronchopneumonia during the second-

dary epidemics of 1892-1893, and its obvious intimate connection with characteristic pathologic processes earned for it an unassailable position as a classical specific virus. Modern bacteriology identified the bacillus with influenza, and thus the orthodox concept of this disease resolved itself into the belief that there was no influenza in the absence of Pfeiffer's bacillus. With the final disappearance of all the after-epidemics of the 1890 decade, the findings of the Pfeiffer bacillus became less frequent, yet Europe was not free from widespread localized outbreaks of influenza-like diseases. Wassermann sought to explain this phenomenon by the assumption that the population of Europe had become immunized after the prolonged prevalence of influenza, and that consequently the bacilli tended quickly to disappear from the sputum and to elude cultural recovery. However, as time went on and the bacteriologic technic increased in perfection, various organisms other than *B. influenzae* were being discovered as their several etiologic agents with as much evidence as there was for the acceptance of the Pfeiffer bacillus. In fact, if an organism was recovered from the majority of cases, if it was present in tissues in undoubted connection with the lesions, if the character of growth made of it an "unusual" host, if it was cultivated from the blood of the patients, and if it induced a serologic response on the part of patients and convalescents, there were no grounds—in modern bacteriologic reasoning—to doubt its association with the epidemic. The Pfeiffer school stuck, however, to its guns, and maintained that the various non-Pfeiffer epidemics were not a true influenza. These, in their reasoning, were all members of a large group of "endemic grip" characterized by coryza, and were similar to ancient affections well described by the authors of the seventies and eighties prior to the last pandemic. Yet, the argument continued, when the pandemic broke out, the same authors acknowledged its essential difference from the previously prevalent "contagious catarrhs," and recognized it as a disease completely new in their experience. One need not quote extracts, for, indeed, the European medical literature of the last two months abounds in statements of an identical nature! The Pfeiffer school further insisted on epidemiologic dissimilarities, and argued that Pfeiffer's bacillus was the cause of the real pandemic disease, while the multifocal catarrhal outbreaks, the "endemic grip," were indeed caused by a whole museum of bacteria mainly belonging to the coccid group. This was the argument developed by Scheller, a prominent pupil of Pfeiffer, in August, 1917, when Stephan described *Diplococcus mucosus* as the agent of a clinically typical "endemic" of influenza which broke out in December, 1916, in Strümpell's clinic at Leipzig. The diplococcus was isolated from the sputum and the blood of the patients, it was specifically agglutinated by an immune serum as well as by patients' and convalescents' serum. Not unlike the meningococcus, it differed from it in that it produced a capsule in the body and mucus on some mediums that it grew on ordinary agar and at 20 C., as well as by its variable retention of Gram's staining. Nonpathogenic to animals, it could not be identified with *Streptococcus mucosus* of Schottmüller; insoluble in bile, it was not identical with the group of pneumococci, particularly the *Pneumococcus mucosus* of the American authors. Fermenting maltose, glucose, levulose and galactose, it differed from the *Micrococcus catarrhalis* group. Its immune rabbit serum differentiated it easily from both the *Diplococcus crassus* and *flavus*.

Lingelsheim promptly acknowledged the organism as one described by him some years previously during his studies on the meningococci, but Scheller, who examined Stephan's cultures, could not confirm its variable behavior to Gram, and pronounced it frankly gram-positive. It is worth mentioning that in Strümpell's clinic the influenzal infection produced by the *Diplococcus mucosus*-Leipzig, as it was designated by Stephan, was held to have been a true septicemia, and that hemorrhagic nephritis was a frequent complication, while in some cases there was distinct meningism. This last finding is of some interest, for Stephan recovered a somewhat similar organism from the cerebrospinal fluid in an epidemic investigated by him in 1916 in a fever hospital in

northern France. It was found, on the whole, not to possess a marked virulence.

BRITISH EPIDEMIC OF 1915

The Leipzig epidemic was not an isolated instance of a European influenzal disturbance. Shera early in 1917 gave an account of an influenzal epidemic of the spring of 1915 in London and the southern counties, in which he claimed to have occasionally isolated a bacillus similar to *B. influenzae*, but it is somewhat difficult to identify it from the scanty details given. Lenz drew attention to very frequent occurrence of pneumonias in 1915 in German prisoners' camps. Coincidentally with both the epidemics observed by Stephan, catarrhs and bronchitic infections localized in the bronchioles appear to have been very prevalent in December, 1916, and January, 1917, in military hospitals in France and also at home. The *British Medical Journal* drew attention to their extent in a special article, stating generally that their bacteriologic character was rather undecided, though a coccal (mainly pneumococcal) nature was assumed. The infections were stated to have run an acute course. At about the same period, in the late winter of 1917, a "grippal" outbreak visited Vienna and lower Austria, but *B. influenzae* was not found, because Economo (*Medical Supplement*, 1918, 1, 220), in his account of encephalitis lethargica, insists in his differential diagnosis on this fact. Von Wiesner (*Medical Supplement*, *ibid.*), describing the diplococcus which, he claimed, had caused the epidemic of encephalitis, emphasized the frequent findings on postmortem examinations of that period of lesions indicative of hemorrhagic diathesis, produced, in his opinion, by the "diplococcus of encephalitis." It may be noted that this organism was held to behave variably toward gram-staining, to have been pleomorphic, and insoluble in bile. The pleomorphic diplococcus discovered and described by Rosenow and his collaborators in America at the time of the 1916 and 1917 epidemics of poliomyelitis falls undoubtedly into the same group of organisms. Incidentally it may be added that bronchopneumonias were often found to have been the determining cause of death in both the Viennese and the American outbreaks of poliomyelitis.

EPIDEMICS IN 1917

The winter of 1917 was indeed pregnant with unusual diseases, for very fatal infections of purulent bronchitis were recorded at the base hospitals in France. Hammond, Rolland and Shore gave an exquisite account of their bacteriologic and pathologic characters. Gram-negative coccobacilli identified as Pfeiffer's bacillus, nonvirulent to animals, assuming coccoid forms when degenerating, were obtained from the sputums in a proportion of eighteen out of thirty; they were grown on trypsin-broth-legume-agar, and the authors, one may assume, were satisfied as to their true hemophilic nature. Pathologically, there was marked purulent bronchitis, the smallest bronchi being filled up with pus, and in some cases secondary bronchopneumonias developed. Pleurisies and empyemas were a feature, while there was also general evidence of a toxemia in the organs and the heart muscle. Signs of a right-side heart failure were frequent.

Having subsided during the summer, the epidemic seems to have broken loose again last autumn, and Hallows, Eyre and French reported very fully on an epidemic of pneumonia at the Aldershot command in September, 1917. Purulent bronchiolitis, identical with that of Hammond, Rolland and Shore, was found, and both typical *B. influenzae* (Pfeiffer) and the pneumococcus were recovered from the sputums of the organs, though *B. influenzae* was not obtained in any large proportion of cases.

INFECTIVE ENCEPHALITIS

The late winter and spring of this year witnessed the epidemic of infective encephalitis in this country, while isolated outbreaks of virulent pneumonias seem also to have been observed. At one of the London hospitals (unpublished observation) a diplococcus identical with that of Rosenow was obtained in several cases of encephalitis and frequently found in the routine examination of throat swabs. "During

the first week of May of this year an acute febrile disease with symptoms resembling those of influenza invaded three factories and one industrial home for boys in Glasgow," to quote MacLean. "The bacillus of influenza was invariably absent. . . . A gram-negative diplococcus resembling the pneumococcus has frequently been obtained from the nose, throat, lungs and membranes of the brain." A few months ago Rosenow found streptococci in an outbreak of "grip" in Chicago.

Thus it is clear that in the three years 1915 to 1917 diplococci were the predominating organisms associated with influenza-like infections, although it is difficult to pronounce as to the identity of the several strains described. Hemorrhagic lesions seem to have been induced by two types. The bacillus of Pfeiffer had been found but occasionally. This was in keeping with the orthodox teaching which claimed that only a new pandemic of true influenza could finally decide, and would convince the disbelievers, as to the real specific nature of the organism. The results of the work of the last three months, however, have belied these expectations.

The two leading London medical weeklies contain to date seven original contributions to the elucidation of this crucial problem.

BRITISH LITERATURE

Little, Garofalo and Williams flatly deny that the pandemic is a true influenza. For, first, no relapses or complications were observed by them in France; secondly, in the twenty cases examined by them, there was very slight leukocytosis with a proportional lymphocytosis of a small mononuclear variety, and lastly, as in all the twenty cases, a very small gram-positive diplococcus was of "universal predominance." It was absent from the two blood cultures that were undertaken. It was recovered from nasopharyngeal and throat swabs and from the sputum. Morphologically it was flattened out on apposing sides. It appeared sometimes in pure culture. Grown on legumin-serum agar, it developed in small transparent granular streptococcal-like colonies. It showed a slight tendency to anaerobic growth, fermented no sugars and was nonpathogenic to animals.

The reported absence of *B. influenzae* would sound more convincing if the elementary precaution of planting out sputums on blood agar had been adhered to.

Burnford characterized the outbreak as an acute fever accompanied by a general polyadenitis with no specific "germs" discoverable to account for the condition.

Gotch and Whittingham examined carefully fifty cases. Leukopenia with a neutrophilia at the height of fever, accompanied by a slow pulse, were pathologic features observed. In 8 per cent. of the throat swabs and sputums, *B. influenzae* was found. In the remaining cases there was constantly present a gram-negative diplococcus not unlike *M. catarrhalis*, while in 10 per cent. of cases there was also a coccus similar to the meningococcus. The fairly large predominant diplococcus was also recovered from the blood, and its cultures proved pathogenic to man in the two instances in which the disease was experimentally transmitted by means of its cultures. The organism, if properly investigated, might be found related to the larger group of cocci previously dealt with.

On the same date Krumbhaar related in a letter the results of his study in a "small group of cases," from three quarters of the number of which a short, moderately slender, gram-negative bacillus tending to form groups and growing in typical, small watery colonies on blood agar was recovered and identified as *B. influenzae* on the ground of the foregoing characteristics. It was added that according to verbal communications from France, Pfeiffer's bacillus was being isolated from sputums.

Matthews, who examined in London "about a dozen typical cases," ascertained in every one of them by means of the West postnasal swab planted on the author's trypsinized broth-blood agar the presence of *B. influenzae* "as a rule typical, but not infrequently in enormously long filaments." On ordinary blood agar the strains recovered their typical appearance, while on the author's medium they grew in large-sized colonies, 3 mm. broad, translucent, of hemispherical

shape, brownish tinged with a regularly circular outline. No more precise details are given.

Averill, Young and Griffiths had under their care 1,439 patients, of whom sixteen developed lobar pneumonias with seven fatal issues. No account is given of postmortem examinations. Forty-three cases were examined bacteriologically. *B. influenzae* was not detected in the nasopharynx, a gram-positive diplococcus being predominant. The sputum of forty-one patients showed in thirty-two cases the presence of the same diplococcus associated with a gram-negative bacillus often in clumps. In nine other instances the diplococcus retained the field to itself. Grown on ordinary agar the sputums yielded colonies of the diplococcus only, while on blood agar discrete, transparent, smooth, rounded-edged colonies developed in addition. On prolonged counterstaining of the culture smears with 5 per cent. carbolfuchsin (ten minutes), small gram-negative coccobacilli with rounded ends, slightly bipolar and slightly larger than in the direct films were detected. They refused to grow on ordinary agar, fermented no sugars, and were, therefore, identified as Pfeiffer's bacillus, while the coccus was diagnosed as a pneumococcus.

Both these conclusions require further evidence, as the description of the coccobacilli fits in rather with the characters of Bordet's *B. pertussis* than of the classical bacillus of Pfeiffer, while no reasons are given for the assumption of a pneumococcal nature of the diplococcus.

Finally, Maude, who observed 2,067 cases, of which 248 were hospital admissions with three deaths, insists on the high percentage of patients who developed the complex lung conditions previously described by Hallows, Eyre and French. No systematic bacteriologic examinations were made by the author, who relies on the definition given in September, 1917, by Eyre of a double successive infection by *B. influenzae* and the pneumococcus.

Thus—on a summary—*B. influenzae* was doubtfully reported in some, undoubtedly present in other groups of cases, while two types of cocci were predominant in the hands of the remaining authors. Unfortunately the material actually dealt with so far was not sufficient in quantity to warrant the responsibility of drawing therefrom any general conclusions.

GERMAN LITERATURE

In Germany the widespread outbreak of influenza aroused a considerable and immediate scientific interest; the medical societies of Berlin and Munich held special meetings early in July, at which the identity of the prevalent disease with the last pandemic was recognized by a majority of the authorities after detailed discussions. This recognition was made all the easier as organs preserved since 1890-1892 were found on comparison with those obtained from fresh fatal cases to exhibit corresponding lesions, Lubarsch and Hanse-mann particularly insisting on the essential similarity.

The morbid anatomy of the present pandemic was studied in detail by a number of authors. Thus:

Oberndorfer investigated a large series of postmortem examinations in Munich (number not stated: apparently thirty-one).

Lubarsch reports on fourteen postmortem examinations from Berlin.

Schmorl reports on fifty postmortem examinations from Dresden.

Bernhardt and Meyer report on twenty-eight postmortem examinations from Stettin.

Simmonds reports on twenty-eight postmortem examinations from Hamburg.

Hirschbruch reports on sixteen postmortem examinations from Metz.

Dietrich reports on seven postmortem examinations from a field laboratory.

Bergmann (Marburg), Selter (Königsberg) and Gruber and Schädel (Mainz), a few each.

Oberndorfer's, Schmorl's and Lubarsch's descriptions may be taken as a standard, the other authors generally finding themselves in agreement with them.

Oberndorfer examined only very acute cases of the first fortnight of the epidemic. These were all men, mainly

between the ages of 17 and 25. The lesions of the respiratory organs were so typical that the author could almost dictate seriatim identical protocols.

SYMPTOMS AND PATHOLOGY

In the initial stage of the affection of the lungs, namely, when only small foci without any great reaction in the immediate neighborhood are observed, the most striking findings were small, bean-sized hemorrhages projecting into the lung tissue. As a next step there followed a firmer infiltration of the parenchyma, the nodules sitting subpleurally and raising the pleura in consequence. A whole scale of intermediate formations lay between these small nodules and large hemorrhagic tuberos infiltrations; all possible gradations were observed from simple blood extravasations into the lung tissue, still containing air, to firm, almost dry, infarct-like hemorrhages of a bluish-black tinge. These extensive infiltrations were of the same shape as the usual pulmonary hemorrhagic infarcts, namely, they had the form of a wedge with its base resting on the pleura, thus clearly indicating an intimate relationship with the vascular system of the lungs. In this purely hemorrhagic initial stage no thrombi were ever found in these arteries, the extravasation of red cells being obviously due to an abnormal permeability of certain portions of the arterial system.

The second stage was characterized by exudative pneumonic processes combined with hemorrhages. The picture varied considerably at times. There may be a true croupous hepatisation of lobular, or even lobar, extent, both red and gray, though the tinge was usually brownish and not as a rule very distinct. These pneumonic infiltrations usually embraced in their center circumscribed hemorrhages. The surface on section was not dry, being covered by a slimy, dirty coating, thus resembling a picture of Friedlaender's pneumonia. The pneumonic foci were sometimes flattened out at the ends into yellowish white wedge-shaped strictures corresponding to anemic infarcts both in form and color. These often became the seat of gangrene or suppuration, the pleura also being obviously involved in the process. In the majority of cases it was a catarrhal and desquamative succulent infiltration rather than a fibrinous exudation, but almost always severely complicated by suppuration.

The bronchi were filled with pus already in the first stage, the smaller branches containing thin fluid, though at times dried-up exudates formed firm plugs occluding the lumen of the bronchioli. This purulent bronchitis had as its consequence an extensive bronchiectasis with the bronchi distended cylindrically. The bronchi and their blood vessels were often surrounded by purulent infiltrations originating from the lymphatic system. In other cases, again, there were seen on section enormous numbers of minute abscesses surrounded by hemorrhages, the suppuration being obviously hematogenic in origin. These minute abscesses often became confluent, thus ending up by the formation of large caverns of pus.

The pleura participated in the process. The first signs consisted in punctiform hemorrhages, or ecchymoses; serous exudations followed next, and, as often as not, empyemas completed the picture. As a rule, one side only was affected. Pericarditis was a natural consequence of pleuritis. There were no gross changes in the heart save for some thickening of the arteries of the lung hilum. Occasionally incipient endocarditis was encountered.

The larynx and the upper third of the trachea showed no involvement in the process. The lower portion, however, was the seat of an intense mucopurulent exudation, which in many cases assumed a fibrinous character, with the consequent formation of extensive pseudomembranes in the lower trachea and down into the bronchi. Sometimes edema of the epiglottis was observed.

A striking feature was presented by the hyperplastic condition of the lymphatic apparatus of the tongue and the tracheal ring. The thymus was well preserved, the cervical and axillary, but not the inguinal, glands were enlarged. On the whole, an impression of the existence of a status thymolymphaticus was conveyed. As young individuals were

mainly affected, these two facts may stand in a relation of cause and effect.

The spleen was enlarged, sometimes a septic spleen tumor being found.

The liver was but seldom involved; the kidneys showed a general hyperemic condition. In the brain and the meninges there was a marked vasodilatation, but no meningitis was noted. Punctiform hemorrhages, in the form of a purpura hemorrhagica, were met with in the corpus ammonis and the cerebellum.

The histologic examination revealed the following unusual findings: in the trachea, an intense exudation of fibrin in the deep layers of the mucosa, and a progressive inflammation of the deeper portions of the tracheal walls; in the lymphatic glands, an enormous vasodilatation, hemorrhages, as well as proliferation of the endothelium, particularly in the axillary glands.

The foci of inflammation in the lungs showed a leukocytic infiltration around the alveoli, bronchi, and the walls of small arteries. It did not involve the whole vessels, which were dotted with isolated spots of infiltration. There were also hemorrhages into the heart valves, with a consequent displacement of the fibers and damage to the endothelium; thus no definite endocarditis, but lesions, which facilitated the development of a secondary mycotic endocarditis. There were, therefore, signs of a lesion of the walls of the vessels, which were particularly marked in two cases in the arteria pulmonalis. A very advanced mycotic arteritis was detected here, exhibiting a leukocytic infiltration of the whole wall, particularly of the innermost layers, with displacement of elastic fibers and a necrotic fibrinous coating on the partly necrosed intima. The gram-staining revealed the presence of masses of streptococci, though there was no indication in these cases of a lymphangitis. Thus the whole character of the lesion, and particularly the localization of the most intense process on the internal wall, points to a primary affection of the intima.

PATHOLOGIC PICTURE

The essence of the whole pathologic picture consists, therefore, in the abundance of hemorrhages seen in the mucous and serous membranes, in the respiratory tract, and in the lungs, which indicated a damaged condition of the capillary vascular system. The abscesses, save for those originating in the bronchi, were also of a hematogenic nature. The whole process seems to be primarily a bacteremia localized in particular in the pulmonary blood vessels. Hemorrhages in the lungs pave the way for a secondary infection, the results of which dominate the whole field in the later stages. In any case the wedgelike shape of the pulmonary foci indicated a vascular origin of the lesions. From a purely anatomic point of view the condition bears many points of resemblance with pneumonic plague, though there is no indication as to an entry of the virus through definite lymphatic channels. The primary bacteremic condition was not found to be due to *B. influenzae* (Pfeiffer), and thus the invading virus remained undiscovered.

Lubarsch found essentially similar lesions in his fourteen cases. The age and sex incidence was the same, all being men, six of them under 20, five between 27 and 29, and only three over 30 (30, 33, 42). They were particularly well-built and well-nourished individuals. The author lays more stress than Oberndorfer on the pseudomembranous condition of the lower trachea and the bronchi, which sometimes attained the intensity of a true diphtheritic inflammation in the sense of Virchow, one could almost say of a necrosing inflammation. The changes in the lungs are particularly characterized by the tendency to spread over the pleura in an extraordinarily quick time, so much so that a genuine necrosis of the pleura is sometimes seen. In some cases the pleuritic lesions constitute the main damage, and death is caused by the consequent compression of the lungs. The essentially hemorrhagic character of the pulmonary processes is shown by the fact that in the rare cases in which the naked eye appearance gives no ground to suspect hemorrhages these are revealed by microscopic examination. Blood extravasations

were also found in the mucous membranes of the stomach, the intestines and in the pelvis of the kidneys.

B. influenzae was found only once, namely, by microscopic examination of a section of the lungs. Streptococci were usually recovered from the blood, the lungs or the spleen. It is these organisms which caused death, not through generalized infection, but by producing fatal local lesions. Pfeiffer's bacillus, should it ultimately be found to be the primary cause of the pandemic, is not in any case a virulent agent, its exclusive multiplication in the body leading only very occasionally to a fatal issue.

Schmorl's fifty patients again corresponded in age incidence with the previous series. The ages of forty-seven ranged between 11 and 27, the remaining five consisting of two aged 48, two 36, and one 70. They were all persons in vigorous health. While in general agreement with the previous authors, he was particularly impressed by the diphtheritic inflammation of the trachea and bronchi, which he examined very carefully in sections, and found streptococci and pneumococci, occasionally staphylococci, associated with it, but neither *B. influenzae* nor *B. diphtheriae*. This condition is, in his opinion, very rare in influenza, but forms a strikingly common feature of the present epidemic; if diligently looked for, it will not be missed in many cases. A waxy degeneration of muscles, particularly the rectus abdominis, was encountered, as an indication of a central toxic influence.

But the most interesting finding of Schmorl is the frequent occurrence of hemorrhagic encephalitis. During the 1890 pandemic Schmorl made 120 postmortem examinations at Leipzig without recording this condition once. This year out of forty-four cases in which the central nervous system was examined, it was present in fifteen. The white substance of the cortex and both the gray and white of the central ganglia abounded in punctiform hemorrhages, the posterior part of the corpus callosum being most affected. The cerebellum, pons and medulla oblongata, as well as the parenchyma, are only occasionally involved. In some cases the thalamus opticus alone shows the lesions. Histologically, the few sections made so far show circular hemorrhages with a necrotic center situated around small vessels, while the periphery of the necrosis is surrounded by agglomerations of large cells, which also embrace the extravasated blood corpuscles. In other cases there is but a simple destruction of the substance of the brain by the extruded red cells. There were no pronounced inflammatory lesions. Of the seven brains examined bacteriologically, in two very small diplococci were found, which grew on blood agar like *B. influenzae*. The author questions, however, their etiologic significance. In spite of some disparity in pathologic findings, the author considers the infection to be real influenza, but he rejects Pfeiffer's bacillus as its cause, since it was found in the bronchial mucus in only three out of his fifty cases.

The other authors add few important observations. Simmonds maintains that the only difference as against the 1890 pandemic consists in the more frequent occurrence of secondary streptococcal infection. Bacteriologically he found *B. influenzae* in both the sputum and the postmortem material, "very frequently." Hirschbruch found *B. influenzae* in one case, the remaining fifteen being associated with cocci. Gruber and Schädel insist on the frequency of periarteritis and panarteritis, and note an acute dilatation of the right heart in most cases, a finding identical with that of Hammond, Rolland and Shore (see above). Diplostreptococci were the only bacteria found by them. Bergmann never found Pfeiffer's bacillus in postmortem material.

The observations made by Dietrich in the field deserve special mention. *B. influenzae* was recovered from the first seven postmortem examinations and identified as such by Neisser. They were found during the acme of the process in the alveoli, between the leukocytes or under the epithelium, or again in small mucous plugs occluding the bronchioli; there were none or very few in a multitude of other species in the trachea. The more advanced the lesions, the more complex their bacterial form. In his opinion, Pfeiffer's bacillus was the "pioneer" of the lesions, while the secondary infections proved fatal. He denies the occurrence of a status thymo-

lymphaticus and believes that the exertions of the service, wounds, etc., prepared a disposition in his cases. Hemorrhagic diathesis of the tissues and very frequent findings of streptococcic meningitis and endocarditis differentiate his results from that of the other authors. He also agrees with the assumption of a primary affection of the vessels, but it is *B. influenzae* which in his opinion inflicts the damage, being also responsible for the edematous purulent bronchitis and thus forming a favorable basis for the subsequently fatal secondary infections.

Bernhardt and Meyer divide their twenty-eight cases into three categories: (a) Six severe hospital cases in which there were other affections and which were secondarily infected with influenza; (b) seven mild hospital or outside cases weakened by the previous illness; and (c) fifteen healthy individuals or surgical patients who were admitted to hospital for influenza. In this way the authors claim to have been able to watch the progressive development of the pathologic process, which in no way differs from that described by Oberndorfer. The inflammation of the intima in pulmonary arteries was noticed in one case. Encephalitis was present once, but it was a purulent hemorrhagic inflammation. Perichondritis arytenoidea and hemorrhages into, and swelling of, the suprarenals were among occasional findings. On the whole the process was localized almost entirely in the lungs and in the pleura in conformity with the experience of the 1890-1892 pandemic. *B. influenzae* was found in no instance, the majority of the cases yielding a pure growth of diplostreptococci which were obtained from the lungs, the heart blood, spleen and liver. It is difficult to decide whether all the strains belong to the same species. They tend to degenerate in involution forms; the virulence for mice varies from strain to strain and from culture to culture, to the extent of 0.001 c.c. to 0.1 c.c. of a broth culture by intraperitoneal injection. There may be, however, a relative unity of species in view of the contagiousness of all the strains and the explosive character of their transmissibility in a given group of patients (a hospital ward, barracks, etc.). The organisms must be regarded as companions of the unknown primary agent of the pandemic, the epidemiologic and pathologic symbiosis being regulated by definite biologic laws. In any case the cocci are of decisive importance for the pathogenesis of bronchopneumonias and all fatal complications.

Bernhardt previously examined forty-seven acute cases during life, and while failing to isolate *B. influenzae* from any, he regularly recovered from the cultures of the posterior throat and the expectorated mucus the same diplostreptococcus in enormous numbers and often in an almost pure condition. In direct films they are frequently intracellular, mainly in twos, sometimes in thick groups or in whole chains of four to six members. Minute in size, they appear oval or round, an impression of a capsule being at times conveyed. Growing sparsely on ordinary agar, they give on ascitic agar very small, translucent, round, sharp-edged, flat colonies which do not become confluent, however abundant the film. On human blood agar the very minute colonies seem to avoid the portions with deep layers of blood. They are hemolytic if not more than one twentieth to one thirtieth of blood is added, changing the color to a black greenish tinge like *Streptococcus mitior*. The cultures are not soluble in bile. Distinctly gram-positive, the organisms tend to involute, longish chains being met with composed of single cocci varying in size within one chain or in different chains in one field, so much so that an impression—proved experimentally to be erroneous—of a mixed growth is obtained. From glucose broth two varieties of colonies develop: a typical, delicate, clear and a thicker slimy colony which consists of twelve to fifteen membered chains. The cultures are not very viable, twenty-four to forty-eight hours sufficing to reduce greatly the abundance of subgrowth. Ascitic broth cultures are virulent to mice. In normal controls the organism is not encountered or is extremely sparse if present. Patients while coughing conveyed the organism to a distance of at least 50 cm., the colonies growing on exposed plates in groups of ten to fifteen. Such experiments were negative with convalescents after the fall of temperature. The diplostreptococcus is very aptly des-

ignated by Bernhardt as *Diplococcus epidemicus*. It bears most resemblance to *Streptococcus conglomeratus*.

Mandelbaum, who investigated bacteriologically Oberndorfer's cases, recovered streptococci in twenty-five, pneumococci in three, staphylococci in two, and *Streptococcus mucosus* in one case from the bronchial secretion on post-mortem examination. He does not specify the characters of his cultures, which he considers all as secondary infective agents equally responsible for the lesions. He denies emphatically the causal relationship of Pfeiffer's bacillus to influenza. It should have been present in the lungs if it were the agent of the pandemic. The remarkable immunity of the groups of population over 30 clearly indicates a survival immunity to influenza, whereas classical experiments of Delius and Kolle had shown that Pfeiffer's bacillus is incapable of inducing active immunity in the animal body. It has been often isolated since 1892 in various countries, and yet there was no pandemic, in spite of its ubiquity. Thus other factors must be responsible for the outbreak of influenza.

Selter also failed to find *B. influenzae* in the sputums of thirty-three cases examined at Königsburg, although the cultural investigations were carried out with all care and rapidity. He does not consider Bernhardt's *Diplococcus epidemicus* to be the agent of pandemic. It belongs to the group of pneumococci, and is no doubt transmissible with the real virus. This—he agrees with Kruse—belongs most likely to the family of aphanozoa, invisible microbes, for it is striking that Pfeiffer's bacillus met until 1904 in many outbreaks was entirely absent from the big epidemic of 1908 in western Germany and France. He submitted himself and his woman assistant to an interesting experiment: their throats were sprayed for one-half minute with a saline filtrate of throat swab and throat washings of several patients. Both of them developed a typical though mild attack of influenza.

Kroner, Kisskalt in Kiel, Friedemann in Berlin, Kolle in Frankfurt and Hirschbruch at Metz have failed to isolate *B. influenzae*. Kolle, it may be remembered, found a diplococcus apparently identical with that of Bernhardt.

Gruber and Schädel occupy an intermediate position. Of the 250 cases examined at Mainz they found *B. influenzae* only in fourteen, while from the overwhelming majority diplostreptococci were recovered. Bergmann found both the pneumococcus and *B. influenzae* at Marburg, the latter being isolated in a high percentage, in fifteen out of the twenty sputums examined. The strains were identified on the basis of the few typical characteristics. Pfeiffer (*Medical Supplement*, 1918, 1, 306) has so far confined his observations to a short note stating that the inconstant finding of his bacillus was still under investigation. Simmonds reported very frequent findings of Pfeiffer's bacillus at St. George's Hospital at Hamburg, while Dietrich isolated regularly *B. influenzae* in the field, and had his cultures identified by Neisser. Gotschlich obtained 12 per cent. positive cultures from a series of twenty-three sputums in Giessen.

Uhlenhuth, a "die-hard" of bacteriologic orthodoxy, has clearly shown signs of uneasiness. Two series of cases were carefully scrutinized. In one group of fifty-one, "suspicious" bacteria were seen in direct films in 66 per cent. of specimens of sputum, the cultural recovery being limited to 13 per cent., while in addition one empyema and one throat swab yielded the looked-for growth. In a second group of forty-seven, eighty-four sputums were examined, and thirty-three cultures obtained from twenty-two cases, a percentage of recovery equaling 46.8. Blood cultures were uniformly negative. Thus Uhlenhuth cautiously concluded that *B. influenzae* is detectable in "not inconsiderable numbers." Yet he admits the extraordinary scantiness of the bacilli in films, although he blames the young bacteriologists for either not knowing how to recognize Pfeiffer's bacillus or inversely for producing, when challenged, cultures of any small gram-negative bacillus as *B. influenzae*.

He believes that experimental transmission of the disease should be tried; he himself failed to infect a monkey with Pfeiffer cultures, and shrank from experimenting on man in view of the danger of a complicating pneumonia. No "urgent reasons" exist in his opinion for abandoning the conception

of the etiologic importance of *B. influenzae*, and he warmly recommends the use of the new mediums advocated by Levinthal.

Levinthal, some months before the epidemic started, set out to strengthen Pfeiffer's concept of influenza by raising the percentage of positive recoveries from sputums. It is admitted on all hands, and it has also found expression in the reports of the skeptics, that *B. influenzae* is notoriously difficult to cultivate even from a material microscopically swarming with it.

Symbiotic cultivation, particularly in a mixture with staphylococci, was experimented with many years ago, and furnished valuable indications as to the biology of the microbe, but did not prove a helpful means for routine diagnosis. It is, of course, a commonplace of bacteriology that *B. influenzae* thrives on hemoglobin and its break-down products and not necessarily on fresh blood. Guided by this, Levinthal concocted a new medium by adding fresh blood in a proportion of 1:20 to melted sterilized faintly alkaline agar, and, after thoroughly mixing, by boiling the whole for a few minutes, and then bringing it twice more to the point of ebullition. The blood clots and reclarifies the medium, which should now be filtered aseptically through gauze or paper, and kept ready for use in deep test tubes. The resulting agar is perfectly transparent, and grows *B. influenzae* in giant absolutely translucent colonies.

The yield is increased very considerably, the filamentous pseudoforms of the bacilli revert to the type, and, more important still, the cultures emulsify readily and keep in suspension without clumping spontaneously. Thus a basis was obtained for the application of the agglutination test as an additional means of diagnosis. Levinthal claims that live cultures on his medium produce highly specific potent serums when injected into rabbits, and that inversely patients or convalescents, but not controls, agglutinate his emulsions electively in dilutions of one fiftieth to one four-hundredth.

While highly praising the enriching qualities of this medium, Uhlenhuth was unable to confirm the virtues of the suggested "influenza Widal," which seems to have passed unheeded in the German literature.

The story breaks here at present, and although Pfeiffer may yet furnish reasons why the verdict should not be pronounced, there is already sufficient material to shake the orthodox conception out of its high altar. Two facts stand out prominently: the generally acknowledged, or by some reluctantly admitted, absence of *B. influenzae* from the organs on post-mortem examinations, and the universally recorded findings of diplostreptococci, singly or in association with the Pfeiffer bacillus.

DISCUSSION

The Pfeiffer conception, robbed of all hypothetic superstructure, rested in its essence on the fact of the obvious intimate relationship between bronchopneumonic lesions and the—practically never absent—bacilli. In 1892-1893 it was already reported that sputums may yield negative results; but the postmortem findings silenced the critics, who were persuaded that it was only faulty technic and capricious eccentricity of an unusual organism which vitiated the otherwise perfect harmony of theory and histologic pictures. Some few fossils of the heroic epoch never admitted defeat, and one of them, Hueppe, in an open letter to the *Deutsche medizinische Wochenschrift*, triumphantly points to the present negative findings as confirming his unabated disbelief in the etiologic significance of the hemophilic bacillus.

Doubtless the present outbreak deviates in certain particulars from the last pandemic. First, the age incidence is remarkable, and it must frankly be conceded that the hypothesis of a "survival immunity" is not convincing, since similar factors should have operated twenty-seven years ago, when they did not. One should rather agree with Lubarsch that the disturbance of the war has caused a profound alteration in the normal course of the epidemics. Indeed, there is the precedent of poliomyelitis, which many authors sought to differentiate from the Heine Medin concept on the basis of an unusual age incidence. Secondly, the

blood picture is not one of leukocytosis, as classically described. Levy, at the Berlin Charité, came to conclusions corresponding with the English experience, namely, that there is leukopenia at the expense of polynuclears, the lymphocytes and large mononuclears increasing proportionately, the latter reacting sometimes even 21 per cent. of the total. Leukocytosis should be regarded as a sign of complications, while complicating infections without it are prognostically ominous. Thirdly, there is the seasonal difference (spring and not autumn), and the apparent western origin of the explosive outbreak. As to that, great caution is indicated. The whole globe being at present a "ward in censorship," it is not possible to decide whether the present is a European or a world pandemic, a problem of great importance in view of the seemingly varying cycles of the two (twenty to thirty to forty to fifty years), a circumstance which might throw light on factors regulating the immunity. Neither is the western origin to be taken as granted. Ginns, at the Medical Society of Berlin, suggested that the virus might have been imported by Chinese laborers, employed behind the front, while Legroux of the Pasteur Institute stated in the public press that the "Spanish" disease made its first appearance in the area of Dunkirk, and only thence traveled southwest. The absence of prodromal catarrhal symptoms may be explicable by the unusual season of outbreak, and it is to be feared that epidemiologic purists may yet obtain satisfaction at seeing a much graver catarrhal form during the second tide, which already had begun to rise in Spain and in Sweden, as well as in Italy, as an apparently more severe illness.

Without laying too great a stress on the (so far) scanty publications from the field, it cannot be denied that *B. influenzae* was more often recovered from troops in the battle zones, who seem to have been subjected to a much milder type of attack. It is interesting to note that the Budapest clinic claimed to have isolated the Pfeiffer bacillus from every case examined—a fact which, if correct, might be correlated with the observations from the fronts.

The cold logic of the postmortem room in the dispassionate home surroundings does not leave, however, any doubt that Pfeiffer's bacillus when present did not play any more important part than the ubiquitous diplostreptococci. The real virus classified "faute de mieux" as "invisible" or a "filter passer," so as to cloak our ignorance of its nature, remains to be discovered.

THE DIPLOSTREPTOCOCCI

The diplostreptococci, although secondary in point of time and apparently primary in deciding a fatal issue, seem to be transmissible from man to man equally with the main virus. The observation that bronchopneumonias tend to spread in the wards of fever hospitals was made years ago, and there are institutions, as, for example, the Plaistow fever hospital, which include the disease in their list of infections to be "barriered." The remarkable frequency of fatal pneumonias during the last three years has been commented on. It seems to have risen again some two months before the first tide of this pandemic almost all over Europe. It was characterized by the circumscribed character of the outbreaks and by a preference for attacking young, vigorous men. There is room for inquiry whether these isolated epidemics were not the brewing ground, the preparatory drum fire, preceding the general assault by the main virus. It may cause surprise that these bacteria were not universally encountered before, or that, if met with, no significance was attached to their presence. But, first, there has been growing of late a tendency for disregarding organisms of the textbook type as mere obsolete formations, a sort of background scenery amid which the real virus must hide somewhere in its commonly assumed invisible form. Secondly, with a few exceptions, these diplococci remain unclassified both on account of the unsatisfactory or insufficient standards of identification, and of the deplorable multiplication of researchers who have invaded laboratories with a very inadequate scientific equipment aggravated by a firm refusal to practice modesty of conclusions, or to observe elementary accuracy in recording observations.

A breadth of outlook is also a necessity. The cyclical appearance of epidemics causes no surprise, but it is obviously based on a (so far) unaccountable periodic visitation of the globe by unusual bacteria. It may be that the diplococci are the novelty of the present season, condemned to oblivion after the ebb and flow of influenza and its companions will subside, and Bernhardt's designation of *Diplococcus epidemicus* is a fitting provisional label. Among the companions of "grip," epidemiology records almost regularly coincident epizootics among horses. There are two varieties: the "pink-eye," the *Pferdestaube*, or *Druse*, strangles of English and *gourme* of French authors, a coryza contagiosa equorum clinically manifesting itself as an influenza catarrhalis, and the pneumopleurisy, *Brustseuche*, an influenza pectoralis. Now, the latter infection gives anatomic pictures closely resembling those of the present pandemic. Purulent fibrinous bronchitis, bronchopneumonias, swelling and suppuration of lymphatic glands, as well as the lightning character of the outbreak and the prevalence of the first catarrhal variety on the onset, make of this epizootic an analogous infection. Some authorities hold that the two epizootic types are distinct "entities," and the *Streptococcus equi* of Schütz has been long ago identified with strangles, while the French school of Lignières associates *B. bipolaris-equisepcticus*, a member of the manifold group of "Pasteurella," with the pneumopleurisies. The strangles has been lately transmitted from horse to horse by means of filtrates of infectious material, while Gaffky and Lührs have infected horses with inflammatory mucus of the pneumopleurisy at a stage of its microscopic sterility. There is complete unanimity, however, that the two bacteria are commonly found in the excretions and organs of the exudative inflammatory period of suppuration. Now *Streptococcus equi* in microscopic morphology and type of growth strikingly resembles the diplococcus of Rosenow, and most likely the *Diplococcus epidemicus* of Bernhardt. As to *Bacillus bipolaris-equisepcticus*, morphologically it is indistinguishable from some of the gram-negative bacilli described by certain authors mentioned above as Pfeiffer's bacillus deviating from the type. It is not, however, hemophilic, and grows easily on ordinary mediums. It is undeniable, nevertheless, that during the present pandemic bipolar gram-negative, delicately growing, and nonhemophilic bacilli were often isolated from the organs. Hirschbruch, who regards these organisms as most likely corresponding with the bacteria of the human infections, draws attention to the fact that neo-arsphenamin, a proved remedy for the epizootics, has been successfully applied in Switzerland in the treatment of severe cases during the present pandemic. The Swiss have also isolated Pfeiffer's bacillus only occasionally, and also dwell on the presence of secondary diplostreptococcal infections.

Thus a fruitful field for research is opened in many directions. It is, unfortunately, only too certain that a second and more severe wave of influenza will spread over Europe in a few months. The results of the experience gained so far suggest that active immunization, both for prevention and treatment of the grave complications, with the diplostreptococci should be attempted. Streptococcal serotherapy might also be tried. A large group of several hundreds of cases should be thoroughly investigated by a team of workers—clinicians, bacteriologists, morbid anatomists and epidemiologists—working in correlated agreement. Experimental transmission to animals should enter in the scheme, while cultures obtained from various districts should be sent for classification and comparison to the main working center.

The team of workers would doubtlessly remember that "it is the property of things seen for the first time, or for the first time after long, like the flowers in spring, to reawaken in us the sharp edge of sense and that impression of mystic strangeness which otherwise passes out of life with the coming of years."

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Rest and the Tuberculosis Patient.—The influence of rest in abating the severity of an inflammatory process is well known. The effect of motion and of friction in spreading infection from a suppurating focus is a familiar surgical fact. Not only should deep breathing be avoided in the tuberculous patient but motion of the upper extremities should be reduced to a minimum. Rest is also highly desirable to promote a cicatrization and encapsulation. And lastly rest of the body is needed for its recuperation. Psychic and physical relaxation should both be practiced. The neurasthenic tuberculous patient with the anesthesia of fatigue or the restlessness of the overfatigued who are "too tired to rest" must learn to rest and relax not only to recreate his energy in some measure, but to store it up. Rest must be the only means associated with the outdoor life so far as is practicable.—*Amer. Rev. of Tuberc.*

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SATURDAY, NOVEMBER 9, 1918

OBSERVATIONS ON THE PRESENT EPIDEMIC OF SO-CALLED INFLUENZA IN EUROPE

The highly interesting abstract of recent English and German articles on so-called epidemic influenza, prepared by the British Medical Research Committee and printed verbatim in this issue of *THE JOURNAL*,¹ invites a few brief comments. The abstracts do not convey any clear information as to the extent of the spread or the severity of the disease in Europe. Judging, however, from the number and the nature of the articles abstracted, it looks as if the disease, thus far at least, has been more severe and more extensive in Germany than in England. One also receives the impression that the results of the bacteriologic and anatomic studies in Germany correspond more closely, perhaps, to the results that are being obtained in this country than do those coming from England. But it is entirely too early, of course, to form any reliable conclusions.

The articles abstracted seem to have been meager in clinical detail. It is evident that the observations at hand do not indicate the present epidemic to be a distinct clinical entity, clearly differentiated in its clinical activities from similar previous epidemics of more limited extent. The present epidemic apparently differs from these earlier epidemics mainly in contagiousness and in its extensive spread. The many minor epidemics of respiratory infections preceding the present epidemic are of great epidemiologic interest, but their true relation to the European influenzal disturbance can probably not be traced accurately. The fundamental anatomic changes in influenza, according to the German reports, seem to have been hemorrhages, especially in the respiratory tract, as well as inflammatory foci, the whole suggesting to some of the investigators a primary infection of the blood with localization especially in the pulmonary vessels. It would seem, however, that the possibility of direct infection of the respiratory tract cannot be excluded. These changes are regarded as paving the way for secondary infections. It is of great interest that there is no unanimity

of opinion whatever as to the nature of the primary infecting agent.

The bacteriologic results do not appear to warrant the assignment of any greater importance to the influenza bacillus than to the organisms described as diplostreptococci. These diplostreptococci are not described fully, but they most probably are nonhemolytic streptococci of the viridans type. Only slight mention is made of hemolytic streptococci or of pneumococci, which appear to be isolated in a certain proportion of the cases of influenzal pneumonia in this country.²

On the whole, the results of the work covered by the abstracts support the conclusion that we do not understand the true nature of the condition now being called epidemic influenza; that there is not sufficient evidence to regard any one of the different forms of bacteria found in the respiratory tract in the cases of the disease as the primary cause, but that all the bacteria, the influenza bacillus, as well as the so-called diplostreptococci and others, may be secondary invaders, transmissible from person to person with almost the same ease as the supposed, but unknown, primary cause. The one experiment mentioned bearing directly on the question of the exact etiology of epidemic influenza is that by Selter, who produced a typical but mild attack in two persons by spraying the throat with a filtrate of influenzal throat secretions; but not enough details are given so that one can form any judgment as to the value of this experiment.

THE REDUCTION OF BODY WEIGHT IN WAR TIME

Reports that have reached this country from Germany at intervals since the beginning of the world war have indicated that the unquestioned shortage of food has not been without effect on the civil population. It has been freely stated that a loss of body weight has in many cases followed the reduction in the available food. In some quarters the lowered intake necessitated by the emergency, particularly a year or more ago, has been hailed as a change by no means disadvantageous to the organism. "We eat too much," according to the dictum of those enthusiasts who see only advantage in an enforced dietary economy for a large part of the civil population, particularly for the great number of sedentary persons whose energy demands are primarily determined by the routine necessities of life rather than by muscular work of an arduous sort.

Since the American people have also been called on to exercise economy and avoid dietetic extravagances, it is timely to ask what the available evidence justifies

1. Page 1573.

2. Nuzum, J. W., et al.: Pandemic Influenza and Pneumonia in a Large Civil Hospital, this issue, p. 1562. Strouse, S., and Bloch, L.: Notes on the Present Epidemic of Respiratory Disease, this issue, p. 1568.

us in concluding on the subject of reduced rations. There seems to be little doubt that the rumors of reduction in body weight are not without foundation. Loewy,¹ a Berlin physiologist of experience in the study of nutrition, reported some time ago, as the result of statistical inquiries made by him, that already in April, 1916, the restriction in the food intake among large groups of the population was represented by an energy intake of between 2,200 and 2,300 calories a day, with an average protein content of from 65 to 68 gm. Loewy believed that such a regimen may be adequate in respect to its quota of protein, but that the energy that it represents would in general scarcely satisfy a sedentary person.

Since then a significant confirmation of the effect of the war time diet on the weight of the average German male citizen has been disclosed through the authority of Prof. Friedrich Müller, the Munich clinician. He has reported that in Munich men under 50 years of age had experienced an average loss of weight amounting to 10 per cent. in the two years preceding 1918. This leads his assistant, Dr. Jansen,² to remark that the former norm of 70 kg. for the adult man must be regarded as represented by 60 kg. in 1917 in Germany. Among a group of medical students examined by Jansen in the spring of 1917, all had experienced losses of weight amounting to 4 or 5 kg. during the war.

Such experiences raise the question as to the actual effect of a prolonged and considerable reduction of the diet on the metabolism. Since the law of the conservation of energy applies in the human organism, the food requirement must be equivalent to the metabolism in any event. Is this a fixed factor, so far as the maintenance component is concerned, or does it become altered with changing planes of nutrition? When the body weight declines as a result of short rations, is a point of equilibrium finally reached at which the scant supply suffices? To answer such pertinent questions Jansen has made observations on men averaging 62 kg. in weight and kept on restricted diets including 60 gm. of protein and 1,600 calories a day. The basal metabolism of these persons (at rest without food) averaged 1,400 calories. On the limited food intake there was continued loss of protein, amounting to nearly 12 gm. a day. When an additional 500 calories in the form of carbohydrate (lactose) were fed, the loss of nitrogen was nearly averted, showing that when enough total food energy is furnished, 60 gm. of protein in the daily diet may suffice to prevent loss of nitrogen from the tissues.

So far as the observations on the minimal protein requirement are concerned, there is nothing essentially new in these findings. It has repeatedly been demon-

strated that the conventionally assumed requirement of more than 100 gm. of protein a day is unnecessarily high in the light of modern researches. The energy features of the restricted diets cannot be so lightly dismissed. After reduction in body weight there was a lowered basal metabolism, which Jansen, like Loewy and Zuntz,³ attributes to a decrease in the active cell substance of the body. The persons involved were far from comfortable on the restricted diet; and when the task of a long march was further imposed on them, symptoms of distress ensued. In other words, the scanty maintenance diet of 2,100 calories for an adult man leaves no factor of safety for vigorous physical exercise.

In this country, Benedict⁴ and his co-workers at the Carnegie Nutrition Laboratory in Boston have made somewhat analogous, though far more elaborate studies on the effects of a prolonged reduction of diet on twenty-five men. A gradual reduction in weight to a point 12 per cent. below the initial weight took place during a period of from three to ten weeks, with low calories and a moderate amount of protein in the food intake. The normal demand of the men prior to the dietetic alteration ranged from 3,200 to 3,600 net calories. One squad of twelve men subsisted for three weeks on 1,400 net calories without special disturbance. Benedict states that notwithstanding the great reduction in the metabolism (which he believes was due to the removal from the body of the stimulus to cellular activity of approximately 150 gm. of "surplus nitrogen"), the whole period of lowered food intake had no untoward effect on the physical or mental activities of these men, and they were able to continue successfully their college duties. The psychologic report concludes that a prolonged reduction in diet produces some decline in neuromuscular activities, but this does not seem nearly so definite or so large as the changes in metabolism and allied measurements. The psychologic changes were not such as materially to interfere with a satisfactory discharge of the common duties of student life.

Seemingly in contrast to the German experience, Benedict's carefully selected subjects were less distressed by the privations of the diet. The measurement of their metabolism in walking showed a marked saving in the energy requirement for walking in favor of the reduced diet, whether considered on the basis of the gross energy expended, which represents the real cost to the individual and to the national food reservoirs, or on the basis of the energy required per horizontal kilogrammeter. Nevertheless it will be wise, in view of conflicting statements, to hesitate to lower

3. Loewy, A., and Zuntz, N.: *Berl. klin. Wehnschr.*, 1916, No. 30.

1. Loewy, A.: *Deutsch. med. Wehnschr.*, 1917, Nos. 6 and 7.
2. Jansen, W. H.: *Untersuchungen über Stickstoffbilanz bei kalorienarmer Ernährung*, *Deutsch. Arch. f. klin. Med.*, 1917, 124, 1.

4. Benedict, F. G., and Roth, P.: *Effects of a Prolonged Reduction in Diet on Twenty-Five Men, I, Influence on Basal Metabolism and Nitrogen Excretion*, *Proc. Nat. Acad. Sc.*, 1918, 4, 149. Miles, W. R.: *Effects of a Prolonged Reduction in Diet on Twenty-Five Men, II, Bearing on Neuromuscular Processes and Mental Condition*, *ibid.*, p. 152. Smith, H. M.: *Effects of a Prolonged Reduction in Diet on Twenty-Five Men, III, Influence on Efficiency During Muscular Work*, *ibid.*, p. 157.

the body weight of the populace at large to any considerable extent by rationing measures for the debated advantage of greater efficiency. The significance of "surplus protein" has not yet been clearly defined.

MORE MILK FOR VITAMINS

More than ten years ago the English physiologic chemist, F. G. Hopkins,¹ had found experimentally that an animal cannot live "on a mixture of pure protein, fat and carbohydrate; and even when the necessary inorganic material is carefully supplied, the animal still cannot flourish." In connection with these investigations he made the important discovery that a surprisingly small amount of milk as well as extracts of some other natural foods confer a nutritive adequacy on the otherwise insufficient ration. Meanwhile Osborne and Mendel² in this country demonstrated that the residual part of milk from which its fat and protein had been removed exhibited a growth-promoting or nutrition-promoting property when it was added to mixtures of the purified familiar foodstuffs. Subsequently McCollum and Davis and Osborne and Mendel independently announced that the fat of milk (butter fat) also exerts a further growth-promoting influence presumably due to something different from the known fats but closely associated with them. Thus the significance of the vitamins—a water-soluble and a fat-soluble type, respectively—in milk became established.

These discoveries have since been verified for various species. The lack of either the fat-soluble or the water-soluble essential properties has been believed to lead to distinct pathologic consequences when these vitamins are not replaced from other sources in the diet. Conversely, the presence of these "specifics" for good nutrition and growth contributes in no small measure to make milk the unique food that it is justly regarded to approximate. Hence we can understand what Mrs. Rose³ intended to imply by this fanciful comment: "When the milk pitcher is allowed to work its magic for the human race, we shall have citizens of better physique than the records of our recruiting stations show today. Even when the family table is deprived of its familiar wheat bread and meat, we may be strong if we invoke the aid of this friendly magician."

Osborne and Mendel⁴ have more recently come to the conclusion that from a quantitative standpoint cow's milk is not as rich in the water-soluble vitamin as one not familiar with the experimental evidence for this property of the food might assume. This is in no sense to be construed as a denial of the "magical

qualities," but rather as an argument for the more liberal use of milk when it is relied on largely to contribute the growth-promoting factors in the diet. From a practical standpoint it appears not unlikely, to cite the warning of Osborne and Mendel, that the need of children and other growing animals for the water-soluble vitamin, beyond the earlier stages of development when milk admittedly satisfies the nutritive requirements, may not be adequately filled by some of the current or enforced dietary practices. Thus, they add, with a too scanty allowance of milk, a liberal inclusion of products from cereals rendered poor in vitamin by milling, of sugar, fats, and few additional animal products other than meat (which has been shown to contain relatively little of the water-soluble vitamin), it is not surprising if disasters sometimes manifest themselves.

Another aspect of the significance of their quantitative studies of the vitamins in cow's milk has been presented by Osborne and Mendel in relation to milk dilution in infant feeding. It is a common practice to reinforce the supply of calories by diluting top milk and adding lactose. Under these circumstances, we are reminded, the child is supplied with a food that contains a relatively smaller proportion of the water-soluble vitamin than does the original cow's milk. While milk thus modified may contain sufficient vitamin as long as the food intake is normal, if for any reason the child's appetite fails, the vitamin supply is reduced and endless dietary troubles may easily result.

Without attempting to evaluate the actual degree of danger attributable to such causes in the artificial feeding of infants, we may well bear in mind the potentialities for harm. It may be that the young of healthy mothers are born with a reserve supply of the so-called vitamin substances sufficient to maintain them in good nutritive condition until the time when they begin to eat other foodstuffs. If milk is not always as rich in vitamins as is desirable at later stages of growth, there may be real wisdom in the practice of extending the diet as soon as the physiologic conditions of the individual warrant the use of other foods.

Training in Occupation Therapy.—A new course of instruction has been established by Columbia University in the School of Practical Arts in the Teachers' College for the purpose of training women in occupation therapy. The instruction will be given by specialists in nervous and mental diseases. In order to obtain a diploma, seven courses are required, comprising the medical aspects of occupational therapy, the methods of teaching this treatment, observation and practice work with the patients in institutions, the elements of psychology, art structure or design, and at least two craft courses. It is important that those taking up this work be of the normal, wholesome, well balanced type, with vigor and physical endurance. Other requisites for this branch of service are: First, the teacher should understand sick people. In the second place, she should have the psychologic background for teaching, and finally, she should be skilled in the arts and crafts.

1. Hopkins, F. G.: *The Analyst*, 1906, **31**, 395.

2. Osborne, T. B., and Mendel, L. B.: *Feeding Experiments with Isolated Food Substances*, Pub. 156, Carnegie Institution of Washington, Parts I and II, 1911.

3. Rose, Mary Swartz: *Everyday Foods in War Time*, 1918, p. 11.

4. Osborne, T. B., and Mendel, L. B.: *Milk as a Source of Water-Soluble Vitamins*, *Jour. Biol. Chem.*, 1918, **34**, 537.

Current Comment

VALUE OF VACCINATION AGAINST INFLUENZA

We publish in our Correspondence Department in this issue an interesting letter with the above title. In it the author apparently takes it for granted that the influenza bacillus is the primary cause of the acute epidemic respiratory infection now pandemic and being generally called influenza. There is no conclusive evidence that the Pfeiffer bacillus plays any greater rôle, if as great, in the present epidemic than any other bacteria found in the respiratory tract in this disease. This point emerges very clearly in the abstract of recent English and German literature and in the original contributions printed in this issue. We would also emphasize that, so far as we know, the influenza bacillus is a very poor antigen; there is, in fact, nothing to show that definite antibodies against this bacillus develop in the course of influenza, and the results of animal experiment show that it requires prolonged immunization before any response becomes apparent. Again, we have no record of any properly conducted and controlled experiments on human beings with influenza vaccines. No results of careful observations are as yet at hand. These things being so, what should a fair-minded and thoughtful physician say as to the face value of influenza vaccine? In this connection we give two examples of so-called "evidence" that appeared in newspapers, which seem to be the medium through which most of the evidence is appearing. One appeared in the health department, conducted by a physician, of a metropolitan newspaper in the middle west under the utterly misleading heading "Vaccine Blots Out 'Flu.'" We quote:

The evidence of the efficiency of the treatment is this: On October 20, about half the population of a town of 10,000 had been vaccinated at least in part. There have been seven cases of the disease. All the cases were among unvaccinated people. In a nearby town, with 400 inhabitants, there have been 200 cases and fifteen deaths. In the asylum three cases developed. Everybody was vaccinated and the disease did not spread. In St. Mary's Hospital the disease got a foothold among the doctors and nurses. After vaccination the disease stopped at once.

The other appears in an eastern paper as an interview with a physician, who, incidentally, is a manufacturer of vaccines, although this vital fact does not appear in the item. Again we quote:

I think it but just that I should report the success I have had in treating and preventing Spanish influenza with vaccine. I have given over 1,000 inoculations with 100 per cent. protection and treated several hundred cases with no deaths. Prior to the time I used vaccine nearly every one exposed to the disease contracted it. Now I blot it out of every house at my first visit by inoculating the entire family.

This so-called evidence has not yet been submitted in any scientific manner with the necessary facts and details to permit any judgment whatever to be formed as to its true value. In the meantime, we should not forget that in its natural course, epidemic influenza is affecting different, even adjacent, communities with widely varying degrees of severity, and that vaccina-

tion in an institution after the disease has appeared can have no value as an experiment because it may have been done in the wane of the epidemic. Finally we repeat: Vaccination against epidemic influenza is in a wholly experimental stage. Nothing can be learned as to its real value from indiscriminate vaccination of the public. The physician who, in view of the severity of the epidemic, feels that he is justified in vaccinating his patients, should be fair to them and protect himself by informing the patient that he regards the procedure as wholly of an experimental nature. Pending developments, nothing should be done by the medical profession that may arouse unwarranted hope among the public and be followed by disappointment and distrust of medical science and the medical profession.

EMERGENCY EDUCATIONAL STANDARDS AND STATE LICENSURE

Thirty-two state licensing boards either in the practice laws or by board rulings require that, before entering on the study of medicine, the student must have completed two years of premedical college work. This requirement as usually interpreted means sixty semester hours of work taken in two annual sessions of nine months each, and usually the two sessions are separated by a summer vacation of three months, making a total in actual time of twenty-two months. Divided into "quarters" of three months each, this would require seven quarters. Now, as noted in *THE JOURNAL* recently,¹ the Committee on Education and Special Training of the War Department has decided not only to do away with the summer vacation but also to condense the work of the remaining six quarters into four, or into a continuous session of twelve months. This means that the student will have to work proportionally harder at his professional studies; but with the rigid military routine there will be more time at his disposal than in the haphazard time-wasting methods of the former régime. The physical exercise required in the eleven hours per week of military drill will help to keep the student physically fit for the extra mental effort required of him. The object hoped for is to secure an equal amount of valuable training in two thirds of the time heretofore spent in obtaining it. The important question for licensing boards to decide is whether they can legally accept this course as the equivalent of the preliminary education required in their respective states, when these students apply for licenses. Based on correspondence conducted by the Council on Medical Education, nearly all the boards that were given ample authority by their practice acts stated their intention to cooperate with the War Department to the fullest extent possible in any measures made necessary by war conditions. In a few other states, amendatory clauses may need to be inserted in the practice acts so as to provide for graduates who began the study of medicine under these special regulations laid down by the War Department. This condensed schedule may, in fact, lead to permanent changes and important

1. Schedule of Studies for Premedical Students. *Current Comment*, *THE JOURNAL A. M. A.*, Oct. 19, 1918, p. 1317.

improvements both in methods of teaching and in state board requirements. There may, indeed, be an awakening to the fact that much valuable time heretofore has been lost to the student through the adherence to long obsolete arrangements of college curriculums as well as in the time wasted in the long summer vacations. If what has heretofore required six or seven years can be completed in four or five, the two years saved of the average student's time will make some changes in medical license regulations well worth while.

PASSING THE INFLUENZA BUCK

The Madrid correspondent of THE JOURNAL in his letter in this issue wishes it clearly understood that Spain does not care to take the responsibility for having initiated the present epidemic of respiratory disease. His protestations are both informing and amusing. Our Paris correspondent, also in this issue, feels too that the onus of responsibility should not be placed on Spain since the epidemic occurred both in France and in Germany. As one views the devastation which the disease has caused he is inclined to sympathize with the efforts of Spain or any other country to pass the buck.

ESSENTIAL TEACHERS AND THE DRAFT

Lists of essential teachers have been furnished by deans of well recognized medical colleges to the Surgeon-General of the Army and, as stated in a previous comment,¹ these teachers are not to be commissioned but are being retained at their teaching duties. But this arrangement does not exempt essential teachers of draft age from the requirements of the Selective Service Regulations. Such teachers, therefore, when filing their questionnaires should ask for a deferred classification on the ground that they are engaged in an activity "necessary to the public welfare and to the prosecution of the war." And whether the registrants ask for the deferred classification or not the deans of the medical schools should claim for their essential teachers this deferred classification in accordance with the Selective Service Regulations. While, as stated in one of their extracts, "it shall be the duty of advisers to confer with the managers and heads of various industries"—and this means, also, deans of medical schools—experience shows that the initiative usually has to be taken by the deans of the schools, if their essential teachers are to be retained. And this should be done promptly, since it will be difficult or impossible to get them back after they have once been classified. A ruling recently adopted in the War Department is to the effect that "men heretofore or hereafter classified in Class 1, Group A, and called to military service will not be granted furloughs." The class in which essential teachers of draft age should be placed is Class III-K, which is provided for technicians and experts in necessary industries. Since our medical schools are now practically military institutions in which soldiers on

active duty in the U. S. Army are being trained to become efficient medical officers, it is important that the teaching faculties should be kept intact.

RESERVE OFFICERS FOR THE PUBLIC HEALTH SERVICE

Senate Joint Resolution No. 63, establishing a Reserve in the Public Health Service, has finally passed and been approved by the President. It authorizes the President to appoint and commission as officers in the Public Health Service Reserve citizens who, on examination, are found physically, mentally and morally qualified, the commissions to be in force for a period of five years. The officers commissioned shall be distributed in the same proportion as among the present commissioned Medical Corps of the Public Health Service among the several grades now obtaining in that service, namely, Assistant Surgeon-General, Senior Surgeon, Surgeon, Passed Assistant Surgeon, and Assistant Surgeon, which correspond respectively to the grades of Colonel, Lieutenant-Colonel, Major, Captain, and Lieutenant in the Army. Regulations for the organization and government of the Reserve Corps are now being prepared for submission to the President. In view of the manifold activities entrusted by law to the Public Health Service and the expansion of its functions by executive order of July 1, 1918, the new Reserve Corps will include in its membership a personnel with varied qualifications. In addition to physicians who will form the bulk of the reserve this will, therefore, comprise among others, sanitarians, sanitary engineers, chemists and bacteriologists. The passing of this law is another step toward adequate control of national health interests.

THE SEWAGE POLLUTION OF BOUNDARY WATERS

The International Joint Commission on Boundary Waters Between the United States and Canada has recently issued its final report.¹ The conclusions of the commission are based on the best expert knowledge and opinion now available, and will doubtless receive the consideration they deserve. The chief interest in the report centers in the limits of permissible pollution that are established. The commission recognizes that sewage disposal by dilution is a natural resource and that the utilization of this resource is justifiable for economic reasons, always assuming that an unreasonable burden or responsibility is not placed on the water purification plant, so as to occasion menace to the public health. It is believed by the commission that the safe loading of a water purification plant is exceeded if the annual average of *B. coli* in the water delivered to the plant is higher than about 500 per hundred c.c. As a working rule, it has been found that if, under conditions actually existing, the city sewage is diluted in the stream flow to 4 cubic feet per second per capita of the population, the resulting water will contain approximately 500 *B. coli* per cubic

1. The Problem of Essential Teachers in Medical Schools, Current Comment, THE JOURNAL A. M. A., Oct. 26, 1918, p. 1412.

1. Engin. News, Oct. 10, 1918, p. 660.

centimeter. Perhaps the essence of the report is found in the recommendation that all sewage should receive some purification treatment before being discharged into boundary waters, the degree of such treatment to be determined in large measure by the limit of safe loading of a water purification plant. The report marks a distinct progress in the practical adjustment of sewage disposal necessary to the public welfare.

Medical Mobilization and the War

Resolution to Provide a Reserve Corps for the Public Health Service

A joint resolution to provide a reserve corps for the United States Public Health Service was approved by the President on October 27. The resolution states:

Resolved, by the Senate and House of Representatives of the United States of America in Congress assembled, That for the purpose of securing a reserve for duty in the Public Health Service in time of national emergency there shall be organized, under the direction of the Secretary of the Treasury, under such rules and regulations as the President shall prescribe, a reserve of the Public Health Service. The President alone shall be authorized to appoint and commission as officers in the said reserve such citizens as, upon examination prescribed by the President, shall be found physically, mentally, and morally qualified to hold such commissions, and said commissions shall be in force for a period of five years, unless sooner terminated in the discretion of the President, but commission in said reserve shall not exempt the holder from military or naval service.

Provided, That the officers commissioned under this act, none of whom shall have rank above that of Assistant Surgeon-General, shall be distributed in the several grades in the same proportion as now obtains among the commissioned medical officers of the United States Public Health Service and shall at all times be subject to call to active duty by the Surgeon General, and when on such active duty shall receive the same pay and allowances as are now provided by law and regulation for the commissioned medical officers in the said regular commissioned Medical Corps.

Weekly Bulletin, American Expeditionary Forces

The following paragraphs are taken from Weekly Bulletin No. 26, Oct. 7, 1918, issued for circulation among American medical officers in France:

JUDGMENT AND INGENUITY DEMANDED IN TRANSFERRING PATIENTS BETWEEN HOSPITALS

(a) Do not transfer patients with pneumonia or respiratory tract infections; absolute rest is as vital to them while they are meeting and overcoming the infection as operation is for penetrating wounds of the abdomen. Patients with infectious diseases while still in the communicable stage should not be transferred.

(b) A good many patients with bone and joint injury are being evacuated from one hospital to another either inadequately splinted or entirely without splints. The excuse commonly given is that the standard splints are not available.

Such an excuse is, of course, entirely insufficient, since even though the standard splints are not available, the ingenuity of the surgeon should be used to devise some form of appliance that would be reasonably satisfactory for transport use until the regular splints can be used.

SERIOUS PRESENT SITUATION IN A. E. F.

During the past week there has been further extensive incidence of pneumonia, in almost all instances accompanying the prevailing epidemic of influenza. Large convoys brought to the base ports several thousand cases of severe influenza and many hundreds of cases of pneumonia. The death rate (case mortality percentage) among the pneumonia patients has risen to 32 per cent. for the A. E. F., and in some groups of cases it has been 80 per cent.

When unseasoned men have been sent to the A. E. F., the percentage attacked by influenza on shipboard and the percentage of complicating pneumonias developing among these contingents after arrival has been unusually high, 100 per cent. sick being reported from the Five Hundred and Thirty-Ninth Labor Battalion (Negro).

In addition to the three cardinal causes of high incidence of respiratory affections that still prevail widely (i. e., (1) overcrowding, (2) exposure to wet and cold, and (3) fatigue from overwork, long journeys, loss of sleep, or worry) there

has been much pneumonia developing among men with influenza evacuated to base hospitals who should at all costs and by every means possible be kept where they are taken sick. Absolute rest, even though in the absence of skilled nursing, or under very primitive conditions of shelter, is indispensable to escape the complication of pneumonia.

Meningitis has made another sudden rise in incidence, as had been expected. Forty-eight of the seventy-one cases reported in the week were in the base sections, and thirty-three of the cases were found among troops on arrival of a convoy at one port.

Dysentery, diphtheria, measles, paratyphoid, scarlet fever and typhoid fever show a very satisfactory reduction during the week.

Provision for Essential Teachers in Medical Schools

The Committee on Education and Special Training of the War Department has issued the following circular letter relative to furloughs, induction and transfers for the information and guidance of institutions having a unit of the S. A. T. C.:

MEMORANDUM for Commanding Officers, Students' Army Training Corps, and Presidents of Students' Army Training Corps Institutions. Subject: Policy as to Teachers Registered under Selective Service Act.

1. Men heretofore or hereafter classified in Class 1, Group A, and called to military service will not be granted furloughs.

2. Teachers who are essential are eligible to claim deferred classification under Section 80, Selective Service Regulations, and they are encouraged to do so. Such deferred classification should be claimed for them by the educational institution by which they are employed, in accordance with the paragraphs from Section 80, Selective Service Regulations.

3. Teachers who are denied deferred classification by the district board and who are liable to call to military service will be encouraged to request voluntary induction in the unit of the S. A. T. C. stationed at the institution where such instructors are employed.

4. In very exceptional cases and upon the recommendation of the Educational Department of the Committee teachers who have already been drafted and are now at mobilization camps will be transferred back as soldiers on active duty to the unit of S. A. T. C. where needed; provided such instructors do not object to return as soldier-instructors, have not been permanently assigned in a capacity wherein their services will be of great value to the Army, and have not already been designated to attend Officers' Training Schools.

5. Since the colleges are under contract with the War Department to train enlisted men in the U. S. Army, essential teachers are obviously engaged in occupations that are strictly "necessary to the maintenance of the Military Establishment." It is, therefore, expected that the really essential professors and teachers will be granted deferred classification under the law on this account. Heads of institutions should see to it that district boards and their industrial advisers are fully informed of all the facts in every case.

By direction of the Committee.

R. I. REES,

Colonel, General Staff Corps Chairman.

October 1, 1918.

COMMISSIONS OFFERED AND ORDERS TO DUTY ON ACCEPTANCE

Alabama

To Camp Beauregard, La., Lieuts. C. E. FORD, Roanoke; R. D. PORCH, Sylacauga.

To Camp McClellan, Ala., Lieut. J. W. GWIN, Bessemer.

To Camp Sheridan, Ala., Lieut. D. H. Chilton, Patton. Base hospital, for instruction, Lieut. W. B. HARDY, Birmingham.

To Camp Wheeler, Ga., Lieut. D. R. CORNELIUS, Pratt City.

To Fort Oglethorpe for instruction, Capt. W. M. WALDRUP, Bessemer; W. S. SOWELL, Empire; W. M. BOOTH, Hartsells; Lieuts. T. COLLINS, Birmingham; E. S. PRICE, Buhl; H. F. DOWNS, Clanton; G. H. SMITH, Ensley; W. D. MIXSON, Midland City.

To report to the commanding general, Southeastern Department, Capt. A. A. KIRK, Tuscaloosa; Lieut. E. T. BARKER, McFall.

Arizona

To Fort Oglethorpe for instruction, Capt. R. B. DURFEE, Bisbee.

To Fort Riley for instruction, Lieuts. T. R. WHITE, Kingman; H. W. RICE, Morenci.

To report to the commanding general, Southern Department, Capt. E. C. BAKER, Phoenix.

Arkansas

To Fort Oglethorpe for instruction, Capt. F. E. HARRISON, Forde; W. A. MOORE, Rogers.

To Fort Riley for instruction, Capt. O. E. JONES, Newport; A. M. ELTON, Yellville; Lieuts. E. R. KING, Ben Lomond; V. V. BUTLER, Huntington; F. YOUNGBLOOD, Huntsville.

To Fort Sam Houston, Texas, Lieut. J. R. DALE, JR., Texarkana.

California

To Camp Cody, N. M., base hospital, for instruction, Capt. E. J. COOK, Lieut. C. E. REYNOLDS, Los Angeles. To examine the command for nervous and mental diseases, Capt. T. J. BERGGREN, Coronado.

To Camp Kearney, Calif., base hospital, for instruction, Lieuts. C. N. MOONEY, Blue Lake; F. W. WATT, Sacramento; M. H. ARNOLD, San Diego; H. F. ADLER, San Francisco; H. E. TEBBETTS, Whittier.

To Denver, Colo., Lieut. J. W. NEVIUS, Los Angeles.

To Fort Oglethorpe for instruction, Capt. W. S. VAN DALSEM, San Jose.

To Fort Riley for instruction, Lieut. H. C. SMITH, Glendale.

To report to the commanding officer, Western Department, Capt. J. M. WARD, Oakland; Lieuts. E. G. BASHOR, Los Angeles; H. ABRONS, Napa.

To San Francisco, Calif., Letterman General Hospital, for instruction, Capt. W. A. RECKERS, Placerville; Lieut. J. S. MASON, Ventura.

Canal Zone

To Fort McPherson, Ga., Lieut. L. WENDER, Corozal.

Colorado

To Azalea, N. C., Capt. G. H. CATTERMOLE, Denver.

To Camp Dodge, Iowa, base hospital, for instruction, Lieut. I. C. MIERLEY, Denver.

To Camp Logan, Texas, Capt. D. C. GROVES, Olathe.

To Fort Oglethorpe for instruction, Capt. C. F. EAKINS, Brush; H. R. McGRAW, Denver.

To Fort Riley for instruction, Lieuts. L. W. SOLAND, Blanca; P. A. WATERS, Monte Vista.

To Whipple Barracks, Ariz., Capt. A. G. WALKER, Denver.

Connecticut

To Camp Joseph E. Johnston, Fla., Lieut. E. J. LYMAN, Hartford.

To Colonia, N. J., Lieut. R. C. PAINE, Thompson.

To Fort Oglethorpe for instruction, Lieut. J. J. TYNAN, Torrington.

To New Haven, Conn., Capt. H. W. FLECK, Bridgeport. Yale Army Laboratory School, for instruction, Lieut. C. T. BEACH, Hartford.

To New York, Neurological Institute, for instruction, Lieut. T. W. WORTHEN, Hartford.

District of Columbia

To Camp McClellan, Ala., base hospital, Lieut. C. B. CONKLIN, Washington.

Florida

To Camp Meade, Md., Lieut. B. H. SANCHEZ, Plant City.

To Fort Oglethorpe for instruction, Lieut. R. E. CHALKER, Live Oak.

Georgia

To Fort Oglethorpe for instruction, Lieuts. W. H. ALEXANDER, Blakely; H. H. BLAKE, Savannah.

Idaho

To Fort Riley for instruction, Capt. H. D. SPENCER, Idaho Falls; H. E. MELTON, Menan; Lieuts. H. J. SIMMONS, Blackfoot; A. A. NEWBERRY, Piler; G. T. PARKINSON, Rexburg.

To report to the commanding general, Western Department, Capt. E. H. FIELD, Jerome; C. P. STACKHOUSE, Sandpoint.

Illinois

To Camp Beauregard, La., base hospital, for instruction, Capt. S. G. WEST, Chicago.

To Camp Custer, Mich., Lieut. R. V. SPENCER, Chicago Heights.

To Camp Dodge, Iowa, base hospital, for instruction, Capt. F. J. LESEMAN, Chicago.

To Camp Grant, Ill., Capt. C. E. SCELETH, Chicago. Base hospital, for instruction, Lieuts. H. O. JONES, Chicago; R. O. HAWTHORNE, Monticello.

To Camp Pike, Ark., Lieuts. P. B. JOYCE, Chicago; J. P. O'NEILL, Highland Park. To examine the command for nervous and mental diseases, Capt. W. A. CROOKS, Peoria.

To Camp Sherman, Ohio, Lieut. E. W. MUELLER, Chicago.

To Camp Wheeler, Ga., base hospital, Lieut. E. A. STREICH, Chicago.

To Camp Zachary Taylor, Ky., Capt. B. F. FLANAGAN, Lieut. M. SOLOMON, Chicago. To examine the command for nervous and mental diseases, Lieut. A. H. WATERMAN, Chicago.

To Fort Des Moines, Iowa, Lieuts. R. B. KERSHAW, M. O'HEARN, Chicago.

To Fort Oglethorpe for instruction, Capt. S. W. SHURTZ, Champaign; F. H. BLAYNEY, R. C. CUPLER, F. P. MACHLER, A. W. McCLAVE, J. M. NICHOLSON, Chicago; G. STEELY, Danville;

A. L. HAGLER, Springfield; Lieuts. F. C. BAECHE, Brussels; H. W. J. KOERPER, Buda; F. G. CARLS, E. S. CLEVELAND, C. H. CONNOR, W. S. CROWLEY, E. H. FLINN, A. W. GREGG, W. P. GUNN, H. C. HANSON, E. L. HESS, F. C. JACOBS, F. E. MILLER, J. H. MITCHELL, V. V. PISANI, H. C. RUNYAN, G. E. SANDSTEDT, F. M. SCHWARZEL, R. W. E. SPRENG, Chicago; B. L. VILNA, Cicero; C. O. BULGER, Greenfield; E. G. MERWIN, Highland; E. F. SCHEVE, Mascoutah; W. L. COTTINGHAM, Paxton;

M. T. EASTON, Peoria; C. T. KELL, Salem; J. G. MEYER, Springfield; T. G. KNAPPENBERGER, St. Joseph; A. H. HUNTER, Staunton; A. J. FROELICH, West McHenry.

To Fort Riley for instruction, Capt. C. G. DAVIES, Blue Island; S. WAYLAND, Chicago; E. L. DAMRON, Effingham; L. H. TATE, Galesburg; T. E. McCALL, Vienna; Lieuts. A. TRIPODI, Benld; J. H. GAFF, O. B. FUNKHOUSER, A. MAGNUS, Chicago;

G. HENDERSON, Clay City; C. M. COOK, J. L. FUNKHOUSER, Danville; F. E. HAGIE, Elizabeth; R. D. FINCH, Flora; M. L. HARTMAN, Garden Prairie; R. L. WATSON, Joliet; C. E. ERICSON, Quincy; C. H. BOSWELL, Rockford; W. E. COULTER, Seneca; J. E. MARVEL, Waynesville; S. W. BROWNSTEIN, Westville.

To report to the commanding general, Central Department, Capt. T. R. FOSTER, Watseka; Lieuts. C. P. GIERALTOWSKI, Chicago; H. C. McMILLIN, Morton.

Indiana

To Camp Custer, Mich., Capt. H. W. SIGMUND, Crawfordsville.

To Camp Greene, N. C., to examine the command for nervous and mental diseases, Capt. H. D. PURDUM, Sykesville.

To Camp Zachary Taylor, Ky., Lieut. R. M. FUNKHOUSER, Evansville.

To Colonia, N. J., Capt. J. A. CRAIG, Gary; G. D. KIMBALL, Marion.

To Fort Oglethorpe for instruction, Capt. J. B. STALKER, Borden; L. C. BICE, Edinburgh; G. S. BEATY, French Lick; J. J. BOAZ, W. B. KITCHEN, O. C. NEIER, Indianapolis; J. E. BIRD, New Albany; Lieuts. E. D. HAVENS, Cicero; T. D. PETERS, Flora; J. P. CHRISTIE, F. W. MAYER, H. F. NOLTING, Indianapolis; E.

C. CEKUL, La Otto; E. BARNUM, Manila; G. V. CRING, Portland; O. T. BRAZELTON, Princeton; F. E. BASS, Shelbyville; D. E. MURRAY, Sheldon.

To Fort Riley for instruction, Capt. R. S. CHAPPELL, W. F. KELLY, Indianapolis; Lieuts. H. S. HIATT, Albion; S. M. COMPTON, Forest; A. H. HENDRICKS, W. H. LONG, Indianapolis; W. I. SCOTT, Kokomo; P. T. GRANT, Marengo; F. T. TYLER, New Albany.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. R. E. COLE, Muncie.

To report to the commanding general, Central Department, Capt. W. G. HUFFMAN, Richmond; Lieut. J. F. DRAKE, Youngstown.

Iowa

To Camp Dodge, Iowa, base hospital, for instruction, Capt. C. E. GLYNN, Davenport; Lieut. J. A. CAHILL, Volga City. To examine the command for nervous and mental diseases, Lieut. F. J. VAN METER, Clarinda.

To Camp Shelby, Miss., base hospital, for instruction, Lieut. F. A. GILLET, Fremont.

To Camp Wheeler, Ga., base hospital, Capt. J. L. SEABLOOM, Red Oak.

To Fort Oglethorpe for instruction, Lieuts. J. H. WOLFE, Iowa City; W. G. ROWLEY, Sioux City.

To Fort Riley for instruction, Capt. W. C. PHILLIPS, Clarinda; S. D. CARNEY, Sioux City; Lieuts. J. D. PAUL, Anamosa; D. F. HUSTON, Columbus Junction; G. D. CLEAVER, Council Bluffs; T. D. JACOBS, Morley; N. W. LABAGH, Mystic; W. C. CUMMINGS, Ryan.

To report to the commanding general, Central Department, Capt. J. O. GANOE, Ogden; Lieut. E. B. HADLEY, Waterloo.

Kansas

To Camp Dodge, Iowa, base hospital, for instruction, Capt. W. A. KLINGBERG, Elmo.

To Camp Logan, Texas, Capt. J. B. CARTER, Wilson.

To Camp Pike, Ark., base hospital, Lieut. R. G. SMITH, Marion.

To Fort Oglethorpe for instruction, Capt. J. S. McBRIDE, Lyon; H. E. NELSON, Sharon Springs.

To Fort Riley for instruction, Lieuts. C. F. ATWOOD, Abilene; W. W. SCOTT, Athol; G. E. MARTIN, Callison; A. W. CORBETT, Emporia; M. L. BRAKEBILL, Florence; F. L. DEPEW, Howard; D. J. MOORE, Idana; P. L. JONES, Lenexa; J. W. DEMAND, Lincolnville; H. W. DAVIS, Little River; F. R. BLAKE, Marquette; O. M. CASSEL, Norton; W. O. POSTON, Quenemo; T. A. O'CONNOR, C. S. WOLFE, Topeka; E. S. HAWORTH, Viola; E. A. MYERS, Wakefield.

Kentucky

To Camp Sevier, S. C., Lieut. T. J. ROBB, North Fork.

To Fort Oglethorpe for instruction, Capt. H. C. WHITE, Covington; H. L. McLEAN, Wilmore; Lieuts. H. V. JOHNSON, Georgetown; A. BACH, Jackson; T. M. DORSEY, I. N. KERNS, Louisville; L. O. PINDAR, Tyronne; W. G. SHACKLETTE, Valley Station.

To New York, Neurological Institute, Capt. E. T. BRUCE, Louisville.

To report to the commanding general, Central Department, Capt. W. T. McKINNEY, S. P. MYER, Louisville.

Louisiana

To Camp Beauregard, La., base hospital, for instruction, Lieut. E. L. SANDERSON, Shreveport.

To Camp Bowie, Texas, base hospital, Lieut. W. M. JOHNSON, New Orleans.

To Camp Custer, Mich., Lieut. P. C. SCHMIDT, New Orleans.

To Camp Jackson, S. C., base hospital, for instruction, Capt. R. E. Stone, New Orleans.

To Camp Joseph E. Johnston, Fla., Lieut. L. CHATELAIN, Hessmer.

To Fort Oglethorpe for instruction, Capt. E. F. BACON, E. L. LECKERT, New Orleans; Lieuts. J. K. SHEPPARD, Houghton; E. BLOCH, H. E. MILLER, E. S. SCHARFF, New Orleans.

Maine

To Camp Jackson, S. C., base hospital, for instruction, Capt. D. B. CRAGIN, Waterville.

To Camp Upton, N. Y., Lieut. C. G. FARRELL, Gardiner.

To Mineola, N. Y., Capt. S. E. FISHER, Portland.

To Norfolk, Mass., Lieut. K. B. STURGIS, Fairfield.

To report to the governor of Maine, as Medical Aide, Capt. B. F. BRADBURY, Norway.

Maryland

To Camp Lee, Va., for instruction, Capt. P. L. TRAVERS, Easton.

To Camp Meade, Md., Lieut. A. STEIN, Baltimore.

To Camp Wadsworth, S. C., to examine the command for nervous and mental diseases, Lieut. W. S. CARSWELL, Ruxton.

To Fort Oglethorpe for instruction, Capt. J. S. WILLOCK, Roland Park; Lieuts. F. H. CLARK, W. O. WHITTLE, W. F. ZINN, Baltimore; W. A. GRACIE, Cumberland; B. I. JAMISON, Emmitsburg.

Massachusetts

To Arcadia, Fla., Carlstrom Field, Lieut. W. D. STACEY, Boston.

To Camp Devens, Mass., Lieut. W. E. HUNT, Bridgewater. Base hospital, Capt. G. H. STONE, Boston; O. M. DEEMS, Springfield; Lieut. W. W. HENNESSEY, Salem. Base hospital, for instruction, Capt. D. P. O'BRIEN, New Bedford; Lieuts. T. A. DEVAN, L. E. PHANEUF, Boston.

To Camp Jackson, S. C., base hospital, Lieut. C. H. LAWRENCE, Jr., Boston.

To Camp Lee, Va., Capt. H. M. CHASE, Boston. Base hospital, for instruction, Capt. H. H. GERMAIN, Boston; G. M. SHEAHAN, Quincy. For instruction, Lieut. C. A. ORDWAY, Everett.

To Camp Meade, Md., Lieuts. A. R. CUNNINGHAM, Boston; H. KAPLOVITCH, Haverhill.

To Camp Upton, N. Y., Lieut. M. F. McMAHON, Worcester.

To Colonia, N. J., Capt. J. E. OVERLANDER, Springfield.

To Fort Oglethorpe for instruction, Capt. A. H. RING, Arlington Heights; S. F. CURRAN, L. B. MORRISON, Boston; W. B. YOUNG, East Cambridge; F. D. McALLISTER, Lawrence; S. S. ORR, Weston; Lieuts. G. H. BINNEY, E. S. BISBEE, R. P. BONELL, W. E. CONNOLLY, J. G. HEGARTY, Z. A. MOLLIKA, E. H. ROBBINS, J. L. SULLIVAN, Boston; J. D. TAYLOR, East Boston; W. H. SHER-

MAN, Graniteville; J. E. GRADY, Leominster; F. C. CASSIDY, Medford; C. SHANKS, New Bedford; G. A. WILKINS, Revere; E. A. GENEREAUX, Whitinsville; L. K. CROSS, Winchendon; J. P. CARROLL, Woburn; F. B. PUSKINIGIS, Worcester.

To Hoboken, N. J., Lieut. E. F. REGAN, Framingham.
To Lakewood, N. J., Lieut. T. E. BUCKMAN, Boston.
To Mineola, N. Y., Hazelhurst Field, for instruction, Capt. F. E. DOW, Northampton; Lieut. T. F. CAPELES, Haverhill.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Capt. D. L. WILLIAMS, Boston; Lieuts. J. E. WATERS, Gardner; J. A. RUEL, Haverhill.

To report to the commanding officer, Northeastern Department, Capt. V. A. REED, Lawrence; Lieut. N. M. CROFTS, North Adams.

Michigan

To Camp Custer, Mich., Lieut. M. P. FISHER, Detroit. Base hospital, Capt. J. T. S. HAMILTON, Detroit; Lieut. P. VERMEULEN, Grand Rapids.

To Camp Zachary Taylor, Ky., base hospital, Lieut. C. S. KLOEPPEL, Detroit. Base hospital, for instruction, Lieut. E. I. CARR, Lansing.

To Colonia, N. J., Lieut. W. M. BURLING, Grand Rapids.
To Fort Oglethorpe for instruction, Capts. J. J. DELBRIDGE, Detroit; J. B. BROWN, Lavering; C. W. MERRITT, St. Joseph; Lieuts. W. S. CHAPIN, Ann Arbor; H. P. LAWRENCE, Bay City; A. L. HAIGHT, Crystal Falls; T. H. E. BEST, C. W. COURVILLE, R. S. MacKNIGHT, M. B. ROBINSON, Detroit; C. E. LONG, Grand Haven; V. L. OLER, Kearsarge; D. A. GALBRAITH, Lansing; G. F. LAMB, Pentwater; J. D. BRADFIELD, Portland; L. L. HUNT, Scottville; F. R. BURDENO, Sturgis.

To Fort Porter, N. Y., Lieut. F. C. BANDY, Newberry.
To report to the commanding general, Central Department, Capt. J. H. KIMBLE, Plymouth.

Minnesota

To Camp Custer, Mich., base hospital, for instruction, Lieut. T. L. CHAPMAN, Duluth.

To Camp Dodge, Iowa, base hospital, Capt. A. E. SMITH, Minneapolis.

To Camp Grant, Ill., base hospital, for instruction, Lieuts. F. F. MOREHOUSE, Owatonna; W. O. OTT, Rochester. For instruction, Capts. S. B. HAESSLY, Fairbault; I. SIVERTSEN, Minneapolis.

To Fort Oglethorpe for instruction, Capts. J. W. DOYLE, Minneapolis; W. W. HIGGS, Park Rapids; Lieuts. C. J. GOODHEART, Akeley; H. F. RAWLINGS, Eveleth; A. L. HAMEL, Minneapolis; G. A. MURRAY, Rochester.

To Fort Riley, Capt. T. THORDARSON, Minnesota. For instruction, Capt. W. P. LEE, Northfield; Lieuts. C. D. KOLSET, Benson; E. E. CRESS, Boyd; A. E. PHILLIPS, Delano; M. W. H. BECKMAN, H. LYSNE, C. L. RODGERS, Minneapolis.

Mississippi

To Camp Beauregard, La., Lieut. J. E. FURR, Belen.
To Fort Oglethorpe for instruction, Capts. J. S. JACKSON, Belzoni; J. E. WALLACE, Biloxi; Lieuts. R. E. GRAY, Bude; H. L. MAINS, Danvers; C. W. MITCHELL, Harkville; S. W. COLEY, Reid; W. D. COPELAND, Sandersville.

To report to the commanding officer, Southern Department, Capt. J. B. MOONEY, Scooba.

Missouri

To Camp Beauregard, La., Lieut. M. E. HAGERTY, St. Louis.
To Camp Dix, N. J., base hospital, Lieut. E. J. SCHISLER, St. Louis.
To Camp Dodge, Iowa, base hospital, Lieut. C. A. REVELLE, Kansas City.

To Camp Pike, Ark., Capt. W. R. SUMMERS, Springfield; Lieut. O. HOFMANN, Kansas City.

To Camp Shelby, Miss., base hospital, for instruction, Capt. E. L. DORSETT, St. Louis.

To Fort Oglethorpe for instruction, Capts. G. O. HAMMERSLEY, Campbell; E. P. PORTERFIELD, St. Louis; Lieuts. W. C. INGRAM, Browning; T. R. GAMMAGE, F. P. HERBST, Kansas City; P. L. PATRICK, Marceline; S. F. WEYGANDT, St. Louis.

To Fort Riley, Capt. H. L. REID, Charleston. For instruction, Capts. J. J. FARRELL, C. E. PAXON, Hannibal; J. S. SNIDER, Kansas City; F. L. McCORMICK, Moberly; T. A. ROSELLE, Palmyra; H. R. CLARK, Peirce City; W. C. PROUD, St. Joseph; S. T. BASSETT, C. N. GUHMAN, St. Louis; Lieuts. P. H. STOCKFLETH, Cameron; E. L. PARKER, Excelsior Springs; W. PIERCE, Forrest Park Heights; A. M. UNDERWOOD, Holstein; O. A. GROTE, Moberly; E. W. SULLIVAN, Osceola; C. D. OSBORNE, Otterville; H. H. FRANCIS, St. Joseph; J. DAVIE, P. A. ECK, A. A. WERNER, St. Louis; L. L. HENSON, West Eminence.

To report to the commanding officer, Central Department, Capt. M. B. AUSTIN, Brunswick; Lieut. W. H. ABER, Aullville.

Montana

To Fort Oglethorpe, Lieut. P. E. KANE, Butte. For instruction, Lieut. H. G. HARRIS, Poplar.

To Fort Riley for instruction, Lieut. W. B. SHORE, Red Lodge.

Nebraska

To Camp Dodge, Iowa, base hospital, for instruction, Lieut. O. H. HAHN, Hastings.

To Fort Oglethorpe for instruction, Lieuts. L. L. NELSON, Norfolk; L. A. DERMODY, Omaha; L. B. LAKE, Wausa.

To Fort Riley, Capt. W. R. McGREW, Omaha. For instruction, Capts. E. C. STEVENSON, Gothenburg; J. E. SIMPSON, Omaha; Lieuts. J. B. REDFIELD, North Platte; R. S. JOHNSTON, Omaha; J. R. LEIBEE, Polk; J. W. STOCKMAN, Red Cloud.

New Hampshire

To Colonia, N. J., Capt. G. H. PARKER, Hanover.

New Jersey

To Camp Dix, N. J., base hospital, Capt. W. S. BRANNER, Hoboken.

To Camp Meade, Md., Capt. O. B. DUNCAN, Paterson; Lieut. J. A. CONNELLY, Trenton.

To Fort Oglethorpe for instruction, Capts. H. ARBUCKLE, Boonton; J. V. BERGIN, Paterson; Lieuts. W. R. RIECK, Arlington; J. J.

REASON, Garteret; E. W. MIERAU, Irvington; F. C. SHIPMAN, Jersey City; G. L. JOHNSON, Morristown; W. E. McCORMICK, Mount Vernon; J. J. SMITH, H. R. VAN NESS, Newark; W. E. WAKELEY, Orange; A. A. BUTTERFIELD, Passaic.

To Mineola, N. Y., Hazelhurst Field, for instruction, Capt. A. B. RUSSELL, East Orange.

To Plattsburg Barracks, N. Y., Lieut. M. A. CURRY, Greystone Park.

New Mexico

To Camp Cody, N. M., base hospital, Lieut. S. C. CLARKE, Albuquerque.

To Fort Riley for instruction, Lieuts. H. A. STROUP, Artesia; H. J. HOAG, Mora.

To report to the commanding general, Western Department, Lieut. E. S. FURAY, Lakewood, Southern Department, Lieut. C. W. GERBER, Las Cruces.

New York

To Boston, Mass., for intensive training, Lieut. F. W. SEWARD, Jr., Goshen.

To Camp Custer, Mich., base hospital, for instruction, Capt. J. HORN, Brooklyn.

To Camp Devens, Mass., base hospital, for instruction, Lieuts. L. A. WYLLIE, Harrison; J. W. GRAVES, Herkimer; R. S. COOPER, Syracuse.

To Camp Dix, N. J., base hospital, Capt. A. F. CHACE, New York.

To Camp Hancock, Ga., base hospital, Lieut. H. I. BERLOWE, New York. For instruction, Capt. S. B. THOMAS, Brooklyn.

To Camp Jackson, S. C., base hospital, for instruction, Capt. W. A. DOWNES, New York. For instruction, Major J. P. F. BURKE, Buffalo.

To Camp Joseph E. Johnston, Fla., Lieut. J. R. GLOBUS, Brooklyn.

To Camp Lee, Va., Lieut. F. E. DUBOIS, New York. Base hospital, for instruction, Capt. M. I. BLANK, New York; Lieut. C. W. SYMONDS, New York.

To Camp Logan, Texas, Lieut. L. MARCUS, Brooklyn.

To Camp McClellan, Ala., base hospital, Lieut. J. HEINE, New York.

To Camp Meade, Md., Lieuts. W. J. McGIBBON, Chatenugay; W. ORMISTON, Delhi; G. A. GORISSE, S. L. HASELTINE, New York.

To Camp Sevier, S. C., base hospital, Lieut. W. Z. JEROME, New York.

To Camp Sheridan, Ala., base hospital, Lieut. F. H. COOK, Middletown.

To Camp Sherman, Ohio, Lieuts. L. W. BURDICK, Maryland; W. C. TREDER, Scotia.

To Colonia, N. J., Capt. A. BOOKMAN, New York.

To Fort McPherson, Ga., Capt. R. L. WOOD, Lieut. J. ROSENTHAL, Brooklyn.

To Fort Oglethorpe, Lieut. S. WEIL, New York. For instruction, Capts. L. H. FINCH, Amsterdam; J. B. KOPF, Brooklyn; B. J. RIXBY, Buffalo; J. E. CANFIELD, Herkimer; F. A. DEAL, T. L. HEIN, J. R. HUNTER, New York; T. D. BUCK, Rochester; T. F. COLE, Romulus; Lieuts. R. J. KNAPP, Amsterdam; C. L. WAKEMAN, Andes; H. H. LESEUR, Batavia; H. M. KENYON, Binghamton; H. BERKOWITZ, M. CANICK, M. GITTELSON, D. R. GROTEMEIN, L. MAMELOK, Brooklyn; O. S. McKEE, A. L. WEIL, Buffalo; R. BRITTAIN, Downsview; S. T. HAMILTON, Elmira; G. C. ANDERSON, J. ARENA, F. E. BINGHAM, B. S. BRAKE, J. M. DOHERTY, P. J. FAGAN, I. HARTSHORNE, D. KATZ, M. J. LIPPMAN, J. M. LOBSENZ, M. T. MAXWELL, L. M. PEARLMAN, J. ROHR, S. SALADINO, D. SCHULMAN, New York; N. W. GETMAN, Oneonta; F. H. GODDARD, A. C. SCINTA, E. J. WENDEL, Rochester; A. T. LAWLESS, Syracuse; H. P. PECKHAM, Waterford.

To Hoboken, N. J., Capts. C. J. CARR, Buffalo; E. A. FRENCH, Rochester; Lieuts. R. ROBINSON, Lackawanna; M. M. ANDREWS, New York.

To Lakewood, N. J., Lieut. H. A. COHEN, New York.

To Mineola, N. Y., Hazelhurst Field, for instruction, Capt. F. H. LASHER, Brooklyn.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. S. GITLOW, New York.

To Newport News, Va., Lieuts. L. E. KLINGON, J. MAYEROFF, New York.

To report to the commanding general, Eastern Department, Major E. W. PETERSON, New York.

To Rockefeller Institute for instruction in the treatment of infected wounds, Lieut. F. W. BISHOP, New York.

To Williamsbridge, N. Y., Capt. G. W. TONG, Brooklyn.

North Carolina

To Fort Oglethorpe for instruction, Lieuts. R. E. RHYNE, Gastonia; B. L. LONG, Glen Alpine; J. E. HOBGOOG, Thomasville.

To New Haven, Conn., Lieut. J. E. COCKE, Asheville.

North Dakota

To Camp Logan, Texas, base hospital, Lieut. F. A. BRUCHMAN, Minot.

To Colonia, N. J., Capt. W. H. BODENSTAB, Bismarck.

To Fort Oglethorpe for instruction, Lieut. H. A. BRANDES, Hebron.

To Fort Riley for instruction, Lieuts. C. A. PLATOU, Jr., Litchville; E. E. HAMILTON, New Leipzig; C. A. KERNER, Tuttle.

Ohio

To Camp Greene, N. C., base hospital, for instruction, Capt. H. L. BABCOCK, Waterville.

To Camp Meade, Md., Lieut. T. G. McCORMICK, Portsmouth.

To Camp Sevier, S. C., Lieut. J. R. SPRAGUE, Athens.

To Camp Shelby, Miss., for instruction, Capt. R. B. DRURY, Columbus.

To Camp Sherman, Ohio, base hospital, for instruction, Lieut. J. T. LAWLESS, Jr., Toledo.

To Camp Wadsworth, S. C., base hospital, for instruction, Capt. J. McCLAIN, Coshockton.

To Camp Wheeler, Ga., base hospital, Lieut. E. B. MARKEY, Dayton.

To Camp Zachary Taylor, Ky., Lieut. C. N. WATKINS, Chattanooga.

To Fort Oglethorpe for instruction, Capts. C. E. TOWNSEND, Akron; R. E. HUGHSON, Bluffton; T. H. SHORR, Canton; D. S. HEYN, S. H. SMITH, Cincinnati; J. NEUBERGER, Cleveland; C.

WATSON, Findlay; B. L. JOHNSON, Kenton; J. B. McCORD, Oberlin; W. E. GAULT, Portsmouth; Lieuts. R. VAUGHEN, Cedar Mills; L. M. OTIS, Celina; J. A. DUFFEY, W. C. HERMAN, R. W. KASTING, R. W. SIMMONS, Cincinnati; D. J. BRYANT, W. H. HYDE, K. E. OCHS, I. S. OLSEN, Cleveland; E. L. HARNEY, A. B. LANDRUM, T. R. WILLIAMS, Columbus; H. N. CRANDALL, Conneaut; F. W. WATKINS, Defiance; E. D. HELFRICE, Galion; A. COBURN, Homer; F. F. FIELD, Meeker; H. I. BLOOD, Middletown; F. P. ATKINSON, Millersport; G. H. GALE, Newport; J. F. BLACK, Painesville; W. H. LEE, Plain City; G. C. McCREIGHT, Willard; R. W. RIGGS, Youngstown; D. J. MATTHEWS, G. W. McCORMICK, Zanesville.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieuts. P. H. DORGER, Cincinnati; C. E. LITTLE, Logan.

To report to the commanding general, Central Department, Lieuts. F. M. HARRISON, Napoleon; G. B. KISTLER, Newcomerstown; E. J. KEHRES, Warrensville.

Oklahoma

To Camp Beauregard, La., Lieut. H. M. EVANS, Rush Springs.
To Camp MacArthur, Texas, base hospital, Lieut. E. A. ABERNETHY, Altus.

To Camp Travis, Texas, Lieuts. J. B. HAMPTON, Commerce; A. M. COOTER, Miami.

To Fort Oglethorpe for instruction, Lieut. J. C. WILLIAMS, Picher.

To Fort Riley for instruction, Capt. T. A. RHODES, Cherokee; Lieuts. F. P. ROBINSON, Agra; J. C. LUSTER, Davis; H. H. BISHOP, Dilworth; H. K. MILLER, Fairland; E. F. MILLIGAN, Geary; F. A. MILLER, Hartshorne; C. J. BARKER, Kaw; J. C. MATHENEY, Lindsay; A. R. MAVITY, Marlow; A. C. HIRSHFIELD, Oklahoma City; F. H. NORWOOD, Prague.

Oregon

To report to the commanding officer, Western Department, Lieut. J. J. ROSENBERG, Portland.

Pennsylvania

To Camp Crane, Pa., Lieut. A. W. HOPPER, Bridgeville.

To Camp Dix, N. J., Lieuts. F. P. STONE, Philadelphia; A. J. MAYSELS, South Bethlehem.

To Camp Greene, N. C., base hospital, for instruction, Capt. C. BECKER, Philadelphia.

To Camp Jackson, S. C., base hospital, for instruction, Capt. F. S. MORRIS, Pittsburgh.

To Camp Lee, Va., Lieut. G. I. WINSTON, Reading. Base hospital, for instruction, Capt. C. I. WENDT, Pittsburgh.

To Camp Wheeler, Ga., base hospital, Lieut. J. C. RICKETTS, Pittsburgh.

To Colonia, N. J., Lieut. J. S. DIVEN, Philadelphia.

To Fort McPherson, Ga., Lieut. F. W. PATON, Bradford.

To Fort Oglethorpe for instruction, Capt. L. S. WALTON, Altoona; E. F. ARBLE, Carrolltown; C. E. IMBRIE, Cochran; J. D. CALDWELL, Irwin; H. M. STEWART, Johnstown; H. M. FELTON, Pittsburgh; E. A. SWEENEY, Wilkes-Barre; Lieuts. J. R. BARTLETT, Bellefonte; G. G. ASH, Bradford; C. L. HARSHA, Canonsburg; V. J. MULVEHILL, Carrolltown; E. T. WILLIAMS, Danville; C. E. ALLISON, Elysburg; C. H. ASHTON, Franklin; J. G. STEELE, Galeton; O. C. REICHE, Hazelton; G. R. LYON, Heilwood; C. C. CUSTER, Johnstown; J. AARONOFF, Kemblesville; J. W. ALLEN, Monongahela; A. H. McANULTY, Nanty-Glo; A. M. ADAMS, E. C. COLLINS, W. V. MARSHALL, S. MOSS, C. S. PANCOAST, J. G. SILVERMAN, H. A. STEES, Philadelphia; F. B. EDMUNDSON, W. N. GOEHRING, J. GORFINKELL, P. J. HENNEY, W. H. THOMPSON, Pittsburgh; H. R. REED, L. G. SWEENEY, Scranton; L. M. HOLT, Shamokin; J. R. STEIN, Shenandoah; B. L. TINKER, West Middlesex; D. A. ATKINSON, West View; E. A. COSTELLO, Wilkes-Barre; J. C. FRYE, Williamsburg.

To Mineola, L. I., Hazeltown Field, for instruction, Capt. M. B. FRANKLIN, J. K. KNORR, Jr., Philadelphia.

To New Haven, Conn., Lieuts. J. P. FRANTZ, Clearfield; A. EPSTEIN, Philadelphia. To Yale Army Laboratory School for instruction, Capt. A. B. WALLGREN, Pittsburgh; Lieut. D. A. GOODMAN, Old Forge.

To Newport News, Va., Capt. E. S. BRIGGS, Tidououte.
To report to the commanding officer, Eastern Department, Capt. E. H. GREEN, Mill Creek; W. H. CARPENTER, Philadelphia.

Rhode Island

To Camp Dix, N. J., base hospital, for instruction, Lieut. E. M. PORTER, Providence.

To report to the commanding officer, Northeastern Department, Capt. R. H. R. SHAW, Providence.

South Carolina

To Camp Meade, Md., base hospital, for instruction, Capt. G. T. TYLER, JR., Greenville.

To Fort Oglethorpe for instruction, Capt. W. M. GAILLARD, Georgetown; Lieut. J. W. TARRANT, Lynchburg.

South Dakota

To Fort Riley for instruction, Capt. J. F. D. COOK, Langford; R. P. FRINK, Wagner; Lieuts. I. U. VANGSNESS, Beresford, T. ARNOLD, Delmont; J. H. DOUPE, A. P. HAWKINS, Waubay.

To New Haven, Conn., Yale Army Laboratory School, Lieut. L. HOLTZ, Aberdeen.

Tennessee

To Camp Joseph E. Johnston, Fla., Lieut. H. L. ELLISON, Millington.

To Fort Oglethorpe for instruction, Lieuts. T. H. ELLIOTT, Chattanooga; C. W. RAIN, Knoxville; L. L. RICKS, Laconia; C. A. ALLEN, Memphis; E. W. PATTON, North Chattanooga; S. T. WOODRUFF, Pleasant View; G. W. SMITHERS, Rutledge; O. H. WILLIAMS, Savannah.

Texas

To Camp MacArthur, Texas, base hospital, for instruction, Lieut. J. B. NESTOR, Itasca.

To Fort Oglethorpe for instruction, Lieuts. C. W. WELLER, Austin; D. B. BEACH, Dodsonville; J. E. WILSON, Lancaster; J. T. HUTCHINSON, Lu Block.

To Fort Riley for instruction, Lieuts. C. M. PAYNE, Benford; C. D. SCAFF, Clarksville; A. T. HAMPTON, Ferris; A. J. SHARP, Franklin; J. G. WHIGHAM, Walburg; C. P. JOHNSON, Whiteright.

To report to the commanding officer, Southern Department, Lieuts. T. H. WESTBROOK, Fort Worth; L. C. ROBERTS, Malone.

Utah

To Fort Riley for instruction, Capt. H. B. FORBES, Ogden; H. M. VANCE, Pleasant Grove; Lieut. S. J. ULMAN, Salt Lake City.

Vermont

To Fort Oglethorpe for instruction, Lieut. H. L. PIERCE, Swanton.

Virginia

To Camp Custer, Mich., Lieut. S. H. YOKELEY, Meadow View.

To Camp Greene, N. C., Lieut. A. S. BRINKLEY, Richmond. Base hospital, Lieut. F. H. SMITH, Abingdon. Base hospital, for instruction, Capt. R. S. FITZGERALD, Richmond.

To Fort Oglethorpe for instruction, Capt. E. J. NIXON, Petersburg; C. M. EDWARDS, Richmond; Lieuts. W. L. GANNAWAY, Abingdon; T. D. MOREWITZ, Newport News; J. H. MOORE, Pardee; J. E. SMITH, Petersburg; W. H. CRAIG, Richmond; B. E. TOPHAM, Roanoke; D. T. GOCHENOUR, Stuarts' Draft.

To Newport News, Va., Lieut. J. D. COLLINS, Portsmouth.

West Virginia

To Camp Wheeler, Ga., Lieut. N. P. YEARDLEY, Parkersburg.

To Fort Oglethorpe for instruction, Capt. D. M. RYAN, Talcott; Lieuts. H. O. VAN TROMP, French Creek; W. L. LINDER, Minden; R. W. WERNER, Parkersburg; I. C. W. FLING, Pullman; C. H. CLOVIS, Wheeling.

Washington

To Camp Kearney, Calif., Lieut. E. L. SMYTHE, Bremerton.

To Camp Lewis, Wash., base hospital, Capt. F. W. HILSCHER, Spokane. Base hospital, for instruction, Capt. O. L. ADAMS, Davenport; P. C. IRWIN, Seattle.

To report to the commanding officer, Western Department, Capt. B. D. HENRY, Endicott; S. B. HOPKINS, Spokane; Lieuts. C. A. RIEMCKE, North Yakima; R. HANSON, W. T. SCHWABLAND, Spokane.

Wisconsin

To Camp Custer, Mich., Lieut. E. R. DEBOTH, Green Bay. Base hospital, for instruction, Lieut. I. E. LEVITAS, Green Bay. To examine the command for nervous and mental diseases, Capt. W. T. KRADWELL, Wautosa.

To Camp Grant, Ill., for instruction, Capt. F. A. FORSBECK, Milwaukee.

To Fort Oglethorpe for instruction, Lieuts. H. P. BOWEN, Johnson Creek; R. E. FITZGERALD, M. L. NAHIN, Milwaukee; E. S. RYAN, Sheboygan.

To Fort Riley for instruction, Lieuts. J. M. KELLEY, Cato; E. CHARBONNEAU, W. E. HATCH, Superior.

Wyoming

To Camp Dodge, Iowa, base hospital, for instruction, Capt. L. P. DESMOND, Cheyenne.

To Fort Oglethorpe for instruction, Lieut. L. W. STOREY, Douglas.

To Fort Riley for instruction, Capt. J. P. MARKLEY, Laramie; Lieuts. T. B. TORJUSON, Lovell; D. C. ROSS, Upton.

ORDERS TO OFFICERS OF THE MEDICAL CORPS, U. S. ARMY

Alabama

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. J. M. BELL, Eufaula.

Arizona

To Camp Crane, Pa., from Plattsburg Barracks, Capt. L. P. KAULL, Jerome. Evacuation Ambulance Company, from Fort Riley, Lieut. E. J. GOTTHELF, Jr., Tucson.

Arkansas

To Camp Shelby, Miss., from Camp Beauregard, Lieut. J. R. SMITH, Lewisville.

To Fort Riley for instruction, Lieut. C. WALLIS, Arkadelphia.

To report to the commanding general, Southern Department, from Camp Jackson, Major W. E. McLAIN, Argenta.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. J. C. HUGHES, Walnut Ridge.

California

To Camp Crane, Pa., Evacuation Ambulance Company, from Fort Riley, Capt. J. H. TITUS, Ontario; H. P. WILSON, Whittier; Lieut. W. L. YAGER, Ludlow.

To Leland Stanford University, Calif., to give orthopedic instruction, Capt. L. W. ELY, San Francisco.

To Washington, D. C., from San Francisco, Capt. S. L. HAAS, San Francisco.

Canal Zone

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Lakewood, N. J., for instruction, from Fort Oglethorpe, Lieut. N. B. KUPFER, Ancon.

Colorado

To Camp Crane, Pa., Evacuation Ambulance Company, from Fort Riley, Capt. J. ATCHESON, Jr., Idaho Springs.

To Camp Dix, N. J., base hospital, from Camp Crane, Capt. E. G. GRIFFIN, Denver.

To Camp Jackson, S. C., base hospital, for instruction, from Washington, Major C. A. POWERS, Denver.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Camp Devens, Mass., base hospital, for instruction, from Fort Oglethorpe, Capt. C. J. LATTA, Ilaxtum.

Connecticut

To Camp Greene, Charlotte, N. C., base hospital, from Fort Oglethorpe, Lieut. E. S. COGSWELL, Hartford.
To Camp MacArthur, Texas, base hospital, from Camp Logan, Lieut. R. F. SCHOLL, New Haven.
To Colonia, N. J., and on completion *to Boston, Mass.,* Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Major L. W. BACON, New Haven.
To Hoboken, N. J., from Camp Sevier, Lieut. C. F. VERNLUND, Hartford.
To Norfolk, Mass., from Camp Devens, Lieut. M. J. SHEALEY, Derby.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. H. F. MOORE, Bethel.

The following order has been revoked: *To Hot Springs, N. C.,* for instruction, Lieut. L. G. BEARDSLEY, Bridgeport.

District of Columbia

To Camp Crane, Pa., from Camp Meade, Capt. H. F. W. WARDEN, Washington.
To Fort Des Moines, Iowa, from Fort Omaha, Capt. O. C. COX, Washington.
To Fort Oglethorpe for instruction, Lieut. C. E. YOUNG, Washington.

Florida

To Camp Lee, Pa., from Mays Landing, N. J., Major G. R. PLUMMER, Key West.
To Fort Oglethorpe, evacuation hospital, from Camp Joseph E. Johnston, Major G. E. HENSON, Jacksonville.

Georgia

To Camp Crane, Pa., from Walter Reed General Hospital, Capt. C. BARROW, Savannah. Base hospital, from Camp Custer, Capt. W. J. MATHEWS, Quitman.
To Camp Meade, Md., evacuation hospital, from Fort Oglethorpe, Capt. J. A. WHITE, Albany.
To Fort Oglethorpe for instruction, Lieuts. J. G. DEVANE, Adel; J. B. CARTER, Blundale.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. W. H. CLARK, La Grange.

Resignation of Major A. H. LINDORNE, Atlanta, accepted.
The following order has been revoked: *To Hampton, Va.,* Langley Field, Lieut. J. P. KENNEDY, Atlanta.

Illinois

To Camp Crane, Pa., base hospital, from Fort Oglethorpe, Lieuts. C. R. BENNER, C. J. CHALLENGER, Chicago; J. C. KASSMEYER, Durand; L. F. BOWMAN, Mount Carroll. Evacuation hospital, from Camp Zachary Taylor, Lieut. T. W. HAGERTY, Chicago.
To Camp Grant, Ill., from Fort Oglethorpe, Lieut. E. L. DALLWIG, Chicago.

To Camp Upton, N. Y., base hospital, from Camp Lee, Capt. H. B. THOMAS, Chicago.

To Camp Wheeler, Ga., from Fort Oglethorpe, Capt. C. H. SOLOMON, Chicago.

To Fort Oglethorpe, evacuation hospital, from Fort Riley, Lieut. F. C. FINK, Pleasant Plains.

To Hoboken, N. J., from Camp Beauregard, Lieut. W. C. COOK, Peoria; from Camp Lee, Lieut. E. C. PRATT, Kankakee. Base hospital, from Camp Dodge, Lieut. E. A. CORCORAN, Chicago.

To Washington, D. C., St. Elizabeth's Hospital, from Fort Sam Houston, Capt. C. A. BRINK, Apple River.

To Willoughby, Ohio, from Fort Oglethorpe, J. W. KAIL, Chicago.

Honorably discharged on account of physical disability incurred in line of duty, Capt. F. M. EDWARDS, Centralia. On account of physical disability existing prior to entrance into the service, Capt. C. C. CLARK, Lieut. A. I. EPSTEIN, Chicago.

The following order has been revoked: *To Fort Oglethorpe* for instruction, Capt. W. G. WHITE, Jonesboro.

Indiana

To Camp Colt, Pa., from Camp Grant, Capt. C. L. ROWLAND, West Point.

To Fort Moultrie, S. C., from Camp Wadsworth, Lieut. L. G. SHOLTY, Wabash.

To Fort Oglethorpe for instruction, Lieut. R. B. T. SWEANY, Rockville.

To Mineola, N. Y., Hazelhurst Field, for instruction, from Vancouver Barracks, Lieut. C. C. ROZELLE, La Grange.

To Walter Reed General Hospital, D. C., from Fort Oglethorpe, Capt. A. W. LLOYD, Hammond.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieuts. D. HART, Montgomery; W. B. ASHBY, Oakland City.

Iowa

To Camp Colt, Pa., from Camp Grant, Lieut. C. A. MILLER, Nevada.

To Camp Crane, Pa., base hospital, from Fort Oglethorpe, Capt. H. M. DECKER, Davenport. Evacuation Ambulance Company, from Fort Riley, Capt. S. A. HUBER, Charter Oak; H. D. MERENESS, Dolliver; Lieut. J. O. WEAVER, Shenandoah.

To Hoboken, N. J., base hospital, Capt. A. D. McKINLEY, Lieut. H. E. RANSOM, Des Moines.

Kansas

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. W. A. NIXON, Great Bend.

Kentucky

To Camp Crane, Pa., base hospital, from Fort Oglethorpe, Lieut. I. H. BROWNE, Winchester.

To Camp Sevier, S. C., from Fort McPherson, Capt. E. L. BUSBY, Lexington.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. J. L. STILLINGS, Green Mount.

Louisiana

To Hoboken, N. J., from Camp Hancock, Capt. W. P. PORKIN, New Orleans.

Maine

To Hoboken, N. J., from Camp Devens, Lieut. F. E. ROWE, Augusta.

To Princeton, N. H., Princeton University, from Mineola, Capt. W. E. WHITNEY, Bangor.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. W. J. LEWIS, Freeport.

The following order has been revoked: *To Camp Crane, Pa.,* base hospital, from Camp Dix, Capt. D. W. WENTWORTH, Sanford.

Maryland

To Fort McPherson, Ga., from Camp Sevier, Capt. I. J. SPEAR, Baltimore.

To Hoboken, N. J., from Camp Meade, Capt. A. C. GILLIS, Baltimore.

To New York, Neurological Institute, for instruction, from Fort Oglethorpe, Capt. J. O. PURVIS, Annapolis.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Lee, Va.,* base hospital, for instruction, from Fort Oglethorpe, Lieut. S. M. PILCHARD, Salisbury.

Honorably discharged, Lieut. J. TURNER, Baltimore.

Massachusetts

To Camp Abraham Eustis, Va., for duty, from Camp Devens, Capt. J. W. BOYD, Springfield.

To Camp Crane, Pa., mobile hospital, from Camp Morrison, Capt. W. E. HUNT, Malden.

To Fort McPherson, Ga., from Fort Oglethorpe, Capt. G. M. MASON, Boston.

To Mays Landing, N. J., from Northeastern Department, Lieut. V. S. MERRITT, Springfield.

To New Castle, Del., from Camp Dix, Capt. W. Y. FOX, Taunton.

To Newport News, Va., from Fort Oglethorpe, Lieut. F. S. LACZYNSKI, Holyoke.

To Norfolk, Mass., from Camp Devens, Lieut. H. R. FIEGE, Cambridge.

The following orders have been revoked: *To Camp Crane, Pa.,* from Walter Reed General Hospital, Lieut.-Col. F. B. LUND, Boston. *To Fort Hamilton, N. Y.,* from Camp Colt, Lieut. E. S. LEWIS, Princeton.

Michigan

To Camp Bowie, Texas, as orthopedic surgeon, from Fort Oglethorpe, Lieut. A. W. NEWITT, Detroit.

To New York, Neurological Institute, for instruction, from Fort Oglethorpe, Lieut. H. W. WILEY, South Haven.

The following order has been revoked: *To Fort Oglethorpe* for instruction, from Camp Logan, Capt. N. J. PIKE, Saginaw.

Minnesota

To Camp Beauregard, La., base hospital, from Lake Charles, La., Lieut. A. D. CORNIEA, St. Paul.

To Hoboken, N. J., base hospital, Capt. M. M. GHENT, M. C. WELCH, St. Paul.

Mississippi

The following order has been revoked: *To Camp Crane, Pa.,* base hospital, from Fort Oglethorpe, Capt. J. CRISLER, Jackson.

Missouri

To Camp A. A. Humphreys, Va., from Camp Grant, Lieut. C. T. EBER, St. Louis.

To Camp Crane, Pa., Evacuation Ambulance Company, from Fort Riley, Lieuts. F. P. RILEY, Clyde; J. C. CALDWELL, La Cede; D. C. PERRY, Mound City; D. A. SEIBERT, Washington.

To Camp Sevier, S. C., base hospital, Capt. J. S. LICHTENBERG, Kansas City.

To Fort Des Moines, Iowa, from Fort Oglethorpe, Capt. T. G. ORR, Kansas City.

To Hoboken, N. J., from Camp Upton, Capt. W. G. JONES, Lincoln. Base hospital, from Fort Sheridan, Major J. C. MORFIT, St. Louis.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Dix, N. J.,* base hospital, for instruction, from Fort Oglethorpe, Capt. C. H. VAN RAVENSWAAY, Boonville.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieuts. F. A. HUDSON, Buffalo; T. E. CHAPMAN, Joplin.

Resignation of Capt. V. B. JANES, Cameron, accepted.

Montana

To Hoboken, N. J., from Camp Wadsworth, Lieut. A. C. KNIGHT, Butte.

Nebraska

To Camp Crane, Pa., Evacuation Ambulance Company, from Fort Riley, Capt. B. M. DEARDORF, Clatonia; E. I. WHITEHEAD, Holdrege.

To Hoboken, N. J., from New Haven, Lieut. C. M. HYLAND, Omaha.

To Mineola, N. Y., Hazelhurst Field, for instruction, from Vancouver Barracks, Capt. O. A. BRITTELL, Belgrade.

New Hampshire

To Fort Oglethorpe, base hospital, from Fort Sill, Major N. E. GUILLET, Manchester.

New Jersey

To Camp Crane, Pa., from Fort McHenry, Capt. J. L. FEWSMITH, Newark.

To Camp Lee, Va., base hospital, for instruction, Lieut. M. KUMMEL, Harrison.

To Lawrenceville, N. J., Milbank Farms, from Camp Devens, Lieut. C. BROWNE, Princeton.

Resignation of Capt. W. H. SLOCUM, Long Branch, accepted.

The following order has been revoked: *To Camp Crane, Pa.,* base hospital, from Camp Lee, Lieut. J. L. FARDEN, Irvington.

New York

To Camp Beauregard, La., to examine the command for nervous and mental diseases, from Fort Oglethorpe, Lieut. J. RESNIK, New York.

To Camp Crane, Pa., from Camp Sheridan, Lieut. S. S. FRIEDMAN, New York; from Fort Oglethorpe, Capt. J. J. SINNOTT, Mount Ver-

non. Base hospital, from Fort Oglethorpe, Capt. C. W. PERKINS, New York; from New York, Capt. E. C. KOENIG, Buffalo.

To Camp Dix, N. J., base hospital, for instruction, Lieut. J. M. SCHAFFER, New York.

To Camp Kendrick, N. J., from Fort Oglethorpe, Capt. J. S. PARKER, White Plains.

To Camp Meade, Md., from the Surgeon-General's Office, Lieut. F. N. POTTS, Buffalo.

To Camp Upton, N. Y., from Walter Reed General Hospital, Lieut. R. G. FOWLER, Buffalo.

To Camp Wheeler, Ga., from Fort Oglethorpe, Capt. L. B. MOUNT, Albany.

To Colonia, N. J., from Fort Oglethorpe, Capt. E. ALTMAN, New York.

To Fort Oglethorpe for instruction, from Baltimore, Lieut. L. H. WHEELER, Lockport.

To Hoboken, N. J., from Camp Dix, Lieut. R. W. MOODY, Middletown; from Camp Sherman, Lieut. G. R. STALTER, Troy.

To Mineola, N. Y., Hazelhurst Field, for instruction, from Vancouver Barracks, Lieut. G. BERGER, Port Chester.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. R. E. PERSONS, East Durham.

To Newport News, Va., from Fort Oglethorpe, Lieut. W. MOEHLE, Brooklyn.

To Walter Reed General Hospital, D. C., from Camp Devens, Lieut. S. DANZER, Brooklyn.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. G. T. WILSON, Hoosick Falls.

North Carolina

To Camp Lee, Pa., from New Castle, Lieut. R. T. UHLS, Franklinton.

North Dakota

To Camp Crane, Pa., from Camp Grant, Lieut. W. H. WITHERSTINE, Grand Fork. Evacuation Ambulance Company, from Fort Riley, Lieut. H. VAN DE ERVE, Sherwood.

Ohio

To Camp Beauregard, La., from Fort Oglethorpe, Capt. J. A. LYTTLE, Cleve; Lieut. E. HUFFER, Milford Center.

To Camp Custer, Mich., from Camp Grant, Lieut. R. A. DALBEY, Youngstown.

To Camp Grant, Ill., from Fort Oglethorpe, Lieut. A. E. MILLS, New Boston.

To Camp Greene, N. C., base hospital, from Fort Oglethorpe, Lieut. J. H. VORHES, Columbus.

To Denver, Colo., from Fort Riley, Capt. E. A. BAKER, Clyde.

To Fort Monroe, Va., from Camp Dix, Capt. C. D. HOY, Columbus.

To Mineola, N. Y., Hazelhurst Field, for instruction, from Vancouver Barracks, Lieut. V. T. SCOTT, Clarksburg.

To New Haven, Conn., Yale Army Laboratory School, for instruction, from Fort McPherson, Lieut. P. A. MURR, Galion.

To report to the governor of the Panama Canal, Lieut. L. W. GORTON, Cincinnati.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Camp Dix, N. J., base hospital, for instruction, from Fort Oglethorpe, Lieut. G. F. BARNETT, Painesville.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. A. F. SNELL, Jr., Cincinnati.

The following order has been revoked: To Fort Oglethorpe for instruction, Major C. A. L. REED, Cincinnati.

Oklahoma

To Camp A. A. Humphreys, Va., from Camp Grant, Lieuts. B. W. BAKER, Cloudchief; F. MOSLEY, Millerton.

To Camp Crane, Pa., Evacuation Ambulance Company, from Fort Riley, Capt. K. L. COLLEY, Bigheart.

To Fort Hamilton, N. Y., from Camp Grant, Lieut. A. S. SPANGLER, Pauls Valley.

To Fort Riley for instruction, Lieut. A. H. LARSKOW, Claremon.

Honorably discharged, Capt. H. D. SHANKLE, Hastings. On account of physical disability existing prior to entrance into the service, Lieut. R. A. WORKMAN, Woodward.

Oregon

To Camp Crane, Pa., Evacuation Ambulance Company, from Fort Riley, Lieut. H. H. HUGHES, Gresham.

To Camp Jackson, S. C., base hospital, from Fort Oglethorpe, Capt. H. G. PARKER, Portland.

Pennsylvania

To Camp Colt, Pa., from Camp Dix, Lieut. F. D. LOHR, Derry.

To Camp Crane, Pa., from Camp Custer, Capt. W. F. ROSS, Aspinwall; from Fort Oglethorpe, Capt. J. B. ROGERS, Pottsville.

To Camp Gordon, Ga., base hospital, from Fort Oglethorpe, Lieut. R. L. ANDERSON, Pittsburgh.

To Camp Meade, Md., evacuation hospital, from the Surgeon-General's Office, Capt. W. J. EZICKSON, Philadelphia.

To Fort Oglethorpe, base hospital, from Fort McPherson, Lieut. J. O. BOWER, Wyncote.

To Hoboken, N. J., from Camp Meade, Lieut. P. K. HELLER, Dixmont.

To Newport News, Va., from Fort Oglethorpe, Lieut. L. LASDAY, Pittsburgh.

To New York, Neurological Institute, for instruction, Lieut. M. McCUTCHEON, Philadelphia.

To Richmond, Va., from Camp Dix, Capt. J. M. TIMMONS, West Alexander.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Camp Meade, Md., base hospital, for instruction, from Fort Oglethorpe, Capt. W. T. ELLIS, Jr., Philadelphia.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. W. S. RUCH, Carlisle; W. A. LAROSS, McDonald; Lieut. W. R. McCLELLAN, Garrett.

Resignation of Lieut. E. P. DAVIS, Philadelphia, accepted.

South Dakota

To Fort Riley for instruction, Lieut. W. E. DONAHOE, Sioux Falls.

To Hoboken, N. J., base hospital, Lieut. G. E. VAN DEMARK, Sioux Falls.

Tennessee

To Camp Crane, Pa., evacuation hospital, from Fort Oglethorpe, Capt. J. H. KING, Nashville.

To report to the commanding general, Central Department, from Fort Riley, Lieut. E. C. MASON, Bon Air.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. O. M. LATEN, Memphis.

Texas

To Camp Crane, Pa., from Camp MacArthur, Major W. M. WOLF, San Antonio; from Camp McClellan, Capt. I. A. WITHERS, Fort Worth. Evacuation Ambulance Company, from Fort Riley, Lieut. O. HUFF, Castell.

To Camp Hancock, Ga., base hospital, from Fort Oglethorpe, Lieut. S. ISRAEL, Houston.

To Camp McClellan, Ala., base hospital, from Corpus Christi, Lieut. H. F. WILKINS, Fort Worth.

To Fort Oglethorpe for instruction, Lieut. L. H. LANIER, Texarkana.

To Newport News, Va., from Fort Oglethorpe, Capt. G. F. ST. JOHN, Harriman.

To report to the commanding general, Southern Department, Lieut. E. A. BENBOW, Luling.

To Walter Reed General Hospital, D. C., from Fort Oglethorpe, Lieut. R. E. HILBURN, Antelope.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. J. L. WOMACK, Edna; J. A. HARDY, El Paso; Lieut. J. A. MOORE, Jourdan.

Utah

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. E. A. WEYMULLER, Geneva.

Virginia

To Camp Crane, Pa., base hospital, from Fort Oglethorpe, Capt. P. W. BOYD, Winchester.

To Fort Benjamin Harrison, Ind., from Fort Oglethorpe, Capt. M. C. SYCLE, Richmond.

To Fort Monroe, Va., from Camp Lee, Lieut. M. GROVEHAGEN, Richmond.

To Hoboken, N. J., evacuation hospital, from Camp Pike, Lieut. E. M. HICKS, Jr., Roanoke.

Washington

To Camp Crane, Pa., Evacuation Ambulance Company, from Fort Riley, Capt. F. M. CROSBY, Kennewick.

To Camp Dodge, Iowa, base hospital, from Fort Oglethorpe, Capt. L. B. BALDWIN, Seattle.

To Mineola, N. Y., Hazelhurst Field, for instruction, from Vancouver Barracks, Lieut. J. D. BARNWELL.

West Virginia

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. W. E. WHITESIDE, Harrisville.

Wisconsin

To Camp Crane, Pa., Evacuation Ambulance Company, from Fort Riley, Capt. E. A. KETTERER, Montford.

To Newport News, Va., from Fort Oglethorpe, Lieut. W. J. MURPHY, Milwaukee.

Honorably discharged, Lieut. M. A. FRONEY, Racine. On account of physical disability existing prior to entrance into the service, Capt. A. M. FOSTER, Racine.

Wyoming

To Camp Crane, Pa., Evacuation Ambulance Company, from Fort Riley, Lieut. W. LOWE, Sunrise.

To Fort Oglethorpe for instruction, Major E. M. TURNER, Laramie.

ORDERS TO OFFICERS OF THE UNITED STATES PUBLIC HEALTH SERVICE

Sen. Surg. G. A. Magruder, proceed to Washington, D. C., for conference regarding venereal disease control.

Surg. W. C. Billings, proceed to various cities in state of California to investigate the public health value of certain contemplated improvements.

Surg. E. A. Sweet, proceed to certain points in the states of North Dakota, South Dakota, Colorado, Nebraska and Kansas for conference regarding measures for influenza control.

Passed Asst. Surg. W. M. Jones, proceed to League Island Navy Yard for inspection of repairs for steamer *Neptune*.

Asst. Surg. R. E. Dyer, proceed to Englewood, New Jersey, and assume charge of Service operations in extra-cantonment sanitation.

Asst. Surg. M. C. Edmunds, relieved from further duty in the District of Columbia and proceed to Madison, Wis., for duty in measures for the control of influenza.

Acting Asst. Surg. Orlando Ducker, proceed to Richmond, Va., for duty in control of influenza.

Acting Asst. Surg. John W. Goltra, proceed to Elkins, W. Va., for duty in connection with the control of influenza.

Acting Asst. Surg. M. D. Hollis, proceed to Tampa Bay Quarantine Station and assume charge of the Service.

Acting Asst. Surg. J. T. McDonald, proceed to Kalawao, Hawaii, for the purpose of supervising leprosy investigation at that place.

Acting Asst. Surg. A. J. McLaughlin, proceed to Lincoln, Neb., to address the druggist convention at that place.

Acting Asst. Surg. Evelyn G. Mitchell, proceed to Harrisburg, Pa., for duty in connection with the control of influenza.

Acting Asst. Surg. B. F. Roberts, proceed to Madison, Wis., for duty in connection with the control of influenza.

Acting Asst. Surg. Julius Schiller, proceed to Harrisburg, Pa., for duty in the control of influenza.

Pharm. F. S. Goodman, proceed to the Marine Hospital, Louisville, Ky., for duty.

San. Engr. H. W. Streeter, proceed to Bethlehem, Pa., for the investigation of public health needs of certain contemplated improvements.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Masks Compulsory.—During the height of the influenza epidemic in San Francisco in the latter part of October, by a proclamation of Mayor Rolph all citizens were required to wear masks in all places where they come in contact with others, whether on the street or on the inside of business or other places. Strict orders were given to the police to enforce the regulation.

ILLINOIS

Correspondence Schools Closed.—The International College of Osteopathy, the Columbia College of Chiropractic and the Illinois College of Somapathy, correspondence schools, heretofore located at Elgin, are reported to have closed and to be about to surrender their charters.

Physician Gives Home for Negroes.—Dr. William E. Quine, Chicago, is reported to have deeded his residence at 3160 Indiana Avenue, to the Chicago Home Missionary and Church Extension Society of the Methodist Episcopal Church, to be used as a social center for negroes.

Illegal Practitioner Fined.—A raid on one of the offices and medical museumssaid to be backed by Emil Hellisher, Hammond, Ind., was made at Joliet, recently. M. A. Chaiken, assistant registered pharmacist, is said to have been fined \$75 and costs for practicing medicine without a license.

Personal.—Dr. H. Gideon Wells, Chicago, is leaving in a few days for the Balkan States, as a member of the Balkan Commission of the American Red Cross.—Dr. Graham M. Lisor, East Moline, formerly a member of the staff of the Elgin State Hospital, has been appointed superintendent of the St. James (Minn.) Hospital and Sanitarium.—Lieut.-Col. Philip Schuyler Doane, M. C., U. S. Army, Chicago, head of the Health and Sanitation Division, Industrial Relations Group, U. S. Shipping Board, Emergency Fleet Corporation, will, it is reported, sail for France, next month, to assume command of an evacuation hospital.—Lieut.-Col. Edmund J. Doering, M. C., U. S. Army, Chicago, is reported to have been appointed district medical officer, Personnel Branch, Operations Division, of the General Staff.

INDIANA

License Revoked.—The license to practice medicine in Illinois, of Dr. Edward D. Porter, Indianapolis, is said to have been revoked, October 15.

Personal.—Dr. Charles C. Morris, Rockville, is reported to be critically ill with influenza.—Dr. Hugh D. Wood, Angola, is said to be seriously ill at his home.

Mental Hygienists to Meet.—The third annual meeting of the Indiana Society of Mental Hygiene will be held in Indianapolis, December 16, under the presidency of Dr. William T. Bryan, Bloomington, president of the State University.

MARYLAND

Influenza Ban Lifted.—The influenza ban has been entirely lifted in Baltimore by the health department and schools and colleges have been reopened. The cases reported on the first had dropped to fifty-eight and the deaths to forty-two, and conditions, it is felt, will be normal within the next day or so.

Hospital Train at Chambersburg.—At the request of Surg.-Gen. Rupert Blue of the United States Public Health Service, the Maryland Council of Defense has sent its hospital train to Chambersburg, Pa., where influenza is reported as being very prevalent. The train has been at Cumberland and other points in western Maryland. Conditions throughout the state have improved to such an extent that the train is no longer needed in the counties.

Personal.—Capt. George L. Stickney, Baltimore, of the U. S. Army Medical Corps, formerly from Baltimore, who was severely injured at the battle of Soissons, has entirely recovered and has been transferred to new duty. He is now serving in a replacement camp with U. S. Military Hospital

No. 47.—Rear Admiral Albert M. D. McCormick, veteran medical officer at the Naval Academy, has received orders to proceed to duty with the naval forces overseas. Admiral McCormick has been on duty at Annapolis almost continuously for more than a score of years.

MASSACHUSETTS

Increased Pay for Medical Examiners.—The legislative action authorizing the city of Boston to increase the salaries of medical examiners, George B. Magrath and Timothy Leary and their assistants, was accepted by the council, September 23. By the provision of this act, Drs. Magrath and Leary will receive a salary of \$6,000 instead of \$4,500 as heretofore.

Personal.—Dr. John J. Carroll, Holyoke, acting assistant surgeon, U. S. P. H. S., has been appointed chief of the subdivision of venereal diseases of the state department of health, to succeed Major Alec Nicol Thomson, who was placed in charge of the work of correlating the efforts against the venereal diseases in behalf of both the Army and Public Health Service.—Dr. Lily Owen B. Burbank, East Bridgewater, has been appointed director of educational work for the women of the subdivision of the venereal disease of the state department of health.—Dr. Esther M. E. Sundelor, Fall River, roentgenologist at the Truesdale Hospital and Clinic, Fall River, has returned to her work after a summer spent at St. Anthony Hospital, Labrador.—Dr. Charles H. Winn, Roxbury, Boston, has been appointed high medical examiner of the Massachusetts Catholic Order of Foresters.

Massachusetts Health Committee.—During the summer there was organized a health committee to conduct a health campaign in the state, under the auspices of Dr. Eugene R. Kelley, state commissioner of health. This committee will work along educational lines and will carry on a vigorous campaign of lectures, exhibits, newspaper publicity and circular work. The committee will act in advisory capacity to less experienced organizations, and will aim to be "a clearing-house for public health ideas." The officers of the committee are Dr. Eugene R. Kelley, chairman; Miss Gertrude W. Peabody of the Child's Welfare Department, Council of National Defense, treasurer; Prof. Charles E. Bellatty of Boston University, director of publicity; Bishop William Lawrence, representing the Society of Social Hygiene; Dr. Edward Reynolds, Boston, director of the American Society for the Control of Cancer; Dr. George M. Kline, Boston, director of the Massachusetts Committee on Mental Disease; Dr. Vincent Y. Bowditch, Boston, president of the Massachusetts Anti-Tuberculosis League, and Dr. Richard M. Smith, Boston, member of the Child Conservation Committee of the state department of health. Funds have been made available to meet all expenses of the work, which began in July. Dr. Edward Reynolds is chairman of the board of directors. The headquarters of the committee are at 525 Boylston Street, Boston.

MICHIGAN

Influenza Prophylaxis.—It was reported from Flint, October 26, that at the Michigan School for the Deaf, with 300 pupils and fifty employees, not a single case of influenza had developed on account of the fact, it is believed, that every person connected with the institution was required to wear a face mask following the order of the board of health, October 17. No other preventive measure was used.

MISSOURI

Personal.—Dr. Henry L. Wolfner, St. Louis, has been elected president of the St. Louis Board of Education.

Advocate Use of Serum.—The St. Louis Medical Society, October 23, appointed Dr. C. H. Smith, assistant health commissioner, Elsworth S. Smith, William Engelbach, George Ives, and Charles W. Schery, a committee to further the use of the new serum to prevent deaths from pneumonia in influenza cases.

Arrest of Physicians Ordered.—Orders are said to have been issued by the St. Joseph Board of Health, October 24, directing the city health officer, Dr. Hasbrouck De Lamater, to swear out a warrant for the arrest of Dr. Clayton F. Imus, charged with failing to report a case of influenza, and Dr. Reinhold Willman, charged with tearing a quarantine sign from a house without permission from the board of health.

State Board Election.—At the annual meeting of the state board of health, held October 16, Dr. William A. Clark, Jefferson City, was elected president; Dr. Andrew W. McAlester, Columbia, vice president, and Dr. George H. Jones, secretary

(reelected).—The board decided that the precautionary measures instituted on account of the epidemic of influenza should be continued for an indefinite period.—The board has withdrawn its recognition of the St. Louis College of Physicians and Surgeons.

St. Joseph Physicians Form Unit.—Dr. William J. McGill, St. Joseph, has organized and will direct a Naval Station Unit, the personnel of which is composed of Lieut.-Com. William J. McGill, director; Lieut.-Com. Clarence A. Good, chief of the medical section; Lieut. L. Robert Forgrave, eye, ear, nose and throat specialist; Lieut. Julius S. Weingart, Des Moines, Iowa, specialist in laboratory and pathology. This unit will serve either on hospital ships or in base hospitals in this country or overseas. Additional assistants will be assigned if needed by the Surgeon-General, and nurses will be furnished by the American Red Cross.

NEW YORK

Diphtheria in Troy School.—There has been an outbreak of diphtheria among the 700 students of the Rensselaer Polytechnic Institute, who are enrolled in the Students' Army Training Corps. The Schick test is being applied to every student, and those who are found susceptible will be immunized.

New York City

Personal.—Dr. Charles H. Chetwood, former head of the department of urology of the New York Polyclinic Hospital, has been appointed consulting surgeon to the French Hospital.

Government Takes City Hospital.—The federal government is about to take over North Brother Island from the city and will maintain the Riverside Hospital as a military institution. The Riverside Hospital has accommodations for 1,000 patients.

Society Rejects Council Report.—Members of the Kings County Medical Society at a meeting, held October 15, are reported to have refused to accept a recommendation of the council of the society that the investigation of Dr. James P. Warbasse be dropped, and to have voted to accept a report that the charges against the physician were well founded.

National Committee for the Prevention of Blindness.—This organization will hold its annual meeting, November 26, at 8:30 p. m., at the New York Academy of Medicine, New York City. The chief speaker of the occasion will be Lieut.-Col. James Bordley, M. C., U. S. Army, Baltimore, whose subject will be "The Government and Red Cross Work for Blinded Soldiers."

OHIO

Smallpox.—At Elyria, October 26, there were nineteen houses under quarantine on account of smallpox, and the total number of cases in the city was twenty-six.

Illegal Traffickers in Drugs Punished.—October 23, Drs. George S. Iddings, T. A. Harris, Horace C. Bliss, and Miss Sarah Wilkins, a nurse, all of Cleveland, were charged with unlawful traffic in morphin and other drugs. Dr. Iddings is said to have pleaded guilty and sentenced to pay a fine of \$500 and to thirty days imprisonment in jail; in the case of Dr. Harris a fine of \$100 and costs and imprisonment for thirty days was held in abeyance pending a hearing of a motion in mitigation; a fine of \$50 and costs in the case of Miss Wilkins was suspended; and in the case of Dr. Bliss, who pleaded not guilty, the case was continued until November 12.

Personal.—Dr. Adam W. Montague, receiving physician at the Cincinnati General Hospital, has resigned.—Dr. Ira H. Hawes, Arcanum, sustained serious injuries by the overturning of his automobile near Ithaca, October 20.—Dr. Daniel Heimlich, Cleveland, is ill with pneumonia at Mt. Sinai Hospital.—Dr. Foster D. Keiser, Tippecanoe City, is reported to be ill with pneumonia, following influenza, at the home of his brother in Piqua.—Dr. William C. Coultrap, Columbus, is reported to be critically ill with influenza at Mt. Carmel Hospital.—Dr. Roscoe R. Kahle has been appointed by the board of administration consulting surgeon to fill in for major surgery in any of the state institutions.—Dr. Oscar M. Craven, District Physician for the Cincinnati Health Department, has been appointed assistant health officer.—Dr. Carrie A. Richeson, Bellefontaine, has been elected secretary of the Logan County Medical Society to fill the unexpired term of Dr. Guy J. Kent, deceased.

PENNSYLVANIA

Personal.—Dr. Frank C. S. Blessing, Pittsburgh, is reported to be ill with pneumonia.—Dr. Edwin S. Dorworth, Bellefonte, is reported to be critically ill as the result of a cerebral hemorrhage.

Influenza Hospitals Opened.—The Mid-Valley Emergency Hospital, Olyphant, was opened to receive patients, October 17. Dr. Frederick L. Van Sickle, Olyphant, is in charge of the institution.—An emergency hospital for Conshohocken was opened in the Conshohocken Baptist Church, October 14, with Dr. George N. Highley in charge.

Philadelphia

Personal.—Dr. Harry Lowenburg has recovered from his recent illness and has resumed practice.—Dr. Edward Martin has resigned as John Rhea Barton professor of surgery in the University of Pennsylvania, and Dr. John B. Deaver has been elected his successor.—Dr. Allen J. Smith has been elected dean of the Medical School of the University of Pennsylvania.

Good Work in Influenza Epidemic.—The College Hospital of the Woman's Medical College has just closed its emergency hospital, established in cooperation with the Sun Shipbuilding Company during the influenza epidemic. The hospital was located on the river front just behind the transport docks.—The three upper college classes were mobilized for hospital service in the first days of the epidemic, and it was therefore possible to run the main college hospital to its full capacity with special wards equipped in the gymnasium, together with the emergency hospital in the poorest quarters of the city. Senior students were also sent as aids to physicians in the more severely stricken parts of Philadelphia. Hospital aids trained in the wards of the hospital during the previous winter together with other volunteers gave needed relief to regular nurses and evening auto trips provided by the Red Cross of Cynwyd reduced the morbidity and mortality among the nursing staff to a minimum. Two women ambulance drivers maintained the service night and day throughout the epidemic.

Cooperation of Medical Students in the Epidemic of Influenza in Philadelphia.—At the height of the influenza epidemic, October 2, at the request of Major Griffith, military commandant at the University of Pennsylvania, Dr. H. C. Wood, Jr., professor of pharmacology and therapeutics, organized an influenza emergency hospital, at first to take care of the students in the university who became ill and who could not be admitted to other hospitals on account of their crowded condition. The hospital was opened in a fraternity house which was being prepared as a barracks for the Student Army Training Corps. This hospital was made ready within twenty-four hours and was soon filled, on account of the rapid increase in the number of cases at the university and throughout the city. October 6, a call was issued for all third and fourth year medical students to report to the hospital where they were organized for service, not only in the university, but throughout the city. From these classes seventy-two men were supplied to the Red Cross Hospital, thirty-eight at various other city hospitals doing emergency work, and nine at other hospitals in the immediate vicinity of the university. This was in addition to those employed on the campus. In all, nineteen hospitals were supplied, either in whole or in part, with residents and interns from the members of the two classes. Many of the students visited private patients under the auspices of the city board of health, University Settlement, and some other organizations. These men were employed not only as interns, but also as nurses and orderlies and did other necessary work in caring for the influenza patients during the emergency, working long hours and showing the greatest spirit of self sacrifice. A number of them became ill in the performance of their voluntary duties.

WASHINGTON

Medical Society Facing Charges.—The Washington Hospital Association has requested that the King County Medical Society be permanently enjoined from further alleged acts, and also asked that a mandatory injunction be issued compelling the association to restore to full membership Drs. J. C. Moore, Frederick A. Cook, R. P. McClain and W. E. McClain, who were suspended last summer for having, it is alleged, served the association. The association charges the members of the King County Medical Society are being coerced to withdraw and keep their services from the association.

Personal.—Dr. Alice M. Smith, Tacoma, has been elected a fellow of the North British Academy of Arts, and an honorary member of the council.—Dr. Alexander R. Lundgren, Spokane, is reported to be seriously ill at his home with pneumonia.—Dr. Edward P. M. Condon, Spokane, is ill at the Sacred Heart Hospital with pneumonia following influenza.—Dr. William W. Webb is reported to be seriously ill with influenza.—Dr. Miles U. Lieser, Vancouver, who has been critically ill with influenza, is reported to be improved.—Dr. Ida N. McIntire is said to be seriously ill at her home in Everett.

CANADA

Memorial Tablet.—The Regina (Sask.) Medical Association will erect a tablet in the local General Hospital to the memory of Dr. E. E. Meek, Regina, who was killed in France while operating on a wounded soldier in a Red Cross Hospital bombed by German airmen.

Must Be Military Surgeons Only.—It is reported from Ottawa that the Federal military authorities will require that all military physicians in Canada who are on the pay roll, will in future be required to devote their whole time to their military duties and discontinue their private practices. The order issued reads as follows: "No medical officer who is engaged in civil practice will be permitted to draw full time pay and allowance except when sent for temporary duty away from his home station."

Personal.—Lieut.-Col. Charles S. McVicar, Toronto, who returned from overseas recently where he was on the Orpington Hospital staff, has been appointed senior physician at the Spaldina Military Hospital, Toronto.—Dr. Roy H. Thomas, who has been overseas between two and three years, has been awarded the Military Cross.—Capt. J. H. Box, Lieut. Hendry Connell, Kingston, Ont., and Major Wellington M. Carrick, M.D., Hamilton, Ont., have gone as medical officers with the Canadian Siberian Expedition.

Tablet to Soldier Poet.—A memorial tablet has been placed in the Royal Victoria Hospital, Montreal, in honor of Col. John McCrae. It contains the following inscription: "In memory of Lieut.-Col. John McCrae, assistant pathologist and assistant physician, 1904-1917, chief of the medical division No. 3, McGill Canadian General Hospital, Boulogne, France, consultant of the First Army. Died on active service in France, Jan. 28, 1918." Then follow the stanzas of Colonel McCrae's famous poem, "In Flanders Fields."

GENERAL

Unauthorized Solicitor Appointing Medical Examiners.—We are informed that an individual signing himself "W. W. Beck" is appointing physicians as medical examiners of the Colonial Guards of America, soliciting a fee of \$5. When last heard from he was working in Ohio. Mr. F. L. Runyon, secretary of the Colonial Guards of America, states that Mr. Beck is not authorized to solicit for the organization.

Missouri Valley Physicians Elect New Officers.—At the thirty-first annual meeting of the Medical Society of the Missouri Valley, held in Omaha, September 19 and 20, Des Moines was selected as the next place of meeting, and the following officers were elected: president, Dr. Charles Wood Fassett, Kansas City, Mo.; vice presidents, Dr. Elbert J. Watson, Diagonal, Iowa, and Dr. Joseph M. Aikin, Omaha; secretary, Dr. S. Grover Burnett, Kansas City, Mo., and treasurer, Dr. Oliver C. Gebhart, St. Joseph.

Bequests and Donations.—The following bequests and donations have recently been announced:

The City of Duquoin, Ill., \$200,000 for a hospital for the city by the will of Mrs. Lillie A. Browning, Chicago.

Federation of Jewish Charities, Philadelphia, 4 per cent. of the income from the real estate of the late Samuel Sternberger, not to exceed \$1,000 annually; Jewish Hospital Association 2 per cent. of the income from the same source not to exceed \$500 annually. Also a payment of \$20,000 to the Federation of Jewish Charities, and \$10,000 to the Jewish Hospital Association, only the interest from these funds to be used.

Federation of Jewish Charities, Philadelphia, a bequest of \$2,500 by the will of Eva K. Coons.

Influenza.—The influenza epidemic seems to be subsiding generally throughout the country and places heretofore closed have been opened gradually. November 2, the new cases of influenza reported from the Army camps for the previous twenty-four hours was 1,577 against 2,076 for the twenty-four hour period preceding that. The new pneumonia cases were 292, an increase of 12. The deaths for November 2, were 103, equalling the total for the previous day, but making a low record for influenza. October 30, according to the report of

the emergency public health committee, approximately 11,000 deaths from influenza had occurred in Massachusetts, but it has now almost subsided. October 11, it was reported from Cape Town that influenza was spreading with alarming rapidity throughout South Africa.

Allied Surgeons Tour America.—A party of eminent surgeons from abroad has been making a tour of the United States accompanied by Lieut.-Col. George E. Brewer, M. C., U. S. Army, New York City; Col. William J. Mayo, M. C., U. S. Army, Rochester, Minn.; Col. Franklin H. Martin, M. C., U. S. Army, Chicago, and Dr. Pilcher, New York City. They have been entertained and have delivered addresses on various phases of military surgery in St. Paul, Rochester, Philadelphia, Chicago, New York, and other cities. The party consists of Col. Sir Thomas Myles, Dublin, Ireland, Major G. Gray Turner, New Castle-on-Tyne, England, Col. George E. Gask, St. Bartholomew's Hospital, London, Prof. Raffaele Bastianelli and Major Pouletti, Rome, Major Pierre Duval and Lieut. Henri Beclere, Paris, and Major Poillet, Ambre, France.

FOREIGN

War Fund for Physicians.—The *Nederlandsch Tijdschrift* quotes a German exchange to the effect that the Leipzig League is appealing urgently for contributions to its war fund to aid physicians, saying that the monthly appropriations from it are already 5,000 marks, and the demand is increasing week by week. Funds are needed also for aid to physicians' families, especially for widows of physicians.

Increased Legal Rates for Medical Services in Prussia.—According to the *Nederlandsch Tijdschrift*, the Prussian minister of the interior has ordered that the minimum payment for medical services by the state, insurance companies, charitable institutions, etc., is to be raised by 50 per cent. after September 1. This increased rate is to prevail for a year after the war. The maximal remuneration for specialist work is also increased. By mutual agreement the maximum rates can be surpassed, but in case of dispute the legal tariff is a guide to the courts.

Death of British Naval Officer.—Surg. John Hadwen, lieutenant-commander, Royal Navy, senior surgeon on *H. M. S. Lancaster*, in service on the Pacific Station, died at the Agnew Sanatorium, California, October 23, from pneumonia following influenza. Dr. Hadwen was 35 years of age; M.B., B.S., M.R.C.S., L.R.C.P. (Lond.), 1907. An international funeral service was held, October 24, participated in by Rear Admiral William Fullam, U. S. Navy, with his staff, and Admiral B. H. Holcomb, Royal Navy, with his staff and companies of sailors from the *U. S. S. Oregon* and *H. M. S. Lancaster*.

SOUTH AND CENTRAL AMERICA, MEXICO AND WEST INDIES

Standardization of Antiserums in Uruguay.—The *Revista Medica del Uruguay* states that the Consejo Nacional de Higiene has now made definite arrangements for the control of the production and sale of therapeutic serums made in Uruguay, and of conditions to regulate their sale in other countries.

Student Congress.—The *Revista Medica del Uruguay* relates that arrangements are under way for a general gathering of the students of the universities of the countries which owe their liberty to Bolivar, namely, Ecuador, Bolivia, Peru, Colombia and Venezuela. The University of Guayaquil has taken the lead in the matter.

Radium Loaned by Uruguay to Brazil.—Dr. C. Butler, director of the Radiology Institute of Montevideo, was sent recently to Rio de Janeiro with the amount of radium which the Facultad de Medicina of Montevideo was empowered by the government to loan to the Facultad de Medicina of Rio de Janeiro. The university authorities invited him to deliver an address on the results achieved with radium in Uruguay, and he described with lantern slides the work done at the institute in his charge.

CORRECTION

Marriage Notice Incorrect.—THE JOURNAL for October 19 contains announcement of the marriage of Lieut. Maurice Rashbaum to Miss Justine Todd. The announcement was based on a letter received by THE JOURNAL, signed L. Todd. We are requested both by Miss Todd and by Lieutenant Rashbaum to state that the announcement was incorrect.

BUENOS AIRES LETTER

BUENOS AIRES, Sept. 13, 1918.

University Interchange

Since last year there has been established an active interchange of professors between the medical departments of the universities of Buenos Aires, Rio de Janeiro and Montevideo. During the current year Dr. Etchepare, professor of psychiatry at Montevideo, and Dr. Austregesilo, professor of clinical neurology at Rio de Janeiro, have delivered lectures in Buenos Aires. The latter is still in the city. One of his lectures was on "Vagotony," one on "Studies of the Reflexes" and one is announced on "Cataphrenias."

On the occasion of the second South American Conference on Hygiene, Microbiology and Pathology, which is to convene at Rio de Janeiro, October 15, at the same time as the eighth Brazilian Medical Congress, several Argentine professors are to go to Rio, among others Drs. Araoz Alfaro, Zarate, etc. The national government has sent various delegates.

The local Facultad de medicina has arranged with the facultad of the University of Montevideo for an annual interchange of some of the professors.

Changes in the Medical Staff of the University

When the time came for election of the dean of the Facultad de medicina of Buenos Aires, the minister of public instruction requested that the election should be postponed until after the approbation of the reform of the statutes of government of the universities which had been submitted for government approval and action. This request for delay was badly received by some of the professors, and they sent in their resignation. As the dean, Dr. Bazterrica, had completed his term and no one had been appointed to succeed him, the oldest member of the staff, Dr. Eliseo Canton, was called to the direction of the school.

Infant Mortality

In view of the increase in infant mortality in the last few years, the Sociedad de Pediatría is to devote some special meetings to the study of this medico-social problem. They have invited other medical associations of the country and of Uruguay to take part in the conferences.

The Sociedad Eugénica Argentina has just been founded.

MADRID LETTER

MADRID, Oct. 1, 1918.

Epidemic Influenza Swoops Down on Spain Anew

After the subsidence of the epidemic of influenza in Spain last spring, the summer was extremely dry, the drought being worse than even the oldest inhabitant could remember, and the epidemic of several months before flared up again, and this time in a severer form. It seems that the Pfeiffer bacillus alone or associated with the pneumococcus and streptococcus is producing in certain localities a form of influenza that is fatal in a few hours. As I am writing there are some towns in which every inhabitant has been stricken, and others in which of the total of 500 inhabitants, only seventy or eighty are still on their feet. All the others are sweating and shivering in their beds, waiting for the visit from the doctor, always the true hero and today as ever the victim of a still imperfect sanitary organization. The disease at its first outbreak seemed to yield to the extreme hot weather, but in this second outbreak it has spread throughout the whole of Spain, this wide diffusion favored by official inefficiency and irresponsibility, which ought to be penalized. Nothing of the kind will be done, however, as politics and the dependent situation of the medical officers, subordinate to the civil authorities, impede the regular and systematic functioning of the public health service, which otherwise might have checked the advance of this second epidemic of grip. Notwithstanding the official decrees that the local authorities are to inform the central national authorities when there is a change in public health conditions in their respective regions, many, very many mayors, in order not to interrupt some local festival or shorten the stay of resorters, have kept silent in regard to the presence of the epidemic, threatening the local health officer that he is not independent and is not free to express his views on the arbitrary conduct of the local authorities, often heedless or ignorant of sanitary problems.

The Spring Epidemic of Influenza

Toward the close of last spring the whole of Spain was invaded by a disease sudden in its appearance, brief in its course, and subsiding without leaving a trace: general

malaise, headache, pains in joints and muscles, high fever, slight bronchitis, much sweating and . . . after three days we were out again, a little weak and pale, and telling our friends how we had just had the . . . the . . . What should we call what we had been having? Some name had to be found, and the Madrilenians, as a joke, soon found a name for it. Not long before there had been a musical comedy at one of the theaters, "The Song of Forgetfulness," and one of its numbers, the "Soldier of Naples," sung by a patrol of soldiers, became very popular and was hummed, whistled and played until every one became deathly tired of it. As every one had become deathly tired of the disease we had been having, and as no one seemed able to escape from the tune or the disease, the latter was dubbed "the Naples soldier" too.

THE PANDEMIC OF INFLUENZA

When the epidemic in Spain subsided with the onset of the heated term, every one supposed that the calamity was over, and we were surprised to learn that the disease was making ravages in other countries, and that people there were calling it the "Spanish grip." And wherefore Spanish? Was it not the same grip that Chauffard had observed in Paris and had reported at a meeting of the Société médicale des hôpitaux several weeks before it had made its appearance in Spain? The germ may have increased its virulence and its power of diffusion in Spain, but it is evident that this epidemic was not born in Spain, and this should be recorded as a historic vindication. The extraordinary spread of epidemic influenza and its alarmingly rapid propagation are due to the fact that, as the bacilli are installed in the pharynx and as one of the characteristics of the disease in its incipience is a tickling in the throat, a slight pharyngotracheitis, there is a frequent impulse to cough and hawk, before the general health is impaired so that one has to stay in bed. This coughing relieves the tickling in the throat, but at the same time it spreads droplets of the secretions around and with them the dangerous bacilli, which are inhaled by healthy persons and multiply in them. Expectored sputum, as also the expelled droplets, dry on the ground and the bacilli on them get breathed in dust. It is obvious that in offices, theaters, street cars, cafés, etc., the epidemic encounters the most favorable conditions for its diffusion.

From all over Europe news came to us that our guest, the famous "soldier," had been converted from "Neapolitan" into "Spanish," and we heard of the same diversities of opinion and judgments as we had in our own home. But now—we thought—we could be tranquil spectators, instead of actors, not knowing of the second representation of the comedy, which was even then preparing for us and which soon turned into a tragedy. This confirmed what Dr. Cortezo, the president of the Academia de Medicina and director of the *Siglo Medico* had said in regard to the menace of aggravation of the epidemic when it seemed on the point of disappearing, which had been a feature of other epidemics of influenza.

MORTALITY OF THE EPIDEMIC

A few days after the first cases we learned that some friend with heart disease had succumbed to the "soldier"; then we heard of others with chronic bronchitis, kidney disease or other taints, and in a week from the first case the death rate of the city had doubled. The physicians were exhausted, the druggists had to get extra help, and the city and state executive offices were closed, as also offices of all kinds, shops, schools and theaters. Even the famous "soldier song" was not heard any more. The laboratories collected material for research on the exact diagnosis and published varied and picturesque reports in the daily papers. According to some it was a tropical disease, others regarded it as the immediate effect of meteorologic conditions, some ascribed it to a certain species of mosquito while at that time none of those mosquitoes were to be found in Madrid; others attributed it to some insect prevalent in the Balkan states, and there were even some chemical authorities who attributed it to asphyxiating gases.

REPORT OF SCIENTIFIC SOCIETIES

The highest authority in medical matters in Spain, the Academia Nacional de Medicina, declared that it was the grip, the features of the epidemic being closely analogous to those of the pandemic of 1889 and 1890 which the majority of the members remembered. The association comprising younger men, the Academia Medico-Quirúrgica, accepted the same diagnosis, and Dr. Falco presented specimens showing the Pfeiffer bacillus more distinctly than had been possible hitherto, and the findings were positive in nearly every case examined.

FALCO'S BACTERIOLOGIC TECHNIC

Falco follows Pfeiffer's original technic as modified by his pupil, Scheller. The main point is to rinse the sputum thoroughly and disintegrate it, first in saline and then on the slide. The bacillus is generally ensconced in the very center of the masses of sputum, and the mucin prevents the stain from reaching the bacillus. Hence the enormous difference between the findings of those who take pains in this direction and those who prepare the specimens with defectively disintegrated and washed sputum. Falco does not apply the Pfeiffer procedure with dilute fuchsin at once, but applies the Gram method first, and then the Pfeiffer dilute fuchsin technic.

For inoculation of agar he uses an emulsion of the sputum in sterile bouillon. Thanks to the predominance of the Pfeiffer bacillus over all others, this dilution favors pure cultures. Instead of inoculating the agar as Pfeiffer does and then adding a few drops of blood taken directly from the wing of a pigeon or the human finger, Falco first hemolyzes the blood, as the hemoglobin is the only element in the blood that is necessary for the proliferation of the Pfeiffer bacillus. Falco hemolyzes the blood and mixes it with the agar to begin with. He collects 10 or 12 drops of blood from a vein in the wing of a dove, drawing it directly into a test tube containing 15 or 20 c.c. of distilled water. He agitates the blood, which thereby becomes defibrinated and hemolyzed, and it is then mixed with 100 or 120 c.c. of agar, melted and cooled to 55 C., which is then poured rapidly over the plates.

LONDON LETTER

LONDON, Oct. 8, 1918.

The Prevention of Venereal Disease Among Soldiers

The prevention of venereal disease in the army and navy is a problem that has always exercised the authorities, and of course during this greatest of wars has received increased attention. Under the Defense of the Realm Act (an act giving the government special powers during the war), a regulation known as 40 D has been in force for some months. According to this regulation, "no woman who is suffering from venereal disease in a communicable form shall have sexual intercourse with any member of His Majesty's Forces or solicit or invite any member to have intercourse with her." The excellent intention of this regulation has proved most difficult to carry out. In only four out of the first eight cases in which charges arising out of it were made was a conviction obtained. Subsequently a lawyer acting for the police in a case said that in his experience prosecutions under the regulation had not turned out satisfactory; of five cases conducted by himself, all had failed. The difficulty was due to the time elapsing between the inception of the disease in the man and the examination of the woman. Commenting on this, the *Lancet* states that in a large proportion of cases it has proved impossible to establish the existence of "venereal disease in a communicable form," although some of the women were demonstrably leading a disorderly life. It adds that a searching bacteriologic examination involving the use of the vaginal speculum and the expression of secretion from the urethra and cervix may fail to establish evidence of infection in cases in which clinically it is almost certainly present. This is in harmony with the difficulty—according to some the impossibility—of curing gonorrhea in the female. Apart from the fact that the woman may be merely a carrier of infection without at any time clinically suffering, it may frequently happen that an infective spot is present in the genital tract beyond the reach of the most exhaustive examination. In other words, the coitus test is more delicate than the bacteriologic. Under the regulation, "a woman charged with an offense shall be remanded for the purpose of such medical examination as may be requisite for ascertaining whether she is suffering from such a disease"; but as no examination suffices to ascertain the presence of infection, the *Lancet* considers that this discredits the regulation as a public health measure. Furthermore, difficulty may arise as to positive medical evidence. Even when the woman is shown to be infectious, the length of time between inception of the disease and examination may leave the physician in doubt as to which party infected the other. The *Lancet* further considers that the examination of a woman not for the purpose of treatment and therefore not in her own interest, is a legal measure that does not commend itself to the moral sense of the majority of the profession.

The dangers to which soldiers are exposed by solicitation in the streets has been discussed in the *Times*. An American

in this country, Mr. Bok, editor of the *Ladies' Home Journal*, wrote condemning very strongly the temptations to which American soldiers are exposed in the London streets and contrasting the conditions unfavorably with those in the neighborhood of the camps in America. He was answered, however, by another American editor, who said that the great American cities were in no way better than London. I may add that on personal inquiry at one of the American hospitals in London I have ascertained that the percentage of venereal disease among the patients is very small.

Pharmacy and the War

At the opening of the seventy-seventh session of the School of Pharmacy of the Pharmaceutical Society, Dr. Addison, the minister of reconstruction, delivered an address. He said that the greatest danger to much of our trade and industry had been German organization, training and method, especially in the application of physical science. Without being original themselves, the Germans took hold of the ideas of others, often British in their origin, and applied and developed them with painstaking thoroughness, so that in many British industries they had been gradually acquiring greater power than they would ever have gained by force of arms. The British nation needed a far more thorough and comprehensive application of science to industry and production in an organized form than they had hitherto sought to obtain. He spoke of the rude awakening in this country soon after we went to war because of our depending on Germany for many of the most commonly prescribed drugs and chemicals, and of the methods that had been successfully taken to cope with the difficulties arising from this cause. The result is that today there are none of those medicinal preparations of great importance that are not being made in amply sufficient quantities in this country. As examples he mentioned acetylsalicylic acid, salicylic acid and procain. Much progress has also been made in the home production of many wild plants, such as belladonna, so that the supply of many of these is fully adequate to our needs. The story of the combat with the deficient drug supply would provide a most interesting and attractive example of many of our national achievements during the war. The particular lesson standing out is that we must have a much better supply of trained chemists. When at the beginning of the war the British government advertised for trained chemists at a salary of \$15 a week, this was a striking example of the kind of estimate the country at that time had formed as to the place of science in industry.

PARIS LETTER

PARIS, Oct. 3, 1918.

Did Grip of 1890 Confer Immunity?

The most extravagant stories have been circulating among the public with regard to the present epidemic of influenza, as though it were an entirely new disease. In reality it has long been known. As early as 1643, Etienne Pasquier described certain epidemics in which it is easy to recognize influenza. The Académie de médecine devoted to discussion of it nearly its entire meeting, October 1. Netter confirmed the absolute identity of the present epidemic with the one that raged in Paris in 1889-1890. In fact, the small number of cases occurring among old persons at this time may be taken to indicate that immunity to the disease was established by an attack dating back to the previous epidemic. This fact, of itself, would confirm the identity of the present disease. The course of the two epidemics is identical: Cases are benign at first, pulmonary complications later darkening the prognosis; there are intestinal complications, often with dysenteric characteristics; there is extreme contagiousness, to which physicians and nurses pay heavy tribute, and, finally, from the bacteriologic point of view, the bacillus of Pfeiffer is found in about half the cases. The progress of the epidemic cannot be followed from country to country, as was the case twenty-five years ago, this time, however, because of the military happenings. But there is no reason whatever for designating the disease "Spanish influenza or grip," when it is well known that it raged in Germany and in France before it occurred in Spain.

Drs. R. Wurtz and Fernand Bezançon have made an investigation of certain cases occurring in the hospitals of Paris, which by their unusual severity and the predominance of certain symptoms gave rise to the belief among the laity that the disease is cholera. This assumption is absolutely a wrong one. It is based entirely on the coexistence of the intestinal and pulmonary form of grip or of dysentery with cyanosis; but in every case, laboratory investigation has

shown that there is not a single trace of any pestilence or exotic disease.

In the very severe cases, complicated by pulmonary edema, Dr. Ravaut advocates prompt bleeding, the withdrawal of from 500 to 700 gm. of blood, or even more, sometimes repeating the process. He also prescribes at the same time acetylsalicylic acid, if the kidneys are not affected, and hexamethylenamin when the urine is scanty and albuminous, the drug being administered orally or intravenously. Bleeding, in his opinion, is indicated in all cases of influenza of the congestive type accompanied by a frequent dry cough with beginning cyanosis.

The Food Supply

A very important step has just been taken to unify the means of provisioning the nation. A decree published in the *Journal officiel* provides that the minister of agriculture and food commissioner, who already is in charge of the provisioning of the armies in the field and of the civil population, shall also have charge of the provisioning of the ordinary troops and of the establishments of the Service de Santé. This will do away with the competition in the purchase of foods—which still exists—and finally unites the various services under one direction, unifying the various organizations that have hitherto had parallel functions in the distribution of food, placing on a common basis all goods, storehouses and personnel. The *magasins d'approvisionnement* of the Service de Santé, established in January, 1917, by M. Justin Godart, then undersecretary of state of the Service de Santé militaire, will cease to be the exclusive property of the military hospitals and of the Red Cross, but will be used, with all their resources, for general provisioning. They will be added to and merged with the regional *magasins* (storehouses) already established by the food commissioners in charge of the food supply for the civil population. This reform will make it possible to use the national resources to the best advantage, to fight the high cost of living, and, to a certain extent, it will help to lessen the difficulties of apportioning food between the various classes of consumers.

Exceptional Service Decorations for Medical Officers

M. Jean Ossola, deputy, has made his report in the name of the Commission de l'armée appointed to examine the proposition of M. Emile Constant, deputy from la Gironde, to admit to promotion in the Legion of Honor the officers of the Service de Santé who have rendered exceptional service. The report is favorable to M. Constant's proposition, and concludes thus: The Chamber of Deputies invites the government to include the officers of the Service de Santé among those military men who may be decorated by the Legion of Honor for exceptional services.

Legion of Honor for President of American Red Cross

The French government has bestowed the cross of commander of the Legion of Honor on M. Davidson, president of the American Red Cross, as an evidence of the high esteem in which he is held and in recognition of the great services that the American Red Cross has rendered to the war victims in France.

Death of Dr. Tribondeau

Dr. Tribondeau, *médecin principal de la marine*, died in the naval hospital at Achilleion, Corfu, aged 46. At first professor in the Ecole de Service de Santé de la marine, then head of the laboratory of bacteriology of the fifth arrondissement maritime, he was after several months called to direct the bacteriologic service of the Hôpital de l'Achilleion. Fatigued and already ill, he was on the point of returning to France when an epidemic of influenza made its appearance among the crews of the vessels stationed at Corfu. He insisted on remaining at his post to attend the sick, without thinking of himself. He was attacked by the disease and died in ten days.

Marriages

LIEUT. EARL HICK MITCHELL, M. C., U. S. Navy, Indianapolis, on duty at Tampa, Fla.; to Miss Mollie Melvine Tucker of Tampa, Fla., August 22.

LUTHER W. LITTLE, Nemaha, Iowa, to Miss Selma V. Olsen, of Michigamme, Mich., at Des Moines, October 12.

SILAS ADDISON AUSTIN, to Mrs. Naomi N. Brown, both of Los Angeles, October 23.

Deaths

Walter Franklin Chappell ☉ New York City; University of Toronto, Ont., 1879; M. R. C. S., England, 1881; aged 62; member of the American Laryngological Association, American Laryngological, Rhinological and Otological Society and American Otological Society; professor of clinical laryngology in the College of Physicians and Surgeons in the City of New York since 1910; surgeon to the Manhattan Eye, Ear and Throat Hospital, since 1887; consulting laryngologist to the Loomis Sanatorium; dropped dead in his office, October 19.

Major Frederick Oswin Waage, M. C., U. S. Army ☉ Philadelphia; on duty at Fort Bliss, Texas; University of Pennsylvania, Philadelphia, 1904; aged 41; a member of the Association of Military Surgeons of the United States; formerly chief of the medical dispensary and chief anesthetist of the Methodist Hospital, Philadelphia; who entered the National Guard of Pennsylvania in 1907, and was on duty at the base hospital, Fort Bliss, Texas; died suddenly at that post, October 31, from heart disease.

Astley Cooper Clark, Pittsburgh; University of Pittsburgh, 1891; aged 48; a member of the Medical Society of the State of Pennsylvania; local surgeon to the Baltimore and Ohio System, and for twenty years surgeon for the Pennsylvania Railroad; a member of the surgical staff of St. Francis' Hospital for twelve years, and for three years president of the Lawrence School Board; died at his home, October 20, from pneumonia following influenza.

Jane Rogers Baker ☉ West Chester, Pa.; Woman's Medical college of Pennsylvania, Philadelphia, 1892; aged 51; fellow of the American Medico-Psychological Association; who after serving in insane hospitals in Massachusetts, was given charge of the Insane Department of the Chester County Home in Embreeville, where she remained several years; originator of child welfare work in West Chester; died at her home, October 23, from typhoid fever.

John Ranly ☉ Cincinnati; Medical College of Ohio, Cincinnati, 1891; aged 42; fellow of the American Academy of Ophthalmology and Oto-Laryngology; oculist and aurist to St. Francis, Good Samaritan and St. Mary's hospitals; instructor in the eye clinic of his alma mater; and recently made a member of the faculty; died at the home of his mother in Cincinnati, October 13, from pneumonia following influenza.

Robert B. Gray, Port Carbon, Pa.; Medico-Chirurgical College of Philadelphia, 1894; aged 52; a member of the Medical Society of the State of Pennsylvania; for six years, deputy coroner of the Port Carbon, New Philadelphia and Middletown district; for ten years a member of the Board of Health of Port Carbon and Palo Alto, and for one year a member of the Port Carbon council; died at his home, October 19.

George William Booher, Berry, Ky.; University of Louisville, Ky., 1917; aged 26; a member of the Kentucky State Medical Association; one of the first physicians of Harrison County to be commissioned in the Medical Reserve Corps, but discharged by reason of physical disability in September, 1918; died at his home, October 18, from pneumonia, following influenza.

Lieut. Glenn Dewey Ransom, M. C., U. S. Army ☉ Big Rapids, Mich.; University of Michigan, Ann Arbor, 1913; aged 34; who was sent to England early in the summer of 1917, and later went to France with a hospital unit and was decorated by the French government in June, 1918, for bravery; died in France, last month, from wounds received in action.

Alexander Simpson Kelly ☉ Oakland, Calif.; Cooper Medical College, San Francisco, 1901; aged 39; professor of operative surgery in Oakland College of Medicine and Surgery; for twelve years a member of the board of education, and for three years its president; died in the Oakland Central Hospital, October 24, from pneumonia, following influenza.

William Elmo Turton, Washington, D. C.; Georgetown University, Washington, D. C., 1908; aged 35; a member of the Medical Society of the District of Columbia; also a graduate in pharmacy; a medical employee of the Health Department of the District of Columbia; died at his home, October 10, from pneumonia following influenza.

Eugene Bryce Osborn, Cleburne, Texas; University of Texas, Galveston, 1896; aged 47; local surgeon of the Missouri, Kansas and Texas Railway, and chief surgeon of the

Dallas, Cleburne and Southwestern Railway; health officer of Cleburne and Johnson County; died at his home, October 19, from pneumonia, following influenza.

Lieut. Robert Kenton McGuffin, M. C., U. S. Army ⊕ Imperial, Calif.; Maryland Medical College, Baltimore, 1911; aged 33; a member of the Medical Society of the State of California; coroner of Imperial County; who was ordered to report for duty at Camp Kearney, October 23; died at his home, October 20, from pneumonia, following influenza.

William Benjamin Hardman ⊕ Commerce, Ga.; College of Physicians and Surgeons in the City of New York, 1889; aged 53; once president of the Medical Association of Georgia; president of the board of trustees of Mercer University, and president of the Bank of Commerce; died at his home, October 28, from pneumonia.

Manly J. D. Dantzler, Elloree, S. C.; Medical College of the State of South Carolina, 1861; aged 78; a member of the South Carolina Medical Association, and president of the Orangeburg County Medical Society; surgeon in the Confederate Service during the Civil War; died at his home, October 12.

Thomas Best Kramer, Washington, D. C.; Howard University, Washington, D. C., 1887; aged 66; a member of the Medical Society of the District of Columbia; also a graduate in pharmacy; and at one time pharmacist in the Navy; died at his home, October 11, from pneumonia following influenza.

William Hupp Sands ⊕ Fairmont, W. Va.; University of Pennsylvania, Philadelphia, 1898; aged 45; a specialist on diseases of the nose and throat; while driving in his automobile over a grade crossing near Fairmont, October 22, was struck by a Baltimore and Ohio train, and instantly killed.

Joseph James Wilson, Jr. ⊕ Coldwater, Miss.; Tulane University, New Orleans, 1907; aged 32; local surgeon of the Illinois Central Railroad; who received orders to report for duty at Camp Beauregard, La., the day of his death; died at his home, October 16, from pneumonia, following influenza.

David Webster Meyer, Brooklyn; Long Island College Hospital, Brooklyn, 1894; aged 47; surgeon to the Brooklyn Eye and Ear Hospital; consulting surgeon to Samaritan Hospital, Brooklyn; ophthalmologist to the Home for Consumptives; died at his home, October 24, from pneumonia.

Asst. Surg. Rushmer Christian Christiansen, Lieut., U. S. Navy ⊕ State University of Iowa, Iowa City, 1913; aged 28; who entered the Navy in July, 1917, and was on duty at Mare Island, Calif.; died in the Naval Hospital at Mare Island, October 19, from pneumonia following influenza.

Emanuel Joseph Leavitt, Brooklyn; College of Physicians and Surgeons in the City of New York, 1904; aged 41; radiologist to the Wyckoff Hospital, Brooklyn; a member of the staff of St. Mark's and the German hospitals; died at his home, October 24, from pneumonia, following influenza.

Selma Marstella Mason ⊕ Clarksburg, W. Va.; George Washington University, Washington, D. C., 1900; aged 41; chief surgeon of the Mason Hospital, Clarksburg; for several years coroner of Harrison County; died in the Mason Hospital, October 21, from pneumonia, following influenza.

Capt. Jean Paul Gay, M. C., U. S. Army ⊕ McAlester Okla.; University of Louisville, Ky., 1908; aged 34; in charge of the venereal disease campaign in Oklahoma, under the United States Public Health Service; died at his home, October 25, from pneumonia, following influenza.

Charles James Laffin ⊕ Gallup, N. M.; New York University, New York City, 1893; aged 51; who conducted a private hospital in New York City for many years and in 1908 entered the United States Indian Service; died at his home, October 18, from pneumonia following influenza.

Thomas Sanford Dunaway Grasty, Washington, D. C.; George Washington University, Washington, D. C., 1901; aged 38; a member of the Medical Society of the District of Columbia, and a specialist in pediatrics; died at his home, October 20, from pneumonia following influenza.

Flora Estella Parker Easton ⊕ Norristown, Pa.; Woman's Medical College of Pennsylvania, Philadelphia, 1901; aged 46; for eight years a member of the staff of the Norristown State Hospital for the Insane; died in that institution, October 25, from pneumonia following influenza.

James Watt Keen, Philadelphia; Medico-Chirurgical College of Philadelphia, 1897; aged 56; one of the first physicians of Philadelphia to report for emergency duty during

the epidemic of influenza; died at the Emergency Hospital, Philadelphia, October 23, from influenza.

Lieut. Wendell James Phillips, M. C., U. S. Army ⊕ Corvallis, Ore.; Jefferson Medical College, 1915; aged 31; for two years physician in charge of the Oregon Agricultural College, Corvallis, Ore.; died at Camp Lee, Va., October 13, from pneumonia following influenza.

Thomas Howard Irwin, Moulton, Ala.; Vanderbilt University, Nashville, Tenn., 1900; aged 41; a member of the Medical Association of the State of Alabama; chairman of the Lawrence County Board of Health; died at his home, October 17, from pneumonia following influenza.

Frederick Allen Stafford, Phoenix, Ariz.; Hahnemann Medical College, Chicago, 1895; aged 28; a member of the Arizona Medical Association, and president of the Arizona Board of Medical Examiners; died at his home, October 18, from pneumonia following influenza.

Albert Johnson Terrell, Black Mountain, N. C.; University of North Carolina, Chapel Hill, 1908; aged 42; a member of the Medical Society of the State of North Carolina; died in the Meriwether Hospital, Asheville, N. C., October 13, from pneumonia following influenza.

George Wesley Gorrill ⊕ Buffalo; University of Buffalo, 1900; aged 41; American Medico-Psychological Association, and Buffalo Academy of Medicine; superintendent of the Buffalo State Hospital; died at his home, October 27, from pneumonia following influenza.

Clarence Sanford Faulkner ⊕ Elizabethtown, N. Y.; College of Physicians and Surgeons in the City of New York, 1913; aged 33; a member of the Board of Health of Elizabethtown and Lewis; died at his home, October 17, from pneumonia following influenza.

Lieut. Gerard Henry Lebet, M. C., U. S. Army ⊕ Montclair, N. J.; University of Maryland, Baltimore, 1913; aged 32; a member of the staff of Overbrook, the Essex County Hospital for the Insane; died at his home, October 17, from pneumonia following influenza.

Andrew Jackson Gray, Young America, Ind.; Medical College of Indiana, Indianapolis, 1897; aged 64; a member of the Indiana State Medical Association; for several terms a member of the board of commissioners of Cass County; died at his home, October 18.

William Tillman Burks, Fresno, Calif.; College of Physicians and Surgeons, San Francisco, 1900; aged 60; for some time president of the board of health of Fresno and health officer of Fresno County; also a druggist; died at his home, October 21, from pneumonia.

Charles L. Hough, Helena, Ark.; Jefferson Medical College, 1883; aged 57; also a druggist; died at his home in West Helena, October 15, from the effects of a gunshot wound of the head, self inflicted, it is believed, with suicidal intent, while despondent.

Jesse Robinson Kauffman ⊕ Blue Island, Ill.; Rush Medical College, 1907; aged 34; assistant professor of surgery in Loyola University, Chicago; local surgeon to the Rock Island System; died at his home, October 28, from pneumonia, following influenza.

William Henry Robinson, Eudora, Kan.; Kansas City, Mo., Medical College, 1872; aged 70; twice mayor of Eudora; and once postmaster of Liberty Mo., and Monticello, Kan.; died in the Swedish Hospital, Kansas City, Mo., October 18, from pneumonia.

Asst. Surg. Norwin Batte Norris, Lieut. (j. g.), U. S. Navy ⊕ Memphis, Tenn.; University of Tennessee, Nashville, 1917; aged 27; is reported in the *Official Bulletin* of October 14, as missing on the *U. S. S. Ticonderoga*, sunk, September 30, by a submarine.

Stanley Owen Sabel, New York City; College of Physicians and Surgeons in the City of New York, 1898; aged 42; visiting physician and a member of the medical board of Washington Heights Hospital; died suddenly at his home, October 20.

Joseph William Stone, Los Angeles; Jefferson Medical College, 1913; aged 32; a member of the Medical Society of the State of California; for several years a practitioner of Seattle; died at the home of his parents in that city, October 16.

Dean W. McKeen, Mena, Ark.; College of Physicians and Surgeons, Keokuk, Iowa, 1878; St. Louis College of physicians and Surgeon, 1888; aged 65; died in the Christian Hospital, Kansas City, Mo., October 23, after a surgical operation.

John Cassel Buckwalter, Palo Alto, Calif.; Miami Medical College, Cincinnati, 1900; aged 45; formerly of St. Louis, associate professor of otology in the Marion-Sims Beaumont College of Medicine, St. Louis; died at his home, October 13.

John Kirk Formis, Lennox, S. D.; Northwestern University Medical School, Chicago, 1909; aged 38; who enlisted in the Medical Reserve Corps, U. S. Army, June 28, 1918; died at his home, September 30, from pneumonia, following influenza.

Edward Mosher Allen ♂ Los Angeles; Rush Medical College, 1911; aged 33; assistant professor of obstetrics in the College of Physicians and Surgeons, Los Angeles; died at his home, October 21, from pneumonia, following influenza.

John George Mueller, Iowa City, Iowa; State University of Iowa, Iowa City, 1895; aged 47; for several years assistant in gynecology in his alma mater; died in a hospital in Iowa City, October 17, from pneumonia, following influenza.

Charles Elisha Collins, Rensselaer, N. Y.; Albany (N. Y.) Medical College, 1906; at one time a member of the Medical Society of the State of New York; for several terms city physician; died at his home, October 14, from heart disease.

Frank Hewitt Bartlett ♂ New York City and Yonkers, N. Y.; College of Physicians and Surgeons in the City of New York, 1888; aged 62; a specialist in diseases of the ear, nose and throat; died at his home in Yonkers, September 14.

Francis Augustus Lane ♂ Lynn, Mass.; Harvard Medical School, 1892; aged 50; formerly a member of the board of health of Lynn; for four years quarantine officer of the port of Boston; died at his home, October 29, from pneumonia.

Joseph Frank Etzbach, Chicago; State University of Iowa, Iowa City, 1905; aged 34; at one time a member of the Illinois State Medical Society; died in the La Salle (Ill.) Hospital, October 20, from pneumonia, following influenza.

Lieut. Guy Chaille Haralson, M. C., U. S. Army ♂ Vicksburg, Miss.; Loyola University, Chicago, 1917; aged 36; assistant physician at the East Mississippi Insane Asylum; died at Fort McPherson, Ga., October 24, from pneumonia.

Phillips Carey Vaughan, Chicago; Rush Medical College, 1888; Bellevue Hospital Medical College, 1889; aged 51; medical director of the Ideal Sick Benefit and Accident Association; died at his home, October 25, from pneumonia.

Richard H. Schneider, Chicago; National Medical University, Chicago, 1907; aged 57; was found dead in his apartment, November 1; death being due, it is believed, to suicide by gas asphyxiation, while suffering from melancholia.

Theophilus Radcliffe VanKirk, McKeesport, Pa.; Jefferson Medical College, 1864; aged 78; assistant surgeon of the Two Hundred and Ninth Pennsylvania Volunteer Infantry during the Civil War; died at his home, October 26.

Emil Henry Zimmerman, Colome, S. D., formerly of Cicero, Ill.; Loyola University, Chicago, 1913; aged 33; a member of the Illinois State Medical Society; died at his home, October 21, from pneumonia, following influenza.

Arthur Nolte ♂ New Orleans; University of Virginia, Charlottesville, 1880; College of Physicians and Surgeons in the City of New York, 1881; aged 58; died at his home, October 24, from pneumonia, following influenza.

Lieut. Holman Simpson Siff, M. C., U. S. Army ♂ Brooklyn; University and Bellevue Hospital Medical College, 1918; aged 24; an intern in Bellevue Hospital; died at his home, October 20, from pneumonia following influenza.

Thomas Eusebius Byrnes, Chicago; Loyola University, Chicago, 1918; aged 27; a member of the house staff of St. Bernard's Hospital, Chicago; died in that institution, October 10, from endocarditis following influenza.

William N. DeArmond, Fort Collins, Colo.; Keokuk (Iowa) Medical College, College of Physicians and Surgeons, 1902; aged 55; a member of the Colorado State Medical Society; died at his home, October 23, from influenza.

Frederick Waterman Cowles, West Brookfield, Mass.; Dartmouth Medical School, Hanover, 1892; aged 52; a member of the Massachusetts Medical Society; died at his home, about October 15, from bronchopneumonia.

William Williamson ♂ San Diego, Calif.; McGill University, Montreal, 1891; a specialist on diseases of the eye, ear, nose and throat; oculist to the Sante Fe System; died in Los Angeles, October 19, from pneumonia.

A. Douglas Erwin, Fidelity, Ill.; Missouri Medical College, St. Louis, 1883; while returning from a hunting trip, October 7, was shot and killed by the accidental discharge of a gun carried by one of his companions.

Frank H. Weidemann, Connellsville, Pa.; Medico-Chirurgical College of Philadelphia, 1911; aged 40; local medical examiner for the Baltimore and Ohio System; died at his home, October 24, from influenza.

Wilmer Everett Toney, Red Stone, Mont.; University of Michigan, Ann Arbor, 1911; aged 34; for two years surgeon at the Northern Pacific Railway Hospital, Missoula; died at his home, October 18, from influenza.

Warren DeWitt Ratliff, Lucedale, Miss.; Tulane University, New Orleans, 1893; aged 52; member of the Mississippi State Medical Association; died at his home, about October 24, from pneumonia, following influenza.

Charles S. Wilkerson, Roff, Okla.; Chattanooga (Tenn.) Medical College, 1899; aged 40; a member of the Oklahoma State Medical Association; died in Sherman, Texas, October 16, from pneumonia following influenza.

Lieut. Joseph Daniel Rosenthal, M. C., U. S. Army ♂ Brooklyn; New York Homeopathic Medical College, 1915; aged 27; died in the base hospital of Markleton, Pa., October 22, from pneumonia following influenza.

Lieut. Timothy Joseph Moran, M. C., U. S. Army ♂ Pittsburgh; University of Pennsylvania, Philadelphia, 1905; aged 37; a specialist in ophthalmology; died in Camp Greenleaf, Fort Oglethorpe, Ga., October 17.

James H. Reynolds, Louisa, Ky. (license, West Virginia, 1896); aged 48; a specialist in diseases of the eye, ear, nose and throat; and also a druggist; died at his home, October 9, from pneumonia following influenza.

George J. Koch ♂ Paterson, N. J.; College of Physicians and Surgeons, Baltimore, 1905; aged 38; a member of the staff of St. Joseph's Hospital, Paterson; died at his home in that city, October 19, from influenza.

Joseph White Humphrey Porter ♂ Caribou, Me.; University of Pennsylvania, Philadelphia, 1901; aged 40; a specialist on diseases of the eye, ear, nose and throat; died at his home, about October 31, from pneumonia.

Lee G. Betts, Prairie City, Ill.; Ensworth Medical College, St. Joseph, Mo., 1902; aged 41; a member of the Illinois State Medical Society; died at his home, October 21, from pneumonia, following influenza.

Walter John McGibbon, Chateaugay, N. Y.; Montreal School of Medicine and Surgery, 1911; McGill University, Montreal, 1913; aged 32; died at his home, October 18, from pneumonia, following influenza.

William D. Krebs, Green Bay, Wis.; Marquette University, Milwaukee, 1914; aged 31; a member of the State Medical Society of Wisconsin; died at his home, October 18, from pneumonia, following influenza.

Henry Stark, Baltimore; University of Heidelberg, Germany, 1866; aged 74; for fourteen years city vaccine physician of Baltimore; died at his home in South Baltimore, October 23, from cerebral hemorrhage.

Joseph William Walsh, Portland, Conn.; College of Physicians and Surgeons, Baltimore, 1907; aged 33; a member of the Connecticut State Medical Society; died at his home, October 20, from pneumonia.

Lieut. Homer E. Van Epps, M. C., U. S. Army ♂ Sterling, Ill.; Hahnemann Medical College, Chicago, 1916; aged 31;



Died in the Service
IN FRANCE

LIEUT. WILLIAM C. KANTNER, JR.,
M. C., U. S. ARMY, 1885-1918
(See The Journal, last week, p. 1507)

died recently at Camp Mills, Long Island, N. Y., from pneumonia following influenza.

William Nelson Carter, Columbus, Ga.; University of Louisville, Ky., 1906; aged 36; a member of the Medical Association of Georgia; died in the Columbus Hospital, October 17, from influenza.

George Willard Lent, Oxford, Pa.; Jefferson Medical College, 1891; aged 57; superintendent of the Oakwood Sanatorium, Oxford; died at his home, October 18, from pneumonia, following influenza.

Francis Melville Deems, Flushing, N. Y.; Bellevue Hospital Medical College, 1868; aged 72; associate physician to the Flushing Hospital; died at the Presbyterian Hospital, New York City, October 27.

William James McKnight, Brookville, Pa.; Jefferson Medical College, 1884; aged 82; also a druggist; a practitioner since 1857; state senator in 1880; a local historian; died at his home, October 12.

Edward Isadore Schwartz, Fresno, Calif.; College of Physicians and Surgeons, Los Angeles, 1918; aged 26; an intern in the Fresno County Hospital; died in that institution, October 21, from influenza.

Lieut. Robert Archie Sherwood, M. C., U. S. Army ☉ University of Oregon, Portland, 1916; Army Medical School, Washington, D. C., 1918; aged 28; is reported to have died in action in France, September 17.

Lieut. Carl Bibb Hudson, M. C., U. S. Army ☉ Montgomery, Ala.; Harvard Medical School, 1917; aged 30; died, October 2, a few days after his arrival in France, from pneumonia following influenza.

William P. Harvey, San Francisco; University of California, San Francisco, 1900; aged 43; a member of the Medical Society of the State of California; died at his home, October 27, from influenza.

J. Sanderson Lazarus, Bloomsburg, Pa.; Jefferson Medical College, 1868; aged 76; a member of the Medical Society of the State of Pennsylvania; died at his home, October 19, from heart disease.

Lewis Webster Burdick ☉ Maryland, N. Y.; Albany (N. Y.) Medical College, 1909; aged 36; died in the Fox Memorial Hospital, Oneonta, N. Y., October 21, from pneumonia, following influenza.

Bradford Augustus Richards ☉ Rochester N. Y.; McGill University, Montreal, 1901; aged 41; a specialist in diseases of the ear, nose and throat; died at his home, October 22, from pneumonia.

George W. Mullins, Milano, Texas; Kentucky School of Medicine, Louisville; at one time a member of the State Medical Association of Texas; died at his home, October 20, from pneumonia.

John Stanley Scott, Lake Charles, La.; Tulane University, New Orleans, 1912; aged 30; a member of the Louisiana State Medical Association; died at his home, October 17, from pneumonia.

Clinton Lee Hyatt, Kissimmee, Fla.; North Carolina Medical College, Charlotte, 1908; aged 37; a member of the Florida Medical Association; died at his home, October 17, from pneumonia.

Lieut. Chester Cameron Wood, P. A. Surg., U. S. Navy ☉ on duty on U. S. S. *Alabama*; Jefferson Medical College, 1910; aged 30; who entered the Navy, May 4, 1915; died at sea, October 5.

Thomas B. Slaton, Greenville, Ky.; Barnes Medical College, St. Louis, 1902; aged 39; a member of the Kentucky State Medical Association; died at his home, October 20, from influenza.

Lieut. Edward Kenneth Lubin, M. C., U. S. Army ☉ New York City; University and Bellevue Hospital Medical College, 1918; aged 24; died in Bellevue Hospital, October 27, from influenza.

Lieut. Ralph Waldo Turner, M. C., U. S. Army ☉ Albany, N. Y.; Albany Medical College, 1917; aged 24; on duty at Fort Oglethorpe, Ga.; died at that post, October 17, from pneumonia.

True S. Burgess, Washington, D. C., formerly of Russellville, Ark.; George Washington University, Washington, D. C., 1912; aged 31; died at the home of his mother, October 22.

Walter Scott Muirhead, Floodwood, Minn.; University of Illinois, Chicago, 1909; aged 33; was burned to death, about October 13, in the forest fires which prevailed in northern Minnesota.

Foss Edwin Pratt, Ruston, Tacoma, Wash.; Cleveland College of Physicians and Surgeons, 1904; at one time mayor of Ruston; died in a hospital, in Tacoma, October 20, from pneumonia.

Lieut. Frank Benedict Rosinski, M. C., U. S. Army ☉ Cleveland; aged 27; who had just been ordered to Fort Oglethorpe, Ga., for duty; died at his home, October 21, from influenza.

John Joseph O'Donnell, Boston; Harvard Medical School, 1915; aged 33; who had been in Los Angeles since January, died at that place in October from pneumonia following influenza.

William Meredith Gregory, Berea, Ohio; Cleveland Medical College, 1895; Cleveland College of Physicians and Surgeons, 1899; aged 61; died at his home, October 9, from influenza.

Lafayette Bennett, Elkton, Ky.; University of Tennessee, Nashville, 1900; aged 41; a member of the Kentucky State Medical Association; died at his home, October 20, from influenza.

Henry S. Lindley, Wilkesburg, Pa.; Jefferson Medical College, 1866; aged 80; surgeon in the federal service during the Civil War; died at his home, October 10, from heart disease.

Charles Francis Montgomery ☉ Roswell, N. M.; University of Missouri, Columbia, 1905; aged 39; died in St. Mary's Hospital, Roswell, about October 15, from influenza.

Horace David Hermans, Mohoney City, Pa.; Jefferson Medical College, 1892; aged 53; also a druggist; died at his home, October 21, from pneumonia following influenza.

Salamat Isa Aranki, Bridgeport, Conn.; College of Physicians and Surgeons, Baltimore, 1914; aged 32; a native of Jerusalem; died at his home, October 7, from influenza.

Lieut. Benjamin Franklin McArthur, M. C., U. S. Army ☉ Lizelia, Miss.; Memphis (Tenn.) Hospital Medical College, 1905; aged 35; died at his home, October 20, from influenza.

Charles O. Zahner, Louisville, Ky.; University of Louisville, Ky., 1904; aged 38; professor of physiology in his alma mater; died at his home, October 11, from influenza.

Maude Leontine Morrison, Los Angeles; College of Physicians and Surgeons, Los Angeles, 1917; aged 33; an intern in the Los Angeles County Hospital; died recently.

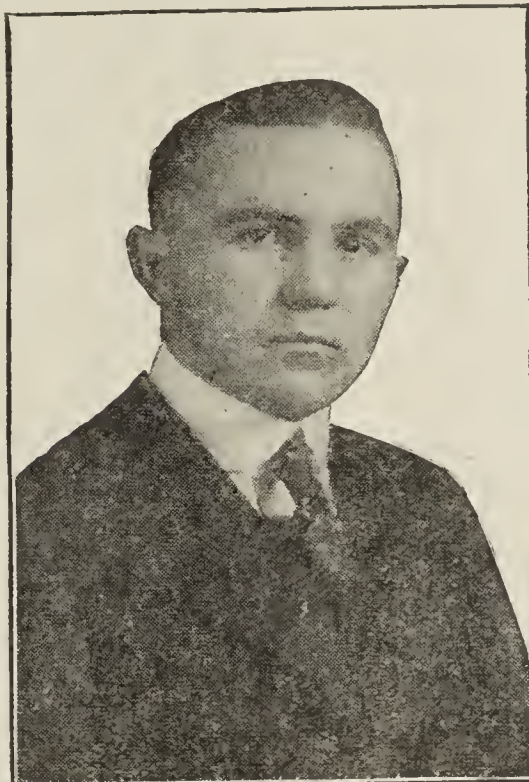
Wyatt Patrick Exum, Jr., Maxton, N. C.; Medical College of Virginia, Richmond, 1901; aged 43; died at his home, October 16, from pneumonia, following influenza.

Francis Graham Gardiner ☉ Pittsburgh; University of Michigan, Ann Arbor, 1880; aged 68; died in the Passavant Hospital, Pittsburgh, October 22, from pneumonia.

George Davis Warren ☉ Ozark, Ark.; University of Arkansas, Little Rock, 1911; aged 34; died at his home, October 19, from pneumonia following influenza.

Lieut. Herman Warner Krantz, M. C., U. S. Army ☉ Union Bridge, Md.; University of Maryland, Baltimore, 1915; aged 27; died at his home, October 25, from influenza.

Harvey Marshall Vance ☉ Pleasant Grove, Utah; University of Illinois, Chicago, 1903; aged 40; died at his home, October 16, from pneumonia following influenza.



Died in the Service
IN FRANCE

LIEUT. ROBERT A. SHERWOOD, M. C.,
U. S. ARMY, 1890-1918

- William Augustus Keeley**, Brooklyn; New York University, New York City, 1888; aged 51; died at his home, October 20, from pneumonia following influenza.
- Samuel Duffie Austin**, Handsboro, Miss.; George Washington University, Washington, D. C., 1905; aged 42; died at his home, about October 25, from influenza.
- Alfred Hincks Youngs** ✕ Pierre, S. D.; University of Minnesota, Minneapolis, 1907; aged 40; died at his home, October 16, from pneumonia, following influenza.
- W. Eugene Seeger**, Dallas, Texas; Baylor University, Dallas, 1913; aged 29; died at the Waxahachie (Texas) Sanitarium, about October 23, from pneumonia.
- Clarence Wesley Batchelet** ✕ Pine River, Wis.; Milwaukee Medical College, 1912; aged 29; died at his home, October 21, from pneumonia, following influenza.
- Alfred Friedman**, New York City; College of Physicians and Surgeons in the City of New York, 1876; aged 67; died at his home, October 18, from pneumonia.
- Kenneth Field Albee** ✕ Weston, Mass.; Harvard Medical School, 1914; aged 32; died at his home, September 23, from bronchial pneumonia following influenza.
- Ralph Jiles Smirl**, New Raymer, Colo.; Vanderbilt Medical College, 1915; aged 28; died in the Park Avenue Hospital, Denver, October 18, from influenza.
- John C. McClenathan**, Connellsville, Pa.; Jefferson Medical College, 1881; aged 66; formerly surgeon to the Cottage State Hospital; died at his home, October 26.
- Andrew Donaldson**, Kansas City, Mo.; University of Wooster, Cleveland, Ohio, 1874; aged 79; died at his home, October 5, from cerebral hemorrhage.
- Stephen Finley Welton**, Montezuma, Ga.; Meharry Medical College, Nashville, Tenn., 1909; aged 40; a colored practitioner; died at his home, October 7.
- Merlin B. Wyatt** ✕ Manning, Iowa; University of Nebraska, Omaha, 1907; aged 35; roentgenologist; died at his home, October 22, from influenza.
- Lorenzo R. Thornton**, Filley, Neb. (License, Nebraska, 1891); aged 84; a veteran of the Civil War; died in the Soldiers' Home, Milford, October 17.
- Giuseppe Vittorio Sbordone**, New York City; University of Naples, Italy, 1889; aged 56; died at his home, October 21, from pneumonia following influenza.
- Vincent Jastremski**, Montegut, La.; Tulane University, New Orleans, 1897; aged 40; died at his home, October 19, from pneumonia, following influenza.
- Curtis E. Bowers**, Kersey, Colo.; Hahnemann Medical College, Chicago, 1902; aged 40; died at his home, October 22, from pneumonia following influenza.
- Edward Charles Cekul** ✕ La Otto, Ind.; Indiana University, Indianapolis, 1914; aged 33; died at his home, October 24, from pneumonia, following influenza.
- Kieran Joseph O'Neill**, Coupeville, Wash.; University of Toronto, Ont., 1909; aged 30; died at his home, October 23, from pneumonia, following influenza.
- Robert Lenard**, Chicago; Illinois Medical College, Chicago, 1900; aged 44; died at South Chicago Hospital, October 27, from pneumonia, following influenza.
- Francois DeSales Dube** ✕ Milwaukee; Milwaukee Medical College, 1908; aged 32; died at Amery, Wis., October 23, from pneumonia, following influenza.
- Lawrence Dutcher Gillick**, Pulaski, Wis.; Milwaukee Medical College, 1909; aged 32; died at his home, October 16, from pneumonia, following influenza.
- Paul Henry Hesse**, London Mills, Ill.; Chicago College of Medicine and Surgery, 1908; aged 45; died at the Red Cross Hospital, Kankakee, Ill., October 16.
- Clyde Switzer Horton**, Edgerton, Wis.; University of Illinois, Chicago, 1907; aged 38; died at his home, October 5, from pneumonia following influenza.
- William G. Gardiner**, Atlantic City, N. J.; Hahnemann Medical College, Philadelphia, 1888; aged 50; died at his home, October 17, from influenza.
- Frederick Lovell Bogue** ✕ New York City and Mont Clair, N. J.; University of Pennsylvania, Philadelphia, 1895; aged 48; died at his home, October 26.
- Lieut. Eugene Fellner Hull**, M. C., U. S. Army ✕ Berlin, N. Y.; Albany (N. Y.) Medical College, 1913; aged 30; died in Little Rock, Ark., October 18.
- Charles J. Reimer, Jr.** ✕ Phoenixville, Pa.; Jefferson Medical College, 1911; aged 32; died at his home, October 13.
- Edward John Miller**, Urbana, Ill.; University of Illinois, Chicago, 1912; aged 30; died at his home, October 15, from pneumonia, following influenza.
- Robert Henry Scott**, Laingsburg, Mich.; Detroit College of Medicine and Surgery, 1894; aged 59; died at his home, October 15, from pneumonia.
- Silas Baldwin Jacobs**, Baltimore; Southern Homeopathic Medical College, Baltimore, 1905; aged 35; died at his home, October 17, from influenza.
- Margaret E. Pomeroy**, Salem, Ore.; Willamette University, Salem, 1904; died in Portland, Ore., October 23, from pneumonia, following influenza.
- Joseph Emil Artiges** ✕ San Francisco; Cooper Medical College, San Francisco, 1887; aged 55; died at his home, October 22, from influenza.
- Carl Logan Brown** ✕ Cawker City, Kan.; Kansas Medical College, Topeka, 1913; aged 33; died in Bennington, Kan., October 9, from influenza.
- Lieut. Wilburn Edgar Hampton**, M. C., U. S. Army ✕ Ferris, Texas; University of Louisville, Ky., 1910; aged 31; died in Dallas, October 21.
- Joseph A. S. Regli**, San Jose, Calif.; Georgetown University, Washington, D. C., 1902; aged 42; died at his home, October 24, from influenza.
- Alfred F. Skillman**, McCracken, Kan.; Northwestern Medical College, St. Joseph, Mo., 1885; aged 61; died at his home, recently, from pneumonia.
- John Marye Lewis** ✕ Manassas, Va.; University of Virginia, Charlottesville, 1905; aged 37; died at his home, October 14, from pneumonia.
- George Ulrich Panzer**, Truman, Minn.; Eclectic Medical Institute, Cincinnati, 1910; aged 37; died at his home, October 23, from influenza.
- Ella Florence Preston**, Dansville, N. Y.; Eclectic Medical College of the City of New York, 1882; aged 70; died at her home, October 15.
- George Greer**, Vandalia, Ill.; Missouri Medical College, St. Louis, 1882; aged 67; died at his home, October 17, from cerebral hemorrhage.
- Edward Humble Moss**, Cincinnati; Medical College of Ohio, Cincinnati, 1900; aged 43; died at his home, October 22, from pneumonia.
- John H. Norman**, Blanchester, Ohio; Eclectic Medical Institute, Cincinnati, 1875; aged 66; died at his home, October 22, from pneumonia.
- Florence Josephine Chubb**, San Francisco; University of California, San Francisco, 1918; died at her home, October 28, from influenza.
- Paul Willis Brown** ✕ Springfield, Ohio; Barnes Medical College, St. Louis, 1899; aged 47; died at his home, October 14, from influenza.
- Benjamin F. Beane**, West Manchester, Ohio; Eclectic Medical Institute, Cincinnati, 1881; aged 67; died at his home, October 19.
- William Jesse Bedell**, New York City; Bellevue Hospital Medical College, 1898; aged 48; died at his home, October 23, from pneumonia.
- John Eugene Goldstein**, Brooklyn; Fordham University, New York City, 1916; aged 25; died at his home, October 18, from pneumonia.
- John Henry Burkartmaier** ✕ Avondale, Pa.; Jefferson Medical College, 1911; aged 35; died at his home, October 18, from influenza.
- Karl August Bieber** ✕ Tipton, Kan.; Kansas Medical College, Topeka, 1909; aged 34; died at his home, October 14, from influenza.
- John J. Gambill**, Martha, Ky.; Louisville (Ky.) Medical College, 1886; aged 75; died at his home, October 10, from heart disease.
- Martin A. Montgomery** ✕ Owensville, Ind.; University of Louisville, Ky., 1898; aged 43; died at his home, about October 20.
- Darvin S. Gailey** ✕ Ashland, Ill.; University of Illinois, Chicago, 1897; aged 42; died at his home, October 20, from septicemia.
- Carl William Lutz**, Ottawa, Ill.; University of Illinois, Chicago, 1915; aged 31; died at his home, October 19, from pneumonia.
- Eugene Judy Primm** ✕ Chatham, Ill.; Barnes Medical College, St. Louis, 1910; aged 36; died, recently, from pneumonia.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

MORE MISBRANDED NOSTRUMS

Baker's Tubercular Remedy.—Edward D. Morgan, who had been treasurer and general manager of the W. H. Baker Co. of Cleveland, Ohio, was charged with misbranding a product called "Dr. W. H. Baker's Tubercular Remedy." The stuff contained 11 per cent. alcohol by volume, sugars, potassium iodid, ammonium chlorid, glycerin, licorice, plant extractives, etc. The claim that the product was a remedy and cure for tuberculosis was declared false and fraudulent, and Morgan was fined \$25 and costs.—[*Notice of Judgment No. 4998.*]

Lee's Save the Baby Croup Specific.—Charles Samuel Ulcher and Carrie L. Ulcher, who traded as Wm. W. Lee & Co., Troy, N. Y., were charged with misbranding this preparation. According to the government chemists, the product was a liniment with a fatty oil base, and containing camphor, rosemary and thyme. The claim that it was a specific for croup and for saving the lives of babies affected with that disease was declared false and fraudulent.

The same individuals were also charged with misbranding "Lee's Croup Mixture," which the government chemists reported contained over 70 per cent. of lard, about 7 per cent. alcohol, and more than 18 per cent. volatile oils, consisting of a mixture of oils of rosemary and thyme and camphor. This also was falsely and fraudulently represented to be a remedy for croup. The two Ulchers were fined \$25.—[*Notice of Judgment No. 4999.*]

Twentieth Century.—This preparation was marketed by one Eva J. Powell of Findlay, Ohio, who traded under the name of the Twentieth Century Remedy Co. It consisted of a powder and a solution, the latter, according to the government chemists, being, essentially, a mixture of water, glycerin, lead and zinc sulphates, acetates, nitrates, and a small quantity of perfume. It was falsely and fraudulently represented to be a cure and preventive of gonorrhea and gleet. Eva J. Powell was convicted of misbranding and ordered to pay the costs of the proceedings.—[*Notice of Judgment No. 4982.*]

Moreau's Soothing Wine of Anise.—The Lafayette Co. of Berlin, N. H., shipped this product, which the government declared was being sold under false and fraudulent claims. The "soothing wine for children," according to the federal chemists, was a syrup containing morphin acetate and alcohol, and flavored with anise. It was falsely and fraudulently represented to be a remedy for diarrhea, dysentery, indigestion and vomiting of children. Furthermore, the package bore no statement regarding the quantity or proportion of morphin and alcohol. The company first pleaded not guilty, but later withdrew this plea and entered a plea of guilty; it was fined \$25 and costs.—[*Notice of Judgment No. 4989.*]

Matthai's Victory.—Margarete E. Matthai of Baltimore, who did business as "Professor C. E. Matthai," sold a nostrum called, "Professor C. E. Matthai's Victory." The stuff contained 49 per cent. alcohol, 1.2 grains of opium to the fluidounce, and 3.5 per cent. camphor and volatile oil, and small amounts of red pepper. It was sold under claims that it was a remedy for diphtheria, cholera, rheumatism, scarlet fever, yellow fever, epilepsy, inflammation of the kidneys and bladder, diabetes and several other conditions. These claims the government declared were false and fraudulent. It was further misbranded in that the amounts of alcohol and opium declared on the label were less than the quantities actually

MORE DOAN'S TESTIMONY FROM THE TOMBS

The Glenwood Opinion

ESTABLISHED 1894

GLENWOOD, IOWA, THURSDAY, OCTOBER 17, 1918

VOLUME LV No. 2

THE GLENWOOD OPINION, THURSDAY, OCTOBER 17, 1918

AFTER FIVE YEARS

Glenwood Testimony Remains Unshaken

Time is the best test of truth. Here is a Glenwood story that has stood the test of time. It is a story with a point which will come straight home to many of us.

Nettie Woodrow, Vine St., Glenwood says: "I was suffering acutely from my back and kidneys and had been unable to get a medicine that would help me until I began using Doan's Kidney Pills. I found prompt relief. I am now free from backache and am not having that awful feeling of languor mornings."

Over five years later Nettie Woodrow said: "My opinion of Doan's Kidney Pills today is the same as it was when I gave my first recommendation. I haven't had occasion to take a kidney medicine for some time, which speaks well for this medicine. I have always recommended Doan's Pills to my friends whenever they have complained of headache or kidney disorders, for I know they are all right."

60c, at all dealers. Foster-Milburn Co., Mfgs., Buffalo, N. Y.

AGED GLENWOOD RESIDENT PASSES AWAY SATURDAY

Death of Mrs. Nettie Woodrow Brings Sorrow to Host of Friends in Community

Our whole community was saddened Saturday when it became known that Mrs. Nettie Woodrow, one of our oldest and most beloved citizens had passed to the Great Beyond. Her long life of usefulness is in itself a sermon the teachings of which will do much to brighten the future of those with whom she was most closely associated. While she will be absent in body she will be present in spirit and the memory of this beloved lady will long be green in the hearts of all who were so fortunate as to number her among their friends.

Mrs. Nettie Woodrow was born in St. Johnsbury, Vermont, on October 17th, 1842, and spent the early part of her life there. When she was eighteen years of age she came to Monticello, Iowa, where she resided with Rev. J. K. Nutting. In 1868 Rev. Nutting and family moved to Glenwood to take up the pastorate of the Evangelical

"Here is a Glenwood Story" says a Doan's Kidney Pills advertisement, "with a point which will come straight home to many of us." How true! The advertisement appeared in the Glenwood (Ia.) *Opinion* of Oct. 17, 1918, relative to Nettie Woodrow's use of Doan's Kidney Pills. On another page of the same issue was an obituary notice of Nettie Woodrow. As the Doan's advertisement sagely remarks: "Time is the best test of truth." THE JOURNAL has, at various times, published unfortunate coincidences similar to the one above. Doubtless it could publish more, did the Doan's concern not instruct newspapers which carry its advertising to return advertising "copy" containing testimonials of local people who have died!

present. The defendant was fined \$100 and costs.—[*Notice of Judgment No. 4983.*]

Sensapera.—This product was marketed by one Stephen Britton of New York City, who did business as the Brown Export Co. "Sensapera," according to the government chemists, consisted of purple colored tablets containing asafetida, cannabis indica, and a drug containing a mydriatic alkaloid such as hyoscyamus. It was falsely and fraudulently represented to be a cure for "nervous trouble" and a remedy for neurasthenia, nervous prostration, nervous debility, etc. Britton was fined \$50.—[*Notice of Judgment No. 4984.*]

Correspondence

VALUE OF VACCINATION AGAINST INFLUENZA

To the Editor:—I cannot resist the impulse to reply to your editorial on "Serums and Vaccines in Influenza" (THE JOURNAL, Oct. 26, 1918, p. 1408). The medical profession, quite justly proud of its conservatism, is sometimes guilty of carrying it to extremes. We rarely seem to be willing to take an assumption at its face value.

Your editorial begins by saying that "we have as yet no specific serum or other specific means for the cure of influenza." Quite true; but our present knowledge of two most important biologic laws, namely, the extraordinary variation under changing environments of certain species of bacteria, together with the even more marked morphologic changes in the same species under various abnormal conditions, should allow us to predict with a certain degree of accuracy the results of a given series of procedures.

The identity of the influenza bacillus may fairly be assumed. The evidence seems sufficiently complete. It may never be more complete than it is at the present time. The same objections to its identity from negative evidence may be equally well applied to the pneumococcus, the diphtheria bacillus, and to the bacillus of typhoid fever. You will recollect that Remlinger and Schneider pointed out, as did Chantemesse, that the typhoid bacillus might live a saprophytic existence in the intestines of normal persons, particularly after attack.

The tremendous present increase in the virulence of the influenza bacillus is easily understood when one considers its incidence among the armies of the field. The stepping-up process, or what Besson calls "exalted virulence," was the inevitable result of its spreading among densely massed troops in the first place. Thus, our first reports came from the German army over a year and a half ago. Hence the virulence has intensified itself all out of proportion to that of normal times. If these micro-organisms can reproduce themselves about every twenty minutes, and if they follow the well-known biologic laws of variation, as commonly applied to animals and plants, a sufficient number of thousands of generations will have elapsed since the last influenza epidemic to permit the production of a wholly distinct variety, if not species, from the former influenza bacillus. Add to this the rapid tendency toward variation so prone to take place in the opposite direction when organisms are long cultivated on artificial culture mediums, as has been the case in many laboratories throughout the country, and it will readily be appreciated that the recognized "standard" influenza vaccines would be potent only by the merest chance. In all probability they would be worse than useless but—and here is the crucial point—influenza organisms isolated from the blood or organs of a patient suffering from this particular present virulent epidemic and grown in the laboratory under conditions such as to keep this virulence at its highest possible potency ought, for a few weeks or months before they again undergo botanic (and chemical) variation, to be capable of conferring a high degree of immunity at this time and for this epidemic. It seems evident, therefore, that most influenza vaccines mean nothing—probably worse than nothing. In this I agree with you. Also to hold out the hope to patients that they are protected by these vaccines is a mistake, of course; but any particular vaccine, such as that recently prepared by the New York Department of Health under Dr. Park, or the United States Hygienic Laboratory under Dr. McCoy, for this particular epidemic, and used now while freshly isolated and highly potent, ought to be accepted at its face value. In behalf of myself and my own family, I feel a very great personal debt of gratitude toward the New York Health Department and especially toward Dr. Krumwiede, for his kindness in supplying me with this particular vaccine at the earliest possible moment. The physician who takes this vaccine or that vaccine himself and gives it to his family has the privilege of stating such fact to his patients, and this ought to be quite enough of a statement to make to people

of intelligence. Of course, we cannot tell who might have become afflicted without the vaccine except from ultimate statistics; but the assumption that the right vaccine (freshly isolated from a case during a given epidemic) used at the right time (shortly after its isolation) and in sufficient doses (large enough to produce at least three well-marked local and constitutional reactions) should be accepted at its face value as sufficient to confer a short-time immunity to cover the duration of a given epidemic, and some of us feel perfectly willing to let the vaccine speak for itself.

BENJAMIN S. PASCHALL, M.D., New York.

[COMMENT.—See "Value of Vaccination Against Influenza," Current Comment, this issue, page 1583.—ED.]

TREATMENT OF INFLUENZAL PNEUMONIA BY CITRATED TRANSFUSIONS

To the Editor:—In THE JOURNAL, October 19, we read with great interest the article on the "Treatment of Influenza-Pneumonia by the Use of Convalescent Human Serum" by McGuire and Redden of the United States Navy Medical Corps. We have done two citrated transfusions, using the whole blood, the first one, October 15. The effect clinically corresponded to that reported in the article mentioned, but the effect of the transfusion on the white blood cells was what especially attracted our attention, as our average count in fifteen cases had been 9,200, the lowest 4,900 and the highest 16,300, being in marked contrast to usual pneumococcic or streptococcic pneumonia.

One case was that of a woman, aged 23, as near as determined in her third day of pneumonia, and also between six and seven months pregnant. Her temperature on the two previous days had ranged from 102 to 104, and at the time of the transfusion at 6 p. m., the temperature was 102.5 and the pulse 136. The pulse had been between 134 and 140 all day. Sixty c.c. of whole blood were taken from a young man who had been three days normal, following influenza-pneumonia, citrated, and given intravenously. Five hours later, the temperature had gone to 103, and the pulse was 130. Four hours later, the temperature was 101 and by the following morning at 11:45, the temperature was 100, and the pulse 114. By 8 p. m. the temperature was 101.2 and the pulse 126, at which time the patient received 30 c.c. of whole blood citrated from her husband, who was also two days convalescent from influenza, without pneumonia. This was followed in four hours by a rise in temperature to 103, pulse 130, but she was at that time having severe labor pains and was delivered of a living child six hours later. The temperature was never above 101.6 following the second transfusion, and she continued to recovery by lysis. Six hours before the first transfusion, with temperature 103, pulse 140, the leukocyte count was 6,800. The morning following the first transfusion, the leukocytes had risen to 11,250. Ten hours after the second transfusion, the leukocyte count had risen to 24,100. Of course, between the last transfusion and count, delivery had taken place, though with very little loss of blood. Twenty-four hours later, the leukocyte count was 23,200, and twenty-four hours later still, 21,150. At the end of the following twenty-four hours, or on the 20th, at which time the patient's temperature was remaining normal, the leukocyte count was 18,900.

The other case was that of a man, aged 28, in the third day of clinical influenzal pneumonia, following a three day attack of influenza. The temperature at the time of transfusion was 103.4, and the pulse 128. Sixty c.c. of citrated blood were used at 9 p. m., and at 1 a. m. the temperature was 102, and the pulse 100. The pulse again reached 102 only once. There was a continual decline of both temperature and pulse until October 21, at which time the temperature was 100 and the pulse 98. The leukocyte count on the 17th at 10 a. m., the day of the first transfusion, was 10,500. On the following morning, with a temperature of 101, the leukocyte count was 14,800. Twenty-four hours later, with a temperature of 100.8, the leukocyte count was 12,600. On the morning of the 20th, the temperature was 100.3, and the leukocyte count 10,100.

Both of these cases were distinct influenzal pneumonia, with definite consolidation, excessive cough, nausea and continuous

vomiting, more than rusty sputum, a moderate degree of cyanosis, pinched expression and great exhaustion. The transfusions were both followed by a fall of temperature and pulse and increase of leukocyte count. In the case in which the two transfusions were given there was an increase after each transfusion. The whole blood was used, because of the possibility of the value of corpuscles as containing the antibodies. The blood of the donor and the recipient were both tested in each case for iso-agglutination. A Wassermann test was not made on the husband, but was on the other donors.

W. L. BROWN, M.D., and
B. L. SWEET, M.D., El Paso, Texas.

ALKALIS IN THE TREATMENT OF
INFLUENZA

To the Editor:—Following my recent letter regarding the alkaline treatment of influenza (*THE JOURNAL*, Oct. 26, 1918, p. 1431), I have had repeated inquiries as to the exact technic and details of the treatment. The term "alkaline saturation" seemed too indefinite.

When the recent epidemic appeared in Philadelphia, I was studying acidosis in a diabetic patient, using the Marriott apparatus. With acidosis as the admitted cause of death in these influenzal cases, I treated every patient on this theory. I have thought of acidosis first, foremost and always—before the attack if there was a suspicion of the disease, during the attack, and until complete recovery. All other treatment has been secondary to that directed to the acidosis.

At the outset and through the attack I have given every patient the three well-known alkalis with which we all combat acidosis—sodium bicarbonate, potassium citrate and the calcium salts in the form of lime water. To every patient is administered a teaspoonful of sodium bicarbonate to a pint of luke warm water every four hours by enema.

In my routine treatment I have given this simple prescription to spare the overworked druggists:

Sodium bicarbonate ½ ounce
Peppermint water 4 ounces
Teaspoonful every two hours.

Alternating with:

Potassium citrate ½ ounce
Peppermint water 4 ounces
Teaspoonful every two hours.

The calcium salts I have given in the form of lime water, one third, and milk, two thirds. Some patients with fulminant attacks of vomiting and terrific headaches could not tolerate the potassium salts, and to such I have given only the sodium bicarbonate mixture every hour and the soda enema as above. It is surprising even in severe cases how the soda in from twenty-four to forty-eight hours will relieve the early pains.

In addition to the eighteen cases of pneumonia with crises already reported, I have had three more, and no deaths, except in a lad with congenital heart disease. In another case of pneumonia, a woman pregnant three months, though very ill, is recovering. I have seen in this whole epidemic at least a hundred patients with consolidated spots (lobular pneumonia). In fact, the spots of consolidation elicited by percussion with the whole hand and verified by accurate palpation and auscultation have been so frequent, and often found late in the attack, that this epidemic seems one of pneumonia rather than of influenza. However, in many severe cases I detected no physical signs other than râles, although it must be admitted that my examinations were necessarily hasty.

I have seen few large bubbling râles, such as many describe.

I have, in addition, employed the common heart and respiratory stimulants—strychnin, caffein, spartein, digitalis, camphorated oil, atropin, oxygen, aromatic spirit of ammonia, etc., but I do not believe that all these patients so near death could have recovered in an epidemic so fatal as that in Philadelphia without the basic treatment by the alkalis on the acidosis theory.

THOMAS C. ELY, M.D., Philadelphia.

To the Editor:—The note in *THE JOURNAL*, October 26, by Dr. T. C. Ely on the treatment of influenza is timely, as the present generation has been prone to rely on the coal tar derivatives and acetylsalicylic acid: remedies more comforting than curative in this disease. The use of alkalis in "colds" is probably as old as the pyramids, and is the common method employed by at least the older medical men. They prescribed liquor ammonii acetatis if there were bronchial or tracheal symptoms, and potassium citrate under other circumstances. The potash salts are perhaps more effective in such troubles than the soda salts.

Dr. Ely is right, I think, in emphasizing the necessity of administering alkalis. The influenza bacillus, like most others, does not flourish in an alkaline medium, and taking advantage of this circumstance I have been advocating the administration of sodium bicarbonate as a preventive in doses of 60 grains a day. From experience gathered in previous epidemics I think it undoubtedly is effective for this purpose. I also know that it does not always succeed, owing partly to the impossibility of rendering the urine alkaline with soda alone.

In severe cases few remedies are equal to sodium bicarbonate administered intrarectally by the drip method with the addition of glucose or, better still, sucrose. The immunity enjoyed by the very young and the old is probably wholly due to the secretions being usually alkaline on account of the character of their diet.

ANSTRUTHER DAVIDSON, M.D., Los Angeles.

"ATTITUDE OF CHRISTIAN SCIENTISTS IN
THE PRESENT EPIDEMIC OF
INFLUENZA"

To the Editor:—In quoting from an incomplete and incorrect report of an announcement in which Christian scientists were urged by the Christian science board of directors to help their country meet the epidemic situation, a physician's letter in your issue of October 19 is misleading. By implication this writer seeks to give the mistaken impression that Christian scientists do not observe the regulations of the health authorities.

Christian scientists are widely known to be law abiding citizens. They are taught not to disregard the differing views of others, and to observe the orders of duly constituted authority relating to quarantine and contagion. The churches in Boston were not ordered closed by health authorities—merely requested—and in maintaining its services the mother church was in accord with the view of our Chicago health authorities who held that church services were deemed necessary to the maintenance of the public morale.

WALTER H. VAN ZWOLL, Chicago.

Christian Science Committee on Publication.

AN IMPROVED PLUGGED STETHOSCOPE FOR
THE DETECTION OF MALINGERING

To the Editor:—Instead of plugging the ear-piece of the stethoscope with wax or cotton, a three-way valve, such as is used for bladder irrigation, is connected with the tubing leading to the ear-pieces and the chest-piece.

This enables the examiner to switch the sound into either ear, or to exclude it altogether without removing the stethoscope from the registrant's ears and without his knowledge of what is being done. Some of the registrants have been coached, and naturally assume, if the apparatus is removed from the ears and then replaced, that it has been changed, and govern their replies accordingly.

With this appliance, malingering can be readily detected, especially if it is used with the registrant's back toward the examiner. The small valve tip is connected with the bell, and it may be necessary to wind this with one or two turns of adhesive plaster to make it fit the stethoscope tubing. The other two tips are larger and fit the ear-piece tubing perfectly. On the top of the valve stem is a small arrow; this should be disregarded, as it indicates the direction of flow when used for irrigation.

When the valve lever is in line with the right hand tube, the sound enters the left ear, and vice versa. In other words, the sound is excluded from the side corresponding to the long axis of the lever. A midway position excludes from both ears. The valves work rather stiffly at first and the screw should be loosened and oiled if necessary. For voice tests the ordinary stethoscope bell may be used, or a small funnel may be substituted if the bell is too small.

For testing with tuning forks, the chest-piece with a hard rubber diaphragm has proved most satisfactory, and transmits the sound very well. Only the lower pitched forks (128 and 256) should be used, since it is difficult to exclude forks of higher pitch. If necessary to use these or the conversational voice, a long tube (6 or 8 feet) may be connected with the apparatus. At this distance the ear-pieces will prevent the entrance of the sound except through the channels desired. The three-way valves are very inexpensive and may be obtained from any supply house.

JOHN LESHURE, M.D., New York.

PROMOTION WITH LOSS OF INCOME

To the Editor:—In your information to prospective medical officers regarding pay, commutation of quarters for dependents, etc., there is one contingency, one throw of the dice, that may knock out these calculations.

I entered the service sixteen months ago. I am 45 years old and have a wife and five children. I was at San Francisco and Camp Fremont as a first lieutenant up to last month. Since April 15 I have been allowed commutation for my family in the state of Washington, which brought my check up to \$203.28 a month.

I was sent to the Canal Zone and found on arrival I was a captain. I also found that there are quarters "to burn" at all the camps here. It will take between \$400 and \$500 to move my family down here any way I figure it, as they would have to come to New Orleans, 3,300 miles by railway, to meet a transport and probably have to wait a week or more in that city. The Pacific Mail charges \$135 a ticket from San Francisco, and it would require three tickets, and there would be about \$75 additional from Washington to San Francisco. I find myself in a big castle of a house all alone and a monthly check of \$200 as a captain instead of my \$203.28 as first lieutenant. No assurance can be had as to how long I shall be left here, so you can see that after we have all existed fourteen months on a lieutenant's pay I cannot take the chance of paying out so much money to transport my family here and possibly in a short time have to take them back. Besides, we own our home, which would probably stand idle.

So this proposition is a kind of a joke on me. But I am not kicking or complaining—only hoping the war will soon be over and that I can go home.

If you should find any reason for publishing any of this, please omit my name and city.

K. O. P.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

DIRT AND CARBON REMOVER

For cleaning the hands after machine work and the skin locally for hypodermic medication, and for removing carbon from the cylinders of automobiles, I use a mixture of:

Denatured alcohol.

Volatile oil of turpentine (ordinary turpentine) of each.....2 ounces

Ether 3 drams

Mix turpentine and alcohol, shake and add the ether.

From one half to one ounce is put in the cooled cylinders of the automobile and allowed to stand two or more hours. The mixture fires quickly and blows out the carbon with a good speed.

F. U. FERGUSON, M.D., Gallitzin, Pa.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Little Rock, Nov. 12-13. Sec., Regular Bd., Dr. T. J. Stout, Brinkley, Ark.; Sec., Eclectic Bd., Dr. C. E. Laws, 803½ Garrison Ave., Ft. Smith.

CONNECTICUT: New Haven, Nov. 12-13. Sec., Regular Bd., Dr. C. A. Tuttle, 196 York St., New Haven; Sec., Eclectic Bd., Dr. James E. Hair, 730 State St., Bridgeport; Sec., Homeopathic Bd., Dr. E. C. M. Hall, 82 Grand Ave., New Haven.

DELAWARE: Wilmington, Dec. 10-12. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

FLORIDA (R.): Miami, Dec. 2-3. Sec., Dr. W. M. Rowlett, Citizens Bank Bldg., Tampa.

ILLINOIS: Chicago, Dec. 9-11. Mr. F. C. Dodds, Supt. of Registration, Springfield.

IOWA: Des Moines, Dec. 10-12. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.

LOUISIANA: New Orleans, Dec. 2-4. Sec., Dr. E. W. Mahler, 730 Audubon Bldg., New Orleans.

MAINE: Portland, Nov. 12-13. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

MARYLAND: Baltimore, Dec. 10. Sec., Dr. J. McP. Scott, 137 W. Washington St., Hagerstown.

MASSACHUSETTS: Boston, Nov. 12-14. Sec., Dr. Walter P. Bowers, No. 1 Beacon St., Boston.

NEBRASKA: Lincoln, Nov. 13. Sec., H. J. Lehnhoff, 514 First Natl. Bk. Bldg., Lincoln.

OHIO: Columbus, Dec. 3-5. Sec., Dr. H. M. Platter, State House, Columbus.

SOUTH CAROLINA: Columbia, Nov. 12. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

TEXAS: Dallas, Nov. 19-21. Sec., Dr. M. F. Bettencourt, Mart.

VIRGINIA: Richmond, Dec. 10-13. Sec., Dr. J. W. Preston, 215 S. Jefferson St., Roanoke.

WEST VIRGINIA: Charleston, Nov. 19-21. Sec., Dr. S. L. Jepson, Masonic Bldg., Charleston.

Iowa July Reciprocity Report

Dr. G. H. Sumner, secretary of the Iowa State Board of Medical Examiners, reports that 7 candidates were licensed through reciprocity at the meeting held July 15, 1918. The following colleges were represented:

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Bennett Medical College	(1914)	Illinois
Northwestern University	(1905) (1913)	Illinois
American Medical Missionary College	(1904)	Illinois
National University of Arts and Sciences	(1913)	Illinois
St. Louis College of Physicians and Surgeons	(1911)	Missouri
University of Nebraska	(1904)	Nebraska

Washington July Examination

Dr. C. N. Suttner, secretary of the Washington State Board of Medical Examiners, reports the written examination held at Tacoma, July 2, 1918. The examination covered 11 subjects and included 110 questions. An average of 75 per cent. was required to pass. Of the 38 candidates who took the physician's and surgeon's examination, 30, including 2 osteopaths, passed, and 8, including 2 chiropractors, failed. Ten candidates were granted osteopathic licenses. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
College of Medical Evangelists	(1918)	94.3
College of Phys. and Surg., Los Angeles	(1918)	85, 87.5
College of Phys. and Surg., San Francisco	(1918)	92.4
George Washington University	(1905)	89.2
Hahnemann Medical Coll. of the Pacific	(1914)	89.1
Bennett Medical College	(1915)	88.8
Jenner Medical College	(1917)*	85.7
Northwestern University	(1913) 91.2; (1918) 87.2,	92.5
Rush Medical College	(1903) 83.1; (1918)†	92.5
University of Illinois	(1911)	89.8
Maryland Medical College	(1911)	79.4
Middlesex College of Medicine and Surgery	(1917)	83.4
St. Louis University	(1918)	94.3
University of Buffalo	(1910)	85.6
Medical College of Ohio	(1896)	81.9
Univ. of Ore. (1906)	88.4; (1910) 84.1; (1912) 84.9; (1918)	85.3,	85.5
Vanderbilt University	(1917)	89.6
University of Toronto	(1911)	89.9
Tokyo Charity Hospital Spec. Med. School	(1917)	83.1
University of Christiania	(1896)	85.5

* Graduation not verified.

† Degree withheld pending completion of hospital internship.

College	Year Grad.	Per Cent.
Rush Medical College	(1883) 62.1
Baltimore Medical College	(1891) 59.8
University of Maryland	(1898) 39.3
Saginaw Valley Medical College	(1902) 63.5
Kansas City Medical College	(1889) 52.1
Western University	(1907) 68.9

Book Notices

RADIOGRAPHY AND RADIO-THERAPEUTICS. By Robert Knox, M.D., M.R.C.S., L.R.C.P., Consulting Radiologist, Great Northern Central Hospital, London. Part II: Radio-Therapeutics. Cloth. Price, \$6.50. Pp. 606, with 115 illustrations. New York: The Macmillan Company, 1918.

This volume is devoted to both roentgen and radium therapy. The action of radiations on normal and pathologic tissues is dwelt on at some length. The roentgen armamentarium suitable for therapeutic use is described, as are also the methods of protection for patient and operator, the means used to estimate dosage, and the use of filters. Rather scant mention is made of the Coolidge tube—not at all commensurate with its importance and value in modern roentgen therapy. The chapters devoted to the various conditions suitable for treatment and the technic employed are also rather condensed. The physics of radium is dwelt on in detail by C. E. S. Phillips. The practical application of radium to disease, including the various methods of using it, the dosage and the conditions amenable to its action, is thoroughly covered. A chapter on the combined use of radium and roentgen rays in the treatment of malignant disease gives some relative values of the two agents in different conditions. The equipment of a radiotherapeutic department to meet the needs of military practice is described, as are also the types of cases encountered in such practice. In a chapter on the value of radiations in plastic surgery of the face and jaws, by Percival P. Cole, special attention is called to the value of the depilating effects of radiation when flaps from hairy parts are used to cover defects in nonhairy parts, and to the softening effects in old scars and keloids developing in such scars.

CLINICAL DISORDERS OF THE HEART BEAT. A Handbook for Practitioners and Students. By Thomas Lewis, M.D., F.R.S., D.Sc., Physician of the Staff of the Medical Research Committee. Fourth edition. Cloth. Price, \$2.25. Pp. 120, with illustrations. New York: Paul B. Hoeber, 1918.

This is essentially a reprint of the third edition, yet new facts are added here and there in a few words or a short paragraph, or some modification of statement is made so that it may justly be stated that there has been a careful revision. The worth of the volume has been many times declared by teachers and reviewers, and is plainly attested by the demand for the fourth edition. Not the least valuable feature is the preface, which clearly sets forth the debt owed by cardiology to the electrocardiograph and polygraph, but which also points out the fact that without these instruments of precision the general practitioner, by understanding the processes underlying cardiac irregularities, may recognize and intelligently treat these otherwise puzzling conditions.

FARMERS' CLEAN MILK BOOK. By Charles Edward North, M.D., Director, North Public Health Bureau, New York City. Cloth. Price, \$1.00 net. New York: John Wiley & Sons, 1918.

This little book is intended primarily for the use and instruction of the progressive farmer. It is fully illustrated with photographs, and will doubtless be of material service in furthering the production of sanitary milk. Chapter 12, entitled "The Dairy Man More Important than the Dairy," describes a striking instance of the production of milk with a low bacterial count by simply shifting milkers from one farm to another. The book will be appreciated by all interested in the production of clean milk.

ELEMENTS OF HYGIENE AND PUBLIC HEALTH. For the Use of Medical Students and Practitioners. By Rai Bahadur Jaising P. Modi, L.R.C.P. & S., L.F.P.S., Lecturer on Medical Jurisprudence, Hygiene, Chemistry and Physics, Agra Medical School. With an Introduction by Lieut.-Col. E. J. O'Meara, F.R.C.S., D.P.H., I.M.S., Principal, Agra Medical School. Cloth. Price 4 rupees net. Pp. 337, with 69 illustrations. Calcutta: Butterworth & Co., 1918.

This book is written with special reference to conditions existing in India and the East. It is intensely practical, and the numerous "shoulds" and "should nots" make evident the class of reader for whom it is intended. The directions given for furthering sanitation and preventing disease are,

on the whole, clear and sensible. The book contains an important chapter on village sanitation and one on fairs, famine camps and poorhouses, both of which deal in detail with the peculiar conditions in India. Altogether, the book ought to be of great service to those directly concerned with Asiatic conditions of life. The paper used in the book deserves special mention; it is so thin that much valuable material is included in a relatively small bulk, and yet sufficiently opaque as to make it easy to read. The book is printed in India, and evidently this is true "Indian" paper.

Medicolegal

Automobilist Liable on Verbal Promise to Pay for Care of Injured Boy

(*Banfield v. Davidson* (Texas), 201 S. W. R. 442)

The Court of Civil Appeals of Texas affirms a judgment in favor of Plaintiff Davidson for \$291.45, the amount sued for, for the care and treatment at his hospital of a boy, named Johnny Van, who was injured and brought there by defendant Banfield. The court thinks there was sufficient evidence to support a finding by the jury that the defendant negligently ran his automobile against the boy, who was at the time riding a bicycle, and that by such negligent act the boy's leg was broken, and other injuries inflicted on his body; that the boy was immediately taken by the defendant to the plaintiff's hospital, and that on reaching the hospital the defendant told the plaintiff to take the boy into his hospital and give him all necessary attention, and to try to save his life, and that the defendant would pay the plaintiff for such services, etc.; that the plaintiff did take the boy into his hospital on such request of the defendant, and did give him all necessary medical treatment and hospital accommodations and attention, as requested by the defendant, for about six weeks, and that such medical services, etc., were reasonably worth \$291.45.

The defendant denied making any such promise, either expressly or by implication, and said further that if he did make such promise the same was verbal only and not in writing, and that as the sum due the plaintiff was the debt of Johnny Van, and not the debt of the defendant, the defendant could not be held liable therefor, and he specially pleaded the statute of frauds, which provides that no person shall be held liable for the debt, default or miscarriage of another, unless such person shall by some agreement or memorandum in writing, signed by the promisor or by some person by him authorized, promise to pay such debt, default or miscarriage of the other. But the court holds that the agreement to pay the plaintiff for his services was an original undertaking of the defendant. There was no contention by either party that it was alleged in the pleadings of either party or shown by the evidence that medical services or hospital accommodations given to Johnny Van were first performed, and thereafter a promise was made by the defendant to pay the reasonable value for such services, etc. There was no evidence calling for a charge on the statute of frauds. The cause of action alleged and proved was not within the statute of frauds.

The trial court gave the jury the following special charges requested by the plaintiff:

A promise to pay for services rendered to a third person at the promisor's request is an original undertaking, not within the statute of frauds. Therefore, if you find from the evidence in this case that defendant promised to pay plaintiff for the services rendered Johnny Van, if any, by plaintiff, and that such services were rendered said Johnny Van at the request of defendant, then such promise need not be in writing, and defendant would be liable to pay for the reasonable value of such services, and if you so find by a preponderance of the evidence, you will find for the plaintiff in such amount as you may find the reasonable value of such services. . . .

Where one does for another that which the other is legally obligated to do, the law not only implies a previous request that the thing should be done, but a promise to compensate. Therefore, if you find in this case that defendant was driving his car at a reckless and

dangerous rate of speed, and thereby struck and injured the witness, Johnny Van, without any negligence on the part of the said Johnny Van, then defendant would be legally liable for such injuries and the services rendered by plaintiff in this case to witness Johnny Van, and if you so find, you will find for the plaintiff in such amount as said services are reasonably worth; notwithstanding you may find from the evidence that defendant did not promise to pay for such services.

The Court of Civil Appeals thinks that by this special charge the trial court fairly submitted to the jury every legal issue raised by the pleadings and the evidence.

Liability of Hospital for Injury to Physician Accompanying Patient

(*Marble v. Nicholas Senn Hospital Association (Neb.)*,
167 N. W. R. 208)

The Supreme Court of Nebraska, in affirming a judgment in favor of the plaintiff for \$8,500 damages for personal injuries, holds that the doctrine that a charitable institution, conducting a hospital solely for philanthropic and benevolent purposes, is not liable to inmates for the negligence of its servants does not extend to a physician who, by invitation, enters the hospital with a patient to procure a roentgenogram for the latter and is injured through the negligence of the roentgenologist. The court says that the plaintiff, a practicing physician, went to the roentgen-ray room in the defendant's hospital with a patient, a little girl, to get a roentgenogram of her head. Her father sat on a chair in front of the machine with her on his lap, and the plaintiff attempted to comply with a request of the operator to hold the child's head. The plaintiff's head at the time was near the wires that carried the electric currents to the tubes, and after the electricity had been applied to the wires he fell to the floor, breaking his left leg. The defendant was charged with negligence in placing the plaintiff where his body made a short circuit for escaping currents; in failing to warn the plaintiff of the dangers of such close proximity to the wires; in failing to use an available appliance to keep the wires a safe distance from the plaintiff; in failing to place the roentgen-ray machine where the dangerous wires would be vertical, thus keeping them at a safe distance, and in failing to provide a competent and experienced roentgen-ray operator. The defendant denied negligence on its part, and pleaded that it was an eleemosynary institution which, as such, was not liable for the negligence of its servants; that the plaintiff assumed the risk of contact with the electric currents, knowing the obvious, existing dangers; that the plaintiff fell in an epileptic convulsion, his injury being the result.

The proposition that there should have been a nonsuit on the ground that the defendant was an eleemosynary institution, and that as such it was not pecuniarily liable for the negligence of its servants, was based on the principle of law that "a charitable institution conducting a hospital solely for philanthropic and benevolent purposes is not liable to inmates for the negligence of nurses" (*Duncan v. Nebraska Sanitarium & Benevolent Association*, 92 Neb. 162, 137 N. W. 1125). In the case cited, immunity from liability is limited to "inmates." The rule thus announced has the support of precedent, but in a recent opinion of the Supreme Court of Virginia, after an extended analysis of the cases, it was held that the doctrine of nonliability to inmates did not extend to strangers, the modern theory being:

One who at the request of a patient about to enter a hospital accompanies him to render reasonably necessary assistance is an invitee of the hospital, to whom it owes the duty of exercising ordinary care to have the premises reasonably safe (*Hospital of St. Vincent of Paul v. Thompson*, 116 Va. 101, 81 S. E. 13).

In a recent article on hospitals it was said:

The theories of the immunity of a hospital from liability on the ground of public policy and on the ground that the assets are a trust fund having been generally rejected by the courts, and the doctrine of waiver by acceptance of benefits being applicable only to patients, the law has come to be that as to others not the recipient of the institution's charity the rule of responsibility for the negligence of its servants and agents is applied as in cases of the ordinary business corporation (13 R. C. L. 948, Section 12).

This view of the law conforms to correct standards of justice, and defeated the immunity pleaded in the answer of the defendant.

Society Proceedings

COMING MEETINGS

American Public Health Association, Chicago, Dec. 9-12.
Medical Association of Porto Rico, Ponce, Dec. 14-15.
Southern Surgical Association, Baltimore, Dec. 17-19.
Western Roentgen Society, Chicago, Nov. 20-22.

INTERSTATE ASSOCIATION OF ANESTHETISTS

Fourth Annual Meeting, held at Indianapolis, Sept. 25-27, 1918

The President, DR. E. I. MCKESSON, in the Chair

SYMPOSIUM ON ANESTHESIA IN WAR SURGERY

General Considerations

CAPT. C. N. COMBS, M. C., U. S. Army, Terre Haute, Ind.: Anesthesia in war surgery, both at the front and in the rear, differs very materially from anesthesia in civilian hospitals. It is distinctive on account of (1) the type of patients; (2) their condition at the time of operation, and (3) the peculiar nature of the operative procedures. In civilian hospitals, during peace, it is the exception to have strong, healthy young men to anesthetize, the majority of patients being women and children, or else men with a definite organic or inflammatory lesion and often well prepared for any operation. Military patients are frequently robust men, who have lived an outdoor life for varying periods, and many of them have been in the trenches and subject to war strain and nervous exhaustion. Men suffering from shell shock require much more anesthetic than other men, and they have a tendency to excitement while going under, the nervous element involved seemingly being the real causative factor. It is impossible, in many cases, to judge by the appearance of the men how they are likely to behave under an anesthetic.

During the winter months, bronchitis is prevalent; but in spite of cough, expectoration and congestion, these patients are good subjects for anesthesia, and the incidence of post-operative pneumonitis is negligible. Anesthesia for such patients must be safe, rapid and convenient. Gas-oxygen, with or without ether, and C. E., with or without oxygen, are invaluable. Gas-oxygen and ethyl chlorid have the great advantage of enabling the patients to be evacuated rapidly in complete control of their faculties. Severely wounded patients require very expert handling on the part both of the surgeon and of the anesthetist. They may be suffering from primary or secondary shock, hemorrhage, sepsis, gas gangrene or gassing, all associated with imperiling falls of blood pressure. Combative measures include application of heat; giving of alkaline drinks; direct blood transfusion, or the intravenous use of calcium hypertonic gum solution. Sodium bicarbonate solutions are of value in combating milder degrees of shock, the toxemia of sepsis and the air hunger of acidosis.

Rebreathing is a resuscitative measure for fat embolism following multiple fractures of the long bones. Opiates must be used cautiously. If more than one-fourth grain has been given in cases of shock, and chloroform is administered, the patient is likely to die on the table. With ether the patient's condition actually improves during operation, but the patient will collapse an hour or two afterward. If the ether is given intravenously, the patient's condition improves strikingly, but there is profound collapse later, which is often fatal. Incomparably good results are obtained with gas-oxygen anesthesia in shocked patients. Warmed ether or C. E. vapor with oxygen has proved of exceptional value in critical cases. The Depage mixture of chloroform, ether and ethyl chlorid has so far proved itself the most adaptable anesthetic for brief narcosis for painful dressings and bedside surgery.

Training Anesthetists for Service at the Front

COL. A. PRIMROSE, C. A. M. C., Toronto, Canada: The problem of getting an adequate number of skilled anesthetists

at the front is one of immense importance. Conditions at the front are such that all operative procedures are postponed, if possible, until the wounded man reaches the casualty clearing station. Here, intensive operative work is carried out and a large number of critical cases are dealt with, and it is here that the greatest need for skilled anesthetists is felt. The surgeons working in the casualty clearing stations require skilled anesthetists, if efficient, life-saving work is to be done. In England, at headquarters, we felt this necessity, and recently established a training school for anesthetists in one of our large base hospitals at Buxton. Medical officers are especially trained there as anesthetists. The forms of anesthesia include: ether on the open mask; warmed ether vapor by special apparatus; nitrous oxid-oxygen; rectal and spinal anesthesia, with some instruction also in the use of chloroform, ethyl chlorid and the various methods of using local anesthesia. This group of trained anesthetists will be valuable for our various hospital units. In times of stress a Canadian casualty clearing station may have two or three such specialists.

Auscultatory Control of Anesthesia for Operations Under the Fluoroscope

LIEUT. A. E. GUEDEL, M. C., U. S. Army, Indianapolis: The fact that many operations at the front are now performed preferably in the dark under the fluoroscope has necessitated the development of some method of controlling anesthesia under such operative conditions without jeopardizing the safety of the wounded soldier. A vapor apparatus has been developed out of the stock material supplied to each laboratory contingent of the American medicomilitary forces. An auscultatory tube has been added to this outfit, and by means of it the anesthetist, with the ear piece in place, can determine: (1) the patient's respiration; (2) whether or not the nasal tubes remain patent; (3) whether or not the patient is swallowing; (4) whether or not the patient's larynx is being flooded with mucus; (5) the slightest effort of the patient to cough or vomit, indicating too light anesthesia, and (6) the amount of air bubbling through the ether, thus enabling the anesthetist to ascertain the approximate strength of the anesthetic vapor. This may also be determined by the sense of smell as well as by sound. This auscultatory control of anesthesia is especially serviceable in dark-room surgery, such as the removal of shrapnel under fluoroscopic examination. Here the anesthetist is not able to see his patient's customary reflexes under anesthesia, but he must of necessity conduct his anesthesia in accordance with the signs and symptoms obtained through the use of the auscultatory tube. Needless to say, it takes an expert anesthetist at the end of the auscultatory tube to appreciate what is happening to the patient and the vapor apparatus. This device has seen sufficient service to prove its worth conclusively.

Ethylene-Ether Analgesia

DR. JAMES COTTON, Toronto, Canada: Chemically pure ether is no anesthetic at all, but after standing several days it becomes an excellent anesthetic. The gas ethylene is the product giving ether its potency for pain relief. Ethylene ether, a combination of chemically pure ether with ethylene gas, has properties differing very materially from those of ordinary anesthetic ethers. Under ethylene ether, given by a closed or semiclosed method to confine and use the available ethylene gas, profound analgesia may be secured without loss of consciousness and with scarcely any effect on the ordinary reflexes, which have heretofore governed the maintenance of anesthesia. It is quite possible to perform major operations under this ethylene-ether analgesia. Instead of depressing the circulation it stabilizes it, and this fact seems to play an important part in the incidence of analgesia, as it is coincident with the stabilization of blood pressures. The pupil instead of becoming dilated remains responsive to the light reflex and does not roll. Patients not only retain consciousness but in some instances have answered the telephone during operations and eaten meals. Ethylene ether stimulates the higher centers to excessive cerebration and provokes an intense hunger which must be satisfied. This stimulation continues for hours after the anesthetic is discontinued, and is in striking contrast to the toxic condition manifested after

ordinary ether anesthesia. In fact, ethylene-ether analgesia raises the question as to whether or not previous conceptions of anesthesia have not been entirely based on the toxic rather than the analgesic and anesthetic effects of ether. It is possible to accomplish unconscious anesthesia with ethylene-ether, when the patient demands unconsciousness, but the recovery from this deeper state of anesthesia is equally rapid and pleasant. It would appear that one ether that has established itself in most surgical clinics as routinely potent derives its especial potency from the fact that being manufactured by a sulphuric acid process it contains from one-half to 1 volume of ethylene. Much larger volumes of this gas are necessary, however, to secure the peculiar effects of ethylene-ether analgesia and anesthesia. It would seem adaptable to all operative procedures, except tonsil operations, for which it does not sufficiently obliterate the throat reflexes, although it obviates all pain. Skilled throat specialists have used it with satisfaction even for tonsillectomies.

Being so free from the usual toxic effects of ordinary ether anesthesia, ethylene ether has made it possible to study the detrimental effects of tobacco smoking preliminary to operations and to determine that some brands of tobacco, when the smoke is inhaled, may even spell disaster if used previous to operation by wounded soldiers. Ethylene ether requires an expert anesthetist to understand its administration and use it successfully.

(To be continued)

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA

Sixty-Eighth Annual Session, held at Philadelphia, Sept. 23-26, 1918

The President, DR. WALTER F. DONALDSON, Pittsburgh,
in the Chair

Interpretation of the Manifestations of Shock

DR. C. C. GUTHRIE, Pittsburgh: Our studies in the search for the causative mechanism have been, for the most part, negative. The evidence points rather to the central nervous system as the probable seat of primary change, particularly to the bulbar mechanism presiding over circulation and respiration. Results obtained in pronounced shock showed that both reflex vasomotor and respiratory response may be decreased profoundly. Decrease in reflex augmentation of arterial blood pressure occurred, both actual and in percentage of blood pressure. That the result in some instances was not due to stimulation fatigue was demonstrated. That it was not due to fatigue of a single path due to repeated stimulation, or to possible localized central fatigue, was also shown. We are inclined to believe that shock of sudden onset in normal individuals preponderatingly is of inhibitory character, which is in agreement with a view expressed by Meltzer. It is recommended that the term "shock" be reserved for the condition exemplified by the acute clinical state, and that the term "collapse" be employed to designate the moribund state following shock or any other condition. Experimental evidence supports the probability that the primary derangement in shock is of nervous character. In collapse, indirect and general considerations strongly indicate profound nervous derangement. The conditions in shock and collapse differ fundamentally, and treatment indications differ accordingly. In shock associated with severe hemorrhage, restoration of blood volume is indicated. For this purpose transfusion seems best, but beneficial action may be obtained by intravenous injections of artificial solutions. The addition of a colloidal substance to such solutions causes their longer retention. For this purpose, dilute acacia seems preferable to other substances hitherto employed. Preventive measures and prompt treatment are strongly indicated.

Surgical Shock in Face Mutilations and Coincident Injuries

DR. JOHN B. ROBERTS, Philadelphia: The term "shock" is used to cover many symptoms following injury—anemia, fat embolism, rapid absorption of septic fluids, rapid abstraction of heat from abdominal organs. The complete recovery seen

at times indicates that the basic lesion is susceptible of repair, wherever situated. Porter's conclusions relative to fat embolism, enforced inhalation of carbon dioxid, were apparently largely founded on examination of cases a good many hours after injury. Lowering of the alkali reserve in the blood after anesthesia and operative attacks, and the beneficial effect of intravenous use of alkaline solutions have seemed to indicate a possible relation between shock and acidosis. Henderson and Haggard see a suggestive cause of surgical shock in a connection between the excessive respiration due to pain and the carbon dioxid capacity or alkali reserve of the blood. For prevention of shock there must be avoidance of fall of blood pressure, prevention of pain, and control in severity of traumatism. Ether, the most satisfactory of the usually inhaled anesthetics, is said to reduce blood pressure, and is toxic to nerve tissue and glandular organs. Nitrous oxid with ether following, or in association with nerve blocking, is at times available. Geoffrey Marshall uses nitrous oxid gas with oxygen to lessen shock in amputation. He says that shock evades exact definition. I fear his experience is more that of an anesthetist than of an operating surgeon. Porter finds that a diastolic blood pressure of from 45 to 50 mm. continued for a considerable time in a laboratory animal is followed by death by transfer of blood to the portal veins unless the animal is saved by surgical treatment. Treatment, therefore, requires that the blood pressure of the wounded, in war or civilian practice, be raised above the critical point. Elevation of the feet and intravenous injection of saline solution will raise diastolic blood pressure to 70 or 80 mm.; such procedure is to be used in addition to elevation of legs and trunk. Epinephrin may be employed in addition if the pressure falls again. Too much saline solution may increase hemorrhage in oozing wounds, unless hemostasis or operation and hemostasis have been successfully employed. Transfusion of blood is then acceptable, but hemostasis must also be looked after. External heat is of the highest importance. Pressure is to be made on the wound and not by tourniquet above the wound. Geoffrey Marshall's objection to morphin is probably founded on anesthetic observations rather than on the study of clinical surgery as an operating surgeon. C. L. Gibson of New York strongly advises the use of morphin to prevent shock, stating that its generous use makes the journey of the wounded man to the next station comfortable; also that it has been found to be of great value previous to operations with a marked effect in diminishing shock. The preliminary hypodermic use of morphin and atropin will probably convince operators that Geoffrey Marshall's objection to ether in amputation cases is probably not well founded. Surgeons must remember that saline solution is not well absorbed in shock cases; it may take some time to get the beneficial effect of gravity and intravenous medication. Frequent blood pressure observations combined with temperature observations will determine the indications for cessation or diminution of activity in treatment.

DISCUSSION

DR. S. J. MELTZER, New York: The theory of acapnia assumes that shock is due to a diminution of carbon dioxid in the blood of patients in shock. This assumption suggests the treatment—letting the patient breathe some carbon dioxid or respire through a long tube or, as it is termed for short, rebreathing. If the statement that the carbon dioxid of the blood is decreased in shock were generally confirmed, the fact of the reduction of carbon dioxid could not prove the correctness of the acapnia theory. The reduction of carbon dioxid may merely be a consequence of shock and not the cause of it. Geoffrey Marshall, an expert anesthetist, is of the opinion that rebreathing is rather a dangerous procedure and ought not to be used in shock patients. Acapnia and rebreathing, as far as the science of physiology is concerned, are dying. Cannon studied shock experimentally as well as clinically. He believes that the most essential factor in the production of shock is acidosis and advocates the treatment of shock by the administration of sodium bicarbonate. Bayliss gave up the idea that acidosis is of primary importance in shock, and lost faith in the value of the alkaline treatment of shock. The theory that shock is produced by pulmonary

fat embolism received a great deal of attention. No doubt there are cases in which fracture of the long bones or injuries to fat tissues lead to pulmonary fat embolism and to a dangerous and even to a rapidly fatal fall of blood pressure. But these facts are in no way new. Fat embolism, a grave condition, presents a number of definite clinical symptoms outside of the presence of low blood pressure. There are, in the first place, symptoms that point directly to the lungs as the seat of trouble. The patient is suffering from air hunger, dyspnea; pulmonary edema and even hemoptysis are frequently present. On auscultation, râles may be discovered. Fat is present in the circulation in abnormal quantities. The urine contains fat globules. Even the sputum may reveal fat. Porter recommends the inhalation of carbon dioxid for the treatment of shock, and reports that he has helped many such patients by this treatment. Porter administers carbon dioxid not for the purpose of meeting the possible exigencies of acapnia but for the purpose of producing deep inspirations, which would help drive the blood from the engorged abdominal veins into the half empty heart. Wiggers says that if the circulation from the right ventricle is impeded by capillary emboli in the lungs, the introduction of larger quantities of blood into the right ventricle might lead to the dilatation of that ventricle and to death. According to Wiggers, shock is distinguishable from pulmonary fat embolism by the difference of the pressure in the right ventricle and the pulmonary artery; in pulmonary fat embolism the pressure is rather high, while in shock it is low. Therefore, while in shock it is advisable to drive the blood from the veins of the abdominal cavity into the right ventricle, this procedure has to be avoided in cases of pulmonary fat embolism. Neither Porter's theory of shock nor his therapeutic advice rendered a practical service to medicine.

The Ductless Glands in Military Practice

DR. CHARLES E. DE M. SAJOUS, Philadelphia: So far as recruits are concerned, proper recognition of the diseases of the ductless glands and their treatment would enable a large proportion of men now deemed unfit to continue their service. As for the armies in the field, it is a question of life and death in the large proportion of cases of disease of the suprarenals or of the thyroid, including many cases of so-called "soldier's heart," as regards the latter organ. All this should be taken to heart by our military authorities, if their excellent work in other directions is to encompass all fields of suffering.

DISCUSSION

DR. JOHN A. LICHTY, Pittsburgh: In considering the disturbances of internal secretion there are always two points that come out necessarily. One of these is the early recognition of disturbance of function in typical cases; the other is the recognition of the aberrant cases. The treatment depends entirely on the stage at which the case is met. In the thyroid or other glands of internal secretion, if a case is met at a time when only the vegetative nervous system is affected, surgery, of course, is not to be considered. These are the cases in which rest is the factor. If the condition gets to a certain point where neither of these factors, rest, forced feeding or the administration of an internal secretion are helpful, when it has gone beyond our control, we might say, then, of course, some direct effect on the gland itself will have to be brought about; and under these circumstances, surgery will no doubt be called into play.

DR. E. BOSWORTH MCCREADY, Pittsburgh: The reports of the Army medical examiners show how prevalent are organic and functional defects of development among the adult male population. Surveys of large groups of children have shown the existence of malnutrition to an almost incredible degree. It is to a large extent these malnourished, asthenic children who later develop glandular anomalies. Food quality and food quantity is a factor in metabolism, but only a factor. Metabolism depends on a proper balance of all physiologic functions, particularly on those of the ductless glandular apparatus. Preventive treatment should begin before the child is born, through proper parental care, including, when indicated, the administration of ductless gland preparations to the mother.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

October, 1918, 16, No. 4

- 1 Puericulture in France. M. P. Strauss, Paris, France.—p. 207.
- 2 Red Cross Infant Mortality Campaign in France. W. P. Lucas (San Francisco), Paris, France.—p. 212.
- 3 Work of Children's Bureau of American Red Cross in Lyons. C. G. Grullee (Chicago), Paris, France.—p. 220.
- 4 Public Health Problem in France. C. F. Gelston (San Francisco), Paris, France.—p. 226.
- 5 American Red Cross in Meurthe-Et-Moselle. M. Ladd (Boston), Paris, France.—p. 236.
- 6 America's Debt to France. J. H. M. Knox, Jr. (Baltimore), Paris, France.—p. 242.
- 7 Massachusetts Child Conservation Committee: Details of Organization and Work. R. M. Smith, Boston.—p. 253.
- 8 Etiology of Phlyctenular Disease of Eye. H. F. Hansell, Philadelphia.—p. 262.
- 9 Is Amount of Calcium Usually Given in Dilutions of Cow's Milk Injurious to Infants? A. W. Bosworth, H. I. Bowditch and L. A. Giblin, Boston.—p. 265.
- 10 Bearing of Cutaneous Hypersensitiveness on Pathogenicity of *B. Abortus Bovinus*. E. C. Fleischner and K. F. Meyer, San Francisco.—p. 268.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

October, 1918, 78, No. 4

- 11 New Psychology Applied to Neuroses of Gynecology. W. P. Graves, Boston.—p. 497.
- 12 Indications and Limitations of Induction of Labor. R. C. Norris, Philadelphia.—p. 507.
- 13 Positive Wassermann Reaction which Changes to Negative at Termination of Pregnancy. M. L. Menten, Pittsburgh.—p. 514.
- 14 Red Degeneration of Fibroids During and Following Pregnancy. H. Schiller, Chicago.—p. 519.
- 15 Funnel Pelvis. Report of One Hundred and Six Cases. H. Williamson, New York.—p. 528.
- 16 Delivery Room Technic. S. B. Blakely, Binghamton, N. Y.—p. 537.
- 17 Efficient and Inexpensive Incubator. H. Thoms, New Haven, Conn.—p. 542.
- 18 Scopolamin-Morphin Amnesia in Labor. W. R. Livingston, Oxnard, Calif.—p. 544.
- 19 A Uterine Cancer: Its Diagnosis. P. B. Bland, Philadelphia.—p. 554.
- 20 Plea for Prenatal Care and End-Results of Hygiene of Pregnancy. J. R. Garber, Birmingham, Ala.—p. 566.
- 21 Advantages of Rectal Over Vaginal Examinations During Labor. R. A. Bartholomew, Atlanta, Ga.—p. 576.
- 22 Diagnosis of Ectopic Pregnancy. F. A. Rhodes, Pittsburgh.—p. 580.
- 23 Rupture of Uterus. R. Y. Sullivan, Washington, D. C.—p. 589.
- 24 Use of Douche Pan in Second and Third Stages of Labor. C. J. Andrews, Norfolk, Va.—p. 595.
- 25 Case of *Staphylococcus Albus* Puerperal Infection and Psychosis. S. B. Schenck, Brooklyn.—p. 596.

Archives of Internal Medicine, Chicago

October, 1918, 22, No. 4

- 26 *Clinical Study of Pneumonia at Fort Riley Base Hospital. W. J. Stone, Toledo, Ohio, B. G. Phillips and W. P. Bliss, New York.—p. 409.
- 27 *Pneumonia and Empyema at Camp Sevier. W. T. Vaughan (Ann Arbor, Mich.), and T. G. Schnabel (Philadelphia), Camp Sevier, S. C.—p. 440.
- 28 *Treatment of Bronchial Asthma with Proteins. I. C. Walker, Boston.—p. 466.
- 29 Influence of Acid Phosphate on Elimination of Ammonia in Urine. W. McK. Marriott, St. Louis, and J. Howland, Baltimore.—p. 477.
- 30 Botulism; Report of Cases Occurring in Pacific Coast States. E. C. Dickson, San Francisco.—p. 483.
- 31 Nature and Interpretation of Colloidal Gold Reaction. K. M. Vogel, New York.—p. 496.
- 32 *Clinical Study of One Hundred and Fifty Cases of Bronchial Asthma. F. M. Rackemann, Boston.—p. 517.

26. **Study of Pneumonia.**—Only completed cases of pneumonia treated at the U. S. Army Base Hospital, Fort Riley, Kan., from Oct. 18, 1917, to May 18, 1918, are included in this report on a series of 668 instances of lobar pneumonia, 181 instances of measles pneumonia, and twenty-two instances of bronchopneumonia. The total incidence for pneumonia was 4.5 per cent., with a mortality of 23 per cent. The mortality of lobar pneumonia without empyema was 12.7 per cent. The

incidence of pneumonia in measles was 6.1 per cent., with a mortality of 45.8 per cent. The mortality of measles pneumonia without empyema was 32.5 per cent. Among the twenty-two instances of bronchopneumonia there were no empyemas, but there were two deaths, a mortality of 9 per cent.

The mortality with the same general plan of treatment varied from month to month in this series of pneumonias. The fatality of empyema likewise varied from month to month under the same general plan of treatment. The highest mortality in which empyema was the prominent associated pathologic condition occurred during the months of March and April. These were largely instances of overwhelming infection of rapid onset and death within a few days. The rapid onset of chill, fever and cough with tubular breathing and signs of consolidation, however small, sufficed, in the vast majority of cases, to establish the diagnosis. The roentgenogram may be of great help in making a diagnosis of questionable consolidation. In the diagnosis of bronchopneumonia some dependence should be placed on the history of previous bronchitis or measles. In the diagnosis of complications the aspirating needle was used early for the detection of empyema. Pus was frequently found without any increase in the temperature. The roentgen ray was of little help in small accumulations of fluid, but was of great help in outlining larger accumulations associated with fibrinoplastic pleural thickening. Pericarditis occurs frequently enough in pneumonia to make it an imperative rule to examine the heart with care at each visit. Serofibrinous pericarditis occurred clinically in approximately 4 per cent. of lobar pneumonias, in 2.2 per cent. of measles pneumonias. There were thirty-one instances. Twenty-four of the patients died. Pericarditis purulenta occurred only in association with empyema of subcostosternal pus pockets. Of this complication there were twenty instances, in all of which death occurred. Diphtheria was simulated in two instances by edema of the glottis incidental to a streptococcal infection. Acute peritonitis was diagnosed in five moribund patients in whom the condition was not found at necropsy.

Subcostosternal pus pockets were found in twenty-nine instances in 153 necropsies, and the diagnosis was not possible prior to death in any case, although the presence of such purulent accumulations were suspected in many instances from the combination of clinical and roentgen-ray evidence. This pocket of pus, which is usually situated on the side of the affected lung, but which may be bilateral, lies immediately beneath the sternum. It occupies the space between the median flap of lung composing the upper lobe as it lies above the fibrous layer of the pericardium. It is not in the mediastinum and should not therefore be called a mediastinal abscess. The pocket may communicate with other septal pockets or other portions of the pleura of the affected side. The vessels of the hilum may be its deepest limit or the opening to the pleura may occur through the normal pulmonary septa. This pocket is almost impossible to drain laterally, anteriorly or posteriorly by the usual thoracotomy or costatectomy. This pocket may be affected primarily and all other portions of the pleura be apparently free from pus while this one alone remains undrained and unhealed. The authors believe that the course of the infection is parietal rather than visceral, that it follows the lymph channels to the pleura from which afferent lymph vessels draining the anterior chest wall including the anterior parietal pleura, lead to sternal lymph nodes of which there are usually six on each side along the course of the internal mammary arteries. The pus pockets occur in close proximity to these nodes due undoubtedly to breaking down of these glandular structures. They have constituted a unique and very serious complication.

So-called toxic arthritis occurred in ten instances of empyema. Only one patient developed a suppurative arthritis in association with empyema in this series.

Blood cultures were taken from 100 patients with pneumonia, or suspected pneumonia, on admission. In one instance a hemolytic streptococcus was obtained from a patient with bronchopneumonia whose sputum also contained the same organism. In five instances a pneumococcus was obtained, in

two of which the patients did not develop pneumonia. The cultures were sterile in 94 per cent. Sputum determinations as to type of infection were made in 428 completed cases of pneumonia. The hemolytic streptococcus was found in 28.2 per cent. of the cases; pneumococcus Type II, in 21 per cent. In 155 empyema fluids the hemolytic streptococcus was found in 68.4 per cent., the nonhemolytic streptococcus in 5.8 per cent. The mortality in empyema, due to the streptococcus, was 61.7 per cent., while in empyema, due to the pneumococcus, the mortality was 45 per cent. Cole Type I serum was administered in doses of 100 c.c. intravenously after desensitization in Type I lobar pneumonias. Its effect was, in a large percentage of cases, immediately beneficial. This serum was administered in twenty-seven of the thirty-two cases. Among those who received the serum there were four deaths (two had meningitis and one had bilateral empyema mentioned above). The mortality in the serum treated patients was therefore 14.8 per cent. The autolyzed pneumococcic antigen of Rosenow was used in seventy patients with lobar pneumonia not due to Type I pneumococcus. The mortality was 12.8 per cent. Among 219 completed instances of lobar pneumonia in which the patients were discharged during the same period and not treated with the antigen, the mortality was 14.6 per cent. The dosage of the antigen, 1 to 2 c.c. daily, subcutaneously, for four or five doses, produces practically no reaction. Keys' antipneumococcic chicken serum was used in thirty cases of lobar pneumonia due to the pneumococcus. One death occurred, a mortality of 3.3 per cent., with an empyema incidence of 13.3 per cent. During the corresponding period the mortality of lobar pneumonia in patients not treated with this serum was 14.2 per cent. The serum seemed to possess value in reducing the toxemia in pneumonia.

Measles patients received, since Feb. 15, 1918, a vaccine prepared from five local strains of streptococci and two strains of *Pneumococcus* IV. The incidence of measles pneumonia, prior to the use of the prophylactic vaccine was 6 per cent. The incidence of measles pneumonia in 148 cases in which the prophylactic vaccine was used was 2 per cent. Antistreptococcus serum was used intravenously, after desensitization, in measles pneumonia due to the streptococcus with beneficial results in many instances.

The total number of empyema complications following pneumonia in this series was 200. Of this number 119 men were operated on. In the cases (eighty-three) in which early operation was done, not preceded by repeated aspirations, the mortality was 63.8 per cent. In the cases in which late operations were done, preceded by repeated aspirations, the mortality was 22.2 per cent.

27. Pneumonia and Empyema.—In lobar pneumonia the mortality for the entire period from the opening of the hospital at Camp Sevier until March 31, 1918, was 14.9 per cent. The highest number of deaths occurred during the early days of the hospital. In a period from Dec. 1, 1917, until March 31, 1918, during which more accurate records were kept, type determination was made, better methods of isolation were employed and the treatment was supervised in all wards by one person, the mortality was decidedly lower, being 10 per cent. In this second period nearly all of the cases fall, 201 out of 234. The death rate with Type I pneumonia is recorded as 14 per cent., and from Type IV as 7 per cent. There were no deaths among the eleven cases of Type II pneumonia. The Type I mortality includes both serum treated cases and those not so treated. In bronchopneumonia the death rate has been 36 per cent. Vaughan and Schnable consider Type I immune serum as being a most valuable addition in the treatment of pneumonia. It should be used in all cases of Type I infection; the earlier in the course of the disease the more satisfactory will be the results. Polyvalent serum was used in a few cases of severely ill bronchopneumonias and with-out beneficial results.

28. Treatment of Bronchial Asthma with Proteins.—The results of the treatment of 100 sensitive patients with the proteins to which they were sensitive are recorded by Walker. Of forty-eight patients who were sensitive to and treated with horse dandruff proteins, 63 per cent. were relieved of asthma, 10 per cent. have had too little treatment to warrant

a prognosis, and 20 per cent. were relieved by vaccines or by omitting foods to which they were sensitive; in the remaining 7 per cent. of this group treatment was a failure. Of four patients who were sensitive to and treated with cat hair protein, three were relieved of asthma, and the other patient, who was equally sensitive to the horse dandruff proteins, was relieved by treatment with them. Of thirty patients who were sensitive to the cereal grains, 74 per cent. were relieved by the omission of these from the diet, and 7 per cent. were relieved by vaccines; of the 26 per cent. who were not relieved by the omission of cereals from the diet, in 16 per cent. there was no evidence that cereals played any part in the cause of asthma, but the presence of eczema may account for these positive skin tests. Of thirty-three patients who gave positive skin tests to other foods, 50 per cent. were relieved by the omission of these from the diet, 30 per cent. more were relieved of asthma, but as the latter were also sensitive to other proteins which were also omitted from the diet at the same time, it is difficult to give credit to any special protein. The remaining 20 per cent. were not relieved of asthma, but the presence of eczema and urticaria and an acquired distaste for certain foods probably explains the idiosyncrasy. Therefore, of the total number of 100 sensitive individual patients who were treated as indicated by the positive skin tests, in 75 per cent. there was relief from asthma, in 14 per cent., although there was no relief from asthma, there was a definite idiosyncrasy substantiating the positive skin test; but in 11 per cent. the positive skin test had no apparent bearing on the patient's condition, although in only half of these, or 5 per cent., was there evidence that the skin test gave a false result. Since the 11 per cent. includes 7 per cent. who were relieved by vaccines, a total of 82 per cent. of the sensitive patients were relieved from asthma.

32. Bronchial Asthma.—Some of Rackemann's conclusions may be summarized as follows: "Bronchial asthma" is a symptom of some other disease condition. The 150 cases of asthma studied can nearly all be divided, according to the etiology of their attacks, into various subgroups under the general headings of "extrinsic asthma" and "intrinsic asthma." Extrinsic asthma includes 28 per cent.; intrinsic asthma includes 53 per cent. of the entire group—the other 19 per cent. being unclassified. A history of either asthma, hay-fever or food poisoning, in the immediate family, occurs in 58.7 per cent. of the cases of extrinsic asthma, but in only 10.5 per cent. of the cases of intrinsic asthma. Skin tests are of great assistance in confirming the diagnosis. Skin tests alone are of no value unless reasonably compatible with the patient's history or experience. A positive skin test is a necessary preliminary to successful specific treatment. The "nervous" element is very important in asthma, but probably does not explain why certain individuals have asthma. Treatment resolves itself into the treatment of the exciting cause. Various different therapeutic procedures sometimes yield favorable results, but these cannot be explained. The real problem—what is the fundamental disturbance of anatomy or physiology which expresses itself by attacks of asthma—remains unsolved.

Boston Medical and Surgical Journal

Oct. 17, 1918, 179, No. 16

- 33 Industrial Anilin Poisoning in Massachusetts; Cases. T. F. Harrington, Boston.—p. 497.
- 34 Infant Mortality; Theory and Results. D. M. Lewis, New Haven, Conn.—p. 501.
- 35 Some Special Problems in Abnormal Adolescent Psychology. O. L. Bridgman, San Francisco.—p. 505.

Bulletin of Johns Hopkins Hospital, Baltimore

October, 1918, 29, No. 332

- 36 *Myrtol Poisoning; Toxicity of Eucalyptus Oil and Myrtol. L. F. Barker and L. G. Rowntree, Baltimore.—p. 215.
- 37 *Dakin's Solution and Dakin's Oil in Normal Peritoneal Cavity of Dog. E. G. Grey, Baltimore.—p. 221.
- 38 *Multiple Primary Malignant Tumors; Case of Carcinoma and Sarcoma in Same Person. R. H. Major, Rosedale, Kan.—p. 223.
- 39 Idiopathic Bacillus Aerogenes Capsulatus Infection. H. Greeley, Brooklyn.—p. 231.

36. Myrtol Poisoning.—Derivatives of plants belonging to the natural order *Myrtaceae*, and especially oil of eucalyptus

and myrtol, may in large doses cause profound intoxication. In certain persons, there is an idiosyncrasy, the symptoms of intoxication occurring after minute or therapeutic doses. The authors report one case and summarize thirty-five cases recorded in the literature. The intoxication may affect chiefly the nervous system (myrtogenic neuropathy) or chiefly the skin (myrtogenic dermatopathy); in some persons, nervous and cutaneous manifestations are simultaneously observable. Recovery occurs in most instances, though several fatalities following eucalyptus poisoning have been reported. The symptoms of intoxication of the nervous system observed in man can be reproduced in animals by subcutaneous and by intraperitoneal administration of myrtol.

The authors' patient suffered from bronchiectasis; bronchitis chronica pùtrida; peribronchitis fibrosa; pleuritis chronica dextra. In addition to general measures, 3 minims of myrtol in capsules thrice daily were prescribed on account of the fetid bronchitis. The patient had been taking some oil of eucalyptus and oil of sandalwood before. These he continued along with the myrtol. After having taken two capsules three times a day for eight days the face became discolored and large puffs came under each eye. The forehead looked as if it were going to break out with eczema. The left eye became nearly closed and the right partially closed from the swelling. The myrtol was stopped at once, but the swelling lasted for many days. The cough increased markedly and the heart's action became more rapid, and he was greatly depressed. The patient had been told to increase the dose of myrtol gradually until twelve capsules per day were taken, but the myrtol was stopped when only six capsules per day were ingested.

37. Dakin's Solution and Dakin's Oil in Normal Peritoneal Cavity.—Observations are reported by Grey in order to draw attention to the fact that the indiscriminate use of the chlorin antiseptics is not entirely devoid of danger. Both the neutral solution of chlorinated soda (Dakin's solution) and dichloramin-T in chlorinated paraffin (chlorcosane, N. N. R., "Dakin's oil"), when injected into the normal peritoneal cavity of a dog, led to an inflammatory reaction, the degree of which was directly proportional to the amount of chlorin antiseptic used. With a sufficient quantity (less chlorcosane suffices) death ensued. When either of the chlorin antiseptics was injected into the gallbladder of a dog no abnormal symptoms appeared. Following the injection of chlorcosane, however, the gallbladder becomes thickened and shrunken, though the remainder of the biliary tract shows no discernible changes. A small amount of chlorcosane, when injected into the normal pleural cavity of an unanesthetized dog, may lead to a rapid (reflex?) death.

Since chlorcosane, particularly, has been used without recognizable ill effects in certain infections of the abdominal cavity, the results from the experiments made by Grey suggest that the wall of an abscess cavity or sinus must play an important part in protecting the peritoneum in general from the effects of the free chlorin. They also suggest that the maintenance of an adequate drainage tract is an indispensable part of the technic for using antiseptics of this nature within the abdomen. Until more evidence is at hand, then, both of the chlorin antiseptics should be used in intra-abdominal infections with caution and certainly only in carefully selected cases.

38. Multiple Primary Malignant Tumors.—Major's patient was a woman, 60 years of age. She applied for treatment of a carcinoma involving the right side of the nose and extending to the inner canthus of the right eye. While in the hospital the patient complained a great deal of headache, had little appetite and at times talked irrationally. Death occurred rather unexpectedly. The necropsy disclosed a round-cell sarcoma of the stomach. Hence this is a case of two primary malignant growths being present in the same person at one time. One hundred and ninety-six references to similar cases are given by Major.

California State Journal of Medicine, San Francisco

October, 1918, 16, No. 10

- 40 *Cerebrospinal Fluid Findings in Herpes Zoster. W. F. Schaller, San Francisco.—p. 453.
41 Is Purgation Justifiable? P. Campiche, San Francisco.—p. 455.

- 42 Pubiotomy. H. A. Stephenson, San Francisco.—p. 457.
43 Focal Renal Infections. L. J. Roth, Los Angeles.—p. 460.
44 Prevalence of Streptococcal Infections. R. L. Ash, San Francisco.—p. 462.
45 Method of Suturing "Y" Shaped Wounds. J. C. Egeberg, San Francisco.—p. 464.
46 Intestinal Obstruction: Case Occurring in Geophagist. H. A. Johnston, Anaheim.—p. 464.
47 Plea for Better Cooperation Between Physicians and Dentists. C. H. Wake, Los Angeles.—p. 466.

40. Cerebrospinal Fluid Findings in Herpes Zoster.—A lumbar puncture was performed in 21 cases of 79 cases of herpes by Schaller. In 14 cases in which a blood Wassermann alone was done 4 cases showed a positive reaction and 10 a negative reaction. The remaining 44 cases were not examined by the blood or fluid tests, nor were they clinically cases of syphilis. Nine occurred in syphilitic persons and in all but 1 of these the fluid showed a characteristic reaction of syphilis of the central nervous system. Eleven cases were negative for syphilis. However, in 5 out of these 11 cases there was a cellular increase above the normal. The globulin test in these 5 cases was negative or slightly increased. Schaller concludes that herpes zoster occurs with comparative frequency as symptomatic herpes in syphilis of the central nervous system. In nonsyphilitic herpes an increased cell count may mislead the clinician if other evidence suspicious for syphilis is brought out in the general survey of the case.

Canadian Medical Association Journal, Toronto

October, 1918, 8, No. 10

- 48 Physiology of Intracranial Circulation. J. J. R. Macleod, Toronto.—p. 865.
49 Intracranial Pressure. W. F. Hamilton, Montreal.—p. 873.
50 Surgical Relief of Increased Intracranial Pressure. A. E. Garrow, Montreal.—p. 882.
51 Acute Endocarditis in Pregnancy. G. S. Cameron, Peterboro, Ont.—p. 891.
52 Training of Surgeon. J. Halpenny, Winnipeg.—p. 896.
53 Botulism. E. C. Dickson.—p. 903.
54 After-Effects of Wounds of Chest and Their Treatment. J. Meakins and T. W. Walker.—p. 910.
55 Medical Inspection of Schoolchildren. D. J. Dunn, Edmonton, Alta.—p. 925.

Colorado Medicine, Denver

October, 1918, 15, No. 10

- 56 Tasks Before Us. E. Jackson, Denver.—p. 241.

Journal of Laboratory and Clinical Medicine, St. Louis

October, 1918, 4, No. 1

- 57 *Ocular Lesions Produced by Dichlorethylsulphid (Mustard Gas). A. S. Warthin, C. V. Weller and G. R. Herrmann, Ann Arbor, Mich.—p. 785.
58 *Treatment of Dichlorethylsulphid (Mustard Gas). Injuries. A. S. Warthin, C. V. Weller, L. Roos and G. R. Herrmann, Ann Arbor, Mich.—p. 833.
59 *Blood Cholesterol in Malignant Disease and Effect of Radium on Blood Cholesterol. G. Luden, Rochester, Minn.—p. 849.
60 Methods for Preparing Isoamyl Isovalerate: Satisfactory Substance to Prevent Foaming. C. H. Fiske.—p. 865.

57. Ocular Lesions Produced by Mustard Gas.—Warthin and his associates made a very thorough experimental and clinical study of this subject. The results are presented in detail. Summarized they are as follows: The action of mustard gas on the cornea and conjunctiva is essentially the same as that on the skin. The conjunctiva is, however, less susceptible to the action, or better protected, as the degree of necrosis produced in it is always less than that in the cornea or the epidermis. Exposures to dilute concentrations of the vapor produce slight degenerations of the corneal and conjunctival epithelium followed by a simple conjunctivitis. The use of a 2 per cent. alkaline aqueous fluorescein solution in demonstrating the necrosis of the corneal epithelium within ten to fifteen minutes after exposure to gassing has great clinical value. Exposures to stronger concentrations produce a more or less complete necrosis of the corneal vertex, extending throughout the entire depth of the cornea. Purulent exudation in the anterior chamber may occur; but no changes except congestion and edema were observed in the posterior chamber or optic nerve in noninfected cases.

In severe cases iridocyclitis and iritis may occur without secondary infection. The conjunctival epithelium also suffers

necrosis, and there results an intense edema of the subconjunctival tissues with marked congestion, multiple hemorrhages, leukocyte infiltration, and frequently secondary liquefaction necrosis. The depth of the necrosis in the conjunctiva is much less than that in the palpebral epidermis. This difference in degree of escharization can be explained, in part, by the penetration of the hair follicles on the skin surface, and in part by the moistness of the conjunctival surfaces and the lacrimation. A diffuse mild inflammation of the peribulbar tissues occurs, often with marked infiltration of the ocular muscles. No metastatic lesions of the eye could be produced experimentally by applications of mustard gas to other regions of the body, or by subcutaneous or intraperitoneal injections.

For the milder forms of mustard gas conjunctivitis the authors recommend immediate irrigation with the 0.5 to 1 per cent. chlorcosane solution of dichloramin-T followed by frequent irrigation with saturated boric acid solution. For the severe forms the same initial treatment followed by frequent irrigations with the dichloramin-T alternating with boric acid. They advise against the use of bandages or compresses bringing pressure on the eye, against the use of colloidal silver preparations, and against the use of cocaine. During exposure to mustard gas vapor the dichloramin-T solution may be used as a prophylactic agent. Healing in the more severe forms results in vascularization and cicatrization of the cornea with marked disturbances in vision. Even in the milder forms of conjunctivitis, localized roughness or irregularity in the conjunctival surface may persist for weeks as the result of localized edema, hyperemia, cellular infiltration, etc. Serious refractive errors and reduction of vision result, even in mild cases. For the correction of the disturbances of vision the patient should be referred to a competent specialist.

58. Treatment of Mustard Gas Injuries.—The clinical resemblance of mustard gas lesions of the skin to thermal burns has led to the use of alkalis externally and to the application of air-excluding protectives, such as oils, pastes, ointments, pomades, paraffin, oiled paper, dusting powders, etc. The extensive use abroad of a 10 per cent. bicarbonate solution is the result, no doubt, of its employment in the treatment of other forms of gassing. From the laboratory standpoint and theoretically it became very evident to Warthin and his co-workers that any form of treatment covering the surface of the injured skin areas and forming an air-excluding and germ-including coating was the worst possible method of treatment. Animal experiments with zinc stearate and other forms of oily coatings confirmed this view.

Inasmuch as mustard gas causes a necrosis, more or less deep, of the skin, cornea and conjunctiva, and mucous membrane of the respiratory tract, the therapeutic problems are as follows: 1. To sterilize the dead tissue and prevent infection of the eschar. 2. To prevent further necrosis by removing pressure. 3. To promote removal of the eschar and rapid regeneration and healing without secondary infections. The use of neutral solution of chlorinated soda suggested itself as an ideal method particularly, because the use of a chlorinating solution would also serve to destroy any mustard gas remaining in the skin, hair follicles, or sweat glands. The use of the bath method, as carried out in the treatment of severe thermal burns and necrotic and suppurative conditions of the skin, and especially, because of the danger of bedsores and secondary necrosis from pressure, is founded on the pathology of the lesions produced by mustard gas, and is based on scientific principles. In practice it has produced good results.

A. Mild Injuries.—Wash immediately, or better, immerse parts one half to two hours in neutral solution of chlorinated soda (strength of about 0.5 per cent. hypochlorous acid). If too irritating, dilute the solution or shorten time of immersion. If injured surfaces are very large, use full bath; for lesions of the genital region use sitz bath. When immersion of parts is not expedient, use dressings wet with or irrigate with neutral solution of chlorinated soda. If the wet treatment (which the authors consider by far the best) cannot be carried out, the application of dichloramin-T in chlorcosane

or chloramin-T in sodium stearate may be used. These procedures will serve a double purpose of chlorinating and rendering inactive any dichlorethylsulphid remaining in the skin, hair follicles, etc., and also disinfecting the damaged skin surface. This primary disinfection of the skin is of very great importance in the prevention of the secondary infections that are so often of a serious character.

After the neutral solution of chlorinated soda, use wet dressings, irrigation or bath of sterile hypertonic saline (5 to 10 per cent.), alternating with the neutral solution of chlorinated soda, and a sterile physiologic saline, according to judgment, about as follows: Neutral solution of chlorinated soda one to two hours, hypertonic saline two hours, physiologic saline one hour, and then repeat until lesions appear and extent of injury can be determined. As long as the lesion remains an erythema continue this treatment during the daytime. At night, dry the skin under aseptic precautions, and apply a vanishing surgical cream containing hypochlorous acid or liberating chlorine, of the type of the chlorazene (chloramin-T, 1 per cent. in sodium stearate) surgical cream, or instead, use wet hypertonic saline dressings.

Dusting powders are inadvisable because of crusting and possibility of infection. Chloramin-T and dichloramin-T in full strength powder form are too irritating. The authors have had no experience with Vincent's powder but on general principles would not favor its use. They also advise against the use of silver nitrate, iodine, potassium permanganate, or other local applications. Saturated magnesium sulphate solution proved irritating and no benefits were observed from its use.

In the case of vesicle formation, empty vesicles early under aseptic precautions, by means of a hypodermic syringe or sterile needle with slight pressure on the vesicle, and allow intact vesicle wall to collapse and seal down on its base. After this procedure, continue with alternating neutral solution of chlorinated soda and sterile salines, as above. If vesicles are not drained early, the fluid content may, within four to five hours, coagulate to such an extent that a large coagulum is formed that cannot be removed, and forms a possible medium for bacterial growth. It is very important that skin damaged by mustard gas be protected from trauma. Slight injuries, even ordinary pressures of the body, will cause the development of secondary vesicles or decubitus in the injured areas.

The use of unguents and ointments with oily bases, such as zinc stearate, olive oil, oleum petrolatum, or any form of crude petrolatum or other protecting oil, or such air-excluding and infection-including protectives as oiled paper, paraffin sprays and coatings, such as are employed in the treatment of thermal burns, is strongly condemned in the treatment of dichlorethylsulphid injuries. The principle of excluding the air for the purpose of lessening pain in the treatment of thermal burns is not applicable here because of the relative anesthesia of the dichlorethylsulphid lesions in their earlier stages. Exceptions to the above rule are the sodium stearate impregnated with chloramin-T and the chlorcosane solution of dichloramin-T, as in these cases there is an active and persistent germicidal agent present.

In the case of denuded surfaces with much pain and when bedsores have developed, the colloidal saline bath is strongly advocated. This bath is made as follows: Dissolve 1 pound of commercial cornstarch and 1 pound of sodium bicarbonate in 20 to 30 gallons of sterile physiologic salt solution, at a temperature of 90 to 95 F. The patient can be left immersed in this, when necessary, from fifteen minutes to forty-eight hours. The patient should be constantly watched by the nurse. Should pulse become weak, give strychnin or digitalis preparation or any other active digitalis preparation, or remove from bath, and apply blankets and heat.

B. Severe Injuries.—When necrosis of the skin, more or less extensive, develops, follow the same line of treatment given above: full bath, irrigation, slush or sponge bath, or wet packs of neutral solution of chlorinated soda, alternating with physiologic and hypertonic salines, or the colloidal bicarbonate bath should be constantly employed. Avoid bedsores. For this purpose the constant colloidal or saline bath, with patient hung in canvas body cradle to take off pres-

sure should be used. It is of the greatest importance to protect the damaged areas from secondary trauma. In cases in which decubitus or sloughs occur the necrotic layer should be removed, either with sterile forceps or by means of frequent hot irrigations under pressure. For this purpose saline, neutral solution of chlorinated soda, 1:10,000 potassium permanganate solution, etc., should be used. If the necrotic areas have become infected through neglect or improper treatment, the use of neutral solution of chlorinated soda or a similar solution should be pushed, alternating with hypertonic saline baths.

A hyperchlorous solution made according to Carrel's method can be applied here with good results: To 1 liter of water add 12.5 gm. of bleaching powder, shake vigorously, then add 12.5 gm. of boric acid powder, and shake again. Allow the mixture to stand for some hours, preferably overnight, then filter off, when the clear solution is ready for use. This solution contains about 0.54 per cent. of hypochlorous acid, 1.28 per cent. calcium biborate and 0.17 per cent. calcium chlorid. This is about the most practical concentration of hypochlorous acid, as stronger solutions rapidly lose strength. When the patients are very weak, temperature rising, and infection progressing it may be advisable to employ tepid sponge baths of the foregoing solutions.

59. **Studies on Cholesterol.**—Cholesterol promotes cell multiplication; high blood cholesterol values must, therefore, says Luden, further malignant growth. High blood cholesterol values are commonly found in carcinoma. Radium treatment and the administration of the thyroid hormone both reduce the cholesterol content (Bloor I) of the blood, and increase the amount of changed cholesterol in the blood (namely, the difference between the Bloor I and II values). The high cholesterol values in myxedema are brought down to normal by the administration of the thyroid hormone at a rate parallel to the rise in basal metabolism induced by the latter.

Kansas Medical Society Journal, Topeka

October, 1918, 18, No. 10

- 61 Case of Foreign Body (Lead Pencil) in Abdomen. A. O'Donnell, Ellsworth.—p. 237.
62 First Aid to Neurotic. M. S. Deland, Topeka.—p. 238.

Kentucky Medical Journal, Bowling Green

October, 1918, 16, No. 10

- 63 Outlook for the Profession. J. S. Lock, Barbourville.—p. 432.

Maine Medical Association Journal, Portland

October, 1918, 9, No. 3

- 64 Cancer Problem. L. D. Bristol, Augusta.—p. 57.

Minnesota Medicine, St. Paul

October, 1918, 1, No. 10

- 65 Study of Seventy Cases of Cerebrospinal Meningitis. M. Seham, Minneapolis.—p. 372.
66 Modern Roentgen Ray Therapy. R. F. Bellaire, Sioux City, Iowa.—p. 380.
67 Pituitary Extract, Its Uses and Abuses. J. A. Broberg, Blue Earth.—p. 386.

New York Medical Journal

Oct. 19, 1918, 108, No. 16

- 68 Errors in Diagnosis of Pulmonary Tuberculosis. A. Trasoff, Philadelphia.—p. 665.
69 Endobronchial Treatment of Bronchiectasis and Bronchial Abscess. E. Mayer, New York.—p. 666.
70 Neurotic Symptoms Referred to Eyes. C. P. Oberndorf, New York.—p. 668.
71 Intestinal Stasis, Ileocecal Valve Incompetency, and Chronic Appendicitis Roentgenologically Considered. J. S. Diamond, New York.—p. 672.
72 Paget's Disease of Bones; Two Cases. B. Stivelman, New York, and E. L. Ray, Louisville, Ky.—p. 678.
73 Argyrol Treatment of Acute Anterior Gonorrhea. C. B. Adams, New York.—p. 679.
74 Functional Reeducation of Wounded. R. T. McKenzie, Philadelphia.—p. 683.

New York State Journal of Medicine

September, 1918, 18, No. 9

- 75 Surgical Treatment of War Wounds. C. L. Gibson, New York.—p. 345.

- 76 Reception and Distribution of Cases in Casualty Clearing Station. E. W. N. Wooler.—p. 347.
77 Some Principles of Treatment of Gunshot Wounds. C. H. Upcott.—p. 350.
78 The Wilson Splint in Treatment of Gunshot Wounds of Humerus.—p. 354.
79 Control of Infection in War Wounds. W. Martin, New York.—p. 354.
80 Early Diagnosis of Intralaryngeal Carcinoma. D. B. Delavan, New York.—p. 360.
81 Surgical Treatment of Cancer of Larynx; Report of Cases. J. McCoy, New York.—p. 363.
82 Treatment of New Growths of Larynx by Internal Surgical Methods. H. Arrowsmith, Brooklyn.—p. 368.
83 Conservative Surgery of Chronic Intestinal Stasis. F. C. Yeomans, New York.—p. 374.
84 Estimation of Cardiac Strength and Importance of Conserving Energy During and Following Operations. R. R. Huggins, Pittsburgh.—p. 380.

Northwest Medicine, Seattle

September, 1918, 17, No. 9

- 85 Some Suggestions Looking to Improvement of Public Health by General Practitioner. W. F. Smith, Boise, Idaho.—p. 255.
86 Washington State Medical Association. G. M. Horton, Seattle.—p. 259.
87 Neuropsychiatric Problems Encountered by Exemption and Advisory Boards of Interest to General Practitioners. W. House, Portland, Ore.—p. 262.

Oklahoma State Medical Association Journal, Muskogee

September, 1918, 11, No. 9

- 88 Plea for More Careful Treatment of Gonorrhea. C. B. Taylor, Oklahoma City.—p. 281.
89 Acute Gonorrhea in Male. R. T. Edwards, Oklahoma City.—p. 284.
90 Prevention of Venereal Diseases. W. B. Pigg, Henryetta.—p. 291.
91 Symptoms and Diagnosis of Syphilis of Bladder; Report of Cases. W. J. Wallace, Oklahoma City.—p. 297.
92 Radium and Its Application in Surgery. E. S. Lain, Oklahoma City.—p. 299.

Public Health Journal, Toronto

September, 1918, 9, No. 9

- 93 Medicosocial Service. J. J. Cameron.—p. 397.
94 Are We Ready for State Health Insurance? J. H. Mullin, Hamilton, Ont.—p. 402.
95 Child and Community. N. E. Mohr, Toronto.—p. 427.
96 School Nursing. W. Read, Halifax.—p. 431.

South Carolina Medical Association Journal, Greenville

September, 1918, 14, No. 9

- 97 Some Aspects of Prostatic Surgery, with Special Reference to Methods of Popular Choice—Preoperative and Postoperative Treatment. E. P. Merritt, Atlanta, Ga.—p. 224.
98 Experience with Use of Mercury Intravenously. W. R. Barron, Columbia.—p. 226.
99 Gallbladder and Duct Surgery. R. L. Sanders, Memphis, Tenn.—p. 227.

Tennessee State Medical Association Journal, Nashville

September, 1918, 11, No. 5

- 100 Eye Requirements for Aviators. R. Fagin, Memphis.—p. 177.
101 Case of Traumatic Stricture of Larynx. B. H. Wood, Nashville.—p. 179.
102 Treatment of Mastoid Disease. J. P. Crawford, Nashville.—p. 181.
103 Low Back Pains. A. G. Nichol, Nashville.—p. 185.
104 Program for Antituberculosis Work. H. H. Shoulders, Nashville.—p. 186.
105 *Complete Intestinal Obstruction from Carcinoma of Sigmoid and Rectum; Cases. W. D. Haggard and W. O. Floyd, Nashville.—p. 190.
106 Goiter. E. H. and J. P. Baird, Dyersburg.—p. 195.

105. Abstracted in THE JOURNAL, May 4, 1918, p. 1330.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

September, 1918, 23, No. 4

- 1 Sequestra in War Injuries. T. L. Bunting.—p. 105.
2 A New Roentgen Tube Centering Device. H. T. George.—p. 114.
3 A New Roentgen Tube Holder with Director for Ray of Normal Incidence. G. G. Campion.—p. 119.
4 Displacement of Auditory Ossicles Shown by Roentgen Rays. R. W. A. Salmond.—p. 125.

- 5 Mounting of Symington's Sectional Atlas of Neck, Thorax and Abdomen. A. E. Barclay.—p. 127.

British Medical Journal, London

Sept. 28, 1918, 2, No. 3013

- 6 *Production of Meningococcus Anti-Endotoxin. M. H. Gordon.—p. 335.
7 Value of Roentgen Rays in Treatment of Malignant Diseases of Breast. C. Saberton.—p. 337.
8 *Gunshot Wounds of Knee Joint as seen at Base Hospital. H. H. Hepburn.—p. 338.
9 Some Aspects of Military Ophthalmology. S. H. McKee.—p. 340.
10 Case of Fatal Jaundice. R. A. Veale and B. H. Wedd.—p. 341.
11 Case of Successful Cesarean Section for Eclampsia. E. W. G. Masterman.—p. 342.
12 Treatment of Irritant Gas Poisoning. J. M. Lazenby.—p. 342.
13 *Administration of Anesthetics to Soldiers. A. Mills.—p. 343.

6. **Production of Meningococcus Anti-Endotoxin.**—Multi-valent antimeningococcus serum that has given the best results in military cases has been found to be differentiated from serum of less therapeutic value by the fact that the former contains a demonstrable quantity of anti-endotoxins to each of the two commonest types of the meningococcus. Gordon found that anti-endotoxin is elaborated by the rabbit to both the commonest types of the meningococcus. In order to obtain anti-endotoxin, especially in the case of Type 1 meningococcus, it is absolutely essential to avoid over dosage. The antigens that appear to give best results in the rabbit are neither the raw coccus nor autolysates, but (1) a suspension of the dried coccus, and (2) the sensitized raw coccus.

8. **Gunshot Wounds of Knee Joint.**—Fifty consecutive cases of gunshot wound of the knee joint are summarized by Hepburn. He points out that this series does not include those cases in which the synovial membrane was not found to be penetrated, and at the same time commends the practice of early and complete excision of these nonpenetrating wounds, thereby preventing secondary infection of the joint in a large number of cases. It is a rare occurrence today at the base to find suppuration in a knee joint when the notes from a casualty clearing station say "Wound excised, not penetrating." Of the fifty cases under consideration, twenty-five were complicated by demonstrable bony lesion and twenty-five were not. The synovial cavity is stated to have been washed out and closed in twenty-seven cases—in fourteen cases with fracture and in thirteen without fracture. Saline solution is stated to have been employed in six cases, eusol in six, and ether in two. The remainder were not specified. Bipp was introduced into the joint in two cases and flavine in one; all three did well. The foreign bodies were not found, or not looked for, at the casualty clearing station in nine cases. Five of these required removal at the base. Of the remainder, one was left embedded in the femur, the other three being very small and the joints all quiescent.

It was found necessary to reopen the joint in nineteen cases out of fifty. Of these, twelve were cases with fracture, and seven without fracture. A partial arthrectomy was performed on one patient with extensive loss of the condyles of the femur. Subsequent amputation was necessary in six of the nineteen cases—four with and two without fracture. Of the latter, one was amputated for secondary hemorrhage from a separate wound. Two patients died from septicemia, one in each class. Both were suffering from other severe wounds in addition to those of the knee joint.

Repeated aspiration, with or without lavage through a cannula, has not, in Hepburn's hands, given results which warrant the delay in more complete drainage. It is now his custom to aspirate only once, and if the pathologist reports an active infection, to proceed with freer drainage should the accumulation of pus recur. He has found that suppuration occurs much more frequently in the anterior than the posterior portion of the synovial sac. Absolute immobilization, and evenly distributed support under the popliteal region, are extremely important points in the treatment. When pus does form in the popliteus bursa, thorough drainage is very difficult to obtain. The tendency is for the pus to track downward into the leg on the posterior interosseous membrane as well as upward along the femur, with a bad prognosis. Of the nineteen cases in this series which Hepburn drained by

lateral incisions, seven developed an abscess in the posterior pouches. Six of these were treated by incision in the popliteal space, and one by an incision in front of the tendon of the adductor magnus. Four of these subsequently required amputation, and one of the four men died.

The offending organism in all cases reopened was the streptococcus, with or without *Staphylococcus albus*. Hepburn uses a small trocar or a spinal needle for aspiration.

He now uses the Thomas knee splint, with about 10 degrees of flexion, and without any extension. A foot support is essential. The postoperative treatment is—two hourly injection of half an ounce of eusol into each of the four Carrel tubes, with one thorough daily irrigation for three days. The tubes may be changed daily if they become blocked. At the third daily dressing the tubes are all removed and replaced by two tubes, which lie in the incisions but not within the synovial sac. On the fourth day the last through-and-through irrigation is given to remove any loose debris. From this time onward only superficial tubes and dressings are employed, and the incisions in the synovial sac encouraged to close. They are usually sealed up by lymph on the fifth or sixth day. If, as sometimes happens, pus collects in the popliteal region it must be dealt with. Movement of the joint must not be encouraged too early on account of the great danger of stirring up and liberating infection.

13. **Administration of Anesthetics to Soldiers.**—Mills advocates an ethyl chlorid-ether sequence as being the best method for induction, and has devised a method of using this sequence. A stopcock is fitted to the foot of the bag and this, connected by rubber tubing with an ether bottle and bellows, forms the simple apparatus which he uses in giving the ethyl chlorid-ether vapor sequence.

Journal of State Medicine, London

October, 1918, 26, No. 10

- 14 Liverpool's Activities in Regard to Venereal Diseases. E. W. Hope.—p. 289.
15 Educational Propaganda in Relation to Venereal Diseases. C. J. Macalister.—p. 293.
16 Crismer Test for Detection of Foreign Fat in Butter, Lard, etc. A. W. Stewart.—p. 312.

Lancet, London

Sept. 28, 1918, 2, No. 4961

- 17 Essential Characteristics of Successful and Unsuccessful Aviators. T. S. Rippon and E. G. Manuel.—p. 411.
18 Chronic Intestinal Stasis. W. A. Lane.—p. 416.
19 Diagnosis and Treatment of Malaria. D. G. Marshall.—p. 417.
20 *Symptomatology and Morbid Anatomy of So-Called "Spanish Influenza." E. R. Hunt.—p. 419.
21 Case of Loose Body in Knee Joint. P. B. Roth.—p. 421.
22 Meningitis Caused by Micrococcus Flavus. J. H. Teacher and A. M. Kennedy.—p. 422.
23 Cases of Cerebrospinal Fever. J. A. Glover.—p. 422.

20. **Morbid Anatomy of So-Called "Spanish Influenza."**—Hunt says that a blood count is of great value in helping to discriminate between the various causes of P. U. O. (pyrexia of unknown origin). The trench fevers are usually accompanied by a moderate leukocytosis. Malaria, malignant endocarditis, scarlet fever, and cerebrospinal fever, as a rule, show a marked leukocytosis. The enteric group is more usually characterized by a leukopenia. In "Spanish influenza" the leukocyte count usually varies between 5,000 and 9,000 per c.mm. Very few cases of influenza show a true relapse, and the occurrence of pyrexia relapsing within a few days in a supposed case of influenza suggests the probability of the case being one of trench fever.

Quarterly Journal of Medicine, Oxford

July, 1918, 11, No. 44

- 24 Calcium Content of Blood in Infantile Tetany; Effect of Treatment by Calcium. J. Howland and W. McK. Marriott, Baltimore.—p. 289.
25 *Deficiency Theory of Origin of Beriberi; Report of Forty Cases. F. M. R. Walshe.—p. 320.
26 *Arterial and Venous Blood Pressures in Enteric Group of Fevers. H. F. Marris.—p. 339.
27 Dysentery in Mediterranean Expeditionary Force. P. Bahr and J. G. Willmore.—p. 349.

- 28 Symptoms of Trench Fever. H. Drummond.—p. 363.
29 *Hematology of Trench Fever. H. W. Perkins and R. H. Urwick.—p. 374.

25. **Deficiency Theory of Origin of Beriberi.**—From their clinical aspect and on the grounds of their etiology the forty cases described by Walshe may be regarded as true beriberi. There is no evidence in support of a recently expressed view that this, or similar outbreaks of the disease described as occurring among troops, bears any relation to epidemic jaundice and is of the nature of an infection. A consideration of the deficiency theory of the origin of beriberi in the light of recent clinical and experimental work makes it clear that the present hypothesis, which postulates a single negative factor, namely, the absence of a specific accessory food factor or vitamin, is inadequate. It conflicts with the results obtained in starvation experiments on fowls. Starved fowls live sufficiently long to develop the disease under such conditions, yet they die without developing it, although in this essential respect, namely, the deprivation of vitamins, starvation is the equivalent of an avitaminic diet.

It is apparent from all recent experimental work, both in man and poultry, that there are two factors in the production of beriberi: (1) the absence of an accessory food factor or vitamin; (2) the use of certain foods which are the direct and immediate cause of the disease. There is a considerable weight of evidence to prove that carbohydrates constitute this second direct and immediate factor. It seems probable that in the absence of their specific vitamin they undergo an aberrant hydrolysis with the production of toxic by-products, or end-products, thus producing beriberi. Viewed in this light the disease is an intoxication.

From another point of view it may be questioned whether the clinical and pathologic characters of the disease are compatible with the theory that it is a slowly progressive diffuse degeneration of the nervous system. The striking symptoms of beriberi and the widespread visceral and nervous changes seen postmortem cannot be accounted for by such an hypothesis. Finally, it seems certain that until the physical chemistry of the vitamins and the metabolism in beriberi—both totally unexplored fields—have been more fully investigated, the pathogenesis of beriberi will remain in part obscure. All the genesis of the disease may be best expressed by saying that the use of certain foodstuffs, probably carbohydrates, in the absence of their accessory food factors or vitamins, directly causes beriberi.

26. **Blood Pressures in Enteric Group of Fevers.**—Marris was stimulated to make this investigation by an observation made during the last half hour of life in a case of typhoid. The heart was failing rapidly, and while the patient was actually under examination the superficial veins all over the body were observed to swell up and stand out like whipcords. On performing venesection with a view to relieving the right side of the heart, the blood gushed out, showing a pressure obviously excessive. Marris then decided to devise some simple means by which the venous pressure could be recorded. Low systolic pressures were constantly observed in severe cases of the enteric group of fevers and a very close approximation of the systolic to the diastolic pressures in the fatal cases.

Observations were made on the arterial and venous pressures in cases of the enteric group in which thrombosis was present. Exceptionally high readings were found in all such cases, and the pressure was observed to fall with the subsidence of the condition. Inoculation against the enteric group produces a temporary fall in the arterial pressure similar to that seen during an infection by each or any member of the group. The conclusion is inevitable that not only are the living organisms capable of affecting the blood pressure, but that a sterile emulsion of the same, such as is used in inoculation, will also bring about a similar result; therefore, this effect must be produced by some toxins in the bacilli. The arterial pressure in man is dependent on the following factors: (1) the systole of the left ventricle; (2) the elastic recoil of the arteries; the viscosity of the blood may also be a factor.

29. **Hematology of Trench Fever.**—Perkins and Urwick failed to find any appearance in blood films which is char-

acteristic of the disease. A single enumeration and differentiation of the leukocytes is often of value as a means of diagnosis from enteric fever, but cannot afford any reliable evidence that the disease present is trench fever. Repeated counts carried on through the various phases of the disease produce a composite picture which, though not without exceptions, is so constant that it may be considered characteristic. It consists in the combination of the following features: (a) A marked rise of leukocytes of all three kinds (polymorphs, lymphocytes and large mononuclears) at the time of a febrile relapse. (b) A gradual relative rise in the lymphocytes during the period of convalescence.

Archives Médicales Belges, Paris

September, 1918, 71, No. 9

- 30 *Cylindroma. H. Le Long and C. Sterckmans.—p. 265.
31 *Cells and Bacteria in Wounds. M. le F. de Arric.—p. 274.
32 *Paralysis of Brachial Plexus. M. van de Maele.—p. 282.

30. **Cylindroma.**—The tumor the size of a hen's egg was removed from the upper jaw of a young soldier, and there has been no sign of recurrence during the three months to date. In sixty-four of the eighty-three cases on record to date, the cylindroma started near the orbit.

31. **Relations Between Cells and Bacteria in Wounds.**—De Arric reports the average findings in 500 wounds of bones and muscles that had been treated by the Carrel method. The numbers of mononuclears seem to increase as the bacteria disappear, and this inverse proportion fluctuates with the bacterial content of the wound, usually immediately, but sometimes not until after twenty-four hours. Sometimes the streptococci seem to have disappeared from the wound when in fact they are lurking in its hidden recesses. This is revealed by the lack of the usual rise of mononuclears as the bacterial count grows less. When the mononuclears keep persistently at a low figure, this should warn of possible streptococcus infection. Tracings of the average cell count and bacteria count in 100 cases show the mononuclears close to or below 10 per cent., as a rule, in the streptococcus cases. Such cases usually run a long torpid course, but finally the number of mononuclears begins to rise; when this occurs, the bacteria will be found disappearing, or their virulence is declining. De Arric is chief of the bacteriologic laboratory of a Belgian military hospital, and all his experience tends to demonstrate the close relation between the cell count and the qualitative element of the infection.

32. **Paralysis of Brachial Plexus.**—Van de Maele relates the different criteria for locating with precision the various forms of paralysis of the brachial plexus resulting from involvement of the trunk nerves of the neck or axilla, the roots, etc. Some cases are described which illustrate the means for distinguishing between paralysis of radicular origin and monoplegia of cerebral, spinal or hysteric origin.

Bulletin de l'Académie de Médecine, Paris

Aug. 20, 1918, 80, No. 33

- 33 *Genital Prolapse. S. Mercadé.—p. 169.
34 *Epitheliomatosis in Workers on Tar. G. Thibierge.—p. 173.
35 *Enlarged Medicolegal Photographs. E. Martin.—p. 181.

Aug. 27, 1918, 80, No. 34

- 36 *The Spinal Fluid in Typhus. A. Devaux.—p. 188.
37 Prehistoric Testimony to Triple Origin of Human Incisors. M. Baudouin.—p. 189.
38 Influenza in Evacuation Hospital. Dugrais and Lemaire.—p. 191.

33. **Genital Prolapse.**—This is a committee report on Mercadé's method of correcting genital prolapse by suturing in front of the vagina the muscles which sustain the urogenital floor. The committee endorsed the method as a good one for total prolapse and as the best and most effectual operation for isolated cystocele, both mild and grave. Mercadé emphasizes that it is the anterior wall of the vagina which sags first. The bladder is the first organ to be pulled out of place. By arresting this tendency on the part of the bladder, the whole prolapse is checked. This can be accomplished by fastening the anterior cords of the erector muscles

to the muscles of the urogenital floor. This reinforces the floor and renders it solid and resistant. Separating the bladder from the vagina and the uterus requires minute care. The back and sides of the bladder are detached and the lips of the vaginal incision. The erector muscles are then sutured together on the median line, thus forming a strong floor for the bladder. The urogenital floor is then sutured together below and then the vaginal incision. This method has been applied in six cases of extreme prolapse, and all were radically cured. The interval since has been only a few months but the resistance opposed by the region to abdominal straining guarantees a definite cure. The deep sutures are made with chromicized catgut. There is no need for tamponing the vagina or checking defecation.

34. Multiple Disseminated Epitheliomatosis in Workers on Tar.—Thibierge describes the peculiar dermatosis which develops when the openings of the glands in the skin become obstructed by tar, asphalt or similar substance clogging the pores.

35. Enlarged Photographs in Forensic Medicine.—Martin is professor of legal medicine at the University of Lyons, and he here expatiates on the valuable information often to be derived from enlarging a photograph of a firearm wound in criminal cases. The stereoscopic view, enlarged several diameters, brings out details which entirely escape notice under other conditions, or are beyond the pale of the human senses otherwise.

36. Cerebrospinal Fluid in Typhus.—Devaux asserts, on the basis of 200 cases, that typhus infection is more decidedly neurotropic than in any other infectious disease. The diffusion and gravity of the lesions in the central nervous system are in marked contrast to the relative integrity of the other organs. The cerebrospinal fluid shows a leukocyte reaction early and constantly, and it is progressive and persists for from two to eight months. During the first week the field shows ten or twelve large lymphocytes, four or five mononuclears, and one polymorphonuclear to every two or three fields. This cytologic picture grows graver for two or three weeks.

Bulletins de la Société Médicale des Hôpitaux, Paris

June 14, 1918, **42**, No. 21

- 39 Brain Tumor with Cerebral Fluid Draining through Sphenoidal Sinus into Nose. A. Souques.—p. 599.
- 40 Tardy Epilepsy after Mumps. L. Lavastine and V. Ballet.—p. 604.
- 41 *Cerebrospinal Fluid in Sciatica. Sicard and Roger.—p. 611.
- 42 Abortive Adenolipomatosis. Babonneix and David.—p. 613.
- 43 Rat-Bite Fever. S. Costa and J. Troisier.—p. 616.

41. The Spinal Fluid with Sciatica.—Sicard and Roger warn that every case of persisting sciatica calls for examination of the lumbar puncture fluid. High albumin or cell content or positive Wassermann gives the clue to proper treatment, showing that the case is not one of ordinary medical sciatica.

Paris Médical

July 27, 1918, **8**, No. 30

- 44 *Heliotherapy of War Wounds. G. Léo and F. Vaucher.—p. 65.
- 45 *Diagnosis of Contagious Lesions of Syphilis. Quioc.—p. 73.
- 46 Oscillometer Localization of Cardiac Murmurs. A. Lévy.—p. 74.

44. Local Heliotherapy for War Wounds.—Léo and Vaucher report experiences which show that bacteriologic and histologic research confirms the clinical benefit from local sun baths of war wounds. The microscope discloses the rapid disappearance from the wound of the anaerobic bacteria and then of the aerobic. The profuse exudation of lymph is not bactericidal, but its high antitryptic power neutralizes the fermentation activity of the bacteria and leukocytes. Nothing else, except hot air, induces such an incessant afflux of fresh serum. Phagocytosis does not seem to be activated, at least on the surface. After a certain number of hours of insolation, the wound becomes practically sterile. They declare in conclusion that this effect is realized more rapidly by insolation than by any other therapeutic measure, not even excepting hypochlorite solutions. They reiterate that in all climates and at all seasons, when the sun is shining, it emits rays with a positive therapeutic value. Not to utilize

them is a waste, greatly to the detriment of the wounded on whose beds the sunlight falls. The dressing should be opened to expose the wound and the window should be opened, as glass arrests part of the useful chemical rays, but coarse wire screening is necessary to keep flies away from the wound. They do not think it necessary to protect the wound against dust. The exposures are for fifteen minutes to a maximum of two hours. The sunlight acts like a drain, the edematous tissues around the wound pouring out the septic fluid in them, the droplets becoming visible to the naked eye in about ten minutes, and always by the fifteenth or twentieth. They tell the patient, "Put your wound there, in the sunshine, and watch how soon it will begin to ooze and the pain go down." They expose the whole limb when possible, or the region of the body involved.

45. Simplified Technic for Determination of Pale Spirochete.—Quioc expatiates on the superior and unfailing advantages of the Fontana-Tribondeau technic in the early or late differential diagnosis of syphilis. The organic debris and red corpuscles are partially dissolved while the pale spirochete is shown up clearly and distinct from other spirochetes.

(1) Dissolve cold 1 gm. silver nitrate crystals in 20 c.c. of distilled water. Reserve part of the solution, and add to the rest ammonia, a little at a time, stirring constantly, until a sepia precipitate is thrown down and then disappears anew. The reserved solution is then added, fractioned, until there is slight turbidity, persisting during agitation. This reagent, sheltered from light, keeps well. Dry the specimen carefully, and cover it for thirty seconds, two or three times, according to its thickness, with Ruge's solution: 1 c.c. of crystallized acetic acid in 100 c.c. of a 2 per cent. solution of formaldehyd. The hemoglobin dissolves. Rinse in alcohol; pass through flame to burn off all traces of alcohol. Cover the specimen with a solution of tannin: 5 gm. of tannin and 1 gm. of glacial phenol in 100 gm. water. Heat till it steams. Let it steam for a minute, then rinse till all trace of the tannin solution is gone. Then dry. Cover with the nitrate solution. Rinse and dry. All the spirochetes take an even deposit of the silver, and look uniformly thicker and extremely distinct. The pale spirochete retains all its special characteristics, showing up dark purple against a transparent background or against the light yellow background of the decolorized reds.

Presse Médicale, Paris

Sept. 5, 1918, **26**, No. 49

- 47 *Meningeal Hemorrhages in War Pathology. G. Guillain.—p. 449.
- 48 Traumatism of the Tarsus. F. Masmonteil.—p. 450.
- 49 *Treatment of Chronic Osteomyelitis. G. Jean.—p. 452.

Sept. 9, 1918, **26**, No. 50

- 50 *Syphilis of Nervous System. Sicard and Roger.—p. 457.
- 51 *Colectomy. V. Pauchet.—p. 459.
- 52 *Serotherapy for Gas Gangrene. Mairesse and Régnier.—p. 461.
- 53 *Glycuronuria. R. Porak and Texier.—p. 462.
- 54 *Changes in Blood with General Anesthesia. L. Binet.—p. 463.

Sept. 12, 1918, **26**, No. 51

- 55 *Treatment of Tetanus. L. Bérard and A. Lumière.—p. 469.
- 56 Mitral Stenosis and Raynaud's Disease. J. Chalié.—p. 471.
- 57 *Natural Colorimetric Scale for Wassermann Test. A. Bergeson and E. Normand.—p. 472.

47. Meningeal Hemorrhages in War Pathology.—Guillain declares that meningeal hemorrhages play a surprisingly important part in war pathology, especially with skull wounds, and in aviators making a dangerously sudden landing or a fall. If lumbar puncture is not done, the meningeal hemorrhage may escape detection, or symptoms later may retrospectively reveal it. With shell concussion, besides the meningeal hemorrhage there may be bleeding from lungs, nose or stomach. Signs of meningeal hemorrhage include cerebral excitement, with mental confusion, exaggerated tendon reflexes, with bilateral clonus and Babinski, certain contralateral reflexes, and defense reflexes like those in the frog, pupil disturbances such as mydriasis, uneven pupil reactions, disturbance in reaction to light, and massive albuminuria. In some cases, a jaundice tint suggested meningeal hemorrhage even before the lumbar puncture confirmed the assumption. In a number of cases of meningeal hemorrhages, there was an excessively high temperature for several days. This was not due to infection but to some nervous disturbance in the heat production, probably from toxic action by the products generated in the extravasated blood. General anesthesia dilates the vessels and tends to exaggerate the hemorrhage if much of the spinal fluid is withdrawn. Done properly, lumbar puncture has a decided therapeutic value.

49. Treatment of Chronic Osteomyelitis.—Jean denounces rough handling of the bone, saying that the gouge and chisel are liable to cause remote fissures or at least to deaden the bone tissue and favor production of infection and thrombosis. It is much better to work with an electric drill. When the drill touches a sequester it does not cut into it, but the ear hears the difference in the sound and the hand perceives the contact. Provisional hemostasis is indispensable, and the whole of the bone must be examined. The roentgen negatives taken from front and side must be constantly under the eyes of the operator; roentgenoscopy is not enough to disclose the finer lesions of the osteitis. A head mirror is also indispensable. Curetting is a blind procedure, liable to inoculate sound tissue while neglecting diseased points. He makes no attempt to fill up the cavity, but lines it with the skin loosened up around and drawn down into the cavity and fastened there, then applying a compressing bandage, before arresting the provisional hemostasis. This dressing is removed the fourth or fifth day. If there is still slight infection, he irrigates with Dakin's solution and completes the cure with heliotherapy. If the skin cannot be drawn down to cover the cavity completely, he fills the gap with Reverdin grafts, toward the end of the second week, recommencing a week later the exposures to the sunlight which stimulate the vitality of the grafts while continuing the magic effect on the bone lesion and the general condition. By this technic the skin cicatrix is perfect, it is supple and painless. Healing is certain and rapid although the results of this deep cutaneization of the bone, as he calls it, are not esthetic.

50. Syphilis of Nervous System.—Sicard and Roger declare that a negative Bordet-Wassermann test of the cerebrospinal fluid excludes general paralysis in dubious cases. This test persists irreducibly positive in general paralysis. In tabes it may veer to negative, and we may be able to modify favorably the course of tabes by intensive treatment. The lymphocytosis and albumin are far less reliable as a basis for the diagnosis. Their experience has confirmed that general paralysis is a special form of meningocerebral syphilis, while tabes belongs in meningomedullary syphilis. The most daring treatments have been given thorough trials in general paralysis, but all to no avail. They have pushed specific treatment to the extremest limits, but without modifying the disease. In one of the cases they describe they gave an intravenous injection of 1.5 gm. neo-arsphenamin, under chloroform anesthesia, followed by a lumbar intraspinal injection of saline or horse serum. The whole procedure, including the chloroform anesthesia, was repeated weekly for two months. The patient bore it well, but the disease showed no improvement.

51. Colectomy.—Pauchet relates that further experience is confirming the superior advantages of his aseptic technic for removal of the right colon for obstipation, tuberculosis or cancer. Seven illustrations show the various phases of the intervention.

52. Serotherapy of Gangrene in the Wounded.—Mairesse and Régnier write from the automobile surgical Ambulance No. 1 that they have examined bacteriologically 1,016 wounded in a recent three months. Swabs were taken from the deepest part of the wound, the moment the wounded were brought in. Then in fifteen minutes the surgeon was supplied with the bacteriologic balance-sheet for each man, showing not only the microbial flora but the cytologic reaction. They found bacteria of the perfringens type (gas bacilli) present in 297, including twenty-five with sporulated bacilli. All these perfringens wounded were given a prophylactic injection of anti-perfringens serum. Of the total 297 anaerobic cases, twenty-five developed gas gangrene. During the early tentative phase of the serotherapy, three of those affected died, but all the others recovered under continued serotherapy, including three exceptionally severe cases. They warn that under the preventive serotherapy, if gangrene develops it has no gas or odor, and the muscles look pink—all tending to lull the surgeon into a false sense of security, unless the case is kept under bacteriologic control. Prompt bacteriologic examination discloses at once the more dangerously infected cases, and these can be given precedence in operating.

53. Glycuronuria.—Porak and Texier comment on the instructive oversight of liver functioning afforded by reduction in the glycuronuria, as one of the earliest signs of hepatic incompetency.

54. Changes in Blood During General Anesthesia.—Binet compares the publications on this subject in the last few years. They have demonstrated as the most important modifications under the influence of chloroform or ether, a reduction in the activity of the corpuscles, in the coagulability, and also a reduction in the oxidizing power.

55. Tetanus.—Bérard and Lumière are in charge of the central service at Lyons for the wounded with tetanus. From 28, 25 and 41 cases during the first years of the war, they had only 15 in 1917, and 3 in 1918, until last month when 4 cases reached them. The clinical picture in their 116 cases, they say, was never twice the same, but all required minute revision of the wounds to clear out débris, etc., with neutralization of the toxins, and treatment of the symptoms as they arose. The wound, the source of the toxin production, may be some minute contused injury of the foot or hand, possibly overlooked entirely. The focus must be widely opened up, curetted and disinfected with oxidizing agents. Crystals of sodium persulphate scattered in the wound were found more useful than hydrogen peroxid solutions, as the action from the crystals kept up longer. Rubber drains must be freely used, and the dressing changed every day. In 26 cases the focus wound had not been disinfected at all, and 19 of this group died. The total mortality, including these cases, was 50 per cent. The protection conferred by the preventive injection rapidly declines, and cannot be counted on for more than two weeks. In 2 of the total 116 cases the production of toxins was evidently so intense that even two injections of the antitoxin, at a week's interval, failed to saturate it. In all the other cases, the 10 or 20 c.c. dose seemed to be ample. When the first symptoms of tetanus appear, they give 30 c.c. of the antiserum daily for three days. When not absolutely certain that all the tetanus bacilli have been cleared out of the wound, they keep up these injections longer.

In symptomatic treatment, the most active and the least dangerous remedy they have found is sodium persulphate. It keeps well, in dry form, in sealed tubes. When ready to use, 5 gm. are dissolved, cold, in 100 c.c. of sterilized distilled water, and 20 c.c. of this is injected into a vein in the bend of the elbow, morning and night, for three days or longer. In about half the cases there is brief vomiting immediately after the injection, so the patient should not eat just before. The spasms usually cease at once after the injection, but may return a few hours later, but often they subside completely after the second or third injection. They have never had any mishaps with it, even under protracted administration. The patient becomes less sensitive to external stimuli, he lies sometimes absolutely calm, free from pain. The relief even for a few hours is a great boon. It is sometimes useful to supplement the action of the persulphate with chloral or other sedative.

The permanent contracture is not appreciably modified by the persulphate. When the contracture affects the muscles of respiration, nothing has been proposed to date that is effectual against this except Sauerbruch's suggestion of bilateral phrenicotomy plus artificial respiration. He has reported several successful cases. Bérard and Lumière believe that the same results might be realized by mere local anesthesia of the phrenic nerves, blocking it with some anesthetic. They have had occasion only once to apply this method, but the success was prompt and complete, respiration becoming normal, the cyanosis, agitation and suffocation disappearing, and the man dropped into tranquil sleep. They injected 10 c.c. of a 1 or 2 per cent. solution of procain, with a little epinephrin, introducing the needle at the posterior margin of the sternocleidomastoid, 2 cm. above the supraclavicular fossa, the tip pointing toward the median line. The needle is gently pushed in for 3 cm. until it encounters a little stronger resistance, showing that it has reached the anterior scalenus. Then the fluid is injected. Local and regional anesthesia in this way will arrest permanent con-

tracture of the limbs in tetanus, and ward off vicious consolidation of fractures in the wounded with tetanus, while shortening the period of functional impotence with partial tetanus. If constipation persists in spite of the above measures, the bowels and sphincters may be relaxed by spinal anesthesia and contracture around the wound relieved by regional anesthesia.

In conclusion they report an instructive case in an American soldier with a scrap of shell in the right scapula region. The projectile was not found at the primary operation, and it seemed to be healing harmlessly in place when, after a month, contracture was noticed in that arm and pain in the muscles of the shoulder and neck. Massage and passive movements were applied but, the symptoms growing worse, the young man was sent to the tetanus service. At once the projectile and sequesters were sought and removed, and the tetanus bacillus was cultivated from them. This patient's condition is still precarious. He was wounded July 15, and was given two antitetanus injections. The first hint of contracture came August 8, but the projectile was not removed till August 20. At the first hint of contracture, the wound should have been cleared out of all foreign bodies. During the twelve day interval the toxins had been elaborated without check.

57. Colorimetric Scale for Wassermann Reaction.—Bergeron and Normand extol the advantages of having an additional set of ten tubes for comparison and percentages of the gradation of tints in the Wassermann reaction. The supplementary set of tubes contain varying dilutions in physiologic saline of a 20 per cent. dilution of the original 10 per cent. dilution of 0.2 c.c. of sheep or human red corpuscles. Comparison between the findings of different workers and different laboratories is thus made possible and reliable.

Progrès Médical, Paris

August 3, 1918, **33**, No. 31

- 58 *Commotion of Spinal Cord. G. Roussy and L. Cornil.—p. 263.
- 59 Chlorination of Water. P. O. Collins and A. Bernard.—p. 265.
- 60 Morbid Courage. P. Voivenel.—p. 266.

August 10, 1918, **33**, No. 32

- 61 Valvular Disease and Fitness for Service. Clerc and Aimé.—p. 271.
- 62 Chloramin-T in Disinfection of Wounds. Aimes and Sari.—p. 273

August 17, 1918, **33**, No. 33

- 63 *Artificial Arms and Hands. C. Roederer.—p. 279.
- 64 Congenital Absence of Right Diaphragm. L. Moreau.—p. 281.
- 65 *Suicidal Forms of Psychoses. H. Damaye.—p. 284.

58. Paralysis from Concussion of Spinal Cord.—Roussy and Cornil analyze five cases, representing different types, to illustrate the necessity for reserving the prognosis at the first examination. Cases apparently of the gravest nature may prove to be the result of merely temporary suspension of function, and gradual recuperation follows. Systematic immobilization, refraining from any operation on the spine, care to ward off bedsores and complications on the part of the lungs, will often lead to a favorable outcome in cases of quadriplegia from concussion of the spinal cord. In three of the cases described signs of return of motor function were detected between the twentieth and twenty-fourth day. The concussion was by contre-coup or indirect contusion. In the two cases with direct contusion of the cord and dislocation of a vertebra, the interval was two and four months. These two men, ten and fourteen months after the wound, present merely simple hemiparesis or traces of hemiplegia, with the Claude-Bernard Horner syndrome. In the ten months case the sphincter and genital derangement still persist.

63. Working Hands.—Roederer reviews the present tendencies in the manufacture of artificial hands, simplification of all parts, especially the shoulder piece, buckling instead of lacing, abandonment of the "universal prosthesis," specialization to the extremest limits in the terminal portion, and discrimination between the *prothèse de forme* and the *prothèse de force*. At the Lyons training school for the disabled, 75 per cent. of the 286 farmers among the 637 one-armed men have returned to agricultural work. Of the 175 factory workers, 15 per cent. had resumed their former trade, and 29 per cent. a similar trade; 9 per cent. had taken up agricultural work.

65. Suicidal Mental Derangement.—Damaye relates that among the 916 men who have passed through the advanced neuropsychiatric center, there were thirty-three who had tried to commit suicide. In fifteen of the thirty-three, there were evidences of heart disease, with traces of albumin, as also in seven with melancholia but no attempts at suicide. The tendency to mental derangement was most often manifested in the man's deserting. Malaria plus abuse of alcohol was found in the large majority of these cases. Many of these men are peculiarly susceptible to liquor so that even one glass of wine upsets their balance, and fatigue enhances this susceptibility. Brief summaries are given of each of the suicide cases. The treatment applied to all aimed at disintoxication and reconstitution: iodine, cacodylate, morphine, and daily baths at 37 or 40 C. (104 F.) for half an hour or an hour.

Annali d'Igiene, Rome

July, 1918, **28**, No. 7

- 66 Biologic and Immunizing Properties of Bacilli of Colon and Typhoid Group. G. Galeotti.—p. 341.
- 67 Deficient Diets and Disease. G. Volpino.—p. 346. Cont'n.
- 68 *Berberin in Treatment of Malaria. A. Ilvento.—p. 358.
- 69 *Treatment of Lymphosporidiosis. G. Alessandrini.—p. 364.

68. Berberin in Treatment of Malaria.—Ilvento urges trial on a large scale of decoctions of barberry which is an old household remedy for malaria in Italy. Used in conjunction with quinine, it has given him better results than was obtained with the latter alone.

69. Tartar Emetic in Treatment of Sporidiosis in Horses.—Alessandrini reports the cure of over 89 per cent. of 105 horses with cryptococcus farcy (lymphosporidiosis) given intravenous injections of tartar emetic. It also displayed preventive action when the lesions were washed with it and the "buttons" opened. Flies disseminate the germs and may infect sound animals when they alight close to the eyes and nostrils or on excoriations. The flies that get any of the tartar emetic from the lesions or otherwise die promptly. Even in a very weak, sweetened solution it soon kills them.

Chirurgia degli Organi di Movimento, Bologna

August, 1918, **2**, No. 3-4

- 70 G. Mercuriale, 1530-1606.—p. 259.
- 71 *Cervical Ribs. I. Scalone.—p. 275.
- 72 Astragoloscaphoid Dislocation of the Foot. F. Niosi.—p. 307.
- 73 *Protection of Wounded Nerve. A. Corti.—p. 323.
- 74 Contracture of Fingers in Dorsal Flexion. U. Pasini.—p. 367.
- 75 War Pseudocataonia. V. Neri.—p. 374.
- 76 Talipes Varus after War Wound. F. Nasseti.—p. 409.
- 77 *Skin Tunnel for Kinetic Plastics. F. Delitala.—p. 411.
- 78 Prostheses with Kinetic Plastics. Landini and Cevolani.—p. 417.

71. Cervical Ribs.—Scalone reviews the present status of our knowledge of cervical ribs, the differential diagnosis of disturbances from them, and the best mode of treatment. In a personal case described, almost the entire supernumerary rib was resected through a short incision close to the base of the neck at the side. The rib was cut and removed in two parts. The patient was a young soldier, and the cervical rib was adherent to the first regular rib. There had been no disturbance from the unsuspected cervical rib until within the last few months.

73. Operations on Nerves.—Corti discusses the various procedures that have been devised to protect the nerve after an operation on it, and describes personal research which has apparently demonstrated that an artery from a dog can serve to protect a wounded nerve and it resists absorption for a long time. In three clinical cases it was found in good condition after 225, 194 and 305 days. Veins are less resistant than arteries for the purpose. The sheet of arterial tissue wrapped around the nerve protects it from invasion by surrounding tissue.

77. Kinetic Plastics.—Delitala's photographs show the simple technic for cutting a bridge flap, rolling the sides up to form a tunnel, and then looping around the outside of the tube thus formed the tendons of the chief muscles. The distal ends of the tendons are brought up and each is looped around the belly of the respective muscle, and fastened with

a few stitches. The skin is then sutured over the whole. The handle of an instrument, passed through the tunnel thus formed, can then be moved by volitional impulse from those muscles.

Policlinico, Rome

Sept. 1, 1918, 25, No. 35

- 79 Tuberculosis in Soldiers. A. Brungnatelli.—p. 821.
80 *Xiphoid Crepitation in Typhoid. F. Bergolli.—p. 823.
81 *Prophylaxis of Malaria. D. Albano.—p. 826.

80. **Xiphoid Crepitation in Typhoid.**—Bergolli reports twelve cases of typhoid in which Galvagni's sign—xiphoid crepitation—was pronounced. Some were acute cases and the liver was generally enlarged, and there were usually symptoms of a reaction on the part of the peritoneum. In all the cases the epigastrium bulged above the level of the xiphoid. The seat of the crepitation is undoubtedly the subcutaneous cellular tissue, and disturbances in the circulation of lymph seem to be the cause.

81. **Prophylaxis of Malaria.**—Albano relates that mosquitoes will not bite where the skin is smeared with petrolatum. He smears all the exposed skin with petrolatum once every day or two, and says that this permits tranquil sleep amid myriads of mosquitoes.

Rivista Critica di Clinica Medica, Florence

Aug. 10, 1918, 19, No. 32

- 82 Factitious Edema. G. Garin.—p. 373.

Archivos Latino-Americanos de Pediatria, Buenos Aires

Jan.-Feb., 1918, 12, No. 1

- 83 *Serotherapy of Poliomyelitis. M. Acuña and Casaubon.—p. 1.
84 *Stones in Child's Kidney. N. Gurgel.—p. 16.
85 Diphtheria in Threc Days' Child. A. F. Puyol.—p. 21.
86 Rheumatismal Mitral and Aortic Insufficiency in Girl of Eight. A. A. Ugon.—p. 28.
87 Rheumatismal Asystoly in Girl of Five. M. F. Langon.—p. 32.
88 *Scurvy in Infant. J. A. Bauza.—p. 40.
89 *Mumps Meningitis. V. Zerbino.—p. 44.
90 *Secondary Pneumococcus Meningitis. L. Solari.—p. 50.
91 *Pneumonia in Twenty-Five Days' Infant. M. A. Ugon.—p. 54.
92 Protection of Children against Tuberculosis. A. Alfaro and V. Blanco.—p. 57.

83. **Serotherapy of Poliomyelitis.**—Acuña and Casaubon report four cases of poliomyelitis in which convalescents' serum was used in treatment. They expatiate on the logical and promising outlook for this form of treatment although their own cases were disappointing, as the disease was in an advanced phase in all, paralysis having been observed for five or seven days before. Four days seems to be the limit and the more recent the convalescence in the donor the more effectual the serum although instances are known of effectual action even after a thirty-two years' interval. In their four cases the intraspinal injection of the serum was borne without apparently the slightest inconvenience. The infants were from 7 to 20 months old, and the amounts injected ranged from 2 to 6 c.c. at a time, to a total of from 7.5 to 38 c.c. The interval since the convalescence had been three, five and eight years and two months.

84. **Kidney Colics in Child.**—The boy of 6 had suffered for three years from colic pains, finally explained by roentgen discovery of two concretions in the pelvis of the left kidney. There never had been any hematuria, pyuria or albuminuria, and the general health was excellent throughout.

88. **Infantile Scorbutus.**—The child was about a year old, and it had been fed almost exclusively for weeks with boiled milk and arrowroot flour.

89. **Mumps Meningitis.**—Zerbino's patient was a boy of 13, and the diagnosis when he entered the hospital had been tuberculous meningitis. After he had been feeling sick for two weeks and lumbar puncture had showed 384 cells per millimeter, including 99 per cent. lymphocytes, he began to improve. A history of mild mumps two weeks before was then elicited. In some cases cited, the meningitis was the first manifestation of the disease.

90. **Pneumococcus Meningitis.**—The boy of 3 had recovered from bronchopneumonia when, a month later, he developed fatal pneumococcus meningitis.

91. **Pneumonia in Infant.**—The nursling was only 18 days old when it developed pneumonia, with defervescence the ninth day and complete recovery, after a brief tardy partial bronchopneumonia in the base of the same lung. Treatment had been with hot baths and 1 c.c. of 5 per cent. camphorated oil.

Cronica Medica, Lima

August, 1918, 35, No. 662

- 93 Exophthalmic Goiter in Girl of Sixteen. E. Odriozola.—p. 219.
94 *Treatment of Varicocele. H. H. Torres.—p. 225.
95 Preparation of Sodium Hypobromite. M. A. Velasquez.—p. 235.

94. **Conservative Treatment of Varicocele.**—Torres reports highly favorable results in fourteen cases in which he applied del Valle's conservative method of curing varicocele. He separates the spermatic veins into two bunches and passes a silk ligature around part of the veins in each bunch. The long ends of the silk are then drawn up through an incision in the aponeurosis, 4 cm. long, made 2 cm. inside of the internal pillar. The veins thus drawn up through the aponeurosis are held there while the incision in the aponeurosis is sutured beneath them, except at the corners. These veins thus run over a bridge, materially shortening their extent below, and sustaining the testicle at the proper height, while the circulation is modified to prevent further tendency to varicocele, without a cutting operation. Several illustrations show the details of the technic.

Cronica Medico-Quirurgica, Havana

May, 1918, 44, No. 5

- 96 Extreme Photophobia. J. S. Fernandez.—p. 256.
97 *Foreign Body in Intestine. R. de Castro.—p. 265.
98 Irregular Pyrexias in Cuba. A. Silvera.—p. 272.
99 Sneezing: Spontaneous and Induced. V. de Castro.—p. 276.

97. **Disturbance from Foreign Body in Intestine.**—Intense pain in the appendix region, with tenderness at McBurney's point, were the only symptoms. They kept up for three days and then subsided for six years, when the pain returned with agonizing intensity, until the tooth of a comb was passed in the stools. This cleared up the puzzling diagnosis and all the disturbances at one stroke.

Revista de la Asociacion Medica Argentina, Buenos Aires

July, 1918, 29, No. 164

- 100 *Gastro-Enterostomy for Simple Ulcer. C. B. Udaonda.—p. 5.
101 History of Hygiene in Argentina. E. R. Coni.—p. 15. Cont'n.
102 *Partial Colectomy. D. Decoud and G. B. Arana.—p. 55.
103 *Angular Pregnancy. C. Mönckeberg.—p. 69.
104 Pelvic Gummatous Cellulitis. M. R. Castex.—p. 84.
105 *Treatment of Inaccessible Fistulas. A. Turenne.—p. 95.
106 Tuberculosis. J. J. Viton.—p. 108. To be continued.

100. **Remote Results of Gastro-Enterostomy for Simple Ulcer.**—Udaonda reports the remote results in twenty-two out of seventy-one operative cases of simple, noncomplicated gastric ulcer followed for from one to four years. Only 27.24 per cent. are free from stomach disturbances. All the others have had the old subjective symptoms return, as severe as before and as rebellious to treatment. The symptoms returned after intervals ranging from three months to two years; the average, between the sixth and tenth months. There has been hematemesis in 16 per cent. and occult blood has been found in over 86 per cent. The gastro-enterostomy opening seems to be working perfectly in all. Only in one case is there suspicion of syphilis, and there is nothing to suggest jejunal ulceration in any case. In his nonoperative cases, fully as good results were obtained with medical treatment alone.

102. **Colectomy.**—Decoud and Arana report two superposable cases in which a tumor compelled resection of part of the ileum and colon. Stereoscopic radiography aided materially in the diagnosis.

103. **Angular Pregnancy.**—Mönckeberg describes the anatomic conditions involved as the fetus develops in the tubal angle just inside the uterus. In diagnosing this site, the hardening of the tumor as the uterus contracts is instructive, also that the tumor is on one side and toward the front, while the round ligament lies outside of the tumor when examined under an anesthetic. The angular pregnancy tumor also

feels soft in comparison to the hard or fluctuating tubal pregnancy tumor. On suspicion of an angular pregnancy, expectancy should be the rule. By the fourth or fifth month the uterus regains its symmetrical outline and the pregnancy runs the usual course. It is better in a dubious case to annoy the patient by examination several times in succession instead of overhasty decision to operate on assumption of a tubal pregnancy.

105. **Inaccessible Vesicovaginal Fistulas.**—Turenne reports gratifying success in two cases of this kind in which he applied the technic described in 1910 by Gray-Ward.

Revista Española de Medicina y Cirugía, Barcelona

September, 1918, 1, No. 3

- 107 Nephrolithiasis and Roentgen Examination. R. Lozano and E. Pastor.—p. 109.
108 *Slow Malignant Endocarditis. G. Roqueta.—p. 116.
109 *Improved Histologic Staining Technic. P. del Rio-Hortega.—p. 124.

108. **Slow Malignant Endocarditis.**—Roqueta's patient was a young woman whose father had succumbed to angina pectoris, and whose sister and brother present mitral lesions. She had two attacks of appendicitis in 1917, and the endocarditis followed close on the removal of the appendix, with death in seven months. A colored plate shows the numerous colonies of the *Streptococcus viridans* in pure culture from the blood.

109. **Improved Staining Technic.**—Rio-Hortega gives the details of a method for staining histologic specimens with an ammoniacal solution of silver carbonate, prepared with lithin carbonate from silver nitrate. The details of structure are shown up, he says, much clearer than with the classic technics. It is particularly useful in amylosis and in study of nerve fibers and tumors.

Revista Medica del Rosario, Argentina

August, 1918, 8, No. 4

- 110 Urinary Stones in Children. J. M. Maidagan.—p. 273.
111 Hygiene of the Eyes in School. F. S. Schleisinger.—p. 293.
112 Abdominal Shock. L. Tixier.—p. 318.
113 *Amenorrhea after Roentgen Exposure. Siquot.—p. 322.
114 *Chorea. V. Ortiz.—p. 323.
115 Ankylostomiasis. C. Muniagurria.—p. 325.

113. **Roentgen Amenorrhea.**—A girl of 14, robust and of a good family, swallowed a needle, and was examined for half an hour with the roentgen rays, which entailed a severe dermatitis. She had been menstruating regularly for nearly two years, but since the roentgen exposure there has been no menstruation. The third month she began to have severe headaches and at times abdominal pain, especially in the left flank. Ovarian treatment, mustard foot baths and purgatives, applied at the approximate menstrual dates have given no result to date.

114. **Chorea.**—Ortiz emphasizes the prompt cure under sodium salicylate in the two cases reported.

Revista Medica del Uruguay, Montevideo

July, 1918, 21, No. 7

- 116 *Diagnosis of Incipient Tabes. P. Scremini.—p. 345.
117 *Disinsertion of the Mesentery. L. Merola.—p. 366.
118 Blindness from Thyroid Deficiency. J. C. M. Fournier.—p. 382.
119 Primary Hemiplegia. P. E. Nuñez.—p. 395.
120 Favorable Experiences with Thymic Acid in Treatment of Cholelithiasis. J. S. Larraya.—p. 402.

116. **Diagnosis of Incipient and Incomplete Tabes.**—Scremini ascribes decisive importance to the lumbar puncture fluid for the diagnosis of tabes, even when the Wassermann reaction is negative. Changes in the cell content, chemical and biologic changes, isolated or alone, reveal the chronic syphilitic meningitis, and suggest impending or established tabes. The diagnosis may thus be possible in the preclinical phase. He insists that search for syphilis should be the routine preliminary in every case of nervous disturbance, whatever its nature. The Argyll Robertson is an almost certain sign of syphilis.

117. **Disinsertion of the Mesentery.**—Merola describes a method of access to the retroperitoneal region which retraces, as it were, the steps of embryonal development. His illus-

tration shows how this *pan-operatoria retroperitoneal* allows the entire adult mesentery with the ascending mesocolon and half of the transverse mesocolon to be detached, with the branches of the superior mesenteric artery—and all this without hemorrhage.

Semana Medica, Buenos Aires

June 13, 1918, 25, No. 24

- 121 *Infant Death Rate. U. Fernandez.—p. 657.
122 *Liver Incompetency and Surgery. A. Gutierrez.—p. 661.
123 Guinea-Pigs in Testing for Tubercle Bacilli in Milk. E. Fynn.—p. 669.
124 Order of Examination of Respiratory Apparatus. A. Viton.—p. 670.
125 *Medical School Inspection. E. R. Coni.—p. 672.

121. **Infant Mortality.**—Fernandez states in this address on puericulture that the death rate of infants under 2 averages 35 per cent. of the total mortality in all countries. Argentina with its 36 per thousand natality and 15 per thousand general mortality ranks high among nations, but the infant death rate is high, 21 per cent.

122. **Insufficiency of the Liver from Surgical Standpoint.**—Gutierrez gives at noon a pill of 2 mg. of methylene blue to test the functional capacity of the liver. The urine is examined at 9 p. m., 7 a. m. and noon. The findings in six cases are listed to show the great value of the information thus derived, in regard to the functioning of the liver, and as a guide to the surgeon.

125. **Medical School Inspection in Argentina.**—Coni remarks that the Argentine Republic was the first country in Latin America to introduce hygienic and medical school inspection. This was in 1881, and in 1886 the national board of education officially appointed two physicians for the purpose, and the number has been constantly increasing since. Chile introduced medical school inspection in 1900, appointing a woman physician as the official school inspector. Dr. S. B. Rodriguez introduced it several years ago in Uruguay. In Brazil the cities of Rio and S. Paulo have had official medical school inspection since 1912. Coni outlines the next steps to be taken for the welfare of the young.

Siglo Medico, Madrid

Aug. 3, 1918, 65, No. 3373

- 126 *Enteritis and Colon Bacilli. D. F. Murillo.—p. 609.
127 Experimental Stimulation of Pneumogastric Nerve. M. B. Garcia.—p. 611. Cont'n.
128 Fatal Hemorrhage a Week after Stab Wound of Spleen. J. Palancar and S. Pascual.—p. 615.
129 Public Health in Spain. C. M. Cortezo.—p. 624.

126. **Acute Enteritis at Madrid.**—Murillo reports a familial epidemic of acute enteritis in which he isolated from the stools bacilli which seemed to be intermediate between the colon bacillus and those of the typhoid group. The toxin generated by it was exceptionally virulent, but there were no deaths and the cases were scattered over nine days.

Vida Nueva, Havana

June, 1918, 10, No. 6

- 130 Hygiene for Munitions Workers. R. de Castro.—p. 173.
August, 1918, 10, No. 8
131 *Quinin as Palliative in Cancer. V. Delfino.—p. 226.
132 Artificial Plasmogenesis. I. Castellanos.—p. 230.

131. **Quinin for Cancer.**—Delfino does not report any specific case histories, but expatiates in general terms on the great improvement in malignant disease under systematic deep intramuscular injections of small doses of quinin, well diluted, according to Castaigne's technic. The malignant disease proceeds on its inevitable course, but the cancer loses its distressing features, he says, and the patient is immeasurably relieved, possibly buoyed up for months with an illusion of recovery.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

July 27, 1918, 2, No. 4

- 133 Industrial Accidents and Free Choice of Physician. J. A. Korteweg.—p. 301.
134 The Coarse Bread Question. E. C. Van Leersum.—p. 317.
135 Influenza? A. A. G. Land and A. A. S. Sluiterman.—p. 322.
136 Atypical Mumps. C. H. Nijkamp.—p. 323.

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THE RÔLE OF INSTINCT, EMOTION AND PERSONALITY IN DISOR- DERS OF THE HEART

WITH SUGGESTIONS FOR A CLINICAL RECORD *

C. MACFIE CAMPBELL, M.D.

BALTIMORE

In internal medicine, intensive study is devoted to the individual organ or system; it is frequently necessary to pay attention to the way in which the organs are linked together by the central nervous system or by the glands regulating the biochemistry of the body, but no higher integration is attempted. The actual individual is seldom reconstructed for the purposes of the internist; personality is a category that he does not use. So far as the study of personal factors is omitted, the study of the functions of the individual organs is incomplete. Not only does each organ have its definite routine task in relation to the domestic economy; it is also liable at any time to be commandeered for foreign service, when the individual has to react to an external situation of biologic importance. The individual reacts to such a situation in virtue of his innate instinctive equipment, and each instinctive reaction makes its special demand on the various organs. What from the outside is an instinctive reaction may on the inside appear as an emotional experience; the instinctive flight or hiding from danger is at the same time registered as the emotion of fear. One instinct may conflict with another instinct; one instinctive reaction may be inhibited by another, or by factors more complex than instinct, for not all behavior is instinctive. Tradition or training may check the instinctive tendency to flight.

That part of the instinctive reaction which is inhibited or modified by other processes associated with memories, purpose, ideals, etc., may not manifest itself, but these movements are only the more obvious expression of the instinctive reaction; simultaneously with the movements of flight, actual or inhibited, the whole system is mobilized in the interests of the safety of the individual. Cannon has published interesting detailed studies on the physiology of this mobilization. We may check our tendency to flee, but against our wishes our heart beats wildly, our respira-

tion is modified, our tongue cleaves to the roof of our mouth, our knees knock together and barely support us, and we break out into a cold sweat.

The action of the heart in such a critical situation cannot be understood under the simple categories of internal medicine; the internist is thus confronted with the problems of the instincts and the emotions. This is no unique situation in internal medicine; chorea, exophthalmic goiter and diabetes have already brought up the same situation.

The psychopathologist comes to the same problem from the other side; dealing with disorders, which consist in a maladaptation of the patient to his life situation, he finds that in many cases heart symptoms are prominent. He meets these symptoms in states of morbid anxiety, and in various forms of psychoneurotic invalidism. In the anxiety neurosis the whole symptomatology may be dominated by cardiac symptoms; pseudo-anginous attacks are familiar. There is good reason to look for an explanation of these attacks in conflicting trends of high emotional value or in the actual sex life of the patient.

Even though these complex factors may be the basis of the tension in the patient's life, and of the resultant neurosis, there remains the problem why in one patient the symptoms are cardiac, in another respiratory, for example, asthmatic episodes, and in a third, gastro-intestinal. The psychopathologist, analyzing the complex interplay of forces which make up the patient's adjustment to his environment, that is, his behavior, asks the internist what are the physiologic conditions that make an emotional strain hit one man's heart and another man's stomach. Has the former patient a special type of inferiority of the cardiovascular system, quite independent of instinctive or emotional demands, or are the cardiac symptoms altogether dependent on an unsatisfactory instinctive or emotional life, or in most cases are both factors involved, on the one hand a cardiovascular system constitutionally oversensitive or of low resistance, and on the other an instinctive or emotional life that involves a good deal of tension?

In making an intensive study of the heart mechanism in these cases, the internist will contribute much to our knowledge of the psychoneuroses. The aim of this paper is, however, to emphasize the other aspect of this collaboration, namely, the place of the psychopathologic examination in the total clinical record of heart cases.

IDIOSYNCRASY

A brief reference has been made above to cardiac symptoms in the setting of emotional reactions. Idiosyncrasy as to the type, degree and duration of emotional reaction is a factor to be kept in mind.

*Owing to lack of space, this article is abbreviated in THE JOURNAL by omission of a tabulation of neuropsychiatric data. The complete article appears in the reprints, a copy of which may be obtained on application to the author.

* This communication is based on a group of cases studied in the cardiovascular service of the U. S. Army General Hospital No. 9, Lakewood; more than thirty patients were referred for study by Major Peabody, who chose them out of a service of about ninety patients. The paper is published in the hope of suggesting a certain line of investigation, and not with the view of presenting conclusions.

The difference in type may be illustrated by the fact that one man is struck dumb by a situation that causes the knees of his fellow to give way; the difference in degree is shown by the fact that the man is struck actually dumb by a situation that affects others only with a mild inhibition of speech, although in common language we use the same descriptive term "struck dumb" (compare the word "stupendous"). Most of us soon recover normal control of our limbs after a terrifying experience, but in some the loss of utilization of the limbs may last for weeks or months. Thus functional aphonia and paraplegia are not adequately explained by a mere reference to the situation, the precipitating and the present fostering situation (safety, luxury, laziness, glory), but require some study of the personality in which they have developed.

The same factors have to be considered in dealing with symptoms belonging to the sphere of the vegetative nervous system. The organ that is specially responsive, the degree to which the organ is affected and the duration of the disturbance may vary from individual to individual.

The persistence of cardiac symptoms after a terrifying experience may well be due to a constitutional idiosyncrasy or acquired inferiority, owing to which the regulating mechanism of the heart takes considerable time to regain its equilibrium or never does regain it.

ACQUIRED SENSITIVENESS

The very important general principle must be referred to, that every experience tends to modify the later reaction of the organism; after an infection the patient may be left with increased immunity or in an anaphylactic condition, liable to succumb to an apparently trivial invasion; the individual may be sensitized so that he reacts with special intensity to very small doses of a foreign substance.

The same acquired sensitiveness is seen in relation to more complex stimuli; the soldier who has been unnerved by his experience of high explosives may find later that he reacts with extreme sensitiveness to abrupt noises, and in this reaction cardiac symptoms may predominate.

CASE 15.—A private, aged 20, enlisted at the beginning of the war and went through severe training without symptoms; just before going into the trenches he felt unable to hike, and on his first experience of shell fire he was quite unnerved. At each period of firing his heart would flutter, his knees give way, and he had to sit down; he was sent to the rear. At various hospitals the diagnosis of serious heart disease was made, and he felt that he was doomed. On the voyage home two shots were fired; the patient was so sensitized that he was unnerved for the day; it started the heart pains, and he could not sit down but moved about. At U. S. General Hospital No. 9, the physical status was: "Heart normal in size, left border inside nipple line. Sounds perfectly normal. Soft cardiorespiratory murmur in pulmonic area." It was noticed that the patient was dyspneic under the mildest series of drill exercises for the cardiac cases.

The complexity of the problem of many heart cases is well illustrated by this history. The first indication of trouble was an inability to hike shortly before his company was due to enter the trenches; the next factor was the terrifying bombardment, to which the patient reacted more poorly than his comrades, although nothing in his previous history had indicated that he was less stable than the average; the next factor to consider is that he was stamped with the diagnosis of "heart disease," and carried with him all

the time the feeling that he might last only six months, in fact, might drop dead at any moment. On this account he never went out alone, haunted by the fear of a catastrophe.

Other factors may also be of some moment, if not in this case, at least in similar cases. The patient had deliberately enlisted, he was willing to do his duty, and officially wished to return to France; but beneath his official attitude was a strong emotional undercurrent of a different nature; he had been glad to get back from "that awful country," old and dilapidated and unintelligible, for which he said he "would not give 15 cents."

This repugnance or repressed fear may in some cases not be irrelevant in discussing the persistence of symptoms:

Present fears

Are less than horrible imaginings;
My thought, whose murder yet is but fantastical,
Shakes so my single state of man, that function
Is smothered in surmise.

As far as the vegetative nervous system is concerned, present fears and horrible imaginings and memories may have equal value, and it may make no difference whether or not our pride bars these fears from consciousness.

The patient was easily startled, had been upset by target practice on the ship, and reacted vividly if a door was banged. Such reactions are intelligible because the stimulus reproduces in kind if not in degree the original upsetting stimulus. In other cases the stimulus produces a reaction which is not merely excessive, but which seems to bear no intrinsic relationship to the stimulus; the stimulus may derive its value altogether from its previous association with important emotional experiences, even though the memory of the latter has been more or less repressed from consciousness. Anything that tends to reactivate the memory of the initial painful experience may have a disturbing influence on the vegetative nervous system, without consciousness necessarily being aware of it.

This is in line with what we know of the "conditioned reflexes" of the Russian school; the natural reaction of the dog to food exposed includes salivation, an innate and fundamental reflex; by sounding a musical note before the exposure of food on a few occasions one can develop salivation as a response to the musical note, even in the absence of food.

Just as in this conditioned or acquired reflex the mechanism of salivation is touched by a stimulus that has no intrinsic relationship to salivation but only a relationship based on individual experience, so with regard to the mechanisms that regulate the heart: they may be touched by stimuli whose dynamic value rests on associations that it may take some skill to trace.

From the point of view of treatment these considerations may have some importance, and a review of the personal situation with the patient may well supplement the muscular training he receives. Beneath the quite correct surface in the patient just referred to, with his willingness to resume combatant duty, was a latent repugnance to this return, a feeling of sensitiveness owing to having broken down and as to the opinion of others, a vague tendency to justify himself and therefore perhaps to stress unconsciously his cardiac discomfort and disability; at the same time he was still weighed down by the sentence passed on him in France when he was diagnosed as having heart disease.

May it not do such a man good to let him realize that his latent shrinking from battle experience is natural and can be frankly admitted, that no one judges him on that score, that there is therefore no necessity for any special justification, as by invalidism? May not this ventilation of obscure depressing thoughts contribute something to the reestablishment of the cardiac equilibrium and reinforce the influence of the physicians' confident assertion, based on accurate examination, that the heart is essentially sound and simply needs to be toned up?

The study of a selected group of cases from this point of view would be a useful contribution.

A case similar to the one just discussed was that of a private, aged 20, who had gone through hard training in France, falling out only a few times. After exposure to high explosives he became very nervous, reacted vividly to every explosion, felt weak in the knees, and his heart fluttered. He was slightly gassed, was diagnosed as having "tonsillitis and bronchitis," and later "heart trouble." On the voyage home he reacted excessively to some target practice. At U. S. Army General Hospital No. 9, his case was diagnosed as "effort syndrome."

These two cases bring up the question of the relationship of similar heart cases to cases of war neuroses (the term "shell shock" should be strictly tabued; scientifically it is of no value, and practically it gives the soldiers a wrong attitude toward exposure to shell fire, and its results). Do patients like the two mentioned above have a latent cardiac inferiority, not elicited by the tests of peace nor by the ordinary mechanical demands on the heart, but elicited by the severe emotional demands of the field, while in the war neuroses the patients have other types of sensitiveness, their weak spot lying in the motor system or elsewhere? With this conception, two factors have to be studied in each case: 1. What is the intimate mechanism of the cardiac inferiority? 2. What are the more complex factors, emotional and situational, that precipitate and foster the symptoms?

Cases of the foregoing type might for the convenience of further study be grouped from the special standpoint of this article under some tentative head such as cardiac sensitiveness or inferiority of instinctive or emotional response, unless it is clear that the syndrome is intelligible on the simple level of physiology, and does not require the introduction of the more complex biologic factors, instinct and emotion. From the point of view of prophylaxis or the elimination of unsuitable recruits, it is important to note that in the foregoing cases nothing in the history previous to the actual breakdown would have made the examining physician suspect a latent inferiority.

Among the patients examined, a considerable group presented in addition to their cardiac inferiority a variety of anomalies, constitutional or acquired, sufficient to deserve careful study and an accurate formulation. For convenience of reference these cases are here roughly grouped as cases of constitutional inferiority.

DISORDERED HEART FUNCTION IN THE SETTING OF CONSTITUTIONAL INFERIORITY

The term "constitutional inferiority" is vague and without definite connotation; for that very reason it may be used to denote a very heterogeneous group of persons who have perhaps only the one factor in common that biologically they do not have from the start

the necessary stuff for a satisfactory response to the demands of the environment.

It is true that many diseases, based on a specific inferiority of one organ or system, prevent the individual's attaining average efficiency; but for these diseases the general term "constitutional inferiority" is quite inadequate. They are sufficiently specific to be discussed in relation to the special systems, hemopoietic, gastro-intestinal, etc. The term "constitutional inferiority" may then be reserved for the conditions in which the inefficiency of the individual is based on less well defined disorders. At the same time, in each case it is the task of the physician to define as clearly as possible the special nature of the inferiority, and to try to establish the fundamental factors involved.

In patients with disordered cardiac function, who show a more diffuse constitutional inferiority, the problem will arise as to the relationship of the cardiac symptoms to the other manifestations of the inferiority. Are the cardiac symptoms merely manifestations parallel to those of the other systems, are they more fundamental, showing a specific and disproportionate involvement of the cardiovascular system, or are they perhaps to a certain extent secondary to other factors, such as those involved in the complex organization of the instinctive and the emotional life?

Thus a lack of virility and efficiency might well be secondary to an inferior cardiovascular apparatus; but on the other hand much cardiac discomfort and irregularity might be explained by the undue demands made on the heart by a very unstable or oversensitive emotional life, or by a sexual life which, owing to the constitutional inferiority of the patient, was not subjected to normal control.

TYPES OF CONSTITUTIONAL INFERIORITY

The variety of the problems presented by these cases may be illustrated by the material found in the thirty-three patients examined. Seven of these patients (including one from another service) may conveniently be discussed from this point of view. A brief survey of these patients shows that their constitutional inferiority may be referred to three types:

1. An inferiority manifested in prolonged physical invalidism, with little or no definite intelligence defect.
2. An inferiority in which defective intelligence is a prominent factor.
3. An inferiority in which the instinctive and emotional life is of poor quality, while the intelligence is fair.

It may well be that in these subgroups the rôle played by the cardiovascular system is by no means identical, and it will be of interest to make more precise the exact contribution made by the cardiovascular system to the clinical picture. The physical invalidism of the first group may by careful laboratory and bedside studies be withdrawn from the vague group of constitutional inferiority and be formulated in more precise and specific terms. In many of these cases the sequence and mutual connection of the data are not easy to trace, and problems arise such as the rôle of infections, of hyperthyroidism, of exogenous poisons, such as nicotin, etc.

In addition to the purely clinical aspect of these cases, one has to consider the military and reconstructive aspect. With regard to the possible eventual

fitness of the patient for foreign or domestic service, and in the problem of reconstruction, the physician has to consider more than the cardiovascular aspect of the case, and in estimating the optimal output of energy that may be expected from the patient, a psychologic analysis is a necessary datum. It is also worth noting that much of the material that is unsuited for military service might possibly be eliminated by the examining boards, if their attention were specially called to the group and if they were allowed to disqualify a registrant owing to the cumulative effect of a variety of symptoms, no one of which by itself disqualifies the registrant.

A brief summary of these seven cases may be given.

Physical Invalidism.—Three cases are representative of this type:

CASE 16.—A. B., aged 25, "unhealthy for five years," had been accustomed to guard his health, and eschewed wine, woman and tobacco. Five years previously he had felt too weak to walk; he fainted on inoculation and on venipuncture; he was unable to stand up under drill. His case had been diagnosed as "tachycardia, simple chronic myocarditis." He actually presented the effort syndrome. The patient never had been aggressive, but had drifted along in civil life in a passive, invalid way; he had never had any surplus energy and was frequently unable to go to work. In addition to the general weakness and cardiac symptoms, he had gastro-intestinal symptoms.

In this case the respective rôle of physiologic inferiority, of habit and of personality have to be weighed. The history of the patient would indicate his complete unsuitability for the Army, and the problem of treatment involves attention both to his physique and to his morale; the degree of improvement is no doubt strictly limited by the meager nature of his constitutional assets.

The exact nature of the inferiority of the cardiovascular apparatus in the setting of such a case is a problem of interest. In the following case the personality was somewhat more aggressive than in the previous case:

CASE 1.—Private C. D., aged 23, had had night terrors and enuresis in childhood; there had been an early diagnosis of heart disease, because he turned blue easily; the mother was oversolicitous. For many years he had thoracic pain and discomfort, and was on this account irregular at work. He was unable to stand the usual training. In France, his case was diagnosed as "myocarditis, post-rheumatic"; in U. S. Army Hospital No. 9, "heart normal: neurocirculatory asthenia. Marked vertebral deformity, faulty posture, general asthenia."

In this case the vertebral deformity and resulting posture furnish a more definite basis for the invalidism than was present in the preceding case; while the patient had shown more virility, and had enlisted. He had been rather discouraged by his physical deformity.

For the management of this case a due appreciation of the rôle played by the physical inferiority and by the personal reaction of the patient to his inferiority is important; one must both realize that the patient has his own special limitations, and encourage him to work up to the level of these limitations.

The same situation is illustrated by the following:

CASE 10.—Private E. F., aged 23, had made poor progress at school. He was in the third grade at 16, and had nocturnal enuresis until 18. There was a history of occasional fainting attacks between 10 and 12. From 18 to 23 he spent the summers as deckhand on lake steamers, and spent the winters in a semi-invalid way on the farm. He had chronic trouble with his back and recurrent gastric symptoms. He felt weak about

the knees. On entering the Army he was unable to support the drill; later he developed pneumonia; on his recovery a partial thyroidectomy was done.

In this case cardiac symptoms were not in the foreground, and the patient presented a diffuse inferiority both physical and mental; the inferiority can no doubt be formulated in much more specific terms.

A patient from another service presented an invalidism in which gastro-intestinal symptoms were more prominent:

Private C. H., aged 27 (the case is not included among those briefly summarized in the tabulation), had been brought up in Russia as a delicate child, and was illiterate. He had nocturnal enuresis till 12; eschewed wine, tobacco and woman (save for one attempt); came to the United States at 19, and managed to support himself by peddling. There was a vague history of stomach trouble for five years. The patient lived on a liquid diet. There were unconvincing complaints about his eyes, which were not improved with glasses. He had no recreations and no initiative. Under drill he immediately collapsed; his Army experience was purely a hospital one. His official assertion of cooperation was, "I like the army; I want to fight for my country" (sic), but he intends to leave it as soon as peace is declared.

Intelligence Defect.—Even in the first group, reference was made to the mental level of some of the patients; for example, Private E. F. (Case 10), in the third grade at 16 (but in a backward farming community), was of somewhat inferior intelligence; but the physical invalidism of these patients was the prominent element in the clinical picture. In the following two cases there was no diffuse physical invalidism, but the constitutional inferiority showed itself in the intelligence and general level of adaptation (e. g., economic) of the patient:

CASE 3.—Private I. J., aged 22, as a child had night terrors; chorea from 10 to 12; a poor school record, at 16 being in the fourth grade. He had always had a restless disposition (choreiform reaction?) and auto-erotism with slight hypochondriacal worry. He was very lazy and had no special plans in life. He was extremely ignorant of general topics, and showed little interest in the newspapers. He had mitral stenosis and insufficiency.

In this case we have to deal with an organic heart disorder in a man of poor constitution; the general constitutional inferiority has no special relationship to the valvular disease, although in making plans for his later employment, both factors must be considered. This case, as a control, may warn us in cases of disordered action of the heart against linking up the cardiac symptoms too closely with the other constitutional or acquired anomalies, without very close scrutiny. Both organic and functional disorders may develop in individuals of poor constitution, but these disorders may have a very specific mechanism to which the other constitutional traits are more or less irrelevant.

CASE 2.—Private K. L., aged 28, presented a family history in which the maternal grandfather was insane, the maternal grandmother had a terminal psychosis, and the mother was hysterical. Since boyhood he had had respiratory trouble (asthma?); he had occasional night terrors and somnambulism as a child, and nocturnal enuresis even up to the present. At school he was in the eighth grade at 18; he was inefficient, and worked three years for an undertaker for \$9 or \$10. On entering the Army he was unable to stand the training. The diagnosis was neurocirculatory asthenia.

Inferiority of the Instinctive and Emotional Life.—The following case illustrates a type of inferiority

which is less likely to be recognized by the examining boards and in which disciplinary measures may be taken in ignorance of the lack of full responsibility of the man punished. The ability to talk plausibly covers the inferiority of the machinery that gives a man his energy and his quality ("guts," a popular term indicating an appreciation of the rôle of the vegetative nervous system).

CASE 13.—Private M. N., aged 31, had nocturnal enuresis up to Army life; auto-erotism persisting since 14, very occasional intercourse, and ejaculatio praecox. At 20 he attributed lines on his face to auto-erotism. He made satisfactory school progress, but was shiftless in economic life. For three years he was a janitor at \$25 a month. He enlisted in the British army, and later in the American Army. Once he fainted and once fell. On duty his knees would give way, his heart would go fast, and he would pant. The diagnosis was neurocirculatory asthenia.

This man was among the best informed of the soldiers examined, but he was the butt of the others, and his history indicates the inferiority of his instinctive life, the lack of driving force, the tendency to drift along in a shiftless way at a low economic level.

CASES WITH EPILEPTIFORM MANIFESTATIONS

Out of the thirty-three cases tabulated, three presented epileptiform symptoms. One of these cases was a definite epilepsy on the basis of an organic brain disease which had been responsible for focal attacks since the first decade of life.

One patient had recurrent migraine headache with hemianopia.

CASES WITH A HISTORY OF NEUROTIC TRAITS

The following patient is of considerable interest; although in adult life he had not shown any overt nervousness, the family history and his reactions as a child would suggest a latent sensitiveness of reaction.

CASE 20.—Private O. P., aged 24, had a maternal grandmother who committed suicide, and a brother who died insane. In childhood he had night terrors, somnambulism, occasional spasms up to 5 years, and nocturnal enuresis till 7 or 8. He had been a timid child. He stood the drill all winter in the United States, but in France soon developed shortness of breath. The cardiac diagnosis at U. S. Army General Hospital No. 9 was somewhat obscure; sinus arrhythmia, cardiac hypertrophy. This case should be compared with Case 4 and also Case 8, in which there is a definite valvular disorder.

UNCOMPLICATED CASES OF DISORDERED HEART ACTION

The foregoing brief summaries may suffice to demonstrate that in many cases with disordered heart action a variety of complex factors, involving such elaborate units or integrations as instinct, emotion and personality, have to be considered. On the other hand, in a great number of cases there is nothing to suggest the importance of these factors; in such cases the problem seems to be a rather specific physiologic problem. In these cases there is no evidence of constitutional inferiority of any type, no neurotic traits, no anomalies in the instinctive life, no important personal conflicts, no history of sensitizing emotional experiences, no fostering situation.

In this group the internist can go boldly ahead with his detailed researches, without feeling that the key to the disorder may be in some factor which from the very start he has discarded. The internist will have here the last word to say, while the psychopathologist has nothing to contribute.

CASE TAKING AND PERSONAL FACTORS UTILIZED IN CLINICAL RECORD

In view of the foregoing data it would seem to be desirable in many cases, and essential in some, to include in the clinical record a summary statement as to the personality of the patient, and as to any experiences and situations that seem to have a direct bearing on his disorder.

In order that the necessary ground may be covered in a systematic way, the following outline is submitted as a guide in making the clinical record, not as a questionnaire to be rigidly followed.

A few preliminary remarks may be of use. The purpose of the examination is to determine (1) whether constitutional factors have played a part in the sickness, (2) whether past experiences have conditioned the present reactions of the patient in a morbid way, and (3) whether present instinctive conflicts or a personal situation of much emotional value may not be contributory causal factors.

REVIEW OF THE CONSTITUTIONAL TRAITS OF THE PATIENT

As to the constitution, or innate equipment of the individual, that can be estimated partly by a study of the stock from which he has sprung and partly by a study of his early reactions to the tests of life, before training and experience have come to play a preponderant rôle.

One will pay special attention to the presence in the family tree of insanity, epilepsy, migraine headache, alcoholism or similar maladaptation, hysterical manifestations, invalid type of reaction, eccentric disposition, and mental defect (from the point of view of intelligence, of emotional stability, or of balanced output of energy).

The early reactions that are suggestive of a special sensitiveness or neurotic instability, especially if they are very frequent and exist in combination, are night terrors (pavor), bed wetting (enuresis nocturna), somnambulism, chorea (a rather heterogeneous group in which toxic and constitutional neurotic factors have to be carefully disentangled), convulsions (tetany, epilepsy), tantrums and exaggerated emotional reactions.

In addition to the nervous stability of the patient one wishes to estimate his general level of efficiency, and to note any serious variation from the average. The level of intelligence may be estimated by the school record, the wage-earning capacity, and the answers to standard questions on general information. Whether the patient has shown any special abnormalities in his emotional life or in his general activity will be found by reviewing his behavior to his comrades, his interests, his reactions, his steadiness at work, and his responsiveness to standards of honesty, truth and decency.

There is a tendency to emphasize the type of constitutional inferiority which shows itself in subnormal intelligence, and to overlook those cases in which the intelligence is adequate but the patient may be perhaps unstable, volatile and superficial; or overactive, enterprising, but lacking in judgment; or unaggressive and timid, lapsing easily into invalidism; or intelligent, and efficient in many ways but not responsive to important moral standards. To formulate the various ways in which an individual may be subnormal in virtue of a defective innate equipment would be an elaborate task; the foregoing remarks

merely illustrate the method of estimating the quality of the patient's whole machinery for reacting to the environment.

HISTORY OF THE PATIENT WITH SPECIAL ATTENTION TO EXPERIENCES LIKELY TO HAVE SENSITIZED HIM TO SPECIAL TOPICS

No systematic outline can be given to guide the examiner in this review; so much variation exists in human life that it is not possible to cover all the possible situations that may have influenced the patient's later reactions. One may refer to a few of the more frequent factors by way of illustration:

1. The early reaction of the child to the authority of the father may influence permanently the individual's reaction to all authority, and may be a determinant of an unusually submissive attitude, or on the other hand of an obstinate resistance to authority in all its forms (intellectual, religious, political, military).

2. An early feeling of inferiority in relation to school efficiency or physical endowment or personal traits may bring about an undue sensitiveness and shrinking or, on the other hand, an apparent self-confidence and overassertiveness which is merely a cover for the underlying lack of confidence.

3. Poor methods of dealing with the incipient sexual instinct, with the marked emotional value given to this subject, may seriously complicate the ability of the adult to meet this test in a frank and satisfactory manner. The adult life may accordingly be made unnecessarily difficult because the individual has been sensitized to this topic, has become accustomed to deal with it in a muddled way, and has not come to a frank, independent realization of the whole situation.

4. Any episode of great emotional value may leave the patient permanently modified in his reaction to similar stimuli; just as the soldier, unnerved by high explosives, may for a considerable period be oversensitive to loud and abrupt sounds.

It is important, therefore, to note any striking experiences in the life of the patient, and to consider whether they may not throw light on present symptoms in the way suggested above.

The memory of an experience may have disappeared from consciousness, while a certain emotional attitude with its component physical symptoms may persist. We may have a feeling of dislike for some place or person, without being able to state what past experience or what likeness is at the basis of this attitude. In some the physical component is disproportionately prominent; after a disgusting experience a patient may, perhaps after a considerable interval, develop an intractable vomiting. A terrifying experience may be eliminated from the memory of the patient, except perhaps in dreams; but the tremors, weakness, palpitation, etc., show that his system still vibrates to the experience.

ANALYSIS OF THE SITUATION

The key to some disorders can never be found so long as the physician confines himself to the study of the patient, no matter how intensive that study may be. The headache, backache, weakness, insomnia, timidity, etc., that may follow a railway accident sometimes disappear rapidly when compensation is given in the form of a lump sum, instead of a weekly pension lasting as long as the disability. The change in the method of compensation does not alter directly the joints or other

structures of the body; it creates a different situation. It creates a situation that stimulates effort, replacing a situation that puts a premium on feelings of weakness and discomfort. Many forms of invalidism, although deplored by the patient, still have their own gain, bring in certain immunities or privileges, and enable one to maintain one's self-respect, to secure sympathy, and to postpone the necessity for grappling vigorously with the actual difficulties of life.

In estimating the degree of disability caused by cardiovascular symptoms, one must consider them in relation to the whole situation, must see whether they play a rôle in the subconscious adaptation of the patient, and must find whether the situation can be altered so that anything that tends to foster the symptoms is eliminated, and everything that can stimulate the healthy activity of the patient may be utilized.

The military situation is obviously an extremely important factor; the physician tries to stimulate the aggressive, healthy trends of the patient, when as a matter of fact the restoration of health leads to the trenches and the toil of war, for which the patient has a deep-seated repugnance, however nobly he may deliberately accept his share in the unwelcome tasks. His conscious, official self is loyal to his civic duty, but his subconscious and instinctive self shrinks from destruction. Any disability is in a way a godsend; the cheerfulness of the wounded when they have got "a Blighty one" is notorious. The physician has to recognize this situation frankly, and to consider by what methods he can counteract any enervating influences, keep burning the flame of resolve, and maintain the morale of his patients. Morale is as important in the hospital as in the trenches; it should be the keynote of reconstruction as of destruction.

The military situation, however, is not the whole story; as in civil life we cover up all the intimate causes of our nervous invalidism by the conventional explanation of overwork, so the stress and the strain of war are apt to be utilized as a blanket explanation of disorders of subtle origin. It furnishes the welcome impersonal formulation; but the soldier has as complex a personality as the civilian, and it is often in the complexities of personal conflicts and difficulties that the explanation of obscure symptoms must be found. The home situation, the attitude to parents, sweetheart or wife, memories of the past, repressed desires and hates and jealousies—these are not irrelevant to the symptomatology of disorders of the heart; language bears witness to that with "heart burning," "heart sick," "his heart was in his mouth," "stabbed to the heart," "fear in his heart," etc.

To analyze the contribution made to the symptomatology of heart disorders by such factors no doubt requires experience, but an open mind and a nice intuition will solve many individual problems with benefit to the patient.

Auscultation.—In auscultation of the chest, it is important to secure close and accurate apposition of the stethoscope to the skin. The object of this is to eliminate those adventitious sounds which are introduced either by a slight skating movement of the instrument on the surface of the chest, or because the whole circle of the chest piece is not making contact with the body wall. Again, it is in order to exclude extraneous sounds that the careful practitioner chooses thick-walled tubing for his instrument, and is particular to detect the first sign of any perishing of the rubber near its junction with the metal and to remedy the fault. (By their stethoscopes ye shall know them).—Sir Thomas Horder, *Practitioner*.

THE MANAGEMENT OF CERTAIN INTRACTABLE LID CONDITIONS *

MELVILLE BLACK, M.D.

DENVER

Seborrheic forms of blepharitis marginalis of long standing are not always easy to dispose of by the correction of errors of refraction and the application of ointment of yellow mercuric oxid. There are probably few present who have not been sadly disappointed in their expectations of a cure from this treatment. In many of these cases there is an underlying systemic cause which is often hard to find and, when found, harder to correct. Long years of uncorrected eye strain, bad hygiene and improper use of food and drink have brought the patient to such a state that our ministrations can at best only partly restore the eyelids to a normal appearance. After the disease has become chronic, it resolves itself locally into a chronic infection of the follicles of the eyelashes. I am inclined to think that it is at first a nutritive disturbance and that the infection is secondary. If several lashes are pulled from such a lid, in a mild state of blepharitis, it will be observed that some of them come away more easily than others and that their roots are black. The lashes, if left alone, would fall out in a few days' time. This disturbance of nutrition may be occasioned by errors of refraction which lower the resistance to infection, or some physical state which acts as the predisposing cause. The correction of the error of refraction and the use of yellow oxid ointment will generally bring about a temporary improvement, but, in the stubborn cases we are considering, the underlying general constitutional cause must be eliminated. In many instances, I do not consider myself competent to do this and prefer to refer the case to an internist in whom I have confidence.

In our altitude, anemia is most frequently found as the underlying constitutional cause. These blepharitic subjects are usually washed-out looking individuals, in whom an examination of the hemoglobin percentage shows it to be low; possibly also the red cell count is considerably below normal. The usual method of giving iron by mouth is of doubtful value, while iron and arsenic, or citrate of iron and manganese given hypodermically, are definite and prompt in their results. There are so many physical disturbances to be considered that we may dismiss the subject with the statement that each case must be studied carefully, and when abnormal physical states are discovered, an intelligent attempt must be made to correct them. I confess that this is often easier said than done, but if the patient is a child, as is usually the case, and the cooperation of the family can be obtained, not only brilliant results follow, but the child has been started on a new road to health and well being.

CHRONIC CONJUNCTIVITIS

In many instances this affection is a very simple affair and responds to a number of different stimulating and astringent remedies. Every now and then, however, we see a case which does not differ from the others in appearance, but which does not respond to local treatment. There is some reason, of course. Errors of refraction have been corrected, but the

patient continues to complain of irritation, and the palpebral conjunctiva shows marked signs of being inflamed. A pathologist is called in, but almost always reports, "No growth and no bacteria found." I have worried over many of these cases and still continue to do so. Many of the patients are robust, and nothing can be found physically wrong with them. Others are found to have various systemic disorders, but whether more than are to be found in the average of individuals is a question. It is proper to attempt to correct these physical disabilities, because in a large number of the cases the conjunctivitis is secondary to some physical defect. In a small minority, however, nothing seems to do any good, either in the way of local or general treatment. I hope the discussion will bring out the remedy which I am unable to supply.

EPIPHORA

The overflowing of tears and the frequent filling of the eyes with water is a common symptom in elderly people. It is also frequently seen in comparatively young people who have spent a large part of their lives outdoors. It is always necessary to exclude dacryocystitis by syringing through the duct before it is possible to make a diagnosis of simple epiphora. In senile epiphora the cause lies in the flabbiness of the skin of the lower lids and relaxation of the orbicularis muscle.

The puncta of the lower lids, if inspected closely with a binocular head loupe, are visible without the necessity of making traction on the lower lids. The normal punctum is not visible, being turned in against the eyeball. A certain amount of eversion will not disturb the capillary attraction of fluid, but just as soon as the eversion has passed beyond a certain point, there must be a lake of tears formed before the fluid will flow into the punctum. The efforts of the patient to prevent the overflow by wiping the eyes is usually accompanied by a movement of the handkerchief outward and downward. The relaxed lid is mechanically everted more and more by this faulty wiping until the punctum is found displaced completely outward on a rounded, thickened lid border. It may be so far out of position as not to be functioning at all. From this stage, it is only a step to complete ectropion of the lower lid. The overflowing of tears causes a chronic dermatitis of the lower eyelid and adjacent skin. This leads to skin contraction, and the lid border is pulled on as though contractile collodion had been painted over the skin surface.

In the younger subjects with weather beaten skins, the same process takes place. In these cases, however, the tightly drawn skin over the cheek bones is the primary cause of the outward displacement of the punctum. As soon as it is everted to a position in which the lake of tears forms, the wiping of the eyes and the irritation of the skin from the water flowing over it rapidly causes ectropion of a most pronounced character. I have seen many cases from our cattle ranges in which the fornices of the lower lids were completely exposed as a red granular looking surface, presenting a most repulsive appearance. I have frequently noticed that these very bad cases were in "sandy complexioned" people.

The management of simple epiphora, whether the patient be old or young, depends on the extent to which the puncta are everted. If they are slightly everted, the patient should be directed never to make dragging movements on the lower lids when wiping

* Read before the Section on Ophthalmology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

the eyes. He should be taught always to make pressure toward the inner canthi. Facial massage with cold cream should be practiced each night for ten minutes, the movements of the tips of the fingers being directed over the skin of the cheeks toward the inner corners of the eyes. Correct wiping of the eyes and this daily massage will usually restore the puncta to their normal position.

If the eversion has passed beyond the stage at which this simple treatment will replace the puncta in their normal positions, more radical measures are in order. It has been my practice to dilate the punctum and then introduce one blade of a pair of Stevens tenotomy scissors vertically down to the bottom of the punctum, the other blade being directed toward the eyeball, and to make a snip of the lid tissue between the two blades. This cut must be kept open by daily breaking its lips apart with a punctum dilator, until it remains open. This causes a lowering of the punctum so that the tears will run into it before a lake has formed.

Another method that has given me much satisfaction, especially when the patient lives out of town and is in a hurry to get home, is, after making the vertical snip, to pass one blade of the scissors about 2 mm. along the canaliculus and make a snip, then with a pair of forceps pick up the little triangular flap which lies between and cut it off. This leaves a triangular hole on the inner surface of the lid. Its edges heal in a few days, and usually there remains a large artificial punctum, the lower margin of which gathers in the tears before a lake has formed. No after-treatment is required, as its edges are far enough apart to prevent their healing together, as is the tendency when the single vertical snip is made. In the extreme cases of eversion, in addition to the measures already outlined, I have found Ziegler's method of cautery puncture of the conjunctiva and tarsus of great value. If the entire lid is everted, a row of cautery punctures about 4 mm. apart will have to be made. If only the inner half of the lid is everted, two or three punctures in the everted portion of the lid will suffice.

CICATRICIAL TRACHOMA

In Colorado we are fortunate in having little trachoma to deal with, but we do have some. The cicatricial forms are just as bad with us as elsewhere, or worse. This may be because our bright sunshine and dust cause the patient great discomfort. Once pannus and recurring corneal ulceration have begun, it is only a matter of time until the patient is almost blind. If anything can be done to cause the pannus to disappear the corneal ulceration will stop, and it is surprising to what an extent these corneas will clear. Even though the corneas are hopelessly damaged, the photophobia and general ocular irritation will be so improved that the patient is comfortable and most thankful. Plastic lid surgery has its place in bringing about this result, but, above all, it seems to me that the diseased tarsus must be excised.

I believe that Kuhnt was right when he said, "The excision of the tarsus is the last word in the management of cicatricial trachoma." The operation, as performed by Kuhnt, Wood and others, is a most formidable procedure because of the sutures. The patient is rendered very uncomfortable for a week or longer, and the removal of the sutures is often difficult. It is a hospital operation because a general anesthetic is necessary.

Some years ago, I saw L. Webster Fox perform an excision of the tarsus, using no sutures. It was so simple that I went home and tried it, and since then I have never used a suture after excising the tarsus. Instead of a hospital operation, it becomes a simple office operation and is performed as follows: A 2 per cent. solution of procain (novocain) is injected through the skin of the upper lid into the tissues overlying the tarsus at the inner, outer and middle portions. The lid margin is then grasped with a pair of tenaculum forceps and everted over a horn spatula, and more of the same anesthetic is injected into the conjunctiva and tarsus in a few places. To control bleeding, the lid is pulled tight over the spatula. An incision with a knife is made through the conjunctiva and tarsus parallel to the lid border; and about 2 mm. from it, another incision is made at the upper margin of the tarsus. The outer angle of this island of tarsus is picked up with forceps and the tarsus dissected away with curved scissors. One or two arteries spurt a little, but are easily controlled by torsion. The operation is over. The lid is turned back into position. Hot applications are made until all bleeding has ceased. The eye is filled with an ointment of mercuric chlorid and petrolatum and bandaged, and the patient is sent home.

I usually do one eye at a time. The next day the eye is dressed and not closed after that. The patient walks away with the eye open and is no more inconvenienced than before the operation. In a few days the lid is everted to see if exuberant granulations are forming. If so, they are snipped off or cauterized with a silver stick. In three weeks the lid has healed. It is smooth, and the old diseased tarsus which has played so conspicuous a part in causing the corneal disturbance is gone forever. I used to dread to see patients with cicatricial trachoma come into my office or my clinic. I now rather enjoy their coming, for I feel that I have something to offer that will bring results that are sure and swift.

ABSTRACT OF DISCUSSION

DR. J. SHELDON CLARK, Freeport, Ill.: Clamps and other instruments used for holding the lid after it is everted may be discarded for an instrument designed by Stanculeanu of Bucharest. It is something like a lid retractor. The lip of the retractor is cut off, leaving a straight edge that permits one to hook up the lid and evert it. The instrument is put in from above, the lid is everted over the elevator and then is held up in position while proceeding with the operation. It controls the bleeding very nicely, causes no pain and is very satisfactory.

DR. OLIVER TYDINGS, Chicago: About fifteen or sixteen years ago a man, about 40 years of age, came to me to be refracted. I noted the blepharitis marginalis, and suggested that he be treated. He refused treatment. Five years afterward he came back because he had reached the age of presbyopia and wanted another pair of glasses. He also consented to have his lids treated. The treatment, which consisted of massage, extended over a period of about eighteen months.

Massage was given two or three times a week at first and then at longer intervals, all the follicles were expressed, and then the margin of the lid was painted. Massage, the application of about 15 per cent. of silver nitrate, and the use of yellow mercuric oxid and mercuric chlorid ointment resulted in a good recovery. I have never seen a case that could not be improved. I do not think that there is any relation between refraction and blepharitis marginalis.

CAPT. H. B. LEMERE, Camp Mead, Omaha: I have used the procedure Dr. Black recommends in trachoma and I can cor-

roborate everything he says about the operation. I modified the operation slightly. I use a lid clamp. By dissecting one end of the tarsus at a time and then moving the lid clamp on to the other end, I can do the operation practically without any blood obscuring the field. The operation can be done quickly and the patient is an ambulatory case.

A REGISTRATION FEE FOR PHYSICIANS *

FRANCIS W. SHEPARDSON

Director of the Department of Registration and Education

SPRINGFIELD, ILL.

At a committee meeting held in connection with the Illinois State Medical Society in Springfield, a prominent member of the society made a speech in violent opposition to a proposal for an annual state registration fee for physicians. His main argument was that medicine, being the oldest and most honorable of the professions, was in a class by itself, and that it was entirely beyond reason to think that the physicians could ever be grouped for registration purposes with architects and barbers, blacksmiths and plumbers, dentists and druggists, structural engineers and veterinary surgeons, all, of course, so he implied, far beneath the physicians in dignity and honor. He was exactly like one who would magnify the "noblesse" and forget the "oblige"; who would stand unmoved when the things he was pledged to defend to the death were insolently attacked. And that is the text for what follows:

The Civil Administrative Code of Illinois specifically provides that the officers of the Department of Registration and Education, under whose jurisdiction the administration of the Medical Practice Act comes, shall be neutrals. The exact language is:

The Director of Registration and Education, the Assistant Director, and the Superintendent of Registration shall not be affiliated with any college or school of medicine, pharmacy, dentistry, nursing, optometry, embalming, barbering, veterinary medicine and surgery, architecture or structural engineering, either as a teacher, officer or stockholder, nor shall they hold license or certificate to exercise or practice any of the professions, trades or occupations regulated.

The officers of the department approached the work of enforcing the Medical Practice Act without any bias, but, confessedly, with something of the accustomed reverence for medicine as a great and honorable calling, represented by men of far more than ordinary professional ideals. They expected to find a medical nobility, with a lively appreciation of its obligation to protect its honor. They confidently looked to find the drawn sword and the defending shield bearing the significant words, "No one attacks our profession with impunity."

But this is what they actually found, during a year's experience and study:

DISCOURAGING ELEMENTS IN ILLINOIS MEDICAL SITUATION

They found a poorly organized profession, with less than half of its members associated in its state society, and with no clearly outstanding champions ready to tilt their lances against foes of medical honor. The *Bushido* ideals of the sometimes despised Japanese were nowhere in evidence. The unity and professional

spirit of other crafts, often ridiculed by physicians as of far lower social standing, were entirely lacking.

They found an army of advertising charlatans, some with fixed offices and others appearing "for one day only," making extravagant claims of curative skill in handling all diseases, specialists in everything, blatant fakers, robbing the poor and the ignorant, preying on the superstitions of gullible foreigners, as bold and daring bandits as ever sandbagged a lone wayfarer at night; and yet unattacked in any effective way by the plumed knights of medical chivalry, but permitted to continue in shameful practices that would not be tolerated for a day by representatives of other professions and trades counted far inferior to medicine.

They found a motley array of so-called "doctors," of every name and cult under the sun; regulars, homeopaths, eclectics, osteopaths, chiropractors, napropaths, spondylotherapaths, mechanotherapaths, neurotherapaths, electrotherapaths, hydrotherapaths, suggestive therapaths, psychotherapaths, naturotherapaths, iridologists, magnetic healers, religious healers, and many other varieties, the list forcibly reminding one of the description which Masson gives in his "Life of Milton" of the sects which flourished in England in the poet's time. After naming a great many, he includes in a sweeping classification the remainder of the some hundred-odd varieties of "fluent, rancorous, inquisitorial and on the whole nasty kinds of Christians." Even such a comprehensive description would hardly include all of the so-called medical practitioners of Illinois, nor would it cover the radicals who oppose all regulation, claiming for the people "the inherent right to choose any sort of a doctor they please, even to 'dope' doctors or Christian science if they want it."

They found chains of doctors' offices, managed by real estate agents or other nonpractitioners and attended by licensed physicians who were paid from \$8 a week to \$35, with a possible commission of 10 per cent. on all gross business over \$500 a week; the manager getting all the receipts, paying rent, furnishing light and providing equipment; the physicians being paid off like barbers or other hired hands on a Saturday night; the offices using common literature, apparently printed by the ton, distributed by hand in mail boxes and front yards, and bearing the name of the doctor nearest the region of distribution, who for himself was unable to read the circular in the language used, and so knew nothing of the glowing promises made to his prospective patients.

They found many doctors alleged to be abortionists, who, when questioned about the wholesale murder of unborn babes, took refuge in assertions of the guilt of all the craft, and claimed that if, in any company of members of the profession, the ancient invitation were renewed, "Let him who is without sin among you cast the first stone," as in the days of old so now, within a short time, no man would be left except the accused and the judge.

They found doctors, all over the state, who were guilty of unethical practices, who were known to be quacks of the worst type, and against whom sufficient evidence could not be secured to convict because of the unwillingness of reputable physicians to give testimony or to encourage deluded victims to give to the department for legal use information given to them in quiet hours of confession.

They found men and women in many places in Illinois practicing medicine without license and defy-

* Read before the Madison County Medical Society at Alton, Ill., Aug. 2, 1918.

ing the provisions of the Medical Practice Act. But they could not secure convictions because regularly licensed practitioners refused to aid, because state's attorneys declined to enforce the laws, and because county medical societies have been too weak or too fearful to demand that such prosecuting officers perform their sworn duty, or too little interested to help in creating public sentiment in support of law and decency.

The plain, unvarnished, easily supported truth is this: There are more fakers and charlatans in medicine than in all other professions and trades put together. There are more irregular, improper, indecent and immoral things connected with medicine than with all the rest. There is less real reason, so far as conditions in Illinois are concerned, for medicine to claim nobility and plume itself because of its high estate than there is for almost any occupation followed in the commonwealth by the sons of men. There seems to be no medical nobility which feels any obligation. There seems to be no champion, either individual or corporate, that is quick to resent attacks on medical honor. With one exception, not a county medical society in all Illinois has given to the Department of Registration and Education during its first administrative year that hearty cooperation, that united and determined support which is so desirable if its attempts to enforce the Medical Practice Act are to be successful. The exception was the society in St. Clair County, where, as the result of shameful riots which stirred the entire United States, the social forces desirous of the maintenance of law and order were encouraged to express themselves in demands for a general clean up. In this process the department was able to secure in that county ninety-three convictions for violations of various statutes, eight being infringements of the Medical Practice Act. Sixteen cases are still pending. Among the individuals convicted was the notorious Vizgird of East St. Louis who vainly tried to escape the officers of the department and the penalties of Illinois laws by seeking a hiding place in Missouri, but was caught in his old haunts one evening and given his deserts by the court.

Perhaps this is enough of the discouraging side of the Illinois medical situation. But the need of cooperative effort on the part of all interested in better conditions is great. This is a most favorable time for advance movements. The mobilization of our army has emphasized the importance of discipline and respect for authority. The rejection of so many men as unfit to fight for their country has led to much serious thinking on the part of the people. Certain forms of disease have been studied in an entirely new light. The potential soldier who has barred the door of his admission to the Army by venereal disease, contracted by cohabitation with prostitutes, is looked on almost with the scorn that attends the slacker or the traitor. He who has weakened his fighting strength by excess in the use of intoxicating liquor finds the hand of every man against him. Sobermindedness, clean living, unimpaired efficiency are demanded everywhere. The individual who, in any way, contributes toward the restriction of the output of American man power in this critical hour of world conflict has no influence, no political pull, no effective support anywhere. It is the time for the friends of medicine to strike and to strike hard against those of its adherents who drag its honor in the dust. The fact that so many honorable physicians have gone to war, and

that so many communities are left to the mercy of the irregular, unethical or illegal practitioner lends added importance to the situation now faced.

PROGRESS IN MEDICAL EDUCATION

Considerable progress has been made in the direction of improved conditions in education. A few years ago Illinois had fourteen medical schools, some of them so poor in quality that a great historic survey declared Illinois to be the plague spot of medical education in America. The finger of scorn was pointed toward Chicago by every one connected with the profession. Now there are but five medical colleges recognized as in "good standing." Each of these five colleges has been visited and inspected by the department during the year, one of them twice. The student records have been searched with care by a special representative of the department. Where irregularities or improper methods have been discovered, the facts have been called to the attention of the officials of the institution affected, and prompt promises of rectification have been made. New rules and regulations connected with the Medical Practice Act have been established and put in force, after a conference participated in by the administrative officials of the department, by the members of the Medical Examining Committee, and by the deans and secretaries of the five schools. Each of the five institutions, through the proper official, has indicated in writing its intention to abide by these regulations thus agreed to. One of these new rules raises the minimal entrance requirement to two premedical years. Future licensees in medicine in Illinois, before being eligible for examination, must have had preparation for active practice represented by four years of high school, two years of college premedical instruction, four years in a medical school and one year's internship in a recognized hospital. Another new regulation provides that each student, at the time of his admission to a medical school, must present a qualifying certificate, issued by the Department of Registration and Education, certifying that all requirements for preliminary education have been met. It is believed that this provision will end forever the most troublesome feature connected with the regulation of medical schools, namely, the admission of inadequately prepared students, either on conditions or on defective certificates.

Attempts are being made through mandamus proceedings to secure the restoration to "good standing" of two medical colleges, namely, the Jenner Medical College and the Chicago Hospital College of Medicine, institutions which had been declared by the state board of health to be no longer "in good standing" with the licensing authorities of the state. A large amount of time and attention has been given to the consideration of these petitions. The institutions were reinspected, one of them twice. Several meetings for conference were held, attended by representatives of the department, administrative and professional, and by those interested in the colleges. In one of these conferences, representatives of the office of the Surgeon-General of the United States Army participated. It was gratifying to find that their judgment was the same as that given with entire unanimity by the representatives of the state of Illinois, namely, that the institutions should not be recognized. Whether the courts will force an action contrary to the best wisdom of those entrusted with safeguarding the interests of the people remains to be seen.

EXAMINATIONS FOR LICENSURE

Examinations for licensure in Illinois are better conducted now than ever before. The Civil Administrative Code provides carefully for the safeguarding of this door of entrance to the medical profession through a committee of five persons, all of whom shall be reputable physicians licensed to practice medicine and surgery in this state, no one of whom shall be an officer, trustee, instructor or stockholder or otherwise interested, directly or indirectly, in any medical college or medical institution. For the purpose of preparing questions and rating papers on practice peculiar to any school, graduates of which may be candidates for registration or license, the director may designate additional examiners whenever occasion may require.

In the March examination a new feature was introduced in the form of a practical test, consisting of one hour with patients in eye, ear, nose and throat; one hour with surgical patients; one hour with diagnosis and medical patients, and one hour in the laboratory identifying slides. Through the courtesy of the officials of the Cook County Hospital, the facilities of that great institution were placed at the disposal of the department. Both examiners and examined entered into the spirit of the new arrangement with hearty interest. The results of the experiment were so gratifying that it was decided to make this a permanent feature of the examination plan. In the June examination the same method was followed, with an unusually large class of candidates, the results again being satisfactory in every way. It has also been determined that no license by reciprocity shall issue hereafter, except after the presence of the candidate before the examination committee and the passing of a satisfactory practical test.

These two advanced movements have placed Illinois in the forefront, since the practical examination for licensure has not made much headway in America. The members of the examining committee have determined to make the entrance into the profession more difficult by closer scrutiny of the written and oral reports of the candidates. They share with other representatives of the department in the earnest desire to make the Illinois license in medicine most honored of all state licenses because most carefully guarded.

REGULATION OF PRACTITIONERS

With conditions in the recognized medical schools more satisfactory than ever, and with the examinations for licensure greatly improved, the next important task of the department is the regulation of practitioners within the state. But here it is beset with many obstacles. Its two principal weapons for warfare are the Civil Administrative Code and the Medical Practice Act. The first confers on it far greater powers than were enjoyed by the former state board of health. The second goes far ahead of any statute heretofore adopted for regulating medicine. Its provisions correct many of the weaknesses of previous statutes. Under it, it is now possible to revoke licenses issued under any preceding practice act, whereas the law which it superseded was powerless over some practitioners. The act also gives larger range in the matter of revocation of licenses, the following nine types of offender being indicated:

1. A person who has been convicted of the practice of criminal abortion.

2. A person who has by false or fraudulent representation obtained or sought to obtain practice in his profession.

3. A person who is a habitual drunkard, or habitually addicted to the use of morphin, opium, cocain or other drugs having a similar effect.

4. A person who has by false or fraudulent representation of his profession obtained or sought to obtain money or any other thing of value.

5. A person who has advertised under a name other than his own

6. A person who shall advertise or profess publicly to treat human ailments under a system or school of treatment or practice other than that for which he holds a license.

7. A person who has been committed, by the judgment of a court of competent jurisdiction, to a hospital for the insane.

8. A person who is guilty of any wilful violation of the rules and regulations of the Department of Registration and Education governing examinations, or who is guilty of any fraud or deceit by which he was admitted to practice.

9. A person who has been guilty of any other unprofessional or dishonorable conduct.

It will be noted, however, that these provisions have their limitations. For example, the rumor that a physician is guilty of abortion is not sufficient ground on which a license may be revoked. Even the dying declaration of a victim is not adequate. The law provides that the accused shall be convicted, and the presumption is that this means convicted in a court of justice. In like manner, if a practitioner has become insane, the law does not cover his case unless he is actually committed to an asylum. In a recent hearing of the department in Chicago at which some forty reputedly unethical practitioners were summoned, three of these on examination showed clear evidences of insanity, and that, too, to the satisfaction of all the representatives of the department present. But the law does not cover their cases, and they will continue their practice until, by reason of some violent outburst, they at last find their way to the sanatorium where they should now be incarcerated.

The cause set forth in the ninth paragraph covering general unethical and unprofessional conduct has not been considered by legal authorities as in itself sufficiently definite to warrant a revocation of license, although it may well be used in supplement to other charges.

While there are some defects in the law as it is, yet, as has been stated, it is far ahead of anything the state has yet had. The act applies to two classes of citizens: one, the individual who, not being regularly qualified by proper licensure, as provided for in the law, attempts to practice medicine; the other, the practitioner who has been regularly licensed. It might be taken for granted by every one that an untrained individual of the first class should be prohibited from practicing medicine. As a matter of fact, however, in a number of cases in which the evidence has been conclusive, the department has been unable to secure conviction because of the attitude taken by prosecuting officers, some of whom have actually attempted to explain their failure to enforce the law by statements that the provisions of the law are foolish or should never have been enacted. A notable instance of this kind occurred in one county where a retired farmer of considerable wealth and social prominence was known to be treating human ailments at the county seat as a chiropractor, although he had no license whatever so to do. The state's attorney, while not absolutely declining to prosecute, made all sorts of excuses for not doing so, saying that he was too busy with other

matters to take up this particular question; so the department was powerless. The folly of such a condition was soon shown, however, by the verdict of the coroner's jury in a certain case in which it was declared that the death of a child had been brought about because of the improper practice of this particular man and another with whom he was closely associated and who likewise was not prosecuted as he should have been.

Another case not unlike this was reported from southern Illinois. An inspector for the department filed an information in the court against a noted chiropractor. The state's attorney of the county delayed action and later wrote a letter to one of the state officials asking him to go to the Department of Registration and Education and induce its officers, if possible, to withdraw the information, when its sworn duty is to follow up the offense with prosecution. It is needless to say that the department declined to take the action requested and that the case is still pending. Many other cases of a similar nature might be mentioned.

The department believes, however, that if it had the hearty backing of all regularly licensed physicians—and with that would come a sufficient public opinion to force all prosecutors to act—it would be able to make notable advances in clearing the state of unlicensed practitioners within a relatively few months.

But the Medical Practice Act was designed in the main for those who have been licensed through the regular processes. There is no doubt that its spirit contemplates that the business of the profession shall be carried on in an ethical manner. It does not reach those who use flamboyant advertisements proclaiming their great skill, but it does give power enough to require the advertiser to keep within the bounds of possibilities so far as his promises to his prospective patients are concerned. It does not reach the itinerant physician who practices in hotels in various places "for one day only," but it does have power enough to require him to register his license in every county where he practices and to restrict to some degree his advertised pretensions. When the itinerant is unlicensed, the law may be readily invoked. A case in point is that of the well-known Rev. Dr. Hawkins who has visited many places in Illinois in recent years. Not long ago he came to Springfield. Inspectors from the department called on him, one of them for physical examination and treatment. When the latter found that the gentleman who tried to use the cloak of religion as a shield to his illegal practice simply rubbed his hands over his victim's body, speaking practically meaningless words as he did so, he swore out a warrant for the arrest of the faker and had the satisfaction of seeing him placed in the Sangamon County jail, where he spent several unhappy days, part of the time as a result of being charged with working a confidence game. However, between 9 and 11:30 o'clock in the morning on which he was arrested, the reverend gentleman had been successful enough in his practice to secure fees of more than \$300. This would have been a fair morning's work had he not had the misfortune to be caught by the officers of the law and consequently faced with the probability of being compelled to pay a large fine.

NEED OF ANNUAL REGISTRATION

The department needs another administrative aid, an annual registration, in order that it may be able

better to serve the interests of the people and at the same time to protect those rightfully entitled to the honors and the emoluments of the medical profession.

The records show that, under the first medical practice act of 1877, 18,626 individuals were licensed—16,905 by the presentation of diploma, 1,236 by years of practice, and 485 by diploma and supplementary examination. Under the acts since 1899, there have been licensed by examination and by reciprocity 11,310, making a grand total of 29,936. How many of these licenses are active at the present time, nobody knows. The department has no check on them, as it has on licentiates in other lines by means of an annual registration requirement. In 1916 the American Medical Association made a computation which placed the number of living physicians in Illinois at 11,600. Counting for deaths and removals, and estimating additions by examinations, there probably are about 12,000 at the present time who hold Illinois licenses. Ignorance on this vital matter of administration places the department under a great handicap. It does not have any means of knowing where its licentiates are or what they are doing. It receives a daily press-clipping service which helps to some degree in checking deaths and removals. But its inspectors find impostors who are using the licenses of honorable practitioners long since dead; impostors who secured their licenses through fraud; charlatans who are claiming to be authorized representatives of patriotic physicians who are "over there" ministering to the wounded and dying among our soldier boys on the far-flung battle line; men long retired from active practice who are using their medical licenses in forwarding unworthy commercial enterprises; men who have abandoned all notion of reputable practice almost from the start of their professional career; fakers, quacks, irregular, illegal, immoral, unethical, untrained men, who grow rich on gullible humanity and trail in the dust and the dirt the banner of one of the great professions. To be asked to enforce a medical practice act, without having the machinery for ascertaining who is entitled to its privileges and who is ignoring its restrictions, at best is a difficult situation. The advantages of an annual registration on the payment of a nominal fee as an effective weapon for protecting the profession and for aiding in the prosecution of pretenders and offenders have been proved beyond question in connection with many professions, trades and occupations. It is surprising that the medical profession, which has needed such a bit of administrative machinery so greatly, has not availed itself of it, although it has been successfully used by others.

ADVANTAGES OF ANNUAL REGISTRATION

No greater help could be furnished the department in its administration than an annual registration of physicians. The argument for it, in brief, is this:

1. It would enable the department to keep in touch with legal practitioners. As has already been said, under present conditions the department has no definite knowledge concerning the number of medical practitioners in Illinois. When an individual has passed the required examination and has received a license to practice, he goes his way so far as the state is concerned, and possibly is never heard of again unless he is arrested for wrong doing or corresponds with the department for some special reason of his own.

2. It would be a great aid in keeping a correct roster of addresses. As it is, the American Medical Directory, published biennially, is a directory through which an attempt is made to indicate the location of every physician in the country, Illinois being included in the classification. Deaths, removals and withdrawals from active practice make this volume out of date before a new edition can be prepared. There is published annually in Chicago a volume bearing the title "Chicago Medical Directory," but this is more or less of a commercial proposition, and its lists of practitioners are sometimes defective. The state board of health, from time to time, was accustomed to prepare a list of regularly licensed practitioners, but this was confessedly faulty also. The importance of having as correct a list as possible of those who are entitled to the privileges of the Medical Practice Act needs no argument. With such a list available, department officers are able to state at once whether an individual is licensed or not.

3. It would enable the department to discover cases of individuals using the licenses of others who have died or have left the state, or from whom certificates may have been stolen or purchased. While such instances, under present arrangements, are brought to light only by accident, if there were an annual registration required, they would be quickly discovered:

4. It would enable the department better to control some of the unethical practitioners whose actions bring discredit on the profession. The occasion for the annual registration renewal would afford opportunity to the Medical Examining Committee and the officers of the department to consider whether on the whole it was desirable to permit the continuance of such an individual in the practice of his profession. There is no doubt at all that this annual review of methods pursued by a relatively small number of unethical physicians would be a powerful policing agency.

5. The annual registration fee of, say, \$2, would furnish funds for the activities of the department at slight cost to the individual physician. It should be kept in mind that the larger part of the appropriation made to the department by the legislature is in the nature of a reappropriation of fees paid into the treasury through the department by members of various professions, trades and occupations. This money is used for the maintenance of the office staff, which includes the inspectors on whose shoulders falls the burden of making investigations throughout the state. The larger the amount of these fees the more effective the department can be in its administration, because better supplied with a working force. It may be worth while to note that the annual renewal fee for structural engineers and for master plumbers is \$10; for architects, \$5; for chiropodists, \$2; for registered pharmacists, \$1.50; for barbers, embalmers, horseshoers, assistant pharmacists and journeymen plumbers, \$1, and for dentists, \$1 paid biennially.

6. The willing payment of such a relatively small amount would provide an effective argument against the imposition of a larger annual state license fee, easily possible in these days of regulation when governments are seeking everywhere for increased opportunities for raising needed funds.

7. It is strictly in line with the best practice in other professions which, in nearly all of the states of the Union, have long been accustomed to the registration

plan for the protection of their members and for the general interests of their special occupation.

8. This fee is favored at the present time by many of the leaders of the medical profession throughout the country who realize the pressing importance of thorough supervision of those who claim the privileges of the physician.

OBJECTIONS

Only two objections have been made to the proposition as it has been discussed with many prominent persons. One has already been sufficiently considered, namely, the alleged superior dignity of the medical profession when compared with others. As a disinterested layman, it is my frank opinion, for the reasons already set forth, that there is absolutely no basis, except possibly a historical one, for any such pretensions.

The other objection is one of inconvenience of having each year to send a small check in response to an official notice from the Department of Registration and Education. The one who first stated that objection to me wore on his coat lapel a jeweled emblem which indicated that probably he was a member of at least four branches of a certain fraternal order. If the methods of these bodies are those usually followed, he cheerfully pays at four different times a year a relatively small amount in the shape of dues in order to keep himself in "good standing." To any one sincerely interested in the welfare of medical practice in the state of Illinois, such an objection carries little weight.

CONCLUSION

The department attempted, during its first year of existence, to enforce the Medical Practice Act to the best of its ability. Its officers are confident that if it could have the additional machinery which would be furnished by the inclusion of an annual registration provision in the law, it would be able to render greater assistance to the profession which the county society represents. We ask the earnest aid of the members of county medical societies throughout the state in securing this desired movement. The irregular, illegal and unethical will oppose it. It is those who stand for the better things of life, who have pride in the profession they practice, who are quick to resent imputations against its honor, to whom the department must look for the cooperation which will bring to it the one bit of administrative machinery which it now lacks in order to do what the Medical Practice Act clearly intends should be done.

An Objection to Dried Milk in Infant Feeding.—The Cheshire (England) Local Medical and Panel Committee in a letter to the president of the Local Government Board objects to the Board's unqualified approval of dried milk in infant feeding as follows: "The Local Government Board leaflet, 'Dried Milk for Infants,' dated March, this year, states: 'Experience during the last twelve or fourteen years shows that dried milk is one of the most satisfactory forms of cow's milk for use in the feeding of infants.' That is a most misleading statement. The very large and carefully recorded experience of the Manchester Children's Hospital on the relative sickness incidence in breast-fed babies, babies fed on cow's milk, and babies fed on dried milk, shows that while breast-fed babies suffer least, babies fed on dried milk have a far higher sickness rate than those fed on fresh milk. Dr. Ashby, physician to the Manchester Children's Hospital, writes on June 11, 1918: 'I have no hesitation in saying that I have found cow's milk superior to any dried milk or artificial food in my work with infants and young children at Manchester and Salford.'"

INTESTINAL OBSTRUCTION

CONTINUED STUDIES *

H. B. EISBERG, M.D.

AND

J. W. DRAPER, M.D.

NEW YORK

Additional evidence is accumulating that death caused by intestinal obstruction is due to toxins originating in the epithelium of the duodenum and its appendages. Duodenal transplantation is, therefore, a

by section and infolding, 35 cm. aboral to gastrojejunostomy was produced (Figs. 3 and 7). This corresponds in position to the duodenojejunal obstruction as shown in the control (Fig. 4).

The results were as follows: Dogs operated on as above lived seventeen days in comparison with six days in the control animals and three days longer than after obstruction in any part of the small intestine except at the sphincter. Colonic obstruction caused death in fourteen days at the ileocecal sphincter, or in twenty-eight days if at the rectum. Moreover, and of great importance, is the fact that, clinically, duo-

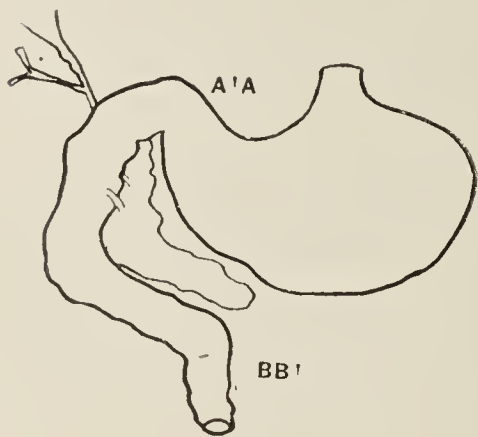


Fig. 1.—A'A-BB', duodenum with its outbuds, the pancreas and liver.

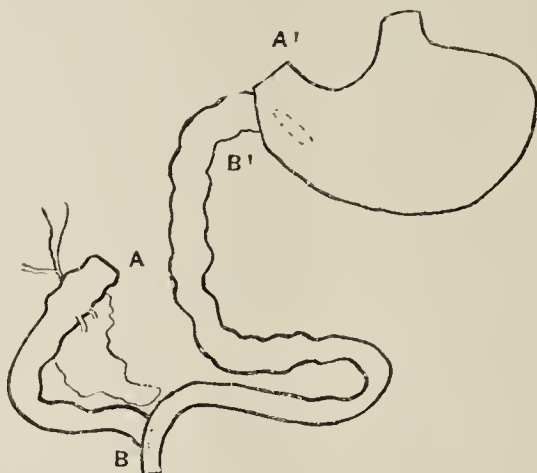


Fig. 2.—A', oral occluded pylorus; B', aboral jejunum anastomosed to stomach; A, aboral occluded pylorus; B, oral jejunum anastomosed to ileocecum.



Fig. 3.—Same as Figure 2 with an obstruction.

satisfactory method for the experimental study of the cause of death in obstruction.

Rogeré, and more recently Whipple and his associates, have laid special emphasis on a proteose from the duodenal region. Sweet and his associates have laid special stress on the pancreas. Dragstedt, Moorhead and Burcky, on the other hand, again take up the bacterial origin of this toxemia.

Our continuation of the study of this interesting problem has centered on three phases—transplantation, proteose isolation and obstruction ratio.



Fig. 4.—A, obstruction at ileocecum corresponding to obstruction at C, Figure 3.

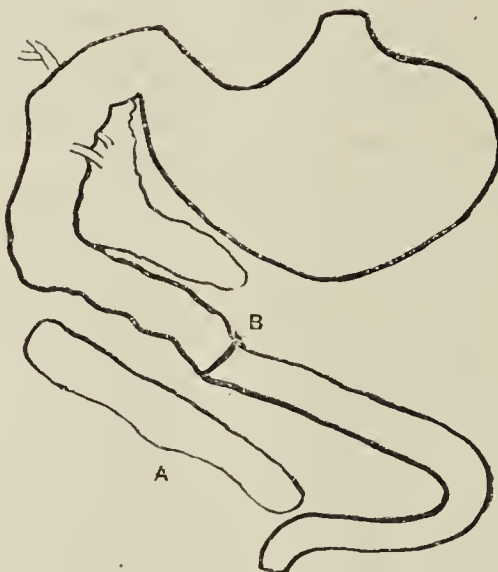


Fig. 5.—A, occluded loop; B, reconstructed alimentary canal.



Fig. 6.—A, occluded loop; B, obstruction of alimentary canal.

DUODENAL TRANSPLANTATION

The entire duodenum with its outbuds, the pancreas and liver, are first separated from the alimentary canal (Fig. 1). The pyloric end of the segment and the stomach are occluded, the duodenum is anastomosed to the ileocecum, and posterior gastrojejunostomy is performed (Fig. 2). This constitutes the primary operation. From two to three weeks after, obstruction

denal transplantation prevented the occurrence of classical symptoms of duodenal obstruction such as tachycardia, tremors and spasticity, as described by one of us in the original report, in which it was pointed out that this condition closely simulated parathyroidectomy. After transplantation, the obstructed animal remained clinically normal for from seven to twelve days after operation. There was gradual

increasing emaciation and occasional vomiting. The entire picture simulated that of rectal or esophageal obstruction with complete absence of all fulminating toxic symptoms.

The conclusion is that the duodenum, with its embryologic outbuds, furnishes the cause of death. If the jejunum creates a toxin it is certainly of low lethal grade.

PROTEOSE ISOLATION

In reference to the proteose of Rogeré and of Whipple, we have reported that we were unable to

* From the Surgical Research Laboratory, New York University.

* Read before the Section on Gastro-Enterology and Proctology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

duplicate the experiments because of faulty chemical technic. Since then we have repeated Whipple's experiments and have caused death by the injection of the residue. Curiously enough, analysis of the charts showed that when fluid was obtained from blood loops, no reconstruction of the intestine having been done (Fig. 6), the intoxication was produced. If, however, end to end anastomosis or gastro-enterostomy (Fig. 5) were used to reconstruct the intestine continuity, the symptoms were either very slight or were absent.

To explain this phenomenon we offer Sweet's suggestion—that the toxic agent was formed in the duodenum but excreted into the occluded loop. This view is strongly supported by our observations after duodenal transplantation and also by the views of Dragstedt, Moorhead and Burcky, namely, that their animals with jejunal loops lived indefinitely if no rupture occurred, whereas, those with duodenal loops all died within from twenty-four to forty-eight hours, excluding those that died from rupture. Their interpretation, that bacteria are the sole cause of death in intestinal obstruction, we cannot harmonize with certain facts. First, the duodenum is virtually bacteria free, as compared with the terminal ileum and colon, as Halsted and Cushing, as well as Brown and Blake and one of the writers, proved many years ago. Second, closed segments of the terminal ileum and of the colon, regions where bacteria abound, are not incompatible with long life.

TRUE LETHAL LINE OR
POINT OF MAXIMUM
OBSTRUCTIVE TOX-
ICITY

Whatever the composition of the toxin of intestinal obstruction, which we believe to be of the same nature as the known endocrine secretions, partly because of the similarity of the symptoms after parathyroidectomy or duodenal obstruction, all observers have agreed that its most active manifestations occur following duodenal obstruction. There is a point in the second portion of the duodenum at which acute obstruction causes death more rapidly than elsewhere in the intestine. This point we have referred to as the true lethal line in distinction to the one which was described by one of us in relation to the twine triangular stitch for gastro-enterostomy and located some 20 cm. aboral to the true lethal line. Oral or aboral to

this line there is a proportionate decrease of obstructive toxicity. While the exact ratio is not yet accurately worked out, one undoubtedly exists, and we have shown it roughly in Figure 8 to be approximately 1:4 in length of life, and 1:8 in length of intestine. These figures are arbitrary and may be shown by future work to be inexact; but the fact remains that there is a constant mathematical ratio that can be determined by further experiment. It may resemble the healing curve of Carrel. Lynch has suggested that there is normally some biochemical product brought down from above similar in nature to prosecretin. With this view we are in hearty accord.

SUMMARY

Duodenal transplantation definitely shows that the duodenum and its appendages, singly or collectively, produce the lethal agent which causes death in intestinal obstruction.

A proteose may be isolated under certain conditions. This will cause death if injected. Further definite corroboration, however, is necessary to prove that this test tube product is identical with the vital lethal product of acute obstruction.

A true lethal line or point of maximum obstructive toxicity exists in the second portion of the duodenum, oral and aboral to which, obstructive death occurs in a definite mathematical ratio.

The lethal agent is probably of biochemical origin similar to parathyroid or other endocrine secretions, interference with which causes death.

ABSTRACT OF
DISCUSSION

DR. DWIGHT HENDERSON MURRAY, Syracuse, N. Y.: A few years ago I heard a paper on this subject that gave us the information that the poisons produced in a closed

loop of the intestine were many times stronger than phenol, morphin, strychnin and drugs of that kind. I should like to ask if any tests were made to determine the lethal dose of these poisons.

DR. JAMES J. MOORHEAD, Chicago: Did you occlude the duodenum with the pancreas attached?

DR. EISBERG: It is occluded at the oral end, and the aboral end is united to the gut. A gastro-enterostomy is performed at either end; the secretions of the duodenum supposedly flow into the lower intestinal tract.

DR. MOORHEAD: How long did those animals live?

DR. EISBERG: Seventeen days; that is, after the secondary operation was produced by obstruction above this duodenal



Fig. 7.—1, cardiac end of stomach; 2, pyloric end of stomach; 2 A, aboral pyloric end; 3, oral end of jejunum; 3 A, aboral end of jejunum; 4, 4 A, gastrojejunum; 5, 5 A, obstructed ileojejunum; 6, 6 A, duodenal jejunum anastomosis; 7, pancreas; 8, sigmoid.

transplant; and that is about twelve days longer than the control animal by an obstruction placed at the same level with the duodenum inside. Our point is to show that the duodenum itself, and only the duodenum, with its outbuds, is the true cause of death from intestinal obstruction; and we do believe now that we have evidence it is not the duodenum alone, or the bile alone, or the pancreas alone, but the three working together, and special emphasis is laid on the fact.

DR. JAMES J. MOORHEAD, Chicago: As to the cause of death from intestinal obstruction, we are still of the opinion expressed in our recently published article, namely, that bacterial activity plus necrotic tissue, or the absorption of toxic products resulting from the action of putrefactive bacteria on necrotic tissue is the important factor. It is our intention in the near future to report results following complete extirpation of the duodenum.

DR. HARRY B. EISBERG, New York: As to the lethal dose of Whipple's proteose, we have been able to produce death within twelve hours with 150 mg. of the residue. The lethal dose, as far as the cause of death was concerned, depended, in part, on the individual animal. Some animals showed a greater immunity than others.

In reference to the origin of this toxic material, which is described by Whipple as a proteose, our evidence is as follows: It is a laboratory product obtained from occluded loops of the duodenum and jejunum. The important point is to remember the common origin of the duodenum, the liver and the pancreas. The lethal agent in true obstruction is a biochemical substance associated with the endocrine products arising from the epithelium of the duodenum and its outbuds, the liver and pancreas.

We agree with Dr. Moorhead that fat necrosis is a frequent and troublesome factor in any experimental work on the pancreas. His views regarding tissue necrosis as the cause of death in obstruction have been considered by ourselves and by others. Necrosis, except in occluded loops, plays no part in true obstructive death. If a loop is occluded with subsequent interference to its blood supply by distention, etc., and the intestinal canal is reconstructed, obviously there is no true obstruction. Death is then due to proteose intoxication arising from devitalization and autolysis of the intestine composing the loop. If not reconstructed there is a loop obstruction plus a true intestinal obstruction. This causes, in addition to the proteose, absorption of unidentified toxins oral to the point at which the loop was made. These toxins are due to endocrine disturbances of digestional epithelium.

Thus we see that there is a great difference between the death following an occluded loop with or without reconstruction of the canal and simple surgical obstruction by clamp or simple suture.

British Maternity and Child Welfare Act.—This act, as pointed out in a circular letter issued by Mr. Hayes Fisher, president of the local government board, enables local authorities to make such arrangements as may be sanctioned by the board for attending to the health of expectant and nursing mothers and of children under 5 not being educated in schools recognized by the board of education. As summarized in the *Medical Officer*, the local government board's grant has now been made available, among other things, for hospital treatment of children up to 5 years of age; lying-in homes; home helps; the provision of food for expectant and nursing mothers and for children under 5 years of age; crèches and day nurseries; convalescent homes; homes for children of widowed and deserted mothers, and for illegitimate children; experimental work for the health of expectant and nursing mothers and of infants and children under 5 years of age.

THE SILENT PROSTATE *

JAMES A. GARDNER, M.D.

BUFFALO

The seriousness of prostatic obstruction in old men has long been recognized by the profession. The education of the public with regard to the neglect of this condition has made rapid strides during recent years. If the insidious growth of the obstruction interferes with the bladder outlet, it causes residual urine. The onset is so very gradual that the symptoms vary. According to Kidd,¹ the onset may be divided into three clinical types. He sets these forth in such a concise form that I wish to use his classification:

1. *The Irritable Bladder Type.*—A man between 50 and 60, who develops an irritability of the bladder, finds it necessary to get up at night. This frequency increases until he notices that he is also voiding frequently during the day time. He finds that when the call for urination comes it is necessary to find a convenient place quickly. This condition increases until finally after a year or eighteen months he has complete retention.

2. *The Painful Retention Type.*—A man apparently in good health between 50 and 60 suddenly discovers that he is unable to pass his urine. After a few hours he is taken with painful cramps in the hypogastric region, and has an intense desire to pass his water, which he finds impossible, and he sends for a surgeon.

A dose of morphin and a hot bath are usually all that are required to relieve this attack. These attacks are repeated until he finally develops retention when it is necessary to catheterize. These attacks are painful because his bladder muscle is in good condition and able to undergo cramping contraction.

3. *The Painless Incontinence Type.*—This type, which I wish to emphasize in this paper, is pictured by the wasted old man whose digestive apparatus is upset, who has a continual thirst, drinking large quantities of water, and who finds it necessary to urinate every few minutes.

He is not able to control his urine, and often it dribbles away, soiling his clothes, and because of the offensive odor his presence is objectionable to other persons. Patients of this type frequently complain of backache.

When they are examined they are very much astonished to find that the cause of their trouble has been a full bladder. They felt that the bladder was empty because they were urinating every few minutes. This is the type of case in which a complete emptying of the bladder at the first catheterization may bring about very serious results.

The condition is due to complete painless atony of the bladder muscle, with retention and overflow, and the "lumbago" is caused by back pressure on the kidneys.

It has been demonstrated repeatedly that it is the shape and not the size that causes the obstruction. I

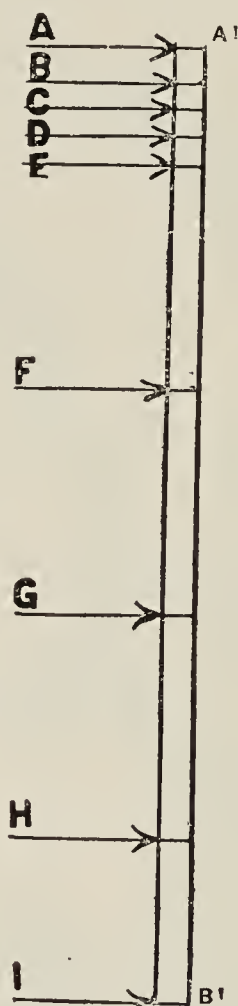


Fig. 8.—Length of life, 1:4. A', seven days' esophageal obstruction, B', twenty-eight days' rectal obstruction.

* Read before the Section on Genito-Urinary Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Kidd, F. S.: Urinary Surgery, p. 333.

have in my collection two most interesting specimens showing this condition.

One is from a man aged 83 who had 10 ounces of residual urine, and the other from a man aged 85 who had a pint of residual urine. Although the size of the second prostate was ten times the size of the first, the smaller obstruction caused just as much trouble as the larger one. In fact, the man with the larger prostate had been more comfortable, in that his prostate as it enlarged had not at first pushed in toward the urethra.

Some of these patients progress with their residual until the frequency of urination sends them to the physician. Others may continue with broken rest, frequency and straining, till wet feet and chilled skin bring on retention, when they must be catheterized for relief. They may, however, fall into the hands of a surgeon like the one who put himself on record in a recent journal, stating that he had never seen a ruptured bladder from overdistention, nor was there any record of such a case in the hospital in which he operated. He advised that nature be allowed to take care of the condition, completely overlooking the fact that the back pressure would injure the kidneys, and that the patient would die of "Bright's disease."

DANGER OF ENLARGED PROSTATE TO KIDNEYS

Urologists have endeavored for a number of years to impress on the profession that the danger from an enlarged prostate emanates from the injury caused by the back pressure.

As I have stated before, the majority of patients do not remember when the first symptoms began. Pain is more often absent than present during the first year and a half. Consequently the patient sees no need of consulting a physician. It is during this time that irreparable damage may occur to the bladder and kidneys.

If the bladder muscle is strong, it may develop cramps, the muscle resenting the overdistention. There may be pain in one or both kidney angles from back pressure. This should not be overlooked and considered "lumbago," as it is one of the very important symptoms.

Obstructions of the lower urinary tract give rise to early destructive changes in the kidneys. The kidney pathology is not the only thing that occurs, for there is the secondary cardiovascular and metabolic disorders, which are often of sufficient prominence to mislead the physician, and cause him to overlook entirely the real source of the trouble.

In a majority of patients presenting themselves for examination, we find that a urinary infection has already taken place. This may be confined to the bladder, but frequently the kidneys also have been infected. It has long been recognized that if a patient has a mild urinary infection and recovers from it he becomes immune to a certain extent. This has frequently been demonstrated by the exceptional patient who has been catheterizing himself for a long time, and who is held up as an example in the community of a man not requiring operation.

We know that 10 per cent. of patients leading a catheter life die from a general infection within two months. These patients, because of poor drainage, unfortunately are not able to withstand the onslaught of the bacteria. Crabtree and Cabot have shown that the patient with sterile urine after a few catheteriza-

tions develops colon bacillus pyelonephritis.² This infection need not necessarily be a contamination caused by catheterization, but may be through the blood stream.

As has been stated, the patient who has had a mild infection and becomes immune is a better operative risk. Recognizing the fact that all patients will have more or less infection following the cystotomy, whether by the suprapubic or peritoneal route, I have felt that if adequate drainage is provided, the severity of the infection may be better controlled. The effect of infection on the kidneys is a very definite one. The patient is irritable, restless, and usually complains of great weakness. The specific gravity of the urine drops, and the amount of secretion often becomes very scant. At this stage the phthalein test shows a very small output. Under vigorous elimination, the kidneys recover their equilibrium, and the patient improves.

In the past when the single operation was performed in prostatectomy, this infection added to the shock of the removal of the large prostate often was a sufficiently deciding factor to cause death, or to cause great anxiety as to the prognosis. Following this, as the importance of the preliminary treatment was duly recognized, frequent catheterizations improved the patients and the mortality decreased. Then the indwelling catheter was used, but many patients had such sensitive urethras, and the accompanying epididymitis occurred so frequently, that, although this seemed to be an improvement on frequent catheterization, yet it was not the ideal procedure.

SUCCESS OF THE TWO-STEP OPERATION

About this time, the two-step operation was evolved. Pilcher demonstrated that patients who are poor operative risks are able to weather the strain, when operated on by this method. His arguments interested me and I have since followed out the two-step method with a series of 112 cases without a death. In the one hundred and thirteenth case, the patient died of embolus fourteen days after operation.

The patient, No. 1390, aged 52, entered the hospital, March 8, 1918, having 15 ounces of residual urine. Examination revealed no enlargement of the prostate per rectum. Cystoscopic examination showed a small medium lobe. March 9, suprapubic cystotomy was performed under procain. March 13, the phthalein test showed 40 per cent. for the first period and 20 per cent. for the second period. March 14, under general anesthesia, the medium lobe was removed. Convalescence was uneventful. The patient was sitting up in a chair on the fifth day after operation. On the fourteenth day, after being up two hours and eating his lunch, he prepared to return to bed for the afternoon rest hour. While getting into bed, he became cyanotic and died within five minutes. He had not complained of pain, and a short time before had spoken of feeling so well that day.

Three quarters of the patients presenting themselves for operation have infected bladders, or if the bladder is sterile, the presence of the drainage tube will cause an infection. Again, if there should be a severe infection of the wound, the patient can stand it much better than if he had the added burden of a prostatectomy.

I believe that the surgical principles on which the operation is based are sound, and that the infection which is bound to occur may be cared for by free drainage with little risk to the patient. Aside from

2. Crabtree, E. G., and Cabot, Hugh: Colon Bacillus Pyelonephritis, *THE JOURNAL A. M. A.*, Feb. 24, 1917, pp. 589-591.

giving free drainage to the urine, we incidentally prepare the operative field by having the tract walled off by granulation tissue. It is not infrequent in these cases that there is so much congestion, that following a simple cystotomy, blood is present in the urine for the following three or four days, and in two cases it became necessary to pack the bladder to control the hemorrhage. Undoubtedly these patients would have died if, in addition to the cystotomy, the prostate had been removed.

Tumors which are large and succulent will in many instances decrease from one third to one half in size after drainage for one or two weeks, thus decreasing very materially the risk of hemorrhage following the second operation. With the two-step operation and the preparatory treatment we have not had the secondary hemorrhage which, following the single operation, has sometimes been fatal.

ETIOLOGY

Hypertrophy of the prostate is a misnomer. There have been extensive embryologic, histologic and gross studies by urologists to determine what this condition is, with a number of varying opinions. In a study made on this subject³ based on 100 specimens we found that the enlargement was caused by an adenomatous growth. These adenomatous nodules were found in one patient as early as 38 years of age, and the others developed between the ages of 40 and 60. The growths are best demonstrated by the use of the lowest power lenses on the microscope, or a simple lens. The most convenient is the dissecting microscope. By this method, it is very easy to pick out these little nodules in a slide containing a cross section of the prostate. In the younger nodules, one is attracted by the round or oval, deeply stained nodule around which may be seen a thickening of the adjacent tissue. A little later the epithelium has proliferated and, when seen with the higher powers of the microscope, resembles the epithelium of the prostate. As the adenomatous growth enlarges, it pushes the prostatic tissue to one side, compressing it so that it has been called the prostatic capsule. As this mass grows, as has been stated in the foregoing, it is the shape, not the size, that causes the obstruction.

If the operation is performed by the suprapubic route, this mass is simply lifted out and does not interfere with the vesical sphincter, nor are the ejaculatory ducts injured. Neglect in properly interpreting various symptoms has caused mistakes in the diagnosis of prostatic obstructions. There are various conditions which may cause obstruction in a man between 55 and 60 years of age. These cases should be carefully studied to eliminate beginning of tabes, stricture of the urethra, diverticulum of the bladder, and growths, or stone of the bladder.

If a patient's reflexes are carefully tested, and a Wassermann test of the blood made, and if there is any question, tabes may be eliminated. Enlargement of the prostate is often mistaken for urethral stricture because the spasm causes an obstruction of the urethra. Diverticulum of the bladder may cause residual urine, and the symptoms of an obstructive prostate. Diverticulum is caused by an obstruction in the lower urinary tract, and often complicates the enlarged

prostate. It is quite essential to make the diagnosis of diverticulum previous to operation, so that the patient may understand that this condition should be cleared up following his prostatectomy, since it is not wise to subject him to a long operation at one sitting. The cystoscope will, of course, clear up the presence of stone, tumors of the bladder, median bar or diverticulum.

Early obstruction in men between the ages of 45 and 50 causes us to think of malignancy of the prostate. It has been stated that 25 per cent. of all cases of enlarged prostates are malignant. The growth usually begins in the center and, since the capsule is dense, it is some time before it breaks through. It is therefore essential that operation should be early, if permanent relief is expected.

If a little care is given in the taking of history, an examination will easily demonstrate whether there is present a simple enlargement of the prostate or one of the other conditions obstructing the flow of urine. Diagnosis previous to operation is very essential in many of these weak old men so that the existing condition may be relieved with as little strain as possible on their reserve strength.

The patients who present themselves with clear urine free of pus, in which chemical examination shows a small amount of albumin, often mislead the physician into believing that there is a chronic nephritis. In many of these cases, following the preparatory treatment, the albumin is markedly diminished or clears up entirely, showing that it was caused by the temporary back pressure. The chemical and microscopic examination of the urine is important, but it does not demonstrate the kidney function. Though various tests for kidney functions have been advanced which are of more or less aid in deciding the quality of the surgical risk, I believe that in the phthalein test, Geraghty and Rowntree have given us the simplest and most satisfactory one.

OPERATIVE PROCEDURE

Our method is to have a functional test made when the patient first enters the hospital, and we are guided to a certain extent as to the time of performing the second operation by the improvement in this functional test. The patient who only excretes from 5 to 10 per cent. during the first seventy minutes is a poor operative risk. On the other hand, when they excrete from 40 to 50 per cent., we consider them good operative risks. This rule is not hard and fast, however, because we have operated successfully on patients who excreted but 10 per cent. during the first period of seventy minutes. The test is carried on for two periods of seventy minutes and fifty minutes respectively. The excretion is frequently slow, and the greater portion of the dye may be passed in the second period. The phthalein test is not used as the sole index to the surgical risk, but the general condition of the patient aids us in our conclusions. As the patient improves under elimination, sweat baths and bowel washes, and when the urine is scanty, by the forcing of fluids, his functional test also improves. Following the primary cystotomy, the functional test frequently makes a marked drop, and then after a day or so begins to rebound again, demonstrating the advantage of dividing the shock into two parts.

It has been our practice, the day after a patient enters the hospital to perform the primary suprapubic

3. Gardner, J. A., and Simpson, B. F.: The Relation of Multiple Adenomata to the Etiology of the Enlargement of the Prostate Gland, *Surg., Gynec. and Obst.*, 1914, 18, 84-89.

cystotomy under infiltration anesthesia with procain. The patient is given from one sixth to one third of a grain of pantopon (pantopium hydrochloricum) an hour before the operation. Because of the necessity of anesthetizing each layer, the primary operation occupies a longer time than if the patient was under general anesthesia. But the patient is not suffering from any shock, and we have a chance to prepare the tract for our second operation, taking care to open the bladder as high up as possible. At this time the prostate may be examined, and our cystoscopic findings checked up. A large mushroom catheter is placed in the suprapubic wound for drainage, and a purse string suture makes a tight joint. The fascia and skin are sewed up in layers. Two days after the operation, the patient is out of bed. These old men do not do well lying down. The psychologic side should be catered to, as they feel they have made progress because they are able to be up and around. The mornings are occupied with elimination treatment of baths and bowel washes, while during the afternoons the patient is up and walking. As the general condition improves, incidentally his phenolsulphonephthalein output is improved, and he is prepared for the second operation.

At the time of the second operation, a general anesthesia of ten minutes suffices to stretch up the original opening and lift out the adenomatous prostate. The Hagner bag controls what little hemorrhage there is, and a large drainage tube of the Marion type is used in the suprapubic wound. The Hagner bag and the Marion tube are removed at the end of forty-eight hours. The bottle-pump designed by Bethune is then used. The wound is kept dry by this method and heals very rapidly. Usually after a week's use, the opening is so small that the catheter attached to the pump may be removed, and the wound heals spontaneously. An indwelling catheter placed in the urethra for a few days assists the final healing. The patient sits up in bed the second day and is permitted to get out of bed the following day. It requires from three to four weeks for the average suprapubic wound to heal.

I feel that one of the very important adjuncts to the treatment of these cases is the service of a good nurse, one who has been thoroughly trained in the care of these patients. They are able to do much to help them, both mentally and physically, and I feel that I am indebted to my nurses, to a great extent, for the good results that have been attained.

MORTALITY

An investigation recently made by Thomas,⁴ of the operative reports of twenty-six representative general hospitals in Pennsylvania and the neighboring states, revealed the alarming statistics of 22.5 per cent. mortality as the result of 148 prostatectomies made during the year. Compare this, if you please, with the mortality rate of 4.33 per cent. for 1,375 prostatectomies by eight of the world's foremost genito-urinary surgeons.

H. H. Young has reported one series of 128 prostatectomies without a death, and I have completed a series of 112 unselected cases without a death. This very marked difference in statistics is caused, I think, by the attention to detail given by urologists.

ABSTRACT OF DISCUSSION

DR. HERMAN L. KRETSCHMER, Chicago: I do not like the term Dr. Gardner uses, 'the silent prostate'; it is misleading. My experience with the so-called "silent prostate" was in the clinic of Zuckerkandl at Vienna. He repeatedly showed us patients that came in after being treated by the stomach specialists because of their gastric distress and various other ailments. These were cases that would naturally fall into this group. The prostatic picture, however, was in the background. If we will spend a little more time in getting good histories and eliciting the sequence of events with regard to the symptoms mentioned by these patients, the prostatic symptoms will overshadow the immediate symptoms of which the patients complain. The term "the silent prostate" should not be reserved for cases of benign hypertrophy. That term can also be used for cases of chronic infection in the prostate when the patients have neither urinary distress nor sexual symptoms, and in which the patients suffer from a number of complaints, such as arthritis, neuritis, etc., whereas in cases of benign hypertrophy the urinary symptoms always predominate. I was glad to hear Dr. Gardner say that he is not guided by his figures with regard to functional tests between the two stages. Functional tests should be made. They help out; they should be the most important part in determining when the second operation should be done. They are one of the links in the chain of evidence. The general condition of the patient, his appetite, whether or not he gains weight, the character of the urine, and whether the infection clears up, should all be taken into account. I quite agree that we should make these functional tests but we should not rely on them absolutely. My experience has been the same as his, that after the preliminary cystotomy there is a drop in the function, and afterward the function returns almost to normal.

DR. JAMES B. CROSS, Buffalo: I would like to emphasize the importance of each step of the two-step operation. The principal dangers of prostatectomy from the mortality standpoint are shock, relief of back pressure and hemorrhage. Both shock and hemorrhage are much reduced by reduction in congestion of the prostate after the first step. In a large adenomatous prostate, where the middle lobe sticks up in the bladder, when you go in the second time, you find that the gland is reduced one-third to two-thirds in size. This certainly goes a long way toward reducing hemorrhage. Dr. Gardner is now using the Hagner bag. It never appealed to me that putting a rubber bag under pressure at these bleeding points was really good surgery. The results have been good, however. Dr. Kretschmer spoke of going on the general appearance as much or more than on functional tests in regard to the time of the second operation. I think that is very true. In a case I had last month the man picked up very rapidly after the first operation, but his function would not get over 20 per cent. for two hours. After ten days we gave him by rectal drip 12 ounces of Fischer's solution with 10 per cent. glucose, each twenty-four hours, without any difficulty. Three days later his functional test jumped to 28 per cent. We kept this up for ten days, then performed a second operation, without any ill results.

Another big feature in the statistics of nonmortality has been the specially trained nurses. In Buffalo we use female nurses entirely who are trained in wards before they are put on private cases. In order to provide a stimulus for them to take up this work, they are entitled to \$35.00 a week in place of the \$28.00 which the ordinary nurses get; and in that way we have a number of girls who are exceptionally good in this work.

DR. J. BELLINGER BARNEY, Boston: In reference to the Hagner bag, we have used it with good success. The bag has sometimes broken after the patient has been put to bed, and the tube was broken. In each instance, the bag ceased to perform the function for which it was designed and yet no alarming hemorrhage occurred. Sometimes during the removal of the bag the handle has come off. Were it not for the fact that a strong silk ligature was attached to the tube at its junction with the bag as well as to the handle its removal would be a matter of great difficulty.

4. Thomas, B. A.: The Significance of Specializing in Surgery with Reference Especially to Genito-Urinary Surgery, *Pennsylvania Med. Jour.*, 1916, 20, 101.

As regards the introduction of the bag we find that unless the edges of the prostatic capsule are tucked down while the bag is being blown up it does not control the hemorrhage properly.

We have also had some experience with regard to the value of special nurses. Our male nurse looks after these prostates with the utmost care, and we consider that the good results we have had are due largely to this man's faithful and efficient attention to every minute detail.

We also have found that the perineal operation is of very great value, particularly in old and feeble men. I cannot understand—I do not think it has been satisfactorily explained—why it is that in perineal prostatectomies there is practically never the amount of hemorrhage that one finds in suprapubics. We have had two cases lately where there was a very profuse hemorrhage immediately after the perineal prostatectomy, and something had to be done. We have tried every means of packing around the tube with gauze, holding the bladder neck down, but without much success; so that in these two cases we have used the Hagner bag in the reverse position, simply putting it empty into the bladder, blowing it up and pulling it down against the neck of the bladder and attaching it to the leg. That immediately stopped the hemorrhage. In one case the bag was removed after eight hours, in another case after twenty-four hours. In the meantime the patient passed three ounces of urine by urethra.

DR. BERNARD ERDMAN, Indianapolis: In a very large experience in prostatic work with Dr. Wishard and Dr. Hamer, we have never had the misfortune to have the bag come apart in any way.

I have a bag of my own which I have used not less than ten times. I have no hesitancy in boiling it to sterilize it. We use commonly two sizes of the Hagner bag. The smaller one we use where we have a small growth, and the larger one when we have large and easily and readily enucleated growths.

The crutch which Dr. Hamer presented to the American Urological Association last April is of inestimable value. It gives all the tension you want to make, and at the same time allows you to increase that tension, and it will deflate and allow the crutch as well as the bag to remain in the bladder. In the event that you have considerable oozing coming up you can again inflate the bag, put the tube through the opening in the crutch, drag it down tightly against the surface, and stop the bleeding. Dr. Barney is right when he says that if the bags are not well brought down into the prostatic opening after the enucleation is made the liability to hemorrhage is increased.

I have heard considerable expressions of opinion here about anesthesia, spinal, and general, but very little about gas. We use gas, oxygen and ether in practically every instance. In the summer of 1906, in Vienna, I had the pleasure of seeing Dr. Zuckerhandl do between 100 and 200 major genito-urinary surgical procedures below the umbilicus, with the use of tropacocain. They were in the habit of making a spinal puncture, withdrawing about 5 c.c. of spinal fluid; they use tropacocain in 0.5 c.c. of spinal fluid, and then with a syringe allowing it to flow in very slowly by gravity, then lowering the syringe, allowing the spinal fluid to flow off into the syringe; and in that way mixing more or less of the spinal fluid with the tropacocain, allowing sufficient time before beginning the operative procedure.

DR. OSWALD S. LOWSLEY, New York: I have always felt that any sort of an inflated bag in the neck of the bladder was wrong in principle. We know that the bladder will contract when distended; and if we put a bag in that causes sufficient pressure to stop bleeding the sphincter will tend to contract spasmodically with the result that it will be more apt to continue the bleeding rather than stop it. It seems to me to be much the easier procedure to put in a great big tube; in the first place, to stop the bleeding at the time of the operation, which is the proper thing to do. If there is sufficient bleeding to be embarrassing, then the patient should be placed in the Trendelenburg position while yet under the anesthetic. It can then be determined within one minute

whether the patient is going to bleed seriously and bleeding points clamped and tied. It seems to me much more desirable to put in a small amount of packing, which can be increased if necessity demands, rather than put in a distended rubber bag which causes this spasmodic contraction resulting in continuation of the bleeding. The matter of suction, or the matter of proper tight fitting drainage after the operation seems to be important. I believe in the suction apparatus, because it is important to keep the patient well drained and dry. If suction apparatus is used properly it will not cause additional bleeding, because we put in a big tube and inside of that put a smaller tube which does not reach to the bladder, it only causes suction within the large tube; and then we attach that to the ordinary suction apparatus. There are various methods of drainage suction devices. Dr. Byron T. Caples at Bellevue has devised a vacuum suction apparatus which works very well.

DR. W. C. QUINBY, Boston: In the control of hemorrhage following suprapubic prostatectomy I have never had to resort to the use of the Hagner bag; I have always had one available, but have never had to use it. It has always seemed to me that one of the main aims to be strived for and which should always be accomplished before putting the patient back to bed after suprapubic prostatectomy, is a sufficient control of the hemorrhage at the time of the operation. When this has been adequate there will be no qualms in regard to the patient's subsequent career with respect to hemorrhage; and therefore, as Dr. Lowsley and so many of you have advocated in the past, and still continue to advocate, I have always inspected the prostate bed very carefully and ligated any bleeding that was definite enough to need ligation. I have found that the use of a gauze tape soaked in a coagulant (kephalin) and packed for a few moments into the cavity from which the gland has been removed is really of distinct advantage. After the bladder wall is nearly sutured and just before the drainage catheter is adjusted this tape is removed. I mention this as an added means which we make use of to prevent undue bleeding.

DR. BERNARD ERDMAN, Indianapolis: If you are going to put anything in the bladder why put in the gauze? If the Hagner bag prevents contraction of the bladder neck, the gauze will certainly prevent it. Packing the gauze down into the wound would not offer anything at all superior to the use of the Hagner bag, and has one disadvantage in the fact that when you remove the gauze it always causes a great deal of pain to the patient because it is packed down so tight and the blood makes it stiff and hard; whereas if you use the bag you can lubricate with sterile oil or water. You can inflate the bag and if there is any bleeding after a couple of hours you can continue to tighten up on the bag. If you do use the bag, be sure that it is packed down and that the opening is well closed. Dr. Pilcher a short time ago called particular attention to the use of the bag with a catheter arrangement. The introduction of a catheter is another element of danger; and for that reason we have simply used the bag together with a tube in those instances where the patient has no severe bleeding, packing with homoplastic gauze first if severe. Then you can go home and forget all about it.

DR. OSWALD S. LOWSLEY, New York: The criticisms of Dr. Erdman are not well taken. In using gauze we pack the prostatic cavity, not the neck of the bladder. In using the bag you compress the neck of the bladder. I approve of the use of any styptic.

DR. GUSTAV KOLISCHER, Chicago: As to the hemorrhage after a prostate enucleation, I am convinced that a great many of these prosthetics who die after the operation under all kinds of very scientific diagnosis, simply ooze themselves slowly to death into their bladder. Their resistance is so lowered that they cannot resist the infection which occurs after a prostatectomy. Some years ago I suggested the running of a hemstitch around the edge of the prostatic cavity and then securing the bleeding points in the bottom by ligatures. That prolongs the operation very much, being a painstaking affair, and is generally not sufficient. It does not check parenchymatous oozing.

Whether you use the Hagner bag or gauze for compression there is always one objection, you have to remove the bag or whatever it may be, and then you may have a secondary hemorrhage, which is very dangerous for an old man, and hard to stop.

In discussing this sloughing around the tube we have used for draining the bladder, Dr. Schmidt pointed out the possibility that we may have to deal with idiosyncrasies against rubber. Recently I have used glass tubes, instead of rubber tubes, and it seemed to me that the sloughing around the drainage point has been reduced to some extent. You may ask how we are going to stop the hemorrhage. I do that by transplanting fat into the cavity resulting from enucleation of the prostate. You put in a tampon that is not to be removed. Part of this fat, as proved by experiment, becomes attached, and part of it will float out in drops or chunks. Of course, you have to be careful to fasten the fat into this cavity, to tie it down with one suture; otherwise the fat will slip out of position. One of my associates put fat in and did not anchor it properly; the bladder closed up, and finally a stone formed around this fat.

The introducing of a catheter after a prostatectomy presents a great danger. Whenever you introduce an instrument you may produce very intense inflammation. The checking of the hemorrhage is absolutely important, but you will often hear statements that there is no considerable hemorrhage, or that the hemorrhage is fairly well controlled, etc. That is not good surgery. We have to be sure that the patient does not bleed after closing the wound, and that he will not bleed afterward, whether it be one or two days. The patient must not bleed at all; and you must have a guarantee against subsequent hemorrhage.

DR. L. E. SCHMIDT, Chicago: I want to make the same plea that Dr. Gardner has with regard to the two-step operation. There is no question in my mind at all as to its success if it is carried out the way the doctor describes, allowing a period of time to elapse which varies in different individuals. Between the first and second step I oftentimes allow anywhere from one month to two or three months to elapse; occasionally allowing the patient to go home, particularly if they come from the country, letting them take their own time practically, instructing them to return when they feel thoroughly recuperated. With some individuals who are in exceptionally good condition, possibly a week or ten days, or two weeks may be allowed; but, as a rule, a longer period of time is permitted to elapse. Of course, if you take into consideration the entire length of time of their stay in the hospital, the two-step operation is unquestionably longer.

So far as the hemorrhage is concerned, I want to say that I have lost only one patient in over three years in private practice in connection with the two-step operation, and this death occurred from embolism four weeks after the second operation. As far as hemorrhages are concerned, I am under the impression that careful work in the enucleation eliminates the necessity of using a lot of these apparatuses, packing, etc. I have been in the habit, particularly in the last few years since I have been doing the two-step operation in which the hemorrhages are as a rule far less than in the one-step operation, of eliminating as much as possible the use of these various methods of stopping hemorrhages. I have been in the habit, though not able to state positively the exact benefit derived, of using various preparations, such as serums. It has struck me that excessive hemorrhage has been far less. The hemorrhage has been practically cleared up in the course of six or eight hours in most of the cases sometimes at the end of twenty-four hours. I think, therefore, if you can avoid the unnecessary use of the bags and packing it will avoid a lot of disturbance to the patient, particularly when it comes to the removal of these bags and gauze which we know are productive of pain; and as we know also, if they remain any length of time, the reaction in old people who have cardiac troubles is of great severity.

DR. V. D. LESPINASSE, Chicago: In regard to the transplantation of fat as a hemostatic, we have found that in addition to the mechanical effect of a foreign body we have a certain amount of hemostatic ferment produced from the

breaking down of the cells of the fatty tissue that aids in the coagulation of the blood. These hemorrhages from the prostatic capsule can be controlled perfectly by the use of almost any of the hemostatic powders that are on the market now, either powders or semiliquids, they are all of value. Most of them are finely ground tissue, lung, brain, etc. Some of them are serum with the water driven off in vacuo, the residue dried and powdered. The best of these hemostatic powders is made by the addition of very weak acetic acid to an extract in cold water of ground lung, which makes a brownish powder which I have used very extensively for many years, for hemorrhages of the bladder, long before these hemostatic powders came on the market at all. You can sprinkle it on gauze and then hold the gauze on the bleeding surface; the bleeding ceases almost at once and the bladder cavity is perfectly dry when you have completed the operation.

Another point about hemorrhage, if the patient is septic, he is more liable to bleed than if he is not septic. With most of the types of sepsis there is a disturbance in the mechanism of clotting of the blood, and these patients bleed much more easily and much more persistently than do perfectly normal individuals. The sepsis produces a certain amount of hemolysis so that the control of the sepsis has a very important bearing on the prevention of hemorrhage.

Finally, when everything else has been done and the bleeding still continues, fill the patient's blood vessels with blood by some of the methods of transfusion. A patient should not die simply from loss of blood. This calamity in this day and time is inexcusable. They should be filled up time after time, and then, if they keep on bleeding after one or two transfusions, try to stop the hemorrhage. The transfusion should be repeated from time to time as may be necessary. The transfusion fulfills two purposes; it replaces the lost blood and aids the patient to overcome his sepsis.

DR. C. M. HARPSTER, Toledo, Ohio: Are we thoroughly convinced that the removing of the entire amount of urine from the bladder of a patient suffering from overdistention and retention suddenly, conduces to shock, and sometimes the death of the patient? I, for one, am. I have used successfully a considerable number of times, and heartily endorse the method of Lower in these cases where the patient is desperately sick, with retention and distention, and he has been severely traumatized by the attempts of the attending physician to pass a sound or catheter. I pass a large trocar just above the pubes (the intestine will not be over a distended bladder) and pass a large catheter through the trocar and fix the catheter in position with a stitch through the skin high on the catheter, or fix the catheter with the catheter retainers of Euard. By having an artery clamp on the end of the catheter, the urine can be let out at will. In some of my cases, before removing the prostate, where an acute retention has occurred, I have left the catheter in position three or four weeks. In this way I have been able to relieve the back pressure, and at the next sitting the prostate can be removed perineally or suprapubically as desired. In a number of cases I have done a perineal prostatectomy after this method of suprapubic drainage has been used for some weeks.

DR. MACGOWAN: Do you cut down on the bladder?

DR. HARPSTER: No; I place catheter in the bladder, through the trocar, and fix the catheter with a stitch or otherwise. No anesthetic is necessary, as a rule, although I have in several instances infiltrated with procain. It can be done in a minute. There is no shock or disturbance to the patient. I have never seen extravasation of the urine occur as is claimed by some. If properly done you will not puncture any bowel or have any extravasation of urine.

DR. GRANVILLE MACGOWAN, Los Angeles: I have seen peritonitis and urinary infiltration following the use of the trocar and disapprove of it. The discussion has proved profitable in making prominent the devices for the control of hemorrhage. First, the Freyer tube; for many years I combated its usefulness, but after having employed all kinds of systems of drainage and appliances and devices for stopping hemorrhage in the past four years, I have satisfied myself that the great big tube of Freyer has every advantage to commend it, in safety for the patient and comfort for his

attendant. The tube must be sufficiently large so that it gives free exit to all drainage and must not touch the bottom of the bladder or come in contact with the internal sphincter, for it will cause intermittent irritation and tenesmus which will produce the hemorrhage it is sought to avoid. Any ordinary hemorrhage after a prostatic operation will be controlled by this tube. Dr. Louis Schmidt seeks to prevent hemorrhage by commencing at the anterior angle of the gland and believes one is less likely to break into the capsular network of the veins in this way, which seems reasonable. Whenever one packs the cavity, the gauze cannot be removed without danger of secondary hemorrhage until it has loosened itself. I have had some very disagreeable experiences following removal of gauze packs from prostatic cavities. I have never had occasion to try Dr. Kolischer's idea of using fat in the prostatic cavity as a hemostatic. I cannot convince myself that it is a right surgical procedure in a hollow viscus. It is valuable about the kidney pelvis when some small blood vessel has been wounded in closing the incision and its oozing cannot be controlled by ligature.

The bag of Hagner is not an unalloyed comfort. I would not like to be without it. It has, at times, been of great service; at other times it has seemed to provoke, through causing tenesmus, the hemorrhage it is designed to prevent or to stop. If the hemorrhage is very smart and persistent in the abdominal incision, one should allow inspection of the cavity; if any blood vessels are seen spurting, they should have a ligature placed on them, or the tissues of the bladder neck basted over with a running suture of catgut, as well as possible.

DR. JAMES A. GARDNER, Buffalo: Dr. Kolischer has answered Dr. Kretschmer's criticism of the "Silent Prostate." The patient does not recognize it and the general practitioner does recognize it but treats the patient for something else, and the name "silent prostate" was used for that reason. There is no question that many patients bled to death after prostatectomy without our realizing it when the continual irrigation was used. The patient was supposed to be dying of shock, when they were really dying of hemorrhage.

I fill the Hagner bag with water. Water is very much more satisfactory than air.

I like the Pilcher modification of the Hagner bag because we get the benefit of drainage through the tube that is in the urethra. The reason I have used the Hagner bag when there has been no severe hemorrhage was that I could not seem to stop the oozing, because, as Dr. Kolischer has brought out—and I agree with him—those cases which have looked all right at the time of operation, and were not bleeding much, developed a good deal of hemorrhage in from one to twelve hours.

For a number of years before I used the Hagner bag I packed the prostatic cavity with gauze. After twenty-four hours, as the urine softened the upper layers, the gauze was removed. This procedure was performed every four hours, until all the gauze came away, which usually took about twenty-four hours.

We use practically the same thing as Dr. Hamer's crutch with a slight modification; instead of using the clamp to take up the tension on the tube, we use some cord with a sailor's knot which does not slip and yet incidentally does not shut down the caliber of the tube; therefore, through this tube you have drainage unless it is clogged by a clot.

I am very glad to second what Dr. Schmidt said about allowing time to elapse between the first and second operation. I think it is very important. I have had patients go three months between the first and second operation when it would have been absolutely impossible to operate on them safely when I first saw them, but having a chance to build up, they became very simple cases.

We have had a few patients every year who absolutely refused a prostatectomy, saying that they would rather die than be operated on. I inform them that they need a slight emergency operation under local anesthesia and that they can go home in about a week's time. Following the placing of the Pezzer catheter in the suprapubic wound which usually closes in a week, they are permitted to go home with instructions to use sweat baths; have the bladder washed daily and keep

the bowels open. After being home for a week they return, stating that they feel very much better but that the suprapubic drainage was rather inconvenient. It is very easy at this time to persuade them to have a prostatectomy.

Dr. Harpster spoke about Dr. Lower's trocar. I was very much pleased when I got my first one. I tried it on two or three occasions but found that it seemed to irritate the patients. My main objection is that men who could use it safely can just as easily do a suprapubic cystotomy, and those who cannot perform a cystotomy will either go anterior to the bladder or behind into the intestines.

ACUTE COLON BACILLUS INFECTION OF THE URINARY TRACT*

J. DELLINGER BARNEY, M.D.

BOSTON

Much careful and fruitful study has been given the question of acute nontuberculous renal infection. The work of Brewer, Cunningham, Keyes, Jr., David, Cabot and Crabtree, and finally, that of Culver, Herrold and Phifer shines forth brilliantly and forcibly. At the same time there is no denying the fact that cases of the type mentioned go frequently unrecognized, or are wrongly diagnosed, or, by a mistake in judgment, the patients are operated on unnecessarily. The object of the present communication is to emphasize certain points in the diagnosis and treatment of these cases, in the hope that they may be recognized more readily and treated more intelligently.

My observations are based on a series of cases seen during the past year, all but one occurring in private practice in well-to-do young men.

From an etiologic standpoint we know that the colon bacillus was responsible for the lesion in each case, but the exciting factor, the exact circumstance which started the colon bacillus to assume its extraordinary activity, is still in the dark. Why should an apparently healthy person without obvious abnormality of any part of the urinary tract and with urine known, in many instances, to have been previously normal, suddenly and without demonstrable cause become thoroughly infected by the colon bacillus? Such was the situation in four of my patients, the condition of whose urine was known just before the onset of the infection. In these patients, as well as in the others, there had been no urinary disturbance of any sort, subjective or objective, recent or remote.

POSSIBLE EXCITING CAUSES

By careful examination and inquiry certain possible exciting causes were demonstrable. In the first place all gave a definite history of being unusually "run down" from mental or physical overwork. Three were students in the midst of final examinations, anxious and underweight; one was a civil engineer with a difficult job on his hands and four weeks previously the victim of an automobile accident, with severe lacerations of the leg which had become mildly septic but which were nearly healed at the time of onset of the kidney infection. There was no trauma to the body but the patient was more or less shaken, twisted and bruised. Another was a mail clerk, handling more than his share of heavy mail sacks; the fifth was an undernourished, hardworking laborer, who led

* Read before the Section on Genito-Urinary Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

a most unhygienic life; the sixth was an exceedingly busy Chicago doctor, who noted the onset of his trouble after an unusual physical effort in lifting a heavy patient. In this case, however, as well as in one of the students, the civil engineer and the laborer, a chance examination of the urine previous to the infection showed nothing abnormal.

It has been demonstrated beyond a doubt by numerous careful observers, not only that organisms of all sorts, such as cocci, colon, typhoid, anthrax, leprosy and tubercle bacilli, may and do circulate freely in the blood stream, but also may be and often are excreted by the kidney without producing demonstrable lesions in that organ. Cabot and Crabtree,¹ in their recent exhaustive study of nontuberculous renal infections, after an examination of all the evidence, conclude:

The array of apparently conflicting testimony has brought certain eminent observers to the conclusion that in cases where no lesion was discovered it was because a slight lesion had been overlooked. This we believe to be an entirely unwarranted conclusion. In view of the fact that insoluble substances have been shown to pass the kidneys without damage; in view of the fact that many competent observers have passed bacteria through the kidney repeatedly and then examined these kidneys after sacrifice of the animal; and in view of the fact that we are daily accepting the clinical evidence obtained by the study of patients in regard to the integrity of their kidneys, we cannot avoid the conclusion that bacteria pass the healthy kidney. That they do not do so always, or under all conditions, simply confirms the well-known fact that local conditions in the kidney and general conditions in the organism influence the occurrence or nonoccurrence of infections. While we are prepared to admit the accuracy of all the observations above quoted, they seem to us to prove conclusively that organisms circulate in the blood and pass through the kidney, in many cases without producing any lesion and in many other cases with the production of various lesions.

My own experience confirms this view. One patient whose urine was known to be normal before the onset of symptoms, and who was desperately ill as a result of his infection, made a speedy and uninterrupted recovery and has had an absolutely clear and sterile urine ever since, now nearly a year since his illness. Two others who were seen shortly after recovery had but a few leukocytes and colon bacilli in the urine, in contrast to the enormous numbers of both elements found during the height of the infection. It is obvious, therefore, that the most severe infections may go on to complete recovery without operative interference, assisted only by nature and such palliative treatment as we have to offer. While no definite statement may be made, it is possible that this may account for some of the miraculous cures of kidney infection reported after lavage of the renal pelvis with various solutions, notably the solution of aluminum acetate advocated by Koll.²

It is also obvious from a study of my cases and those of others that infection, once established in one or both kidneys, may continue almost indefinitely in spite of all effort to relieve it, and without any demonstrable harm to the organ or to the individual. For example, one of my patients had bilateral infection of the kidneys. Constitutional disturbance, loss of weight, anorexia and backache were marked and persistent, and the temperature was elevated for many days.

Today, three years after his acute illness, the urine contains innumerable colon bacilli and pus cells. There is, however, no temperature at any time, there are no symptoms referable to kidney or bladder, and the patient has gained steadily in weight and strength. In other words, he has immunized himself to the infection and it is unlikely that, barring some general or local devitalizing factor, he will have an exacerbation of the original process. Such, at any rate, has been my experience.

NATURAL AND ARTIFICIAL IMMUNIZATION

This case has followed closely the order of events seen in patients with obstructing prostate. The residual is at first clear and uninfected. With the establishment of bladder drainage, either by suprapubic cystotomy or by an inlying catheter, infection of the bladder soon makes its appearance, closely followed by kidney infection with an accompanying rise of temperature, generally ushered in by a chill, backache, malaise, a drop in the daily amount of urine, and a decrease of renal function. In other words, we have produced more or less artificially and with malice aforethought the very condition of affairs seen in the cases the reports of which form the substance of this paper. Yet experience has shown that this renal infection is beneficial rather than otherwise, and is bound to occur sooner or later. If, however, it takes place before operation, the patient weathers the storm fairly well, immunity is established, and no further exacerbation is to be expected. On the other hand, if such an infection occurs just after, instead of before operation, it goes hard with the patient, who then has the onerous task of immunizing himself against infection while he is battling with the effects of the operation. The load is often more than he can carry and he falls by the wayside.

That there is such a thing as natural immunity to colon bacillus, I think all will agree. Artificial immunity is, however, more difficult to accomplish. Some time ago, my colleague, E. G. Crabtree, working in the laboratory of the Massachusetts General Hospital, found that the blood of a normal young adult would clump colon bacilli in a dilution of about 1:40. In patients with an infection of long standing with this organism, the immunity was much higher, sometimes 1:600. In view of this, studies in artificial immunity were undertaken with what seemed at first to be marked success. The immunity, as measured by what was believed to be accurate means, was found to increase progressively with each dose of vaccine, and many cases of obstructing prostate with uninfected urine were carried through operation and convalescence with no evidences of infection.

SYMPTOMS

My belief is that renal infection with or without obvious cause in kidney or bladder may, and often does, begin insidiously and may even go on for years without the patient's knowledge. Such is the case in the old man who presents himself with an obstructing prostate and with a well marked pyelonephritis, but from whom no history of any acute infection can be elicited. But when his infection comes on after catheterization in a previously sterile urine, it resembles in its severity and sudden onset the infection seen in the cases under consideration. The difference is that in the one case we can locate the determining

1. Cabot, H., and Crabtree, E. G.: *Etiology and Pathology of Nontuberculous Renal Infections*, Surg. Gynec. and Obst., 1916, 23, 495.
2. Koll, I. S.: *Am. Jour. Urol.*, 1911, 7, 417.

cause, namely, the catheter; whereas in the other, we are forced into more or less speculation and theorizing.

In the acute renal infections now under consideration, sudden and severe bladder irritability was the first symptom noted in every instance. This included frequency, urgency, and dysuria and hematuria (both generally terminal) in various combinations and degrees of severity. In this respect my experience differs with that of Culver, Herrold and Phifer³ who found that bladder symptoms stood third in order of frequency, time of appearance, and predominance. It is notable that colon bacillus infections of the urinary tract of long standing and less severity generally produce no bladder symptoms whatever.

Symptoms referable to the kidney were noted in only four cases, appearing either just after the onset of the disturbance or not for some days later. In one there was generalized lumbar pain, in another the symptoms pointed only to the right kidney, while in two attention was called only to the left kidney. Tenderness in the costovertebral angle was noted in all these cases corresponding to the seat of pain, and in those with the most severe infection it was extreme.

In only two cases was there a chill, either at the onset of infection, or during its course, but both patients presented a severe infection, and in one, from whom a blood culture was made at the height of the chill, the colon bacillus was found. While the results of blood cultures have often been unsatisfactory, I can state from a considerable personal experience in these and other renal infections that if one follows the technic developed by Crabtree, the findings will be more satisfactory. The latter, "in a series of thirty-two cases obtained positive blood cultures in 40 per cent., a ratio larger than that ordinarily obtainable in typhoid fever, which is admitted to be a bacillemia." The secret of success lies in taking the culture at the height of the chill as in malaria, and the order of events, if studied closely, will be found to be bacillemia, bacilluria, pyelitis and pyelonephritis.

A symptom noted in one of my cases, and one to which I have not seen attention called elsewhere, was severe urethritis, with a profuse purulent discharge containing the colon bacillus in pure culture. So marked was the urethritis, dysuria and urgency that the resemblance to an acute prostatitis of gonococcal origin was very strong.

A composite history of these cases embodies many of the clinical symptoms of typhoid fever. Indeed, such was the probable diagnosis in a group of cases (not recent) from the Massachusetts General Hospital, studied by Cabot and Crabtree. These authors believe that:

These cases simulating typhoid and due to the colon bacillus, in other words, cases of colon bacillus bacillemia, are much more common than has been generally supposed. The records of any large hospital during recent years will show a considerable number of these cases in which clinical symptoms suggest typhoid, but the diagnosis could not be confirmed and they were finally discharged cured, often with a diagnosis of paratyphoid. A correct solution can be obtained only by careful study of the blood and urine with good technic, and particularly when they are seen at an early stage of the disease.

Cystoscopic examination of the bladder yields but little information. The mucosa is in some instances velvety and deeply injected, perhaps more on one

side than the other, but often there is no special change. Catheterization of the ureters, however, gives more definite data. In three of my cases the urine from each side was loaded with colon bacilli and pus, while in another colon bacilli alone were found. Subsequently, however, the urine from both kidneys showed pus as well as bacilli. It has been interesting to note that in no case has there been any appreciable decrease of renal function as shown by the phenolsulphonephthalein test, either as regards time of appearance or total output. In this respect, my observations in these cases differ from those in cases of obstructing prostate, wherein after the onset of renal infection and pyelonephritis a drop in function is not uncommon. Pathologic evidence would indicate that this is due to an "acute cloudy swelling of the kidney, probably involving chiefly the tubular portion. That this process is short-lived and goes on rapidly to practically complete recovery is suggested by the return of kidney function and conclusively proved by the appearance of the kidney postmortem."¹ Clinical evidence is sufficiently abundant to bear out this conclusion, and it may be argued that in my own cases the observations were made either before any pathologic changes had occurred in the kidney or after they had cleared up.

SEARCH FOR FOCUS OF INFECTION

A careful search of each patient failed to reveal any focus of infection, past or present, which might account for the onset of the renal condition. It has already been noted that all patients were more or less below par, and one in addition had had an injury which might have indirectly induced his illness. One young man had an extensive pyorrhea alveolaris, another had been told a year or two before that his tonsils were inflamed and should be removed. The roentgen-ray examination was negative in all, in that no shadow which could be properly interpreted as a stone could be found, while in one case a painful and tender left kidney was found considerably enlarged, an observation already made by palpation of that organ. In other words, one can say no more than that the infection came, as it were, "out of a clear sky," arising undoubtedly from a definite focus but undiscovered, perhaps undiscoverable, by the diagnostic methods employed, and finding fertile soil in an organ devitalized by one cause or another.

While it would appear from the previous history and roentgen-ray examination of my cases that renal calculus was not a factor, this cannot be positively excluded. Furthermore, who can deny that renal retention, unilateral or bilateral, produced by ptosis, simple or complicated by an aberrant vessel or other band, did not encourage the prolonged residence of organisms which otherwise would be transient? Doubtless, further and more exhaustive study of these cases would have settled the question, but it would be poor judgment to undertake any prolonged examination, especially one involving, as it would, pyelography and distention of an acutely inflamed renal pelvis. In those instances in which complete recovery has taken place, or seems likely to occur, such an examination would appear to be superfluous. One can explain the phenomena by concluding that the infecting organism, arising from a definite focus, demonstrable or otherwise, overwhelmed by its numbers and high virulence first the kidney, or kidneys, and then

3. Culver, H., Herrold, R. D., and Phifer, F. M.: Renal Infections, THE JOURNAL A. M. A., May 18, 1918, p. 1444.

the patient. On the other hand, when the renal infection persists for any considerable time after its acuteness has subsided, every effort should be made to determine the exact status of the renal pelvis, for it is in these cases that some interference will be found with the outflow of urine from the organ. While it does not, however, always follow that the correction of such an abnormality will wipe out the infection, it is my belief, and experience, that acute exacerbations of the infection are extremely unlikely.

TREATMENT

When it comes to treatment the judgment of the surgeon may be sorely taxed and only a considerable experience, exact diagnosis, and regard for the pathology of renal infections will point the way. Having once established a diagnosis of colon bacillus infection of one or both kidneys, one is greatly aided in his decision by remembering the statement of Cabot and Crabtree that "the colon bacillus rarely produces suppurative lesions of the kidney in man, while in animals it may readily do so; and this has given rise to the quite erroneous assertion that the colon bacillus commonly, or even regularly, produces abscesses of the kidney." On the other hand it must not be forgotten, as pointed out by these authors, that "it is not rare to find kidneys showing the evidences of at least three infections differing in point of time and often in the nature of the organism involved." Given a case with history and physical examination similar to those described, "watchful waiting," tempered by judgment, and this in turn founded on experience, may be safely employed. Inasmuch as pathology has shown that the colon bacillus affects chiefly "those portions of the kidney relatively accessible to formaldehyd-containing drugs," the latter must be worked judiciously and vigorously. I consider that hexamethylenamin given in $7\frac{1}{2}$, or even 10 grain doses every four hours, together with 10 grains of the acid (monobasic) sodium phosphate, and the administration by mouth or rectum of large amounts of water or of saline solution subpectorally, is a most efficient combination. Free catharsis, if not already produced by the acid sodium phosphate (which it generally is) should be accomplished. Otherwise drugs are of little value except as indicated for pain or sleeplessness. Absolute rest in bed, with hot fomentations to the lumbar region, is a *sine qua non*. Should a definite cause of infection, such as renal stone, be found, it should be properly treated, but in its absence palliation along the lines indicated is alone sufficient. While in a thoroughly septic patient, with temperature, chills, nausea and vomiting, profuse sweating, and a painful, tender and enlarged kidney, the temptation to operate is strong, the recollection of the pathology, the knowledge that in more than 50 per cent. of the cases the infection is bilateral, and the experience which has seen patients in other equally bad cases recover, will perhaps stay the hand that is eager to grasp the knife.

ABSTRACT OF DISCUSSION

DR. H. L. KRETSCHMER, Chicago: One point that always interests us most is the route by which the colon bacillus gets to the kidney. People in Boston are very firmly convinced that the colon bacillus gets there through the blood stream. Perhaps they see more acute cases than we do. Some of the bacilli doubtless reach the kidney through the blood

stream. I believe, however, that there are other routes of infection. Francke has been able to demonstrate what appears to be a direct lymphatic connection between the large colon and the capsule of the kidney. The work of the Japanese seems to point to the fact that there is a direct lymphatic connection between the lymphatics that run over the fatty capsule and the lymphatics within the kidney. If this is true, it is very easy to see how these organisms may travel through the lymph system from the large intestine to the kidney.

Asch has been able to produce bacteriuria in dogs by feeding them opium so that the bowels were locked up from seven to ten days. Without treatment of any sort, except to open up the bowels, the bacteriuria promptly disappeared; so that the lesions of the intestinal tract may be a predisposing factor in the production of renal infection by the colon bacillus. Many of these patients have a history of colitis. Many cases occur in the children's hospitals during the summer time, when gastro-intestinal disturbances are common in children. Some of our cases have had disturbances of the colon, and treat them as we would, we have been unable to make any progress until the colon conditions were corrected.

Not only lesions of the colon but lesions of other organs should always be studied. In THE JOURNAL of the American Medical Association, June 24, 1916, F. W. Goarde and I reported several instances in which infections in the prostate and seminal vesicles were not treated and the patients had relapse of their renal infection, and we came to the conclusion that they relapsed because of the presence of infection in the prostate and vesicles. In another of our kidney infections which was not due to colon bacillus, we found *Streptococcus viridans* in the blood, and in the urine from both sides and in some abscessed teeth; so that this problem is not a local urinary problem. In some of these cases we found associated lesions in the pelvic organs, and we always aim to correct these.

We accept as cured only cases in which we have been able to render the urine sterile and free of pus. We have not relied on the ordinary routine urinary examination, but insisted on obtaining sterile cultures.

DR. GRANVILLE MACGOWAN, Los Angeles: I think that Dr. Kretschmer struck the real keynote when he said that both colon infection and bacteriuria are not a local but a general problem, and unless you fully admit the hopelessness of the expectation of creating a cure in so many cases, what Dr. Schmidt has so frankly said must be conceded. Yet, at the same time, that does not excuse us as physicians from using every measure we can employ and every power we possess to discover the reason or cause for the presence of these bacteria in the urine. Oftentimes, the presence of bacteria in the urine does not mean that the person is in bad health; it does not necessarily indicate that he is in a definitely diseased condition that comes home to him in the shape of particular symptoms. In every case bacteriuria is the sign and symptom of a diseased condition, and is accompanied by prostatitis in males and cystitis in females, and there is no longer true bacteriuria, but an inflammatory condition of the mucosa of the urinary tract. My observation has been that these cases of colon bacillus bacteriuria and colon bacillus infection of the urinary tract, when persistent, are invariably due to colon stasis. This chronic stasis constantly produces a constant supply of bacilli in the circulation and by lymphatic connections they get into the capsule of the kidney and from there into the cortex, down to the tubular portion, creating eventually an infection of the kidney pelvis on their way out. If there is any invasion either in the ureters or in the neck of the bladder, or in the urethra, we will in all likelihood not only have colon bacillus infection and bacteriuria but we will also have pyelitis and eventually have true cystitis.

DR. OSWALD S. LOWSLEY, New York: Colon bacillus infections of the kidneys and ureters are the bugbear we have to face. I quite agree with the speakers that the removal of bacteriuria is very difficult, and practically impossible. Such people should be subjected to just as thorough an examination as it is possible to give by means of the roentgen ray

to determine whether there are foci in the sinuses or bony structures in the prostate. The treatment is a very interesting and delicate matter. In the height of the acute exacerbations it is unwise to give them acid sodium phosphate and hexamethylenamin, but I do think that kidney pelvic drainage is important, if the temperature remains elevated. If the patient has repeated chills and there are symptoms of distention of the kidney pelvis, put in a catheter and allow the material to drain from the pelvis. My reason for saying that it is unwise to give the above mentioned drugs in acute exacerbations is that it will produce more edema of the mucous membranes than already exists, and will tend to increase the blockage of the canal. When the catheter is in place, however, and carefully watched by a competent person and kept open, great relief may follow and the patient's temperature will generally drop very promptly and relief from that particular attack will occur. In chronic cases renal pelvis lavage is very important; but it seems to me a wise procedure not to wash out more than one kidney pelvis at a time, because the reaction after treatment is sometimes very severe, and if both kidneys are subjected to this it introduces a new complication.

DR. BRANSFORD LEWIS, St. Louis: I would not like to have the pessimistic tone prevail as expressed by Dr. Schmidt, although I have encountered cases of bacteriuria that I have been unable to overcome. Still, I would not like to have his expression applied to all the cases that you cannot do much for them. For some you can; for some you cannot.

Success in many of these cases depends on whether or not you detect the focus of infection.

DR. C. W. BETHUNE, Buffalo: I have been very much impressed with the history of colon infection, especially in a woman whose case was thought to be trouble from overdistention of the bladder. She was in the hospital with a fractured leg. She had some unpleasant experience with the night nurse and she would not call her during twelve hours of service. After that she had a severe colon infection from which she died. I want to ask Dr. Barney if he ever used ammonium salicylate instead of hexamethylenamin? I believe Wright was the man who first suggested its use.

DR. J. DELLINGER BARNEY, Boston: My object was to call attention to the fact that these cases of acute colon infection of the kidneys call for the greatest discretion and the highest exercise of surgical judgment. By watching them with expert care they can generally be cured without a cutting operation. I recently saw two patients who had been under the care of other surgeons and had been operated on under the belief that there was acute suppuration of the kidney. No such suppuration was found, and the patients were made distinctly worse. I agree with Dr. Kretschmer that this is not a local affair, but that we must look elsewhere than in the kidney for the primary focus.

As to the method of examination of the urine. The culture is not of very much value, because by the time it is made, some extraneous or secondary organism may be more virile than the real offender and overshadow it. The important organism can best be found by immediately staining a specimen of the sediment of the catheterized urine. We have had but little luck—in fact, none, with the use of vaccines, particularly in these acute cases, although vaccines have been of apparent value in some of the chronic cases. We have been accused of ascribing all these infections to the blood stream. Perhaps we have become enthusiastic because of our success in finding organisms in the blood, thanks to Dr. E. G. Crabtree's very efficient work. They are found there in a very large number of instances. We do not think well of irrigation of the pelvis, particularly in the acute cases. We do find the passage of a catheter is a beneficial application, as it may straighten out a kink or remove an obstruction. We do not believe that hexamethylenamin is an irritant to the kidney, although it does produce bladder irritation in certain instances.

DR. LOUIS E. SCHMIDT, Chicago: I find myself perfectly clear in regard to the connection between the lymphatics, the colon, and the kidney. I stated that that was unquestionably a source of a large number of infections. So far as the colon

bacilluria is concerned, it is probably due to stasis or some other condition by which there is a direct connection between the bowels and the colon and then probably reaching the kidney. I know of instances where patients have been operated on for chronic appendicitis, where there have been adhesions and where certain types of bacteriuria have been cleared up. In these cases, however, there has always been an inflammatory exudate, either in the pelvis of the kidney, or in the ureter, in connection with the inflammatory mass. Following these operations in many cases some of the bacteriuria has persisted. In these cases there is, however, as a rule, always pus in the urine and red corpuscles. This is not a distinct case of bacteriuria; it is rather a colon bacillus infection. I have seen numerous cases of this type that belong to this group in which adhesions are present and the symptoms too indefinite to justify operation. I know of two cases in which operation has been performed, both patients being women, in which the bacteriuria has not been improved and the condition still persists. In these cases there have been bands and adhesions, not as in appendicitis where there is an acute inflammatory or subacute inflammatory condition. In these cases I have frequently catheterized and obtained perfectly clear urine from the upper urinary tract and at the same time have found that the urine obtained from that side would be loaded with bacteria and red blood corpuscles.

Dr. Lowsley suggested that many of these cases have reacted to lavage. If there is any trouble in these cases outside of the urinary tract, I really cannot see what you can do with lavage. I did state in my paper that washings of the pelvis might give some relief, but I do not believe that I have ever seen a cure, whether the catheter was allowed to remain in for a long time or not.

In one of my papers I stated positively that all complications that one might suspect as being the source of infection must be treated. To overlook that fact would be the height of foolishness. I did make the statement that from local treatment only of the bacteriuria you can expect results.

So far as Dr. Lewis' criticisms are concerned, if the cases I have referred to are treated in the various ways mentioned, when you cannot find any local or general condition to account for the bacteriuria, I do not see how operative interference with some outside organ can avail, where there is absolutely positive belief of any direct connection. In all these cases local treatment is of no avail, and that is what I wish to refer to particularly.

So far as Dr. Barney is concerned, I agree fully with him as to the statements of his cases. We are all familiar with cases of colon bacillus infections. I will venture to say that the vast majority of colon bacillus infections of the kidney will clear up and are certainly not surgical cases by any means. An occasional case might be met, but very rarely, however. I agree again that where there is pus, after the onset or after this period of exacerbation, where there are a lot of bacteria present, if the urine clears up, these cases are cured, or at least there is no further recurrence in a large number of them; but these cases do not belong to the type I mentioned. There is no question at all that this condition is not to be considered as being solely local.

Report on Prevention of Blindness.—The second annual report of the Illinois Society for the Prevention of Blindness covering the year ending with October, 1917, says that in the state of Illinois there are between 2,000 and 3,000 needlessly blind persons. The organized efforts of the society were begun in 1916 when permanent offices were opened in Chicago with a full-time secretary, Miss Carolyn C. Van Blarcom, who was called by the Red Cross early in 1917 to organize and carry on work in connection with that organization in the East. Miss Dorothy L. Blatchford was then appointed secretary. Twenty-two violations of the law requiring the reporting of infants' sore eyes were prosecuted, follow-up work in ophthalmia neonatorum cases reported by physicians and midwives was done, social service work was started by Miss Blatchford in the Central Free Dispensary, a bill against the improper use of wood alcohol was drawn and promoted in the legislature by Miss Van Blarcom.

HISTOLOGY AND PATHOLOGY OF THE SUPERSTRUCTURES OF THE LID IN TRACHOMA

AND TREATMENT *

E. H. CARY, M.D.

DALLAS, TEXAS

For thirteen years I have operated for the cure of trachoma in its various stages, with distinct advantage to the patient. I had observed for a long time that in the operations made for entropion, the corneal conditions were always made better; and it seemed to me that the modification of this proceeding might be useful in the correction of corneal irritation, even before entropion should appear as one of the end-results of trachoma. As there was little of a definite nature written regarding the pathology of trachoma beyond that which takes place in the conjunctiva, it offered a field for investigation and explanation, thus placing this operation on the lid on a sound scientific basis. The presentation of this subject has been delayed by me for many years, although I am on record¹ as having discussed the value of my repair operation.

I have operated in more than 500 cases, ranging from the most extreme type, that so-called melancholy condition, xerophthalmia, to those of the early second stage, in which pannus was just making itself manifest. I have reached the point at which I can say to the patient, "I will cure you in from three to six weeks," as the case may be; and in few instances has there been a return of symptoms. One of the patients, an Indian, whose right eye gave him further trouble, returned and I found a calcareous mass which, under local anesthesia, I removed and all his trouble was abated. The eyes of another young man who continued to have symptoms after my operation, did not clear up as they should, but he was cured when a canthotomy in each side was performed. There were a few cases in which the cornea would become irritated, the pannus would increase, and one or two superficial ulcerations would appear, accompanied by photophobia and lacrimation and, in truth, many of the symptoms that might be observed before operation. In such cases we shall find a soggy middle turbinal and a sagging membrane over the septum near the middle turbinal, with more or less contact between the two parts. While it is conceivable that this condition of the nose may be brought about through infection of a similar nature, it is more likely that the eye condition simply occurs in a person who has a pathologic condition of the nose, often without being conscious of any nasal symptoms. This nasal condition becomes exaggerated from the chronic inflammation of the eye, with its attendant lacrimation, etc. The removal of the middle turbinal and the cauterization of the mucous membrane which is sagging from the septum will immediately cure the eye symptoms without further eye treatment. The result may be obtained with the cautery alone, without a turbinectomy, but it is not likely to be obtained with the latter when cautery is not used to pin the mucous membrane of the septum. In other words, in the few cases in which the repair operation has been of limited value, there is a distinct reason traceable to a definite cause,

which, when removed, results in the abatement of all symptoms. Usually we shall find only one eye affected, but I have seen cases in which both eyes were involved, relieved by the same nasal procedure. The conjunctiva and cornea change completely after the cauterization. The explanation of this I have attempted in another paper.

The histologic condition of the lid will indicate the kind of disease necessary to bring about the crimping of the tarsus, as well as the other changes in and around the tarsus which cause all of the disagreeable trachoma symptoms.

A quick survey of the histologic conditions of the lid from within will show the conjunctiva attached to a fibrous tarsus, in contradistinction to a cartilaginous tarsus often mentioned in the literature. Embedded in the fibrous tarsus, we have meibomian glands, which are sometimes of much importance in the pathology. Lying on the tarsus, close to the hair follicles, and spreading backward from its marginal attachment, the orbitotarsal fascia, or the palpebral fascia, as it is sometimes called, may be traced into the levator muscle. This muscle, attached to the tarsus, is split into many fibrillae, with much aerolar tissue surrounding the muscular ends. Above the orbitotarsal fascia and between it and the skin, is the orbicularis muscle, which is composed of voluntary and involuntary portions. The involuntary part, which is near the margin of the lid, keeps the eye closed when the patient is asleep. Of course, there are numerous glands and other organs of interest in the conjunctiva, as well as numerous glands and hair follicles in the margin of the lid. It is not necessary for my purpose to go into such details as a description of these structures would require. The lid is adapted to the eyeball, naturally curved. What happens to make this lid crimp and bring about the pathologic condition which, if continued, finally destroys the function of sight, is the important point I desire to emphasize.

The operative procedure cannot be successfully carried out without a clear understanding of the pathologic changes which are in process of development. If the ophthalmologist can understand this phase of it, then his repair operation will be directed to the pathologic phenomena presented. My procedure contemplates looking in on the pathologic conditions. I will present the accepted pathologic view of the early changes that take place in the conjunctiva. There are three distinct features characterizing trachoma: granulation, papillary hypertrophy, and the formation of connective tissue. By a large number of authors the disease is divided into two classes, papillary and granular.

STAGES OF TRACHOMA

In the trachoma occurring in Egypt, Callan uses a classification of four stages, depending on the comparative prominence of one of the foregoing essential features. In any classification of this disease, it must be borne in mind that the pathologic changes are so varied that it is practically impossible to have any distinct and definite classification. I see no reason why Callan's classification cannot be used in connection with trachoma in any country, so I am going to adopt this classification to a certain extent. It seems essential that I should include the pathologic conditions familiar to physicians.

Trachoma is a condition of the conjunctiva or mucous membrane of the eyelids resulting in the for-

* Read before the Section on Ophthalmology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Cary, E. H.: Proc. Texas State Med. Soc., 1907.

mation of so-called trachoma granules, with or without papillary hypertrophy. In favorable cases, these granules disappear and are replaced by fibrous connective tissue. The essential and primary change in trachoma occurs in the adenoid or lymphoid tissue present in the conjunctiva; the other changes are secondary to the change in the lymphoid tissue.

In the first stage of trachoma, one will find varying numbers of small grayish or grayish-yellow islands or granules on the conjunctiva of the tarsus and of the superior culdesac, especially at the two extremities of the tarsus. These islands or granules are semitransparent, almost avascular, with small blood vessels converging toward them. The granules have an appearance somewhat similar to sago grains. This comprises the first stage of trachoma, according to Callan's classification, and may pass into the second stage or, in favorable cases or cases that have been treated, into the third or fourth stage. In the second stage one of two conditions will prevail: predominance either of granules or of the papillae.

Probably more cases of trachoma come under the observation of the physician during the second stage than during any other; hence the usual division into the granular and the papillary forms. In the granular type of the second stage, the granules are found all over the tarsi and in the upper fornix. As usually seen, the granules are from 1 to 2 mm. in diameter. They are the result of an enlargement of the adenoid nodules or lymphoid follicles usually present in the conjunctiva. This enlargement is due to hyperplasia of the lymphoid elements, that is, the lymphoid cells. Such a granule shows a vascular capsule of connective tissue surrounding a mass of cells, the more central of which are large lymphoid cells with granular nuclei, frequently containing the "cell inclusions," which were at one time considered the probable cause of trachoma. In the peripheral portion of the granules are smaller lymphoid cells, and running through the granules are strands of connective tissue. Along with the formation of the granules there is more or less hyperplasia of the adenoid tissue between the granules, with more or less lymphocytic infiltration. In some cases this change may be so marked that large tumor-like masses are formed, or so diffuse a change may take place that the tissue may assume a peculiarly glossy, gelatinous appearance. That the granules may break down, leaving ulcerations, seems questionable in the minds of many. In the other, or papillary type, in the second stage, occurs the hypertrophy of pseudopapillae. These papillae appear as red raspberry-like elevations which mask, to a greater or less extent, the typical gelatinous granules. This papillary form is most marked on the upper tarsus.

In the third stage, the formation of fibrous tissue and cicatrization is very evident. The first appearance of such cicatrization is in the form of gray or white lines, or striae, running in all directions throughout the hypertrophied conjunctiva. As the condition persists, these lines or striae become broader and more numerous. The extent of the cicatrization will depend on the extent of the primary change in the lymphoid tissue. The first part of the conjunctiva involved in trachoma is just beneath the epithelium, but the lymphocytic infiltration with the later fibrosis may involve the tarsus. The fibrosis with cicatrization may be diffuse or may occur in patches, and in some cases may have stellate arrangement.

In the fourth stage, there is a smooth conjunctiva seamed by white lines of connective tissue. Practically complete cicatrization has taken place, or in other words, the trachoma is cured, and here ends the pathologic study.

TREATMENT OF TRACHOMA

As we all know, the expression operation is frequently of value, and cures many of the cases seen early, or in other words, whenever pathologic conditions are limited to the conjunctiva, and structural changes have not taken place above it. When we reach the stage at which the case presents a pannus along with any other corneal disturbance, we may be confident that we already have pathologic changes in the tarsus, that is, in the orbitotarsal fascia, orbicularis muscle, and other structures of the lid, which make it a source of mechanical irritation to the cornea.

It has been difficult for me to determine what is the most active cause of the crimping, which we see while operating and after taking away the orbicularis muscle. I have observed in all instances a more or less marked tendency on the part of the spreading tendon of the levator with its thickened aponeurosis to roll on itself, so to speak, and to lessen the amount of tarsus in evidence after the removal of the orbicularis muscle. This we see when the tarsus is not thickened, and the crimping of the tarsus disappears as we rid it of the fibrous bands, and push back the rolled-up and adherent portion of the levator muscle. When this is done, the tarsus flattens out. This is the pathologic condition we may demonstrate, and when it is corrected, the apparent crimping of the tarsus is removed. Evidently, fibrous bands produce this rolling-up of the fibrillae of the tendon of the levator, which shortens the normal distance between the margin of the lid and the tendon. That portion of the orbicularis muscle called the palpebral portion, which has remained in a state of spasmodic contraction, is probably due to an involuntary effort of the muscle of the lid to protect the cornea.

The action of this involuntary muscle in contracting is to keep the lid closed in sleep and possibly to lift some of the weight of the lid off the globe. No doubt, the early changes in the conjunctiva have a tendency to crimp the tarsus. Then as a result of the extension of the inflammation into the loose connective tissue between the tarsus and the palpebral portion of the orbicularis muscle, there is an increase of the fibrous connective tissue. In this portion of the lid there is closer union of the muscles with the tarsus. Also, the fibrosis extends in between the fibers of the muscle, causing a shortening of the muscle, which, together with a firmer union with the tarsus, accentuates the already present crimping of the tarsus. Thus a vicious circle is established, with reflex irritation producing spasmodic contraction of the muscle, this spasm being relieved when the corneal irritation is subdued and returning as so-called exacerbations whenever the cornea becomes involved, either through something that irritates the cornea from the outside, or through any lighting up of the pathologic condition that remains in the lid. By observing the picture of the lid, we may readily see how the pathologic condition of the lid will vary in different individuals. In some, the meibomian glands become blocked, increasing localized areas of the tarsal thickening. In some cases there are calcareous deposits and changes too numerous to mention, all of which are under the

observation of the surgeon when he follows the operative procedure to be outlined in the care of such cases. No doubt the ciliary part of the palpebral portion of the orbicularis muscle has more or less tendency to produce trichiasis. Splitting the margin of the lid is necessary in some cases to overcome in a more rational way the crimping and particularly the torsion of the cilia. It should be understood that tarsal resection of any degree is a kind of repair of the pathologic changes resulting more in one than in another, due to the fibrosis in the parts above, and to the changes in the tarsus and conjunctiva beneath. With a removal of a section of the tarsus, less tarsal surface is offered for muscular attachment, and this compensates for the loss of muscular tissue that is removed, and directly tends to overexaggerate in the opposite direction the previously crimped tarsus, which had forced a sulcus or sulci beneath the lid. In a broad sense, my repair operation is an adaptation of methods previously used for entropion, with the distinct difference that there is a pathologic condition to correct, which requires the removal of muscular and fibrous tissue, the breaking up of fibrous bands, and the pushing back of the levator tendon, with the probable flattening of the tarsus. All this is done with the understanding that conditions may or may not require splitting the margin of the lid. This is to be determined during the operation, and based on the operator's judgment of his control of the position of the cilia, the skin surface to be stitched. The upper portion of the skin may be removed or not, as he feels the need of pinning the skin surface to the upper portion of the tarsus. This constitutes the fundamental procedure in tarsal repair. Of course, the expression of all granules is the first thing to be done before the lid operation is begun, as heretofore described.

I must not close without impressing the reader with some points connected with the after-treatment of the lids. It is not unusual for the cornea to appear very much irritated, and the eye to look as if the inflammation were exaggerated within a few days of the operation. This sometimes is the result of the use of petrolatum ointment of mercuric chlorid, which seems to irritate some subjects; again the cause is not perfectly clear, except that the operation was performed in a dirty field, and the use of a bandage to control the swelling may tend to block drainage sufficiently to bring about superficial infection. This reaction should not discourage the surgeon; all that is necessary is to treat the lids in the way which would have been followed without the operation, and all the symptoms will rapidly clear up. In a week or ten days the eyelids will be in much better shape, to be followed later with perfect results, and the cure will be brought about in a period of time covering from two to three or four weeks. I naturally take it for granted that every man will be wise enough to treat the symptoms as presented, and if so, success will surely follow in all cases in which this operative procedure is used.

ABSTRACT OF DISCUSSION

CAPT. VARD H. HULEN, San Francisco: It seems to me that Dr. Cary's operation is for the cure of the after-effects of trachoma rather than for the cure of the trachoma itself. Evidently Dr. Cary does this operation when there is entropion, because he says that in certain cases he splits the margin of the lid, and that makes practically the old Snelling operation for entropion.

DR. E. H. DEWEY, Des Moines, Iowa: I was with the Indian Service for six years, doing trachoma work. When we get

an old case tarsal excision is one of the best operations to cure trachoma. I usually do it under local anesthesia, and rarely have to put in a stitch when I close the wound.

DR. ARTHUR E. PRINCE, Springfield, Ill.: I have on a number of occasions done this operation about as described. I have obtained good results, but I have reserved the operation as a sort of last resort. I do not advocate the operation as a regular procedure. I have been much interested during the past three years in the application of carbon dioxide ice. I evert the lid so as to expose the retrotarsal fold, and make a rather light application, about two or three seconds, until the lid turns white. I freeze both lids. There is some virtue in it; I cannot tell you yet how much. I would recommend that if you have a case of trachoma that is not getting along well, freeze the conjunctiva lightly, repeat in a month and again in another month. I habitually freeze these small tendinous pterygia with carbon dioxide ice. In all probability it obliterates the old capillary circulation, because immediately after the freezing a better condition of the conjunctiva and very much better vision is noted.

DR. EDWARD H. CARY, Dallas, Texas: This operation is useful in all cases of trachoma after the first stage. It is good enough for all of the pathologic changes which take place from the time enough pathology is present to produce pannus and small ulcerations. In the first stage of trachoma you would not think of using this procedure. The question of resecting the tarsus is left for the last stage, and is not to be thought of in connection with these intervening conditions, which you can treat with a simpler or a better method of operation than this, leaving the lid absolutely normal, so that there is no evidence after a few weeks of having operated at all.

RELATIVE DIGESTIBILITY OF MAIZE OIL (CORN OIL), COTTONSEED OIL AND LARD*

ELBERT W. ROCKWOOD, M.D.

AND

P. B. SIVICKES

IOWA CITY, IOWA

At a time when the value and necessity of fats in foods are recognized as never before, the determination of the digestibility of those from new or little used, although abundant, sources is both interesting and important. Of as great interest is the comparison of their utilization with that of the fats for which they can be substituted. In this country a potentially rich source of edible oil is the germ of maize or Indian corn, which is separated from the rest of the kernel in the starch-making process.

Maize oil, or corn oil, has within the last few years been put on the market in increasing quantities. It is sometimes sold under these names, sometimes under trade names¹ that do not clearly indicate its source. The results of experiments here reported show the digestibility by dogs of corn oil compared with that of lard and cottonseed oil, for which it is chiefly substituted. It is probable that the digestibility by man would not differ much from these figures.

The dogs represented three different types. One was normal in development and vigor, a second was in a subnormal condition, and the third was excessively fat. All were adult females. As their weight did not differ materially, the same ration was used for all. It consisted of 40 gm. of cracker meal, 10 gm. of bone ash and 155 gm. of chopped lean beef, freed from visible fat as much as possible. In a fore period, no fat was given and the ether-soluble material

* From the Laboratory of Physiological Chemistry, University of Iowa.

1. The chief one of these oils sold under trade names, in the Middle West, is Mazola.

was determined in the feces and regarded as the "normal" output. In the fat periods, 40 gm. of the fat tested were included daily.

The feces were marked off by lampblack, dried after addition of alcohol-acid, and extracted with dry ether in the usual manner.

Dog 1 was very vigorous and healthy. The weight before the tests was 6.1 kg., and after the tests, 6.8 kg.

TABLE 1.—TESTS WITH DOG 1

Fat Used	Length of Period, Days	Total Fat Excreted per Day, "Normal" Fat, Gm.	Excreted Fat, Less "Normal" Fat, Gm.	Percentage Total Fat		Percentage Total Fat Less "Normal" Fat	
				In Feces	Absorbed	In Feces	Absorbed
None.....	5	.282					
Cottonseed oil	3	.936	.654	2.3	97.7	1.6	98.4
Corn oil.....	3	1.108	.826	2.8	98.2	2.0	98.0
Lard.....	3	1.828	1.546	4.6	95.4	3.9	96.1
Corn oil.....	3	.877	.595	2.2	97.8	1.5	98.5

Dog 2 was in very poor physical condition, lean and mangy, becoming worse toward the end of the experiment. The weight before the tests was 5 kg., and after the tests, 4.75 kg.

TABLE 2.—TESTS WITH DOG 2

Fat Used	Length of Period, Days	Total Fat Excreted per Day, "Normal" Fat, Gm.	Excreted Fat, Less "Normal" Fat, Gm.	Percentage Total Fat		Percentage Total Fat Less "Normal" Fat	
				In Feces	Absorbed	In Feces	Absorbed
None.....	3	.632					
Cottonseed oil	3	1.101	.468	2.8	97.2	1.2	98.8
Corn oil.....	3	.937	.305	2.3	97.7	0.8	99.2
Lard.....	4	1.168	.536	2.9	97.1	1.3	98.7

Dog 3 was healthy, but very fat, slow and sluggish. The weight before the tests was 6.15 kg., and after the tests, 5.9 kg.

TABLE 3.—TESTS WITH DOG 3

Fat Used	Length of Period, Days	Total Fat Excreted per Day, "Normal" Fat, Gm.	Excreted Fat, Less "Normal" Fat, Gm.	Percentage Total Fat		Percentage Total Fat Less "Normal" Fat	
				In Feces	Absorbed	In Feces	Absorbed
None.....	3	.951					
Cottonseed oil	3	1.310	.359	3.4	96.6	0.9	99.1
Corn oil.....	3	1.019	.068	2.6	97.4	0.2	99.8
Lard.....	3	1.502	.551	3.8	96.2	1.4	98.6

If we take as a measure of nonmetabolized fat the amount that is excreted in the feces minus the amount that the dogs eliminated when they were on practically a fat-free diet, we find the percentage of fats metabolized, as given in Table 4.

TABLE 4.—PERCENTAGES OF FATS METABOLIZED

	Corn Oil	Cottonseed Oil	Lard
Dog 1.....	98.0	98.4	96.1
	98.5		
Dog 2.....	99.2	98.8	98.6
Dog 3.....	99.8	99.1	98.6
Mean.....	98.9	98.8	97.8

If we take the total amount of fat fed as the basis, neglecting that of the feces on the basic ration, the digestibility will appear somewhat less, but the relative digestibility will be the same. The difference in melting points may be the important factor in affecting this.

Other experiments, which need not be detailed here, show that corn oil can be well substituted for other animal and vegetable oils in salads and for "shortening" in cooking wheat foods.

Clinical Notes, Suggestions, and New Instruments

UNUSUAL CASE OF UMBILICAL HERNIA: RUPTURE OF SKIN

W. J. McGRATH, M.D., ELKADER, IOWA

Mrs. M., aged 78, whose family history was negative, had always been fairly well except for an umbilical hernia, beginning about forty years before, which had become quite large recently. The patient strained while at stool, causing a complete tear of the hernial coverings, including the skin, permitting 15 feet of the intestine and a large part of the omentum to escape from the abdomen.

The patient was seen shortly after the accident by Drs. Kriebs and Thine. No attempt was made at this time to replace the herniated intestine and omentum, but the patient was given morphin hypodermically, and the mass was wrapped in gauze wet with physiologic sodium chlorid solution.

About four hours elapsed between the time of the accident and the time I saw the patient. She was immediately placed on a kitchen table, and under light ether anesthesia the abdominal tear and the hernial ring were enlarged, the extruded intestine was replaced in the abdomen, and after the loosening of extensive adhesions and the removal of large shreds of torn omentum, the wound was closed. The patient was given 3 pints of physiologic sodium chlorid solution by hypodermoclysis before leaving the table. Recovery has been gradual but uneventful.

BACTERIAL TOXIN AS A CAUSE OF RETINAL HEMORRHAGE

ARTHUR S. TENNER, M.D., NEW YORK

In a recent article,¹ Dr. Lewis of Buffalo called attention to the obscure etiology of retinal hemorrhage and set forth a new conception, namely, that there occurs in these cases absorption into the blood of a soluble protein poison, usually given off from a focal infection, which has a solvent effect on the intercellular cement substance of the cell wall, and that the hemorrhage is not due to alteration of the blood pressure but to local lysis in the wall itself.

Even if no confirmatory pathologic evidence is presented, this theory is worthy of consideration. The ophthalmologist is often at a loss to assign any cause to his case of retinal hemorrhage.² When high blood pressure, arterial sclerosis or constitutional disease coexist, he has been content to attribute the hemorrhage to one of these, without further inquiry as to their mode of action. I am convinced that retinal hemorrhage is not dependent on blood pressure. I am not ready, however, to designate, as Dr. Lewis does, diabetes, arteriosclerosis and nephritis merely as associated conditions. They may not always be the active factors, but it is premature to exclude them entirely from the etiologic list. In the subjoined case, all such conditions were carefully excluded and the only seemingly possible factor in producing the hemorrhage was a focal infection, yet the case differs decidedly from Lewis' cases in that the active organism was a nonhemolizing streptococcus, from which could not occur the solvent action and the local lysis in the cell wall of which he speaks.

REPORT OF CASE

J. J., man, aged 54, referred to me at the Mount Sinai Hospital Dispensary by Dr. Joseph Davidson, June 17, 1918, for headache and poor vision, while in apparently the best of health, had suddenly become blind in the right eye, one week before. He had immediately visited one of the largest eye clinics in this city, where he had been told that a hemorrhage had taken place in his eye and he should put himself in the hands

1. Lewis, F. P.: A Bacterial Toxin as the Cause of Retinal Hemorrhage, *THE JOURNAL A. M. A.*, June 15, 1918, p. 1813.

2. Fuchs: *Ophthalmology*, Ed. 5, p. 573, Note by Duane.

of an internist. This advice was followed, but the internist failed to find any ailment. The urine and the Wassermann reaction were negative. The systolic blood pressure was 110, and the diastolic 65. When I examined him, the right eye showed a recent preretinal hemorrhage, about half as large as the disk, in the region of the macula. The retina was edematous. The vessels showed no arteriosclerosis. The patient was able to count fingers at 18 inches. The left eye was normal in every respect.

A search was then made for an infective focus. The rhinologist pronounced the sinuses negative. The mouth contained numerous decayed teeth, and there was a well marked pyorrhea alveolaris. Five teeth were extracted. The services of Dr. Harry Goldberg, dentist of the hospital, were then enlisted, and he and Dr. Vorhaus, pathologist, were successful in obtaining from an alveolar pus pocket a pure culture of a nonhemolytic streptococcus. A vaccine was made and administered to the patient. Eight weeks after the onset, six inoculations having been given, the clot had been completely absorbed and the vision was 20/20.

COMMENT

The points of this case are the absence of constitutional disease, the low blood pressure, and the presence of a pus focus, with the *Streptococcus anhemolyticus* (nonhemolyticus) as the active organism.

Preretinal hemorrhages are usually absorbed without injuring the retina permanently, in which case, vision is restored. Therefore I do not wish to lay any stress on the curative effects of the autogenous vaccine; but the rapid clearing of the retina and absorption of the clot, immediately subsequent to the inoculations, was nevertheless rather striking.

120 West Eighty-Sixth Street.

LUDWIG'S ANGINA: REPORT OF A CASE

H. T. MILLER, M.D., SPRINGFIELD, OHIO

An examination of textbooks and a review of the recent literature on Ludwig's angina show that the disease is not a common one, and that it is still usually regarded as fatal.

While there may be nothing unusual about this case otherwise, it is of decided interest that early recognition of the disease promptly followed by operation brought it to a safe issue.

I should not have recognized the disease so quickly had I not had the privilege of seeing a case of Ludwig's angina while on duty at the base hospital at Camp Greene, N. C. In this particular case the disease had advanced to such a degree that death immediately followed the operation. A postmortem showed the tongue, pharynx, larynx and trachea edematous and greatly congested.

In the present case the patient was seen on the fourth day of the disease. The tongue was quite swollen and pressed the mouth widely open; the submaxillary regions were edematous and greatly infiltrated so that the outline of the lower jaw was obliterated; the cervical region down to the clavicle and sternum was edematous.

The patient was operated on the day following his entrance into the hospital. As he was unable to lie down he was placed on the operating table in a sitting posture. Under unsatisfactory local anesthesia the low operation for tracheotomy was done. It was found necessary to cut through about 2 inches of edematous tissue before the trachea was reached. This gave immediate relief to the distressingly difficult breathing. Incisions on both sides of the infra-maxillary regions were made extending from the angle of the jaw down to the hyoid bone. This step was followed by blunt dissection to deeper structures under the tongue. From these incisions only serum and dark blood escaped. On the fourth day there was a free discharge of pus, relieving all the distressing symptoms of pressure. Thereupon recovery was rapid and uneventful.

I feel confident that the successful issue of the case was due to the early recognition of the disease promptly followed by operation.

METHOD FOR PREPARING THE EOSINATE OF METHYLENE BLUE AND METHOD FOR STAINING

FOSTER A. BECK, M.D. (WINDGAP, PA.)

First Lieutenant, M. C., U. S. Army; Chief of Laboratory, Post Hospital, Aeronautical General Supply Depot and Concentration Camp

GARDEN CITY, L. I., N. Y.

The length of time and the complicated technic, as formerly required for preparation of the eosinate of methylene blue, led me to devise a method by which this stain may be prepared ready for use in less than an hour.

The stain depends on the formation of methylene azure and methylene violet in the alkaline methylic alcohol eosin methylene blue solution. The eosinates of methylene azure, methylene violet and methylene blue are dissolved in the methylic alcohol, and the water-soluble products are precipitated and removed by filtration. The materials employed and the quantities are:

Reagent methylic alcohol (Merck)	95.000 c.c.
Tenth normal sodium hydroxid V. S.	5.000 c.c.
Eosin yellowish (water-soluble)	0.470 mg.
Methylene blue	0.400 mg.

The methylic alcohol is put into a 6-ounce bottle, the sodium hydroxid volumetric solution is added, and the two are mixed. To this solution the eosin is added and dissolved. As soon as the eosin is dissolved, the methylene blue is added, and the bottle shaken for thirty minutes. After filtration, the filtrate is put into a glass-stoppered bottle and is then ready for use. It is essential that the weights and measures be accurate. A buret should be used to measure the alcohol and sodium hydroxid volumetric solution.

METHOD OF STAINING BLOOD FILMS

1. The films should be made thin and even, and dried in the air. They should be protected from dust and dirt.
2. The dry film preparation is covered with the stain for one minute.
3. Tap water (distilled or rain water may be used) is added to the stain until the slide will hold no more without overflowing. The drops of water should be added rapidly.
4. At the end of two minutes, from the beginning, the stain is flushed off with water, and the film is washed until it has a pinkish tint.
5. For making a differential leukocyte count after staining the specimen I shake off the excess of water, dry the under-surface of the slide with a towel, and make the count with the low or high power dry lens. The water on the stained surface makes an excellent refractive medium. The end of the lens should never be allowed to come in contact with the water.
6. For studying the minute structure of the erythrocytes, leukocytes and examining for malarial parasites, the specimen should be permitted to dry in the air or blotted dry with filter paper and examined with oil immersion.

Red cells are light rose, neutrophil granules a darker shade of rose, nuclei various shades of blue, eosinophil granules bright red, blood platelets blue, and lymphocytes blue. In malaria parasites the cytoplasm is blue, the granules dark blue, and the chromatin red.

For staining pus, spinal fluid for the meningococcus, throat smears, sputum, and smears made from cultures, one should proceed as described above.

In pus and epithelial cells the protoplasm stains a light shade of rose, and the nucleus blue. The gonococcus or other organisms within the pus cell stain dark blue, and the extra-cellular organisms various shades of blue. A distinct contrast is noticed between the organism and the cell.

ADVANTAGES

1. The method for preparing the eosinate of methylene blue as described saves time, requires less technic, and can be prepared by any laboratory technician.
2. Less time is required to stain the specimen, the old method requiring from three to ten minutes.
3. Tap water may be used instead of distilled or rain water.
4. For bacteriologic examinations this stain may be used instead of alkaline methylene blue.
5. For bacteriologic work heat is not necessary to fix the specimen.

APPARATUS FOR ADMINISTERING ARSPHENAMIN AT
TEMPERATURE OF BLOOD *

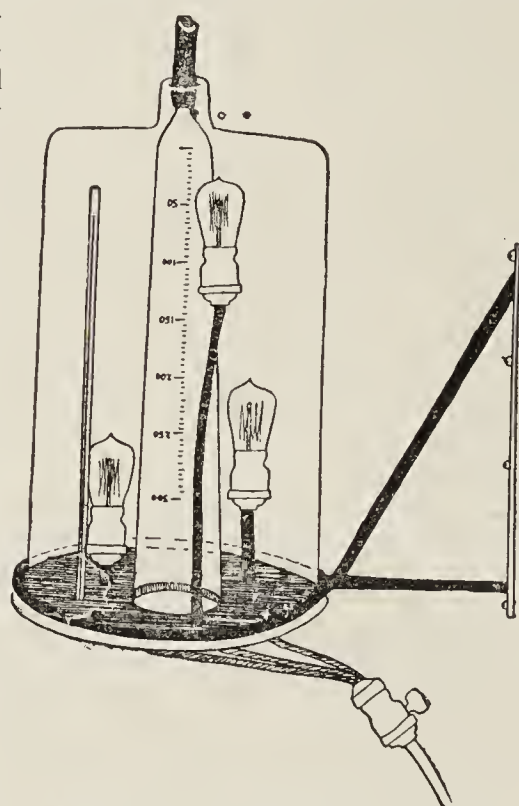
S. R. THOMPSON, M.D., CHARLOTTE, N. C.

This apparatus was suggested on account of severe reaction and sometimes death after the administration of arspenamin intravenously. Physicians are realizing more and more the necessity of introducing solutions that will be free from all possible sources of irritation. The reaction called "chills and fever" following intravenous injections of arspenamin is due, we believe, to injecting arspenamin intravenously below the normal temperature of the blood.

In giving ten or more doses of arspenamin within from one to four hours we discovered that the patients receiving treatment when the solution was hot, or at the temperature of the blood, had no reaction or chill. Those receiving the last doses of the solution, which had cooled below the normal temperature of the blood, nearly always had more or less reaction. We have given more than a thousand doses by this method in dosages of from 0.3 to 0.6 gm. Solutions of from 30 to 150 c.c. have been given with chills or severe reaction in less than 5 per cent. of the cases.

The apparatus consists of a glass container practically closed with a wooden cover to prevent the entrance of cold air. In the center is a regular arspenamin graduate. In the air chamber around this there are three 10 watt incandescent lights and a thermometer, registering in Centigrade and Fahrenheit. The lights may be attached or on separate switches. The rubber tubing, mixing jar, needles, etc., may be of any type desired. These are not included in the illustration. Before the injection is begun the solution in the rubber tube can be brought to the proper temperature by being allowed to run back into the graduate. Solution left in the apparatus will remain at the desired temperature, depending on the number of lights used.

The simplicity, practicability and economy of this apparatus have commended it to us, and it has become indispensable in our clinic.



Apparatus for administering arspenamin at the temperature of the blood.

* Presented before the Mecklenburg County Medical Society, May 5, 1918.

* From the Crowell Urological Clinic and United States Public Health Clinic.

Military Medicine and SurgeryTHE EPIDEMIC OF INFLUENZA AT
CAMP SHERMAN, OHIO

ALFRED FRIEDLANDER, M.D. (CINCINNATI)
Major, M. C., U. S. Army; Chief of Medical Service

CAREY P. McCORD, M.D. (DETROIT)
Major, M. C., U. S. Army; Chief of Laboratory Service

FRANK J. SLADEN, M.D. (DETROIT)
Captain, M. C., U. S. Army; Assistant Chief of Medical Service
AND

GEORGE W. WHEELER, M.D. (NEW YORK)
Lieutenant, M. C., U. S. Army; Bacteriologist, Laboratory Service
CAMP SHERMAN, CHILLICOTHE, OHIO

At the time the prevailing epidemic of influenza was at its height in New England, numerous cases of coryza and bronchitis appeared at Camp Sherman. The picture was not characteristic of influenza, but the condition was so frequently noticed among the patients of the base hospital that isolation was instituted and special wards set aside for this purpose. The absence of the usual features of influenza led to considerable

TABLE 1.—PNEUMONIA AT CAMP SHERMAN *

Date	Admissions	Pneumonia	Deaths
Sept. 24.....	80	0	0
Sept. 25.....	102	0	0
Sept. 26.....	216	8	1
Sept. 27.....	321	10	1
Sept. 28.....	314	9	3
Sept. 29.....	303	27	2
Sept. 30.....	732	97	7
Oct. 1.....	1,157	26*	15
Oct. 2.....	644	278	22
Oct. 3.....	633	55*	45
Oct. 4.....	957	461	52
Oct. 5.....	711	214	104
Oct. 6.....	449	152	119
Oct. 7.....	444	160	110
Oct. 8.....	169	73*	125
Oct. 9.....	81	220	97
Oct. 10.....	227	160	86
Oct. 11.....	78	51	53
Total	7,618	2,001	842

* Marked irregularity exists in these figures, but the variations in the daily occurrence of pneumonia are apparent and not real, being due to the system of reporting diagnoses.

comment as to the justification of such a diagnosis. This uncertainty was abruptly and definitely terminated by the sudden appearance of large numbers of patients exhibiting characteristics of clinical influenza. Unlike the simple syndrome of the earlier cases, the new group was featured by sharper onset, prostration, aches and pains, and high temperature. By September 24 the transition had occurred, and this date marks the beginning of a definite epidemic of clinical influenza.

At this time the population of the camp was 33,044. Of this number, 24,513 were white, and 8,531 were colored. The larger numbers of these men were inducted into military service from Ohio, but smaller groups from Pennsylvania, West Virginia, Alabama, Tennessee and Louisiana. Of the total population, 15,493, or 46.8 per cent., had been in service one month or less. From the nature of the examinations and procedures incidental to induction into service, it followed that these men were more closely and frequently grouped than the other men of the command. An analysis of the first 4,269 cases of influenza reveals that 2,944, or 69 per cent., occurred in men who had been in service one month or less. In other words, two thirds of these cases occurred in a group of 15,493

Venereal Diseases in Army and Civil Life.—In these five camps (Dix, Lee, Upton, Meade and Pike) there were about nineteen times as many cases contracted before enlistment as afterward. It is, therefore, the disease contracted by civilians before enlistment, under civil conditions, which is responsible for the disability due to venereal disease in the Army. To reduce the small amount of venereal disease contracted after enlistment is the problem of the Army. To cut down the vast amount brought in from civilian life is the problem before the state and local health officers throughout the United States. There is no greater or more urgent health problem before them today. To solve the whole problem, the Army and the health officers will need to exercise the closest cooperation.—Major W. A. Sawyer, M. C., U. S. Army, *Am. Jour. Pub. Health*, September, 1918.

recent arrivals, comprising less than one half of the camp's population. This analysis also shows that the incidence of the disease decreased with length of residence in camp.

Table 1 shows, day by day, the admissions, the incidence of pneumonia, and subsequent deaths. In this table under "pneumonia" are included, without differentiation, the cases of acute inflammatory pulmonary edema described in the section on "Clinical Manifestations."

In addition to those cases admitted to the base hospital, other cases of influenza to the extent of 3,361 have been reported from the various camp organizations. The addition of this number to those admitted to the base hospital affords a total of 10,979 as the number of individuals affected in this epidemic.

Certain accrued statistics are of significance in relation to the extent of the epidemic (Table 2).

TABLE 2.—EXTENT OF INFLUENZA EPIDEMIC

	Per Cent.
Percentage of camp's population (33,044) affected in epidemic..	33.22
Percentage of camp's population admitted to base hospital (7,618)	23.05
Percentage of total affected developing either pulmonary edema or pneumonia (2,001)	18.22
Percentage of admissions to base hospital presenting or developing either pulmonary edema or pneumonia	27.57
Mortality in total number affected	7.66
Mortality among patients developing either pulmonary edema or pneumonia	42.07
Mortality in camp's population for period of epidemic.....	2.55

BACTERIOLOGY

During all stages of the epidemic, examinations have been made to establish the identity of the responsible organism. This organism has been sought in materials obtained from:

1. Smears and cultures from sputum of influenza patients.
2. Cultures from swabbings of throat and nasopharynx of influenza patients and immediate contacts.
3. Cultures from sputum of patients after development of pneumonia.
4. Blood cultures from patients after development of pneumonia.
5. Postmortem cultures from heart's blood, lung exudate, pleural fluid, pericardial fluid, spleen and kidneys.

1. Smears and cultures of sputum of influenza patients have uniformly exhibited the pneumococcus as the predominating organism. On typing, these pneumococci conformed to the following groups: Type IV, 80 per cent.; Type III, 18 per cent.; Type II A, 2 per cent. One culture containing the pneumococcus as the predominating organism presented two colonies of Pfeiffer's organism. Certain immediate contacts with influenza patients were examined bacteriologically at a time when free from any manifestations of disease. Seventy-six per cent. exhibited pneumococci. Such of these as were typed were uniformly Type IV.

2. Cultures from swabbings of the throat and nasopharynx of influenza patients exhibited pneumococci in 54 per cent. and hemolytic streptococci in 4 per cent. of all examined. In none of these cases were influenza bacilli demonstrated.

3. On the detection of a complicating pneumonia, cultures were again made of the sputum. Regularly the pneumococcus was demonstrated with 80 per cent. characteristic of Type IV. Cultural conditions were suitable for the propagation of *Bacillus influenzae*, but in no instance was it detected.

4. Blood cultures were obtained from 100 patients after the recognition of a complicating pneumonia. In 6 per cent. of these cultures, growths were obtained. All were identified as pneumococcus Type IV. No other organisms have been detected in blood cultures, the remaining 94 per cent. being sterile.

5. Cultures obtained at necropsy from various thoracic and abdominal tissues and fluids indicated the presence of the pneumococcus as the dominating organism in 53.3 per cent of the bodies examined post-mortem, while in 46.7 per cent. *Streptococcus hemolyticus* was the outstanding organism. The pneumococcus on being typed was classified as 75 per cent. Group IV and 25 per cent. Group III. In only one instance were both pneumococci and hemolytic streptococci encountered in large numbers in the same case. In this instance Group IV pneumococci and hemolytic streptococci were demonstrated in all cultures taken, heart's blood, lung exudate, pleural fluid, pericardial fluid, spleen and kidney. In conjunction with the Group IV pneumococcus isolated from the lung exudate of one body, numerous colonies of the *Bacillus influenzae* (Pfeiffer) were detected.

The persistent absence of influenza bacilli in the diverse materials examined militates against attributing this epidemic to the Pfeiffer organism. Cultural conditions favorable to the growth of influenza bacilli have been maintained. However, within the period covered by this report, this organism was exhibited in only two individuals. More consistently have the cultures yielded growths of the pneumococcus, to the end that significance is to be attached to the pneumococcus-streptococcus group of organisms as a dynamic factor in this epidemic. It may not be maintained at the present time that the pneumococcus has been the specific agent causing the epidemic, as prior to the epidemic a high percentage of this camp's population harbored Group IV pneumococci. The nature of the clinical manifestations and the processes evidenced at necropsy strongly bear out the contention that some member of the pneumococcus group has rapidly been distributed among the individuals of the camp, with activities of a character and severity not heretofore observed in this camp.

CLINICAL MANIFESTATIONS

The clinical manifestations observed necessitate a grouping into two form types. As already intimated, this epidemic was introduced by an atypical clinical picture characterized by mildness (Type I). The rapid spread gave a serious aspect to this simple catarrhal infection of the respiratory tract. The clinical features were fever, coryza, conjunctivitis, dry hacking cough, little or no leukocytosis and no noteworthy chest findings.

This type of infection was first noted among patients already in the hospital. It probably occurred also in the camp, as within a few days increasing numbers of such admissions required special provisions for their separate care.

The absence of prostration and aches and pains led some to regard the diagnosis of influenza as unwarranted. Gradually, however, the type changed, and within five days there was a full realization that an epidemic of influenza was in force. The transition seemed rapid, once it started, and the momentum the epidemic acquired was appalling. This second type (Type II), recognized as true influenza, was charac-

terized by sharper onset, chills, quicker and higher rise of temperature, frequent epistaxis, distressing aches and pains, increasing prostration, red, glazed pharynx without tonsillitis, and an increase in the subjective manifestations of bronchitis, but still without noteworthy physical findings in the chest. Some cases of gastro-enteritis and a few of the so-called nervous form of influenza were observed.

At once two types of more seriously ill patients demanded attention. In the one (Type III), respiratory distress was marked, with meager signs in the lungs. At the most, suppressed breath sounds with fine râles in the lower axillary spaces were found. There was no local change in expansion, vocal fremitus, percussion, or transmission of whispered or spoken voice sounds. Such signs did not necessarily progress to pneumonic consolidation. The other severely ill type, at this stage (Type IV), was the outstanding clinical feature of the epidemic. This formed a distinct clinical picture not emphasized in any published reports. During the height of the epidemic, many patients exhibited on admission a strikingly intense cyanosis, especially noticeable in the lips. This was not the dusky pallid blueness to which one is accustomed in a failing pneumonia, but rather the deep blueness characteristic of methemoglobinemia. These patients had high fever, intense air hunger, complete exhaustion and prostration. They were semicomatose or in a low, muttering delirium. The lungs contained diffuse bubbling râles, increasing rapidly in number and extent, in addition to subcrepitant râles. The course was rapid to death in twenty-four or forty-eight hours. The patient was practically a drowning man. The picture resembled an acutely progressive pulmonary edema. With the increasing moisture in the lungs, however, there was no sign of myocardial insufficiency or dilatation. The pulse was fair in volume and tension. Cardiac outlines were unchanged. There were neither enlargement of the liver, nor serous effusions or edema in other portions of the body.

These clinical observations were supported by the necropsy findings in these cases.

At necropsy, those dead of the condition designated clinically as an acute inflammatory pulmonary edema presented lungs having one or more lobes dark red or bluish gray, firm and rounded, with no tendency to collapse. The pleural surface was smooth and glistening, not thickened, without exudate. The lung tissue pitted deeply on pressure. The process was essentially massive and confluent. There was no evidence of a lobular distribution. Section through an involved lobe revealed an extreme grade of congestion and edema. Immediately on section there was a free outflow of thin, dark red fluid from the cut surface. From 150 to 200 c.c. of this fluid were measured from a single section across the lung in the different cases. The cut surface was somewhat rough but not granular; there was no evidence of fibrinous exudation. Stained films of this thin fluid showed large numbers of red cells, very few leukocytes and epithelial cells, and many gram-positive cocci in pairs and short chains. The appearance of the bronchi was the same as that described in the general section on pathology below. The pericardium was normal throughout. The pericardial cavity contained from 25 to 30 c.c. of clear, straw colored fluid. No portion of the heart evidenced any enlargement. The myocardium presented normal color and consistency.

These cases occurred frequently during the first three days and persisted to a less degree throughout. They diminished as bronchopneumonia increased.

The condition was suggestive of that occurring after exposure to chlorin gas. In many, the serous fluid almost poured from mouth and nostrils on change of position, or bubbled out in the distressing efforts to breathe. The man struggled against asphyxia with all the accessory muscles of respiration. Some of the patients retained consciousness for a remarkable period, suffering intensely. In a word, it was as if the severity of the irritation in the respiratory tract was so caustic as to produce an immediate reaction, serous in character. It was essentially an acute inflammatory pulmonary edema.

COMPLICATIONS

The complication naturally to be anticipated in an epidemic of the respiratory type of influenza was pneumonia. By October 2, the pneumonias were so numerous as to occupy the entire bed capacity of the base hospital. Arrangements were then in force to admit influenza patients to an improvised annex and only pneumonia patients to the hospital. Shortly thereafter the available hospital beds were filled, and it was necessary to place 383 pneumonia patients in a special section of the annex. Secondarily the epidemic resolved itself into a pneumonia rather than an influenza problem.

A careful estimation of the circumstances would lead one to expect a secondary bronchopneumonia of virulent character, in an already acutely prostrated individual. This was the picture: The early cases in particular showed low leukocyte counts, low fever, and rapid pulse and respirations. The asthenia incident to influenza was so profound as to greatly diminish the resistance to the pneumonia.

A striking feature at this stage was the absence of physical signs to localize the particular area of involvement. A peculiar tympany with crepitant râles and distant bronchovesicular breath sounds was frequently all that was found. This was explained at necropsy by finding the pneumonic exudate in lobular distribution mainly about the hilum of the lung and progressively diminishing toward apex and base.

In the cases enduring longer than the average, as well as later in the epidemic, impairment of percussion was more frequently found, in varying superficial areas. With this were bronchial breathing and the other signs indicative of outspoken superficial consolidation. In many of these cases the consolidation was lobar in distribution, often distinguishable with difficulty from acute lobar pneumonia. In some a clearing by crisis occurred. However, as noted below, the pathology of the fatal cases of this type was distinctly different from that of acute lobar pneumonia.

Many of these patients lay in muttering delirium which persisted after the temperature was normal. This could be explained by the asthenia, although there were several instances of serous meningitis. Only once did secondary pneumococcal meningitis complicate the picture. Acute hemorrhagic nephritis was a frequent clinical observation.

Five cases developed subcutaneous emphysema without demonstrable pneumothorax. This was distributed over chest wall, neck and face, although in one case it involved the abdominal wall, scrotum and lower extremities.

Acute fibrinous pleurisy, even pleural pain, was not observed, except in a few instances in the latter days of the epidemic. At the date of writing, one case of empyema had appeared.

The more hopeful cases were frequently characterized by small patches of consolidation which completely cleared often in from ten to twelve hours. This was one of the striking features of the epidemic.

Other than pneumonia, complications to influenza were slight. Profuse epistaxis without nasal ulceration was very frequent at onset, and later acute catarrhal otitis media was common, but fortunately always cleared without perforation of the drum. Hemorrhages into the middle ear and a few instances of acute sinusitis occurred.

PATHOLOGY

The lesions of the lungs associated with the clinical picture of the acute inflammatory pulmonary edema are so pertinent in their relation to that condition that their description has been included in the foregoing description of the clinical manifestations.

In the necropsies of those patients that died of pneumonia the lesions noted in the lungs were those of a confluent bronchopneumonia involving one or more lobes. In the average case more than 50 per cent. of the lung tissue was involved and frequently as much as 90 per cent. The order of frequency of lobe involvement in this confluent pneumonia was right lower, left lower, right upper, left upper, right middle. In addition to this massive confluent process, there were patches affecting only a few lobules scattered throughout the remainder of the lungs, which resembled the ordinary type of bronchopneumonia.

The lobe affected with the confluent pneumonia was rounded, tense and firm, with no tendency to collapse; it pitted on pressure and did not crepitate. The affected lobe, when placed in water, invariably sank. The pleura was smooth and glistening; a few presented a beginning fibrinous exudate. The color of the involved lung in some was a deep red, in others a deep bluish gray, giving the lung a cyanotic appearance. Lobular outlines were indistinct or wholly obliterated. At rare intervals in a confluent involvement, isolated lobules would be unaffected.

On sectioning the lung there occurred an immediate exudation of dark bloody fluid. In those patients characterized clinically as having pulmonary edema, this exudation was profuse to the extent of the spontaneous outflow of from 150 to 200 c.c. of this thin, dark red fluid. The consistency of the lung tissue was that of soft muscle and not friable. On scraping the surface with a knife only a thin bloody exudate was expressed; no air bubbles nor fibrinous plugs. The scraped surface was dull and somewhat rough, but not granular. The color was a deep red, showing in places small areas from 4 to 5 mm. in diameter which were firm in consistency, almost black, and slightly raised above the surrounding tissue. These were noted more frequently adjacent to the smaller bronchi. The blood vessels of the affected lobe were dilated and contained dark fluid blood.

In the discrete lobular type of involvement, the affected lobules were distinctly raised above the surrounding lung tissue and were rather firm and resistant to the touch. The color, consistency and appearance on cut section were similar to those of the confluent lesion described above, excepting that the amount

of fluid exudate was much less. These discrete areas were more numerous near the hilum of the lung and diminished in number and size toward the apex and base.

The portions of the lungs not affected by the pneumonic process showed varying degrees of congestion and edema. At times the amount of congestion was surprisingly small, even in those portions of the lung that were contiguous to the involved areas.

The bronchi contained thin, frothy, blood-tinged fluid, no mucus, no purulent material. The mucous membrane of the trachea and larger bronchi was swollen, causing distinct narrowing of the lumen. The color was pink, deep red or purplish, the small blood vessels showing intense injection. The smaller bronchi were dilated, the walls thin, and the swelling and injection of vessels not so prominent as in the larger tubes.

Most cases showed a complete absence of pleural involvement, and no excess of fluid, nor adhesions. In one case the right pleural cavity was filled with thin pus from which a pure culture of pneumococcus was obtained.

The pericardium presented no indication of involvement. The pericardial cavity contained from 15 to 60 c.c. of clear straw-colored fluid at times slightly greenish. The heart usually presented trivial enlargement on the right side; the right auricle was distended with blood; the right ventricle presented moderate dilatation; the myocardium was red or brownish red, bled easily and was usually of firm consistency. On occasion the right ventricular wall was moderately thin and flabby. The valves and cavities of the heart presented no characteristic findings.

The liver and spleen presented varying degrees of congestion, but were without other significant findings. The kidneys in a number of necropsies exhibited a beginning acute hemorrhagic nephritis.

Other accrued data from these necropsies of a general nature have been omitted as not pertinent to this report. This report is based on the first twenty necropsies of this epidemic. The early ones of the series were uniformly on deaths from pulmonary edema, while the latter half of the series predominately conformed to the confluent bronchopneumonia type.

THERAPY

1. *Influenza*.—Great care was taken to avoid undue exposure in these cases. Rest in bed, indoors, free purgation, gargles, acetylsalicylic acid and Dover's powders (pulvis ipecacuanhae et opii, U. S. P.) constituted the general plan of treatment. It is important to emphasize the fact that many of these patients, after two or three days of normal temperature, and during apparent convalescence, developed bronchopneumonia. This led us to take great care, retaining the patients in the hospital for seven days after defervescence, with frequent periodic chest examinations.

2. *Acute Inflammatory Pulmonary Edema*.—This presented a new problem in therapy. The principles of treatment employed in pulmonary edema incident to dilatation of the heart, though seemingly not indicated by the condition in question, were employed. Digitalis, a soluble caffeine salt, morphin and venesection were without significant value. This was equally true of large doses of atropin. Oxygen was of temporary value. Posture accomplished drainage but did not influence the end-result. Pituitary solution, hypodermically, was suggested by the similarity of this condi-

tion to the results of gassing. No benefits were gained by its use. This general lack of response to treatment was to be expected, however, when one realizes that the patient in acute inflammatory pulmonary edema is constantly exposed to the respiratory irritant. The mechanical emptying of the bronchi by vomiting induced by ipecac was regarded as contraindicated on account of its heroic character. This condition must be regarded as the most fulminant type of respiratory influenza, against which no especial measure was of avail.

3. *Secondary Acute Bronchopneumonia*.—The usual recommendation as to diet, fresh air, rest, mild purgation and elimination were issued to all ward surgeons. All cases were digitalized, and reliance placed on soluble caffeine salt for quick stimulation. Strychnin in large doses hypodermically had a distinct value in the existing asthenia.

GENERAL MEASURES

When it became evident that the epidemic would be apt to assume large proportions, the camp commander appointed a board (of which two of us were members) to formulate provisions for emergency camp sanitation and provide adequate facilities for handling large numbers of patients. This board had plenary powers. Its recommendations were at once put into effect by a series of orders issued by the camp commander.

The more important recommendations of the board may be thus summarized:

The camp was quarantined. Soldiers were not permitted to leave camp, and only relatives of very ill patients were allowed to enter.

Theaters, post exchanges, Y. M. C. A. buildings, etc., were closed, and congregating of soldiers within doors was forbidden.

All barracks were thoroughly cleaned and all overcrowding of well soldiers eliminated. A considerable number of the command was put under canvas.

Continuous ventilation of barracks was insisted on, responsibility for proper execution of orders being placed on organization commanders.

All tents were ordered furled during the day.

All bedding and clothing was given a daily sunning and airing, weather permitting.

All members of the command were required to gargle twice daily with a 1:10,000 quinin gargle. This was done because routine throat cultures early in the epidemic had shown that the pneumococcus was consistently present in large numbers in most of the throats examined. The pneumococidal value of quinin in weak solution is thoroughly established.

Dry sweeping of barracks was forbidden, damp mops being used.

All roads in and around the camp were sprinkled twice daily to keep down dust.

An entire section of camp was at once emptied of troops, and the barracks thus obtained were fitted up as hospital wards. In all, 5,200 beds were thus provided. This annex to the base hospital was put under immediate charge of the commanding officer of Evacuation Hospital No. 28, which was mobilizing at this camp. The personnel of this organization was augmented by sending medical officers from line organizations and the base hospital. The annex was under general control of the officials of the base hospital.

The base hospital itself was given over almost entirely to the care of pneumonia patients. All porches

were filled with beds, without undue crowding, and the provisions of 1,000 cubic feet of air in wards rigidly adhered to.

The base hospital thus equipped had a capacity of 2,400 beds, of which 2,000 were available for pneumonia patients. Sheet cubing of wards and porches was systematically carried out.

The general plan contemplated the using of the annex for the milder cases, transferring all pneumonia patients, known or suspect, back to the base hospital. At the height of the epidemic this was found to be impracticable, and three barracks (300 bed capacity) were set aside in the annex for the handling of pneumonia patients. To these barracks special medical officers and trained nurses were assigned.

In the base hospital proper, one ward surgeon was assigned to each pneumonia ward. The emergency necessitated the use of many medical officers in a field far removed from their usual spheres of activity. The system of ward supervisors, general and special consultants as devised, made it possible to secure for the patients the maximum amount of proper medical treatment.

SUMMARY

In this epidemic of clinical influenza occurring in an Army camp with a population of 33,044 soldiers, 10,979 men (33.22 per cent.) contracted the disease. Secondary to the influenza there occurred a high incidence of pneumonia, affecting 2,001 (18.22 per cent.).

The outstanding features of the epidemic were:

1. Of the camp's population (33,044), 15,493 (46.8 per cent.) were men who had been inducted into service within the previous month. This group of men contributed 2,944 (69 per cent.) of the first 4,269 cases occurring in the camp. That is, two thirds of this group of cases occurred from a group of men comprising less than half the camp's population. The incidence of the disease decreased with the length of residence in camp.

2. The severity of the infection occasioned a high mortality. During the epidemic, 842 deaths occurred, 7.66 per cent. of the total number affected in the epidemic and 2.55 per cent. of the camp's population. All deaths were attributable to acute inflammatory pulmonary edema or to pneumonia.

3. *Bacillus influenzae* (Pfeiffer) has not been demonstrated as the causative organism. The frequency of its detection has not exceeded the frequency of its existence under normal conditions.

4. Pneumococcus, chiefly Type IV, has been the predominating organism. From the sputum the pneumococcus has been recovered uniformly. In necropsies the pneumococcus was detected in 53 per cent. of instances. The hemolytic streptococcus occurred in 47 per cent. of thoracic exudates.

5. The clinical manifestations necessitate a division into four types, which represent a progression in severity. Type I, characterized by coryza and bronchitis, was the forerunner of the true influenza (Type II). Type III comprised a group with subjective signs without demonstrable objective evidence of pneumonia. Type IV, acute inflammatory pulmonary edema, represented the most fulminant type of respiratory influenza.

6. The intense asthenia produced by the influenza influenced both the picture and the outcome of the secondary bronchopneumonia.

SCABIES IN MILITARY AND CIVIL
LIFEITS DIFFERENTIATION, COMPLICATIONS AND
TREATMENT

FRANK CROZER KNOWLES, M.D. (PHILADELPHIA)

Captain, M. R. C., U. S. Army; Dermatologist, U. S. Army
Base Hospital No. 10

FRANCE

War is the great teacher of efficiency. The greater the man power that can be kept in the field and the fewer men that have to be sent to the rear for disability, the sooner will victory end this world war. There is probably no greater problem today in the fighting forces in Europe than the group of animal parasitic diseases. It has often been said that intense itching which keeps the patients awake night after night is harder to bear than pain. There seems to be a rather chaotic condition present as to the understanding of the clinical manifestations of scabies, its differentiation from the various forms of pediculosis, its complications and its treatment. The various animal parasitic conditions attacking the skin should be under the care of trained dermatologists rather than being distributed haphazard among all of the general hospitals. If the excellent suggestions typed by Major H. MacCormac, R. A. M. C., were followed minutely, the cure of scabies would be very much hastened.

During the last fifteen years I have personally treated in civil hospital practice, in my various hospital clinics and dermatologic wards of eighty beds, 8,000 cases of scabies. The incidence of this disease has been a little more than 5 per cent. of the total dermatologic cases observed during this time. During our twelve months tenure at this large British general hospital, there have been somewhat more than 2,000 cases treated in the skin department, and of this number over 500 have been scabies. If conditions secondary to scabies, such as furuncles, impetigo, folliculitis, septic sores and so-called inflammation connective

Scabies in military and in civil practice differs considerably, as shown by Table 2

Scabies is readily differentiated from pediculosis, for, in the latter disease, the diagnosis is based on finding the small pinhead-sized ovum ("nit") attached to the hairs in the pubic or axillary regions; in hairy individuals, any hair on the entire surface of the body,

TABLE 2.—SCABIES IN CIVIL LIFE AND IN MILITARY LIFE

Scabies in Civil Life	Scabies in Military Life
Eruption usually on the lateral aspect and webs of fingers, consisting of pustules and burrows, excepting in those unusually cleanly, in washerwomen, and mechanics who work in oils, greases, graphite, etc.	Hands are involved in but few cases
Penis frequently shows only one or two pustules and burrows and occasionally none	Penis usually shows a marked involvement, numerous pustules and burrows
Complications are absent in most cases	Complications, such as an unusually large number of pustules, boils, impetigo, and the so-called I. C. T. (secondary pustular lesions) are frequently present

exclusive of the scalp, may show this nit. In a recent series of 200 patients minutely examined, pediculosis pubis was present in 190 of the cases.

METHOD OF TREATING SCABIES

On the first day the patient is given a warm bath with plenty of soap. One rubbing is given with sulphur (precipitated sulphur, 1 dram to the ounce of petrolatum).

On each of the next three days a sulphur rubbing is given.

On the fifth day a warm bath with plenty of soap, and clean clothes, are given.

Thorough and minute examination of the entire body is made to insure that no active disease remains. If active lesions are still present, four more days of sulphur rubbings are given, followed by another warm bath, another careful examination of the skin surface, and clean clothes.

Method of Rubbing.—A noncommissioned officer, orderly or myself is always present as the patient rubs himself or is rubbed. A minimum of fifteen minutes is taken for the rubbing of each patient. The ointment is rubbed in thoroughly on every portion of the entire cutaneous surface, from the collar line downward; not even the smallest part is missed. The ointment is rubbed in with sufficient friction to open up and destroy all of the burrows. A thin coating of this ointment is purposely allowed to remain over the entire skin surface, excepting the face and scalp (areas that are never attacked excepting in breast-fed babies), after the rubbing is completed, so that if any of the acari have escaped they will be suffocated by the sulphur fumes. In addition, when there are a considerable number of pustules and boils present, the areas so involved are bandaged with sulphur ointment after the daily rubbing is completed.

The greatest care is exercised in treating scabies in a separate hut or tent, in the thorough disinfection of all articles of clothing, and in the use of separate baths.

Treatment of the Complications of Scabies.—There is no more efficient remedy for the treatment of all secondary pustular conditions following scabies than ammoniated mercury ointment, from 20 to 40 grains to the ounce of petrolatum. Boils in their incipience are best cured by rubbing in thoroughly each day for ten minutes a 25 per cent. ichthyol ointment; in a

TABLE 1.—DIFFERENTIATION BETWEEN SCABIES AND
PEDICULOSIS CORPORIS

Scabies	Pediculosis Corporis
General in distribution, exclusive of the face and scalp.	General in distribution, exclusive of the face, scalp, hands, feet and the lower arms and the lower legs
Predilection for the webs of fingers, flexure surface of the wrists, penis, flexure surface of extremities, and anterior surface of trunk	Predilection for extensor surface of the upper arms and upper legs, and posterior surface of the trunk, particularly across the shoulder and lower back
Diagnostic sign the "burrow," a minute zigzag line, consisting of alternating blackish and whitish dots, the width of a thin thread, and from the smallest fraction to $\frac{1}{4}$ inch in length; itch mite too small to look for; pinpoint in size	Diagnostic sign the pediculus, small pinhead in size, found in the seams of the clothes more frequently than on the body
The eruption we speak of as multi-form; papules, vesicles and pustules, boils and large crusts	The eruption consists chiefly of long, linear scratch marks, small punctate hemorrhages and excoriations; not infrequently crusts and boils
Itching severe, usually at night	Itching severe, usually at night

tissue (I. C. T.) were included, almost 1,000 more of these cases would be classified under the former heading. In other words, 1,500 of the 2,000 dermatologic cases were either frankly scabies or secondary to scabies.

Table 1 will elucidate the differentiation clearly between pediculosis corporis and scabies.

later stage they require opening. If boils continue to recur or a large number are present, autogenous vaccines are indicated. Septic ulcer and inflammation connective tissue not infrequently require rest in bed and the local application of ammoniated mercury, 20 grains to the ounce of zinc oxid ointment.

The efficacy of treating scabies, in the method outlined above, is proved not alone by the cure of 8,000 cases in civil practice but by the result obtained in the minute care of the last 150 cases treated in this hospital. Twenty-five per cent. of the latter patients were discharged cured in five days; 50 per cent. in nine days, and 15 per cent. in sixteen days. The remaining 10 per cent. required from three to six weeks. The length of time required in the latter cases was due to the large number and severity of the primary or secondary staphylococcic lesions, such as boils, impetigo, septic ulcers, folliculitis and inflammation connective tissue.

SUMMARY

1. Scabies should be treated by the routine suggested by the leading dermatologists of Great Britain, France and the United States.
2. Scabies is a greater problem in military than in civil life because of its greater frequency and severity.
3. Scabies is rather atypical in military life because of the comparative freedom of the hands and more marked involvement of the penis.
4. Complications secondary to scabies are much more frequent and markedly more severe in military than in civil practice.
5. A rather prolonged convalescence is observed in approximately 10 per cent. of scabies in military practice.

NEW METHODS FOR BLOOD TRANSFUSION AND SERUM THERAPY

FRANK W. HARTMAN, M.D.

Lieutenant, M. C., U. S. Navy

WASHINGTON, D. C.

1. A ONE MAN CLOT PROOF TRANSFUSION APPARATUS

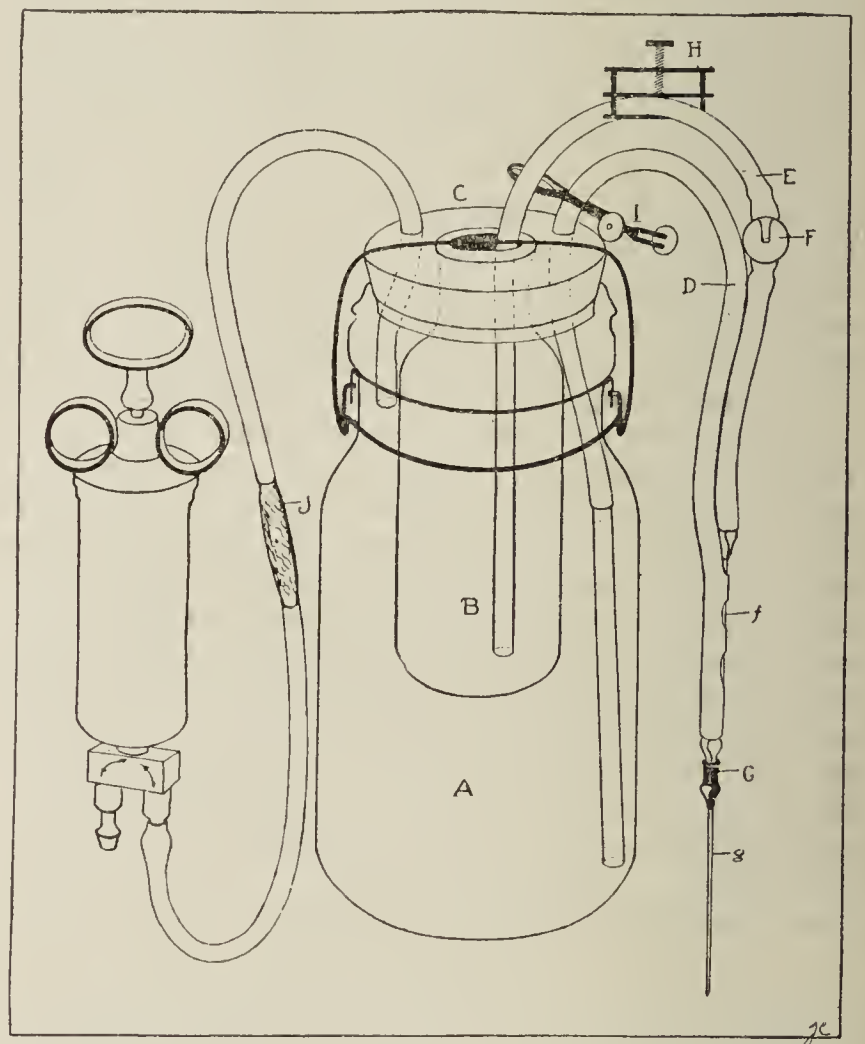
In working more or less constantly during the past year with blood transfusion by the citrate method, we have found numerous pitfalls and have tried to simplify the apparatus, eliminating chances of failure.

The principal difficulty has been to use a needle small enough so that one trial is enough to get well into the vein and still prevent clotting long enough to get the desired amount of blood. A 17-gage needle (*g*), preferably platinum, is large enough and causes the donor no marked discomfort. However, as the blood reaches the tube leading to the container there is a slowing of the stream because of the large bore of the tube compared with that of the needle. The walls of this tubing soon become coated with blood cells and a clot filling the lumen results, often before the desired amount of blood is drawn.

With these facts in mind, the apparatus shown in the illustration has been devised, which provides for citrating the blood to any degree, at the needle. Not only does this prevent clotting in the tubing but it also does away with the necessity of agitating the container while the blood is being drawn.

A one or two quart E. Z. seal fruit jar (*A*) is used as a container. A 12-gage rubber stopper (*C*) fits the

neck of this jar perfectly. A large hole is bored in the center of the stopper and the neck of a round 4-ounce bottle (*B*) fitted into it. Two small holes are bored through the stopper, one for the pressure tube and a second for the blood-carrying tube. The tubes are passed directly through the stopper because we find sterilization only causes the rubber of the stopper and tube to fuse, whereas glass tubes passed through it sear the surrounding rubber on sterilization, and soon leakage occurs. The bleeding tube (*D*) may be continuous from the needle to the bottom of the container, or may have a glass tube attached inside as illustrated. It is found convenient to have a connection at the distal end of the bleeding tube so that needles may be exchanged at any time. A second needle (*f*) of any size may be used to lead the citrate into the bleeding tube. From this a rubber tube (*E*) passes to the bot-



Apparatus for blood transfusion and collection of plasma.

tom of the citrate bottle (*B*). This tube is broken by a small dropper (*F*), such as is used on the Dakin irrigating apparatus, so that as the flow of citrate is regulated by the stopcock (*H*), we may be certain that the citrate is never completely cut off.

The pressure tube just pierces the stopper, and may be broken by an elongated glass bulb filled with cotton (*J*). With this precaution, suction and pressure may be made by mouth if pump or bulb is not available. An ordinary aspirating pump answers very well.

From 15 to 20 c.c. of 2.5 per cent. sodium citrate solution are placed in the jar (*A*), the citrate bottle (*B*) is filled with the same solution and the stopper loosely fitted to the mouth of the jar. The needle is protected with gauze or cotton and the whole wrapped and sterilized. When the actual operation is undertaken, the stopper is fitted more tightly and clamped down with the lid wire of the jar. The citrate in the jar is forced over to fill the tubes and needle and the tube clamped

off at *I*. The apparatus is set on the operating table in the angle between the donor's arm and his body. A prominent vein is chosen and the surrounding skin cleansed with iodine and alcohol. The needle directed toward the body, is plunged into the vein, the clamp (*I*) released, and gentle negative pressure produced in the bottle. A generous flow of citrate is allowed through *F* until the blood is seen to be coming over properly; then the flow is regulated so as to obtain approximately 10 c.c. to each 90 c.c. of blood drawn, erring only in excess. The jar and citrate bottle are graduated with a file or diamond point.

The desired amount of blood being obtained, the pump is reversed, the citrate tube clamped off at *H*, the needle changed, and the blood tube and needle filled with the citrated blood and clamped at *I*. The patient's vein is needled, and after release of the clamp (*I*), the solution is forced from the bottle with low, even pressure. The use of the fruit jar furnishes a cheap and efficient container which is readily obtainable in large quantities. The lid clamp precludes any trouble with leakage about the stopper, regardless of the amount of negative or positive pressure exerted; and in case the blood is stored, the usual glass lid and rubber washer may be clamped on, sealing the jar quickly and securely.

2. COLLECTION OF HUMAN PLASMA FOR THERAPEUTIC USE

In the present influenza epidemic it occurred to us to try citrating the blood and sedimenting the cells in order to obtain plasma from convalescent pneumonia patients rather than obtain it by the usual clot and centrifuge method. The apparatus is especially adapted for the purpose, since jar after jar of blood may be obtained by merely shifting the stopper from one sterile jar to the next, drawing the blood and in turn sealing them with the glass top. It was soon found that dilution hastened by sedimentation, so that by using a 1 per cent. sodium citrate solution in physiologic sodium chlorid solution, 25 c.c. to 75 c.c. of blood, the cells settle to the lower half of the mixture in twelve hours' time when kept in the ice chest. For example, when 500 c.c. of blood are drawn, 125 c.c. of the citrate-sodium chlorid solution are used, and from the 625 c.c. mixture we obtain on an average 312.5 c.c. of serum and citrate-sodium chlorid solution mixture. This mixture is about one third citrate-salt mixture and two thirds plasma; hence from the 500 c.c. of blood drawn we obtain 200 c.c. of serum after twelve hours' sedimenting. The yield of serum obtained by the clot and centrifuge method as carried out in Boston recently has been about 300 c.c. per thousand c.c. of blood or 150 c.c. per 500 c.c. of blood. The supernatant fluid is decanted or drawn off with bulb pipets.

The advantages are the facility of obtaining the blood, the small amount of apparatus required (large centrifuges with suitable heads are only occasionally available), the small amount of handling necessary, and the large yield of plasma obtained.

Any number of jars are obtainable, and donors are bled in rapid succession with a single stopper by refilling the citrate bottle and occasional cleaning and boiling as a precaution against clotting and contamination. The plasma is used without regard to group or compatibility. Two cases, each complicated by empyema, among twenty-two treated with this plasma, were lost.

3. TEST PAPERS FOR THE RAPID SELECTION OF DONORS

It is always desirable to match blood directly if possible, and a modification of Lee's method is used, 2 drops of the patient's serum and 1 drop of the donor's red cell suspension (1 drop of blood to 1 c.c. of citrate-sodium chlorid solution) being placed at one end of a slide, and 2 drops of the donor's serum and 1 drop of the patient's red cell suspension at the other, and being incubated in a moist chamber at 37 C. for one hour.

For the grouping of donors and recipients a method has been devised which is workable and should prove practical, for men at the front particularly.

The blood is drawn and citrated as for transfusion, and then set in the ice chest for several days to allow as complete sedimentation as possible. The supernatant plasma and citrate are drawn off, placed in a large porcelain dish, and evaporated to dryness with the electric fan. To the residue is added the smallest amount of physiologic sodium chlorid solution that will dissolve the residue. Grinding in a mortar facilitates the solution. Squares of heavy filter paper are saturated from this after the method of preparing amboceptor paper for the Noguchi test. This is allowed to dry between layers of unbleached muslin. The dried paper may be kept sealed in oiled paper envelopes or in any moisture-proof container.

For grouping, strong agglutinating papers of groups of two and three are needed. The test consists in cutting a strip of filter paper 2 mm. wide and 2 cm. long of two and three groups. These are folded into a V, placed on a polished background, preferably white enamel or porcelain, and a drop of water added to each. A drop of blood is drawn from the person to be grouped and a small portion of it put into each group. Sufficient salt and citrate will have gone into solution to prevent hemolysis and clotting. The concentration of the serum is such as to cause marked agglutination easily visible to the naked eye in from three to five minutes if it is to occur.

From experience with amboceptor paper and anti-bacterial serums thus preserved for use in the tropics, we may expect this serum to retain its agglutinins indefinitely. A small package would be enough for many tests and can readily be sent through the mails. No glassware or solutions are necessary for the test.

Rectal Injection of Arsphenamin.—A. Azemar publishes in the *Annales de dermatologie*, 1918, 7, 14, a report on the rectal administration of the novarsenobenzol brand of neo-arsphenamin in the treatment of syphilis. He reports the details of thirty-six cases and gives a summary of the literature on the subject. The drug was rapidly absorbed from the rectum, appearing in ponderable quantity in the urine in two hours, but there was none after the sixth day. The therapeutic effect is less rapid, less profound, less constant and less durable than when the drug is administered by the vein. The intrarectal technic might be utilized during periods of latency and as preventive treatment, but he does not advise it as a general method or with active manifestations. His dose was usually 0.9 gm. for otherwise healthy adults, repeated at six day intervals. In seven tenths of the cases, five injections completed the cure. With doses less than this the results were disappointing. For children and debilitated adults, the doses were 0.6 or 0.7 gm. He added ten or fifteen drops of tincture of opium to the fluid. There were never any indications of intolerance at the time or later. Mercurial treatment might be combined with this technic, but he did not attempt it.

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SATURDAY, NOVEMBER 16, 1918

ANOTHER WORD REGARDING CREATINURIA

In contrast with creatinin, creatin is not a normal constituent of the urine of healthy adult men, though it makes its appearance as the result of disturbance of metabolism. It may be found in the urine of women and is commonly excreted by children. These well substantiated facts offer a chemical and physiologic puzzle that has given rise to much speculation and considerable experimentation. The hypotheses advanced need not be detailed again here. They differ fundamentally in one respect, namely, as to whether the eliminated creatin is primarily of endogenous or exogenous origin. Rose has thus formulated the controversy: The acidosis theory of Underhill,¹ and the carbohydrate deficiency theory as developed by Mendel and Rose,² agree in attributing urinary creatin in individuals on a creatin-free diet to an entirely endogenous source, namely, the creatin of the tissues. The theory of McCollum and Steenbock³ and of Denis⁴ suggests an exogenous origin of urinary creatin in certain amino-acids of the diet. It is universally recognized that in ultimate analysis tissue creatin must be synthesized from amino-acid; but the question at issue is, Does creatin formation proceed only so far as this substance is needed by the cells, or may the reaction be induced indefinitely by the introduction of creatin precursors? In other words, Is creatin an anabolic product formed for a specific purpose or function, or is it a normal product of the catabolism of protein, whether this protein be of tissue origin (starvation) or of food origin (high protein diet)?

After Denis had reported that in adults with exophthalmic goiter and in normal children, the creatin output can be greatly augmented by increasing the protein of the diet, while it is promptly diminished in amount or made to disappear entirely by lowering the intake of protein, and that diets rich in protein lead

to the excretion of creatin in normal women but not in normal men, contradictory evidence was soon produced. Rose, Dimmitt and Cheatham⁵ showed that, contrary to the generally accepted idea, the feeding of much protein to fasting men can result in the entire disappearance of creatin from the urine. These investigations, undertaken at the University of Texas, have now extended⁶ to demonstrate clearly that the ingestion of diets excessively high in protein fails to induce the excretion of creatin in normal women and men. Diets yielding from 3,400 to 3,900 calories a day, whether accompanied by a moderate (13 gm.) or a large (27 gm.) nitrogen intake, exerted no appreciable influence on creatin-creatinin metabolism.

The Texas biochemists adhere to the belief that no evidence has yet been adduced sufficient to justify the acceptance of a theory that postulates an exogenous origin of urinary creatin in the absence of creatin in the diet. This is quite different from the contrary hypothesis that "on the ingestion of protein some fraction of this is transformed into creatin, transported to the muscles, and there absorbed. If so much creatin is manufactured that the muscles become supersaturated, creatin is excreted by way of the kidney." The burden of proof for such a view still remains with its advocates. Meanwhile the secret of the genesis of creatinuria is still to be sought in the study of metabolism.

FOOD AND THE HUMAN MACHINE

"Food is the fuel of the human furnace, and must be furnished to that furnace in accordance with its needs." If this dictum of physiologic science is correct, we may properly inquire whether the needs of man are far smaller than students of nutrition have taught of late,⁷ or whether the energy metabolism of the German subject has assumed a uniquely low level in consequence of the war. One hears of the pronounced reduction in food allowance among the civilian population of the late Central Powers, and the implication is that the rationing schemes are carried out without detriment to the inhabitants. We need to learn the lessons which their experience, whatever it may be, can teach; for America and her allies also have their food problems.

What are the accepted facts? The basal metabolism or heat production of an average man weighing 156 pounds (70 kg.) will be 70 calories an hour at rest and without food, or 1,680 calories in twenty-four hours. The maintenance requirement when food is ingested may be augmented by 10 per cent. The basal require-

5. Rose, W. C.; Dimmitt, F. W., and Cheatham, P. N.: Experimental Studies on Creatine and Creatinine, VI, Protein Feeding and Creatine Elimination in Fasting Man, *Jour. Biol. Chem.*, 1916, **26**, 339.
6. Rose, W. C.; Dimmitt, J. S., and Bartlett, H. L.: Experimental Studies on Creatine and Creatinine, VIII, The Alleged Exogenous Origin of Urinary Creatine in the Protein of the Diet, *Jour. Biol. Chem.*, 1918, **34**, 601.

7. A valuable summary illustrated with charts, of what is known regarding the food requirement of boys from birth to 16 years of age, soldiers at hard work, and men and women in industrial pursuits is given by Lusk, Graham: *The Fundamental Requirements of Energy for Proper Nutrition*, THE JOURNAL A. M. A., March 23, 1918, p. 821.

1. Underhill, F. P.: *Jour. Biol. Chem.*, 1916, **27**, 127.

2. Mendel, L. B., and Rose, W. C.: *Jour. Biol. Chem.*, 1912, **10**, 213.

3. McCollum, E. V., and Steenbock, H.: *Jour. Biol. Chem.*, 1913, **13**, 209.

4. Denis, W.: *Jour. Biol. Chem.*, 1917, **30**, 47; Denis, W., and Kramer, J. G.: *Ibid.*, p. 189. Denis, W., and Minot, A. S.: *Ibid.*, 1917, **31**, 561.

ment of energy may be reduced by undernutrition, and this process may largely economize food. To accomplish a given amount of work, however, a fixed amount of food fuel is required, irrespective of the nutritive condition of the organism.

It is reported that the German army received extra heavy rations prior to the commencement of the great offensive for Amiens on March 21 of this year, and the general advice is that that army has always been well provided with food. With the civilian population, however, the situation has been reported to be serious, and accounts agree that the worst shortage of food occurred in the spring of 1917. According to the published statement of a Munich clinician,⁸ in October, 1917, the civilian ration at Munich contained protein, 56.7 gm., fat, 30.5 gm., and carbohydrate, 308 gm. It was made up of bread, meat, milk, potatoes, sugar, cheese, egg, butter and grits, and had a value of 1,760 calories. In January, 1918, it remained substantially unaltered. These astounding figures are corroborated by Jansen,⁹ according to whom the official ration of Munich in the spring of 1917 contained 1,600 calories and 9.7 gm. of nitrogen, which is equivalent to 60 gm. of protein.

It is one thing to furnish a ration and another to nourish a population adequately with it. Jansen has thrown an illuminating light on the situation. The ration cited was given to several men who were occupied as interns in the medical clinic of Friedrich von Müller, and nitrogen balance experiments were carried out on them for from six to thirty-one days, as in the experiments of Chittenden. Prior to the observations the men had been for some time on short rations, especially as regards the protein components. It is stated, however, that the average loss in weight since the war began was about 5 kg., which certainly does not indicate excessive emaciation. The average weight of the subjects was 62 kg. While partaking of the foregoing diet each man lost weight daily and also very nearly 2 gm. of nitrogen. This loss was attributed to the deficiency of calories in the dietary, for the addition of 500 calories in the form of sugar resulted in maintenance of the body weight as well as in nitrogen equilibrium.

But the laws of the metabolism of energy are immutable. Two of the men, when partaking of the official Munich ration, undertook muscular exercise in the form of walking. Such exercise under ordinary circumstances would have been accomplished without effort. After walking three and five hours, however, the subjects felt obliged to return to Munich by train. Before the walk the basal metabolism had been determined as 1,400 calories a day. On the return to the laboratory the subjects were too excitable and irritable to lie quietly in the respiration chamber, but a deter-

mination of the basal metabolism of one of them was made twelve hours after the completion of the walk and showed an increase of 50 per cent. above the normal level.

It appears from these experiments that what is publicly proclaimed as the official ration of a German city must be supplemented to a very considerable extent by the purchase of unrationed foodstuffs if the day's work is to be accomplished. It is furthermore interesting to note the statement that two women interns had both gained in weight during the war. Since a woman needs less food than a man, any attempted equality in the distribution of foods would ensue to her benefit.

THE PARATHYROIDS AND IDIOPATHIC TETANY

However expressive the word "idiopathic" may be as an indication of definite symptoms or as the designation of a recognized clinical entity, it almost invariably leaves a query in the mind of the critical student as to the underlying cause or significance of what is described thereby. This has long been true of idiopathic tetany or spasmophilia. This hyperexcitable state of the nervous system is manifested by a spastic condition of the muscles of the extremities, by laryngeal spasm, and by epileptiform convulsions in its active state. In the more recently described latent forms there is merely an increased response to mechanical or electrical stimulation of the peripheral nerves. In childhood, idiopathic tetany is usually associated with rickets; in adult life, its incidence goes with dilatation of the stomach, pregnancy, certain infections, and a few occupations. These facts have long been known.

Of the many causes that have been assigned to this spasmophilia—disease of the brain, "rheumatism," metabolic derangements, specific infection, and endocrine abnormalities, the last has offered the greatest possibility of opening the way to a better understanding of the etiology. Although the possible association of the parathyroids with tetany was suggested by clinical workers as early as 1902, it has been the experimental physiologists who have made the more convincing contributions to the subject. So long as the independence of the thyroids and parathyroids was not clearly recognized and demonstrated, there was bound to be confusion in the investigation of the physiology and pathology of these organs. Now that the demonstration of their individuality and embryologically separate origin is accepted, it is worth while to consider more seriously the claims as to the relation of the parathyroids to the clinically recognized forms of idiopathic tetany.

There is agreement today among experimentalists that the nervous symptoms described often in the past as occurring after thyroidectomy are due to removal of the parathyroids. Too little attention has been paid

8. Pfaundler, M.: Ration und Bedarf an Nährstoffen für Kinder, München. med. Wchnschr., 1918, **65**, 173; abstr., *Physiol. Abstr.*, 1918, **3**, 255.

9. Jansen: Untersuchungen über Stickstoffbilanz bei kalorienarmer Ernährung, *Deutsch. Arch. f. klin. Med.*, 1917, **124**, 1.

to the noteworthy series of contributions from the Department of Physiology at the University of Glasgow which won the 1916 Warren Triennial Prize of the Massachusetts General Hospital for D. Noël Paton and his co-workers. They agree that all the nervous symptoms are undoubtedly due to the condition of the central nervous system. Section of the nerves to any part of the body entirely and immediately abolishes all spasms, tremors and jerkings of the muscles supplied. Consequently the condition of the peripheral neuromuscular mechanism is not likely to be the occasion for the primary action in the production of the symptoms. The parts played by the spinal, cerebellar and cerebral arcs are by no means yet clear.

Paton, Findlay and Watson¹ agree that undoubtedly the most constant change after parathyroidectomy is the increase in the response to galvanic stimulation. This hyperexcitability has long been referred to as a valuable sign of the condition of tetania thyreopriva, especially when other symptoms are not conspicuous. The Glasgow investigators, in their extensive researches on this subject,² have established that the absence of a direct relationship between the severity of the nervous symptoms and the electrical excitability of the peripheral neuromuscular mechanism is a clear proof that this altered excitability is a phenomenon of secondary importance to the changes in the central nervous system, and that it cannot be taken as a measure of the severity of these disturbances.

In searching for a further index to the causes of the symptoms recorded, attention has been centered on metabolic phenomena. According to the observations of Paton and his collaborators, we are encouraged to believe that there is no evidence of a direct controlling influence of the parathyroids over the central nervous system. The symptoms of the tetany following parathyroidectomy are also not primarily due to the loss of calcium from the body, as was postulated at one time. Paton and Findlay have observed, however, that the phenomena of guanidin poisoning correspond very closely with those of tetania thyreopriva. Furthermore, they found a marked increase in guanidin and methyl guanidin in the blood and urine of animals after removal of the parathyroids and also in the urine of children suffering from idiopathic tetany.³ Hence the conclusion that the parathyroids control the metabolism of guanidin in the body by preventing its development in undue amounts. In this way, they probably exercise some regulative action on the tone of the skeletal muscles. Finally, the same investigators suggest that tetania thyreopriva and idiopathic tetany are identical as regards their characters and metabolism, and

although the histologic evidence is not conclusive, in all probability the parathyroids are implicated in both conditions. The metabolic history of the guanidin manifestations remains undetermined. A relationship between it and creatin has often been postulated. Perhaps this will be a profitable direction for the prosecution of future studies in this field, particularly since the striking similarity between an experimentally obtainable condition and a recognized clinical entity has been pointed out.

VITAMINS AND METABOLISM

The enthusiasm and concern that are awakened just now by the subject of vitamins in the discussion of nutrition are perhaps unequaled by any similar interest with the possible exception of that commanded by the idea of the calory. In reviewing the momentary status of our knowledge, Professor Steenbock¹ of the University of Wisconsin has remarked, with intelligent appreciation of the situation, that "as experimentation revealed symptoms attributable to vitamin deficiency, the general public, ever easily impressed by matters unexpected, and matters so vital as to revolutionize the conception as to what constitutes an adequate diet, soon became alarmed. At present it is probably not overstating the situation when it is said that the previously considered all-important attributes of an adequate ration, such as sufficient protein, calories and salts, have probably been slighted by the sudden interest taken in vitamins."

In the immediate past the attention of scientific investigators has been directed in greatest measure to the discovery of the occurrence and distribution of those properties of foods to which the name 'vitamin' has been applied. Studies have been made of the consequences which attend a lack of vitamins in the diet; and much effort is now being expended in ascertaining to what extent, if at all, certain disorders of nutrition are attributable to a deficiency in vitamins.² Although many important properties of these essential food factors have been described, the attempts to ascertain their chemical identity have thus far failed. The fact that an antineuritic substance contained in yeast extracts can be absorbed by preparations of fullers' earth and thus in a sense be isolated from the medium containing it gave hope that the "active principle" might readily be isolated. In this way a purin compound, adenin, was identified, but it has proved to be inactive. Presumably the adenin is associated with the antineuritic factor only in yeast, just as nicotinic acid has been shown to be associated with it in the antineuritic extract of rice polishings.³ Both com-

1. Paton, D. N.; Findlay, L., and Watson, A.: The Parathyroids—Tetania Parathyreopriva: Its Nature, Cause and Relation to Idiopathic Tetany, Part III, The Changes in the Peripheral Nerves and the Muscles, *Quart. Jour. Exper. Physiol.*, 1916, **10**, 243.

2. Paton, D. N., and others: The Parathyroids: Tetania Parathyreopriva, Its Nature, Cause and Relation to Idiopathic Tetany, eight papers, *Quart. Jour. Exper. Physiol.*, 1916, **10**, Nos. 3 and 4; abstr., *Brit. Med. Jour.*, 1917, **1**, 575; abstr., *THE JOURNAL A. M. A.*, June 9, 1917, p. 1784.

1. Steenbock, H.: Vitamins and Nutrition, *Scient. Month.*, 1918, **7**, 179.

2. Compare Mendel, L. B.: Some Relations of Diet to Disease, *New York Med. Jour.*, 1918, **108**, 49.

3. Barger, G. C.: The Simpler Natural Bases, London, 1914. Drummond, J. C., and Funk, Casimir: *Biochem. Jour.*, 1914, **8**, 598.

pounds, when thoroughly purified, become inactive. How, then, do the vitamins exert their functions? Conjectures have not been wanting. Very early in their history the vitamins were assumed to behave like enzymes—an analogy which lacks anything more than fanciful guesswork. In a recent elaborate treatise on dietotherapy,⁴ the writer of the chapter on vitamins, reflecting the current uncertainty on the subject, has omitted conjecture as to their mode of action; but the editor has ventured the statement that in nutrition "they play a rôle which might be likened to that of the hormones in cellular activity or the opsonins and other antibodies in the infections." Attention has been directed in *THE JOURNAL*⁵ to the lack of foundation for the once asserted belief⁶ that vitamins (or at any rate the antineuritic substances) play some part in carbohydrate metabolism. In an experimental study on rats—the classic animals in research of this type—Drummond⁷ of the Cancer Hospital Research Institute, London, has found that the nitrogenous metabolism during diets deficient in the water-soluble dietary accessory substance shows no apparent deviation from the normal with the exception of an occasional creatinuria. This abnormality, however, is observed whenever there is a wasting of musculature, such as occurs as the result of the low intake of food in animals on a deficient diet.

It has been suggested, in view of the lowered food consumption observed when the water-soluble vitamin is lacking,⁸ that the latter influences the appetite in some way. Drummond noted that an increased food consumption may be brought about by the addition of flavoring agents, such as meat extract, to the synthetic diets; but unless the additions contain vitamin, no growth results. The amount of growth is, within certain limits, proportional to the amount of accessory substance added, provided the diet is adequate in other respects. Such facts make it clear that vitamins are something more than mere carminatives that stimulate the appetite. Any promotion of the latter is more likely the outcome, as Osborne and Mendel have suggested, of the improved condition of the individual when vitamins are available in the diet. The cause of the fatal decline that inevitably follows a deficiency of vitamin has not yet been ascertained. It appears, however, that age plays a part in the rapidity with which symptoms of decline intervene. In older subjects, in whom maintenance rather than growth is concerned, a restriction can be borne far better than in the young.

Current Comment

THE MEDICAL PROFESSION AFTER THE WAR

In April, 1917, our country called on the medical profession for volunteers for medical service. The response was both prompt and generous. Again and again the call came, and each time met similar prompt and generous response. Some 35,000 physicians have responded to these calls and are serving in the Army or in the Navy. In addition, about 25,000 physicians have given freely of their time and labor to work on Selective Service Boards, thus making possible that efficient, physically fit machine—the National Army.

It is too soon—the world, victorious and vanquished, too unsettled—to say what is coming and what is to be done. It is an hour in which nations are being made, unmade and remade. We hear, we talk, we read of reconstruction. The reconstruction problems are, in the main, twofold: one, the salvaging of mutilated humanity; the other, the reconstruction of devastated cities, towns and villages. The former, the salvaging of the heroic remnants of war-worn men, is the more important. Our reconstruction problem as applied to the physical reconstruction of the disabled soldiers is certain not to be the gigantic task that it would have been had the war continued for a long period of time. There will, of course, be much to do in this regard; but this work is in competent hands and well provided for. Our reconstruction problem as it applies to the returning of more than 30,000 military physicians to civilian life is again not a problem of magnitude. The physician before he went to war was, in most instances, a man of home and family, and in most instances home, family, his professional confrères and the community wait to welcome him with honors.

However, our reconstruction problem as it concerns the relation of the physician to the great social problems that are to arise "after the war," is a problem of magnitude. One's senses are startled by phrases in the modern writings on social and economic subjects. One hears of "equalization of risk and return," of "conscription of wealth," of "health insurance," of "national ownership," of "state medicine," of a "league of nations," "international medical alliances," and similar conceptions. With these, and as a part of these, will be new problems of the relation of physicians to each other and to the public. Physicians will have as much influence as any other class in the weaving of the new social fabric. It is well to realize this and to appreciate the need of closer knitting together of the profession itself—of stronger organization—so that we may face these problems with the strength of many minds united. Thus the medical profession may be able, not only to secure the rights and recognition it merits, but also to have that real influence necessary for the best interests of the public health in the new order of things. The medical profession has served, it serves and it will continue to serve when called on,

4. Dietotherapy, by W. E. Fitch and Forty Contributors, New York, 1918, 1, 234; 2, 221 (by A. B. Macallum).

5. Beriberi and Carbohydrates, Current Comment, *THE JOURNAL* A. M. A., July 20, 1918, p. 198.

6. Funk, Casimir: *Ztschr. f. physiol. Chem.*, 1914, 89, 378. Braddon and Cooper: *Jour. Hyg.*, 1914, 14, 351.

7. Drummond, J. C.: A Study of the Water-Soluble Accessory Growth-Promoting Substance, II, Its Influence upon the Nutrition and Nitrogen Metabolism of the Rat, *Biochem. Jour.*, 1918, 12, 25.

8. Osborne, T. B., and Mendel, L. B.: *Jour. Biol. Chem.*, 1917, 31, 149.

but in its altruism must not forget that the profession will have to guard its own rights and prerogatives if they are to be guarded at all.

CORN OIL AS FOOD

Elsewhere in this issue of *THE JOURNAL*¹ are recorded the results of an investigation, conducted in the Laboratory of Physiological Chemistry at the University of Iowa, on the digestibility by dogs of corn oil, prepared from the germ of maize, in comparison with the utilization of lard and the now widely used cottonseed for which it is chiefly substituted. The results clearly indicate that all of these fats, used in similar amounts, are essentially comparable as regards their digestibility. There is no reason to assume that the findings are not equally applicable to man. The average figures for the fat absorbed—corn oil, 98.9 per cent., cottonseed oil, 98.8 per cent., and lard, 97.8 per cent.—leave little to be desired from the alimentary standpoint. These data are in accord with the recent experiments of Holmes² of the United States Department of Agriculture indicating the excellent utilization, by man, of a not inconsiderable number of fats and oils of vegetable origin, some of which are as yet little known as dietary possibilities. In commenting on them, *THE JOURNAL* pointed out an important fact which must at present be kept clearly and prominently in mind whenever the modern "substitutive fats" are under consideration. Some animal fats, notably milk fats, contain those little understood but very important properties designated as vitamins, without which the organism ordinarily fails to grow or recover from nutritive injury as it should. Since these are not found in most vegetable oils, we must not fail, in the present stage of knowledge, to provide children and invalids with some suitable vitamin-containing animal fats, preferably perhaps from milk. Digestibility is only one factor, though a highly important one, in the nutrient possibilities of foods.

THE MATERIAL LOST IN MENSTRUATION

Although it is usually stated that the amount of blood lost at each menstrual period varies between 100 and 300 gm., there have been few accurate data available regarding the actual losses of body components incident to this physiologic change. Definite information is afforded by recent observations at the Nutrition Laboratory of Teachers College, Columbia University.³ In periods lasting from four to five days the highest observed losses through the menstrual flow were: of nitrogen, 3.4 gm.; phosphorus, 0.06 gm.; calcium, 0.02 gm.; iron, 0.04 gm. In comparison with the normal daily metabolism, losses of this degree are comparatively insignificant except in the case of iron. The output of nitrogen in the flow represents not more than 0.1 gm., equivalent to about 6 gm. of

protein per day for the month. The losses of calcium and phosphorus are smaller than the chance variations in the usual output from day to day. If the daily requirement of iron by the adult is placed at from 0.010 to 0.015 gm., it is possible that the loss of iron through the menstrual flow is sufficient to suggest consideration of it in connection with the selection of the daily diet. At any rate, the iron output offers the only obvious indication of significant loss. The outcome of the analyses is, as the investigators themselves recognize, that there is no pronounced periodicity in the output of phosphorus and calcium, and that the amounts of these elements lost in menstruation are not sufficient to make the nutritive requirements of women for these elements materially different from those of men of the same weight.

ARCHIVES OF NEUROLOGY AND PSYCHIATRY

At the session of the American Medical Association last June, a petition signed by a large number of the leading neurologists and psychiatrists of the United States and Canada was presented to the Board of Trustees, asking that the Association publish a journal to be devoted to nervous and mental diseases, on a plan similar to that on which the *Archives of Internal Medicine* and the *American Journal of Diseases of Children* are published. The board took the matter under advisement until its October meeting, at which time it acted favorably on the petition, and authorized the publication of such a journal. The journal will be known as the *Archives of Neurology and Psychiatry*. The following were appointed as the editorial board:

- DR. PEARCE BAILEY, New York, adjunct professor and assistant professor of neurology at Columbia University College of Physicians and Surgeons, New York.
- DR. AUGUSTUS HOCH, now of Montecito, Calif., formerly professor of clinical medicine, department of psychopathology at Cornell University Medical College.
- DR. HUGH T. PATRICK, Chicago, clinical professor of nervous and mental diseases, Northwestern University Medical School.
- DR. E. E. SOUTHARD, Boston, professor of neurology, Medical School of Harvard University.
- DR. FREDERICK TILNEY, New York, professor of neurology, Columbia University College of Physicians and Surgeons, New York.
- DR. T. H. WEISENBURG, Philadelphia, professor of neuropathology and clinical neurology, University of Pennsylvania School of Medicine.

The aim of all connected with the new journal is to make it representative of the best American product in the realm of nervous and mental diseases—the best in things immediately practical as well as scientific. The press of the American Medical Association is today thoroughly equipped, and thus is prepared to produce journals such as the one under discussion in a manner satisfactory to the most critical, and at the same time economically. It is unnecessary to say that the publication of these special journals is undertaken, not with the idea of financial profit, but solely for the purpose of advancing scientific medicine in the United States.

1. Page 1649.

2. Holmes, A. D.: Digestibility of Some Seed Oils, Bull. U. S. Dept. Agric., No. 687, 1918.

3. Gillett, L. H.; Wheeler, L., and Yates, A. B.: Material Lost in Menstruation of Healthy Women, Am. Jour. Physiol., 1918, 47, 25.

PICRIC ACID INTOXICATION AND JAUNDICE

Picric acid (trinitrophenol), which has long been used in the manufacture of certain explosives, is recognized as the cause of occasional cases of industrial poisoning. It enters the body in the form of dust, by inhalation. Skin affections, yellow pigmentation of the epidermis and conjunctiva, and digestive disturbances have been attributed to the poison. Although picric acid has been replaced in the munitions industry to a considerable extent by the now familiar T. N. T., trinitrotoluene, the foreign war time medical literature shows that intoxication with the former has gained an unexpected prominence. This is partly due to the fact that picric acid has been used by malingerers in the attempt to avoid military service. When from 30 to 90 centigrams, that is, up to about 15 grains, of this yellow compound are taken, vomiting and diarrhea may ensue and thus remove a considerable part of the poison from the alimentary tract. If sufficient is absorbed, a coloration of the skin and sclera will ensue. This may be due to picric acid itself or to its reduction product, picramic acid, according to Malmesjac and Lioust,¹ who have observed many cases. The coloration is frequently accompanied further by symptoms of true jaundice of hepatic origin as a complication of the poisoning. In that event, bile pigments and biliary acids may appear in the urine along with excreted picric acid and its derivatives. It therefore becomes imperative to examine the urine for the latter in order to permit a correct diagnosis.

Medical Mobilization and the War

Honors to Major-Gen. William C. Gorgas

Major-Gen. William C. Gorgas has been notified that the decoration of "the Grand Officer of the Order of the Crown of Italy" has recently been conferred on him.

On October 26, Secretary of War Baker, wrote the following letter to General Gorgas:

OCTOBER 28, 1918.

My Dear General Gorgas:

Your official term as Surgeon-General of the Army having expired, I beg leave to express to you the appreciation of the Army and the country of the distinguished services which you have rendered during your long and brilliant career as a medical officer. Even the gracious modesty which is a part of your habit of thought cannot keep you from realizing that your career has been one of brilliant distinction, and that the Medical Department of the Army has profited from your services, as it has been honored by your deservedly high reputation. The operation of law has terminated your period of active service, except for the emergency work which you are now doing under my direction, but it will be a source of satisfaction to me and a comfort to the people of the country to realize that your interest will continue in the Army and in the great scientific researches in which your life has been engaged.

If I may add a personal word to this note, I beg you to accept my grateful acknowledgement of the cordial and helpful relations which have existed between us officially, and to thank you for the many personal courtesies and kindnesses which I have received from you during our most happy association.

I am placing a copy of this letter in the hands of the Adjutant General in order that it may become a part of your record in the department, and may there remain as an evidence of the complete success with which you as a soldier and a doctor have through long years and under varying and difficult conditions served your country.

Cordially yours,

NEWTON D. BAKER,
Secretary of War.

**Bureau of Medical Research and Intelligence for
Red Cross in Paris**

Among its other activities the American Red Cross in France has established a Bureau of Medical Research and Intelligence Department, of which Lieut.-Col. Alexander S.

Lambert is the chief. The individual divisions are: Medical Library, Medical Publications, Medical Research and Medical Intelligence bureaus. The department undertakes to supply the field, camp and evacuation hospitals with medical books and journals as also to reply to individual requests as to most recent developments in war medicine and surgery. For the latter, the Medical Intelligence Bureau, of which Major Thomas H. Halsted is chief, is occupied specially with looking up literature, reports of commissions, etc. It responds at once to all requests for information on medical and allied subjects asked for by any medical member of the American Expeditionary Forces or of the Red Cross. An index is kept of all articles relating to war medicine and surgery, and also abstracts of the more important ones. Dr. Emil Mayer of New York City has been appointed representative of the United States for this bureau. Writers of original articles on war subjects are requested to send two reprints thereof as soon as possible to the Medical Intelligence Bureau, American Red Cross, 9 rue du Mont Thabour, Paris, France.

**The Inter-Allies Institute for Rehabilitation of
the War Disabled**

The *Presse médicale* states that the permanent committee which has been appointed to centralize matters connected with the rehabilitation of disabled soldiers, comprises representatives of all the allied governments. They include Dr. Bourrillon (France), who serves as president of the committee; Dr. Mélis (Belgium), Sir Charles Nicholson (Great Britain), General Bradley (United States), L. March (France), Dr. Da Costa Ferreira (Portugal), and Agathonovitch (Serbia) as vice presidents. All these hold high military rank. An institute for research has been founded at the headquarters of the committee which is already installed at 102 rue de Bac, Paris. A review is to be issued by the committee. The editor in chief is Dr. Jean Camus, *professeur agrégé* at the Paris Faculté de médecine, with Dr. Bourrillon, the president of the committee, and Mr. C. Krug, the secretary general, as the board of directors for the publication. The work of the committee is to include the promulgation of the general principles for rehabilitation of the disabled, which each country can adapt to its own laws and customs; to group and centralize the data and the lessons learned from experience, and to apply them and aid in every way the mutilated and to extend this aid into the future after the war. By this coordination of efforts each one of the allied peoples will be able to profit by the improvements and achievements realized in any one of them.

Posthumous War Honors

The Distinguished Service Cross for extraordinary heroism in France has been posthumously awarded to Lieut. George P. Howe, M. C., U. S. Army, Boston, who was killed in action, Sept. 28, 1917, and to Lieut. John P. Rosenwald, M. C., U. S. Army, Minneapolis, on duty with the One Hundred and Fifty-First Artillery, who died, May 6, 1918.

Distinguished Service Cross Awards

The commander in general has awarded the Distinguished Service Cross to the following named officers of the Medical Department, American E. F.:

First Lieut. Frank L. Williams, Medical Corps. "For extraordinary heroism in action in Champagne, east of Rheims, July 15, 1918, and near the River Ourcq, northeast of Chateau Thierry, France, July 30, 1918. Lieut. Williams voluntarily left a dugout on the Champagne front and for more than two hours, all the time under shell fire, administered to the needs of wounded men who were lying in the open. During the advance across the River Ourcq he voluntarily remained in exposed positions under heavy shell fire, caring for and dressing the wounded until he was severely injured."

Capt. George H. Gage, Medical Corps, Infantry. "Conspicuous for his courage in the actions at Rambucourt, on March 17, 1918, and at Catigny, May 28, 1918. He gave inspiration to the officers and men of the command by his extraordinary heroism throughout the operations south of Soissons, July 18 to 22, 1918, and especially at Berzy-le G., July 21, 1918, when he accompanied the first line and attended the wounded in the open under incessant machine-gun and artillery fire."

First Lieut. Frederick W. Black, Field Hospital, Medical Department: "For extraordinary heroism in action near Soissons, France, July 18-22, 1918. He went over the top to the attack in the first wave and was wounded on the morning of the first day. Disregarding his wound, he pressed on with the attacking troops and crossed and recrossed the sector immediately behind the most advanced wave, rendering first aid to wounded and placing them in shell holes. He worked unceasingly without sleep or rest, and was again wounded on the fourth day by shell fire. Though twice wounded he steadily refused to be evacuated until the evening of the fourth day, when he was exhausted and suffering from his wounds."

1. Malmesjac, F., and Lioust, C.: Jaunisse picrique et ictere, Jour. de physiol., 1918, 17, 685.

Capt. George E. McGinnis, Ambulance Company, One Hundred and Ten, and One Hundred and Third Sanitary Train. For extraordinary heroism in action at Fismette, France, August 9 to 10, 1918: "During the night of August 9, Captain McGinnis, with complete disregard of his personal safety, made a reconnaissance under fire and located a line of evacuation for ambulances from Fismette and on the morning of August 10, under shell fire, he personally repaired the bridge between Fismes and Fismette, thereby making possible the evacuation of twenty-eight wounded men."

Weekly Bulletin, American Expeditionary Forces

The following paragraphs are taken from Weekly Bulletin No. 27, Oct. 14, 1918, issued for circulation among American medical officers in France:

PNEUMONIA'S DEMAND IS COMPLETE ISOLATION

The demand in pneumonia is the complete isolation of patients from each other when of different bacterial etiology as if they were cases of measles, meningitis or diphtheria, all with similar symptoms. Pneumonia, it has been well said, is a group of diseases with certain common signs and symptoms, and never was this more obvious than under present conditions in France, where typical physical findings and symptoms before death have been found alike in individual patients and in groups of patients in whom examination of sputum and blood has shown almost pure cultures of pneumococcus of the various strains—streptococcus, influenza bacillus and meningococcus types B and C—confirmed as well by smears from lungs and blood after death in many instances. It behooves all medical officers to be on their guard against the dangers of mixing or crossing infections among patients by the least neglect of precautions such as cubicle isolation and masking of patients and attendants. In one case recently reported, Type IV pneumococcus and Type B meningococcus were found in abundance in the secretions of different parts of the respiratory tract. The comments of the commanding officer of the Army Laboratory are very much to the point and should stimulate more intensive study of cases and their respective etiology:

"On looking back over the case, there is considerable regret that (a) specimens of sputum were not examined at more frequent intervals during the course of the disease; and (b) that at the autopsy, smears and cultures were not obtained at varying levels down the entire respiratory tract."

This case is of chief interest from an epidemiologic standpoint: Because, if the meningococcus is frequently associated with the pneumococcus (or other organisms), in cases of pneumonia and bronchopneumonia, aside from its possibilities of being the causative agent of the condition, there arises the important possibility of the wide dissemination of the meningococcus, at the onset of the disease, by coughing and expectoration; this would be especially true in cases of bronchopneumonia, due to the more gradual onset.

Associated with this case may be mentioned a sharp outbreak of influenza-bronchopneumonia, occurring in an organization of 329 men. There were sixty-eight cases of this condition with five deaths within ten days. At the termination of this epidemic of influenza-bronchopneumonia, a case of epidemic cerebrospinal meningitis (Type B, Pasteur) developed in this organization; twenty-nine close contacts with this case of meningitis were cultured (nasopharynx) with 50 per cent. positive carriers, of whom 80 per cent. were subsequently shown to be carriers of the meningococcus (Type B, Pasteur). This percentage of positive carriers is considerable in excess of the percentage of positive carriers among contacts with cases of meningitis, not associated with coincident respiratory disease, as determined at this laboratory."

FURTHER EVIDENCE OF DISTRIBUTION OF PATHOGENIC BACTERIA

Further evidence of the distribution of the various pathogenic bacteria in pneumonia cases coming to necropsy is found in the following summary of a report from the central laboratory:

"The bacteriologic examinations of lungs at necropsies in thirty cases of pneumonia at Base Hospital No. 17 during September, 1918, showed Pfeiffer bacillus in twelve (or 40 per cent.), pneumococcus in thirteen (or 43 per cent.), streptococcus in ten (or 33 per cent.). Considering the difficulties attending the isolation of the influenza bacillus and the possibility of its being absent from the lung at necropsy, although actually an important agent in the disease, the results indicate that this organism has been of primary importance in this group of cases. From other reports of epidemics in various parts of the advance section it is considered that the above findings are characteristic of the present epidemic."

CHANGE IN MEDICAL LEADERSHIP IN A. E. F.

On October 12 Major-Gen. Merritte W. Ireland left the A. E. F. for his new responsibilities as Surgeon-General, U. S. Army.

Col. Walter D. McCaw, appointed chief surgeon of the A. E. F., assumed the duties of the position vacated by General Ireland's departure.

The following paragraphs are taken from Weekly Bulletin No. 28, Oct. 21, 1918, issued for circulation among American medical officers in France:

INFLUENZA, PNEUMONIA, MENINGITIS

During the past two months a second wave of severe influenza infection has swept over France and has spread to all the countries of Europe in about equal force. In the United States the onset of the epidemic was, as is usually the case with pandemics of influenza, about three weeks later than in London and Paris. The first and rather benign phase of the infection, it will be remembered began in the middle of April and had largely disappeared in the American Expeditionary Forces by the end of July. The second phase which has not yet reached its maximum incidence has been characterized by a much higher percentage of initially severe cases and particularly of pulmonary complications. Coming at the time of rainy and changeable weather this new invasion of infectious colds and coughs has been accompanied by a constantly increasing number of pneumonias. New replacement draft detachments arriving with each convoy have added the heaviest percentage of infected men per strength and have shown the highest percentage of complicating pneumonias. It has been a usual observation that when infections of the upper respiratory tract prevail, the incidence of meningitis in the community increases soon after and this rule prevails at present. An increasing severity of the pneumonia is commonly found when the disease is permitted to pass rapidly through successive hosts.

Week Ending	Cases Influenza	Cases Acute Bronch. Pneu.	Cases Bronch. Pneu.	Cases Lobar Pneu.	Cases Meningitis	Deaths among Pneumonias
Sept. 13	3,066	495	78	401	21	14.5%
Sept. 20	4,279	476	101	376	18	29.3%
Sept. 27	3,921	524	154	427	47	31.9%
Oct. 4	9,285	988	364	671	88	34.9%
Oct. 11	5,794	890	194	401	134	45.3%

It is known that not less than 200,000 cases of influenza were reported during the past week among the troops in the camps in the United States. It has been officially reported that 80 to 90 per cent. of the mobilized army of Switzerland was affected soon after the introduction of the infection by prisoners exchanged through Switzerland from Germany. From official information from Portugal it appears that the influenza infection is no less severe there than in the American Expeditionary Forces, and the pneumonia is of as fatal a type.

The influenza and pneumonia now prevalent among French civil and military population is at least as severe as in the troops of the American Expeditionary Forces. The areas of heaviest infection of influenza, pneumonia and meningitis in the American Expeditionary Forces are the base ports, the depot divisions and such training areas in both service of supplies and advance zones as have received replacements or new organizations still including men exposed to the massive infection which has prevailed on the transports and on troop trains.

Substantial relief is to be expected soon from the frequently recurring infections introduced through base ports by incoming troops by the following improvements:

(a) Careful exclusion of men with colds, coughs and fever from transports at ports of embarkation.

(b) Equipment of all troops prior to embarking with three blankets, an overcoat, and winter weight woolen under-clothing.

(c) Reduction of troops carried on transports to 80 per cent. of berth capacity.

(d) Increase of hospitalization capacity on transports to 4 per cent. of troops.

(e) Shelter ready and standing for troops on arrival at base ports, with provision for permanent kitchen and mess service for arriving troops.

(f) Period of not less than four days with no heavy duty on debarking.

(g) Medical supervision of troops on troop trains.

(h) Gradual hardening and acclimatization process at depot divisions, with isolation so far as practicable of new

arrivals from earlier arrivals or permanent troops until infection has been eliminated.

(i) Increase in the floor space per capita to be provided wherever practicable up to 40 square feet per man.

(j) Separation of adjacent bunks by permanent board or shelter half partitions.

It will take continued concerted effort by all medical officers in the application of all measures of local sanitation and supervision of the personal hygiene of the men to avoid further extension of influenza with its complicating pneumonias and often coincident meningitis. Men's bodies must be kept warm. Their clothing must be dried at least once a day.

Sufficient blankets and drying rooms accessible to every one, especially in the regions immediately back of the fighting front are indispensable for prevention of pneumonia. In the service of supplies and in areas occupied by troops in training or reserve the problem is largely one of personal contact and crowding; among the troops at the front it is a question of fatigue and exposure; determination to remedy both will go far to save lives.

A report from the First Army Corps indicates that pneumonia is not epidemic, though prevalent there; that influenza bacillus and pneumococcus are the usual infecting bacteria; that incomplete clothing equipment and sleeping in cold and wet are the chief contributing causes.

EPIDEMIC DISEASE REVIEW FOR THE WEEK

Reports from the American Expeditionary Forces for both influenza and pneumonia show a reduction in the number of new cases of these diseases. A similar reduction in new cases has been reported by the French authorities from certain areas, notably the District of Paris and the Arrondissement of Tours, these reports including the conditions in the civil as well as in the French military population. The convoys which have arrived in the past week have shown a decidedly lower death rate and incidence of influenza and pneumonia en route than has been the case for the previous three weeks. The death rate from pneumonia has risen in the past five weeks from 14.5 to 45.4 per cent. of cases.

Meningitis has fallen from 167 cases reported last week to 147 this week. Of these sixty-five were reported from base ports among the sick hospitalized on arrival of transports and thirty-six more occurred in the depot divisions, training areas, and even in troops in the advance section among contingents which had been in France less than two weeks and had been exposed to heavy infecting during ship and rail transportation. The forty-eight cases of meningitis not thus accounted for as new importations in the American Expeditionary Forces were from widely scattered points and were not grouped in epidemic foci.

Of the 163 cases of measles 139 were among recently arriving troops and were detected at base ports and at depot divisions. Of the thirty-nine reported cases of dysentery nineteen were from one hospital in the advance section and the origin is thought to have been exposure and unsuitable food rather than an infection with specific dysentery organisms.

The diphtheria is chiefly chargeable to combat troops in the advance section (forty-one of seventy-eight cases). The cases reported from the intermediate section are chiefly among the recently evacuated men in base hospitals and among hospital personnel in the base hospitals.

The eight cases of typhoid fever, all from Novors, are part of a local outbreak in which thirty other cases have occurred in the French population. Contaminated food served by unrecognized carriers or cases in the public eating places is supposed to be responsible for this outbreak.

COMMISSIONS OFFERED AND ORDERS TO DUTY ON ACCEPTANCE

Alabama

To Camp Jackson, S. C., base hospital, for instruction, Capt. E. M. PRINCE, Birmingham.
To Fort Oglethorpe for instruction, Lieuts. C. C. BOX, Ashford; E. O'CONNELL, Birmingham; B. T. BRIDGES, Black; J. T. PATTILO, Shawmut; I. C. BATES, Taylor; N. S. GAY, Whistler.

Arizona

To Camp Cody, N. M., base hospital, Capt. R. R. BROWNFIELD, Phoenix.
To Camp Kearney, Calif., Lieut. C. I. HUGHES, Phoenix. Base hospital, for instruction, Lieut. A. B. CARMICHAEL, Prescott.

Arkansas

To Camp Pike, Ark., Lieut. W. H. OWENS, Turrell.
To Fort Riley for instruction, Lieuts. R. C. KENNERLY, Artisan; W. M. CARNER, Bodcaw; G. F. McLEOD, Magnolia; N. HORTON, Plumerville; W. S. EMBREY, Texarkana.

California

To Camp Cody, N. M., base hospital, for instruction, Capt. I. W. JONES, Lieut. W. H. BROWNFIELD, Los Angeles.
To Camp Fremont, Calif., Lieut. E. H. NEWBOLD, Oroville. Base hospital, for instruction, Capt. C. O. FALK, Eureka.
To Camp Kearney, Calif., Capt. G. H. HASTINGS, Los Angeles; E. S. BLAIR, San Bernardino; Lieuts. R. M. O'NEAL, Bishop; F. A. EDWARDS, Los Angeles; J. F. KERGAN, Oakland. Base hospital, Capt. H. BARKAN, San Francisco. Base hospital, for instruction, Capt. C. A. DOZIER, C. J. TEASS, San Francisco; Lieut. R. S. LEACHMAN, Vallejo.
To Camp Lewis, Wash., Capt. D. R. SMITH, Mendocino; Lieut. H. D. BRUSCO, San Francisco.
To Fort Oglethorpe for instruction, Capt. W. S. JOHNSON, Los Angeles; J. R. FEARN, Oakland; V. E. PUTNAM, San Francisco; F. W. REYNOLDS, San Pedro; Lieut. G. R. LUTON, Santa Barbara.
To Fort Riley for instruction, Capt. R. J. NICHOLLS, San Francisco; Lieut. W. E. BINBY, Sebastopol.
To Mineola, N. Y., Hazellhurst Field, for instruction, Capt. P. DOLMAN, San Francisco.
To New York, Neurological Institute, for instruction, Capt. H. M. WEGEFORTH, San Diego.
To report to the commanding general, Western Department, Capt. L. R. DUPUICH, A. M. GREGORY, Oakland; J. A. SHIRECK, Redlands; R. R. BULLOCK, W. W. WYMORE, San Francisco; H. E. PIPER, Santa Cruz; Lieuts. N. BROWN, Jr., Bakersfield; C. W. HUTCHISON, Coalinga; J. T. CHRISTIAN, Galt; J. M. CONERTY, Los Angeles; C. L. EMMONS, Ontario; H. I. BLOCH, San Francisco; F. E. HULL, Tipton; W. A. JOYCE, Woodland.

Canal Zone

To Fort Oglethorpe for instruction, Capt. W. E. HUBBARD, Ancon.
To report to the commanding general, Panama Canal Department, Lieut. W. W. BRAITHWAITE, Ancon.

Colorado

To Camp Cody, N. M., Capt. J. W. FOLEY, Denver.
To Fort Oglethorpe for instruction, Capt. E. W. RAGSDALE, LaJunta; Lieut. F. M. HELLER, Pueblo.
To Fort Riley for instruction, Capt. J. B. HARTWELL, Colorado Springs; Lieuts. G. A. ASHBAUGH, Central City; M. D. CURRIGAN, Denver.

Connecticut

To Camp Devens, Mass., Lieut. F. T. FITCH, East Hampton.
To Camp Dix, N. J., Lieut. A. F. HEWITT, Stamford.
To Fort Oglethorpe for instruction, Capt. F. M. DICKINSON, Rockville; C. E. SIMONDS, Willimantic; E. R. KELSEY, Winstead; Lieuts. L. A. HAVEY, Bridgeport; J. B. CROOK, East Haddam; E. C. KIERNAN, New Haven; R. W. NICHOLS, North Haven.
To Hoboken, N. J., Lieut. R. S. DAY, New Milford.
To report to the commanding general, Northeastern Department, Capt. B. E. BOSTWICK, New Milford.

District of Columbia

To Fort Oglethorpe for instruction, Capt. N. P. BARNES, Washington; Lieut. A. D. BUTZ, Washington.
To Newport News, Va., Capt. P. B. JOHNSON, Washington.
To Washington, D. C., Major J. CONSTAS, Washington.

Florida

To Camp Joseph E. Johnston, Fla., Capt. W. M. STINSON, Jacksonville.
To Fort Oglethorpe for instruction, Capt. H. E. PALMER, Tallahassee; Lieuts. H. E. CLINE, Haines City; G. E. BECKMAN, Jacksonville; E. G. PEEK, Ocala; I. J. BELCHER, Tarpon Springs.

Georgia

To Camp Greene, N. C., base hospital, Capt. G. D. AYER, Atlanta.
To Camp Jackson, S. C., base hospital, for instruction, Capt. T. J. COLLIER, Atlanta.
To Fort Oglethorpe for instruction, Lieuts. W. D. JENNINGS, Jr., Augusta; W. B. WANSLEY, Metasville; H. B. NUNNALLY, Monroe; C. W. DOWNEY, Tallapoosa.

Idaho

To Denver, Colo., Capt. A. R. HULL, Nampa.
To Fort Riley for instruction, Capt. C. R. SCOTT, Twin Falls; Lieut. W. T. DRYSDALE, New Plymouth.
To report to the commanding general, Western Department, Lieut. C. F. HANMER, Salmon.

Illinois

To Army Medical School, Lieut. D. A. HUMISTON, Oak Park.
To Camp Custer, Mich., Lieut. G. B. MATHISEN, Chicago. Base hospital, Capt. J. W. CLARK, M. H. WORTHINGTON, Chicago; E. H. PARRY, Galesburg.
To Camp Grant, Ill., base hospital, Capt. B. HASELTINE, Chicago. Base hospital, for instruction, Capt. A. J. ROBERTS, Ottawa.
To Camp Pike, Ark., Capt. T. F. CONROY, Lieut. H. A. KRAUS, Chicago.
To Camp Sherman, Ohio, base hospital, for instruction, Capt. W. C. SMITH, Chicago.
To Camp Wheeler, Ga., base hospital, for instruction, Lieut. J. W. MILLER, Chicago.
To Camp Zachary Taylor, Ky., base hospital, Lieut. J. H. FRAZER, Chicago.
To Cape May, N. J., base hospital, Lieut. S. J. TAUB, Chicago.
To Fort Oglethorpe for instruction, Major R. C. BOURLAND, Rockford; Capt. F. W. BRIAN, Bloomington; R. R. DUFF, P. GRONNERUD, E. J. HOGLUND, L. J. ISAACS, A. E. PRICE, Chicago; A. F. MOORE, Dixon; W. J. CARTER, Mattoon; C. L. CARLTON, Moline; E. A. WALSH, Springfield; Lieuts. D. SCHOTT, Buckley; L. L. IRWIN, Bloomington; E. H. ANDERSON, F. R. BUTTERFIELD, J. A. COUSINS, L. J. P. DE ALARID, W. G. EPSTEIN, R. R. HARRINGTON, D. L. HYDE, V. N. LAMARRE, J. W. McLAUGHLIN, A. N. OYEN, H. L. THOMPSON, V. K. TOMHAGEN, Chicago; E. C. PARK, Jr., Flora; J. H. WEDIG, Granite City; J. I. MERSHON, Keithsburg; F. M. HAGANS, Lincoln;

D. G. WELLS, McHenry; J. L. SNAVELY, Sterling; C. O. HIGH-SMITH, West Union.

To Fort Riley, Lieuts. J. J. EGAN, Chicago; R. E. UTLEY, Oak Park. For instruction, Lieuts. G. C. BUNTIN, Benton; B. AUGUSTUS, J. E. BROOKS, T. E. DOYLE, W. Z. FELSHER, J. H. HUTTON, W. J. MULHOLLAND, J. M. VITULLO, Chicago; H. H. HEUCK, Sigel; L. V. BOYNTON, Vermont.

To New Haven, Conn., Capt. H. H. BAY, Lieut. E. B. FREILICH, Chicago.

To report to the commanding general, Central Department, Capt. G. E. PUMPHREY, Carthage; Lieuts. T. GRIFFITHS, Chicago; H. A. BARKEY, Elmhurst.

Indiana

To Camp Beauregard, La., base hospital, for instruction, Capt. G. S. GREENE, Gary.

To Camp Custer, Mich., base hospital, Capt. E. H. KATTERHENRY, Indianapolis.

To Camp Dodge, Iowa, base hospital, Lieut. J. H. BULL, Indianapolis.

To Camp Pike, Ark., Lieut. J. R. CROWDER, Sullivan.

To Camp Shelby, Miss., Capt. L. M. GENTLE, Richmond.

To Camp Zachary Taylor, Ky., Lieut. C. W. COREY, Hartford City. Base hospital, Capt. H. K. LANGDON, Indianapolis.

To Colonia, N. J., Lieut. C. A. BALLARD, Logansport.

To Fort Oglethorpe for instruction, Capt. H. A. DUEMLING, Fort Wayne; B. A. BROWN, Indianapolis; J. W. BAXTER, C. E. BRISCOE, New Albany; W. L. OWEN, South Bend; C. L. BOYD, Vincennes; A. I. DONALDSON, Washington; Lieuts. E. CARTER, Brimhurst; C. R. GRAHAM, Bryant; G. R. FINCH, Center Point; I. E. BOOHER, Connersville; C. R. BASSLER, Elkhart; J. BENZ, Hardinsburg; T. O. MORRIS, Hobbs; J. W. CANADAY, G. W. KOHLSTAEDT, C. W. ROLLER, Indianapolis; A. A. REED, Jeffersonville; F. S. CUTHBERT, Kingman; O. D. HUTTO, Kokomo; B. M. HUTCHINSON, Mishawaka; J. E. NIXON, Portland; J. W. RICKER, Terre Haute.

To Fort Riley for instruction, Lieuts. G. F. SMITH, Lawrenceburg; V. L. HODGES, St. Paul; N. A. BAKER, Valparaiso; S. C. WAGNER, Wakarusa.

To New Haven, Conn., Capt. E. A. CRULL, Fort Wayne; A. HENRY, Indianapolis. Yale Army Laboratory School, Lieut. J. E. ROGERS, Marion.

To report to the commanding general, Central Department, Lieut. B. F. CHAMBERS, Lyons.

Iowa

To Camp Dodge, Iowa, base hospital, Capt. L. M. COFFEY, Keokuk.

To Camp Grant, Ill., base hospital, Capt. E. A. CANTONWINE, Dubuque.

To Camp Pike, Ark., Lieut. T. A. HOBSON, Parkersburg.

To Fort Oglethorpe for instruction, Capt. M. B. DUNNING, Conway.

To Fort Riley for instruction, Capt. A. B. DEERING, Boone; J. P. REDMOND, Dysart; H. C. HULL, Washington; Lieuts. R. A. BECKER, Anita; W. A. COOPER, Bayard; F. S. LEONARD, Cascade; T. J. DORSEY, Clare; P. G. INGERSOLL, Dunlap; C. W. PATTON, Laurel; F. W. NEWELL, Ottumwa.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Capt. C. B. LUGINBUHL, Des Moines.

Kansas

To Camp Custer, Mich., base hospital, for instruction, Capt. J. L. EVANS, Wichita.

To Camp Pike, Ark., base hospital, for instruction, Lieut. A. W. FEGTLY, Douglass.

To Fort Oglethorpe for instruction, Lieut. O. O. BARKER, Muscotah.

To Fort Riley for instruction, Lieuts. J. L. WENTWORTH, Arkansas City; F. H. BELL, Baldwin; W. L. DAVIS, Corning; J. W. GRAHAM, Highland; E. M. MIERS, Salina; D. L. STEWART, Scranton; G. D. M. LAMBDIN, Sedan; W. H. POPE, Selden; B. ANDERSON, Victoria.

Kentucky

To Camp Zachary Taylor, Ky., Capt. S. S. PRATHER, Louisville.

To Fort Oglethorpe for instruction, Capt. O. R. REESOR, Campbells-ville; H. F. WILSON, Covington; M. BELL, Eminence; E. M. FREY, Guthrie; D. H. ERKILETIAN, Hopkinsville; L. R. GORDON, Lexington; G. A. COOK, North Middletown; Lieuts. J. C. WHEELER, Caney; W. P. NICHOLS, Chaplin; J. T. BATTE, Covington; O. L. MAY, Danville; J. C. SNOW, Henshaw; A. HOLDERFIELD, Louisville; J. L. PUTNAM, Penick; N. A. BAILEY, Valley View.

Louisiana

To Camp Beauregard, La., Capt. J. A. ESTOPINAL, New Orleans; Lieuts. J. H. McCAA, Baton Rouge; C. P. MAY, New Orleans.

To Fort Oglethorpe for instruction, Lieuts. L. W. HOLLOMAN, Alexandria; L. I. TYLER, Grangeville; J. BATH, S. GEISMAR, P. J. KAHLE, J. T. NIX, Jr., New Orleans.

Maine

To Fort Oglethorpe for instruction, Lieut. M. P. HAMBLETON, Augusta.

To Hoboken, N. J., Lieut. A. M. ROSS, Farmington.

To report to the commanding general, Northwestern Department, Capt. L. C. BUNKER, Waterville.

Maryland

To Camp Hancock, Ga., base hospital, Lieut. R. T. ABERCROMBIE, Baltimore.

To Fort Oglethorpe for instruction, Capt. J. C. COBEY, Frostburg; Lieuts. M. W. AARONSON, J. E. CUMMINS, Baltimore.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. F. W. HACHTELL, Baltimore.

Massachusetts

To Camp A. A. Humphreys, Va., Capt. N. G. TRUEMAN, Hathorne; Lieut. C. A. BONNER, Worcester.

To Camp Devens, Mass., Capt. A. U. F. CLARK, West Boro; Lieut. J. J. CONDRICK, Brockton. Base hospital, Capt. J. NIGHTINGALE, Worcester; Lieut. J. A. GREENE, Cambridge.

To Camp Wadsworth, S. C., Lieut. P. J. FLEMING, Boston.

To Camp Wheeler, Ga., base hospital, Lieut. W. R. SISSON, Boston.

To Fort Oglethorpe for instruction, Capt. E. A. CUNNINGHAM, Belmont; G. L. VOGEL, Boston; C. M. HUTCHINSON, Cambridge; F. G. BARNUM, Coolidge Corner; C. D. HUSSEY, Franklin; D. G.

HOYT, Leominster; G. F. DOW, Reading; L. R. BRAGG, Webster; W. I. CLARK, Jr., Worcester; Lieuts. W. O. BARTLETT, B. B. JONES, N. J. KING, F. J. McVEY, Boston; W. B. LANCHARD, Framingham; T. N. STONE, Haverhill; F. A. O'REILLY, Lawrence; P. A. HOYT, Ludlow; A. J. HEWITT, Newburyport; A. W. MYRICK, Randolph; F. C. CARLTON, State Farm; C. W. BRUNINGHAUS, Worcester.

To Hoboken, N. J., Capt. L. H. BEALS, Hatfield.

To Lakewood, N. J., Lieut. T. D. CUNNINGHAM, Boston.

To Mineola, Hazelhurst Field, for instruction, Lieut. E. B. GOOD-ALL, Boston.

To New York, Neurological Institute, for intensive training, Lieut. W. E. R. BASCH, Winthrop.

To report to the commanding general, Northeastern Department, Capt. J. A. BRYER, Attleboro; B. A. GRAVES, Dorchester.

Michigan

To Camp Custer, Mich., base hospital, for instruction, Lieut. E. A. LINGER, Rockland.

To Camp Lee, Va., Lieut. J. J. DREAR, Detroit.

To Camp Wheeler, Ga., Capt. H. W. EMERSON, Ann Arbor.

To Fort Oglethorpe for instruction, Capt. B. G. McGARRY, Fenton; Lieuts. J. G. GAGE, Battle Creek; W. F. CLUTE, Clare; W. D. BARRETT, R. C. BURT, F. V. BURNHAM, J. A. CONLEY, S. M. CRAIG, F. F. GARDNER, S. W. GREEN, J. W. WARREN, Detroit; W. J. CONOVER, Evart; F. D. GERMAN, Franklin; L. M. POWER, Hancock; P. F. MORSE, Highland Park; E. G. BELLINGER, Lansing; F. K. LENFESTEY, Mount Clemens; C. C. BENJAMIN, Navarre.

Minnesota

To Camp Custer, Mich., Lieut. E. HABERMAN, Osakis. Base hospital, for instruction, Capt. J. D. UTLEY, St. Paul.

To Camp Devens, Mass., base hospital, Lieut. F. W. SCHLUTZ, Minneapolis.

To Camp Dodge, Iowa, base hospital, Capt. H. NEWHART, Minneapolis.

To Denver, Colo., Capt. A. G. KESSLER, Battle Lake.

To Fort Oglethorpe for instruction, Capt. W. LERCHE, St. Paul; Lieut. K. A. DANIELSON, Litchfield.

To Fort Riley for instruction, Capt. W. H. REPLOGLE, Wabasha; Lieuts. G. M. DORAN, N. NEDERGNARD, A. SIVERTSEN, Minneapolis; O. S. OLSON, Morgan Park; J. R. TAYLOR, Rochester; H. J. ROTHSCCHILD, St. Paul.

Mississippi

To Camp Shelby, Miss., base hospital, for instruction, Lieut. C. E. MULLENS, Natchez.

To Fort Oglethorpe for instruction, Capt. C. CHAMPENOIS, Electric Mills; Lieuts. J. W. PRIMROSE, Clarksdale; J. M. MANN, Crowder; V. D. FRANKS, Hinchcliff; C. DAVIS, Morgan City; S. F. HILL, Prairie Point.

Missouri

To Camp Bowie, Texas, base hospital, for instruction, Capt. W. B. YOUNG, St. Louis; Lieut. F. G. BEARD, Maitland.

To Camp Grant, Ill., for instruction, Capt. W. F. SCHMID, St. Joseph.

To Camp Logan, Texas, base hospital, Capt. O. B. MAYES, Centralia. For instruction, Capt. G. S. DRAKE, St. Louis.

To Camp Pike, Ark., Lieut. V. V. WOOD, St. Louis.

To Camp Sevier, S. C., base hospital, Capt. A. L. ANDERSON, Springfield.

To Fort Oglethorpe for instruction, Capt. G. A. McCULLOCH, Excelsior Springs; L. B. Hayden, Livermore Falls; W. D. AUFDERHEIDE, St. Louis; Lieuts. F. V. KEELING, Elsberry; C. G. W. JUNGK, St. Louis.

To Fort Riley, Lieut. J. K. CHIPPS, New Hampton. For instruction, Capt. A. J. DETWEILER, Hannibal; C. R. BUREN, Princeton; L. J. DANDURANT, St. Joseph; Lieuts. S. B. BUCK, Anderson; C. M. GRACE, Chillicothe; F. F. FARR, A. E. JONES, N. E. LAKE, H. E. THOMASON, Kansas City; J. A. HANCKS, Koenig; E. J. HAIRS, Laredo; J. B. SCOTT, Marceline; K. H. HALL, St. Louis.

To report to the commanding general, Central Department, Lieut. E. H. KELLY, Kansas City.

To Washington, D. C., Lieut. L. S. N. WALSH, St. Louis.

Montana

To Camp Dodge, Iowa, base hospital, Capt. W. R. MORRISON, Billings.

To Camp Lewis, Wash., base hospital, Capt. F. C. DAVIS, Lewiston.

To Fort Riley for instruction, Lieut. L. R. MACBURNIEY, Great Falls.

Nebraska

To Camp Custer, Mich., base hospital, for instruction, Capt. D. C. HILTON, Lincoln.

To Camp Dodge, Iowa, base hospital, Capt. J. P. WILLIAMS, Lincoln.

To Camp MacArthur, Tex., to examine the command for nervous and mental diseases, Capt. B. F. WILLIAMS, Lincoln.

To Denver, Colo., Lieut. M. J. POWELL, Fairbury.

To Fort Oglethorpe for instruction, Lieuts. C. H. SHEETS, Cozad; G. B. POTTER, Shelby.

To Fort Riley for instruction, Capt. R. H. BURRELL, Creighton; P. H. Ellis, Omaha; E. A. CREIGHTON, Red Cloud; Lieuts. A. CAULEY, Humphrey; C. D. EBY, Leigh; N. H. RASMUSSEN, Scotts Bluff; I. H. LEVIN, Venango.

Nevada

To Fort Oglethorpe for instruction, Lieut. R. A. BOWDLE, East Ely.

New Jersey

To Camp Dix, N. J., base hospital, Lieut. J. R. COMMORATO, Jersey City.

To Fort Oglethorpe for instruction, Capt. T. SENSEMAN, Atlantic City; G. C. COATES, Butler; Lieuts. G. W. FINKE, Hackensack; J. M. JIMENEZ, Haddonfield; A. B. COULTAS, Madison; A. P. DONOHO, Merchantville; J. B. CASALE, H. B. EPSTEIN, E. A. ILL, Newark; T. BENDER, C. MAZZARELLA, Paterson; F. G. CLARK, White House Station.

To New York, Neurological Institute, for instruction, Major J. J. BRODERICK, Jersey City.

To Norfolk State Hospital, Mass., Lieut. E. A. EHLERS, Summit.

New Mexico

To *Camp Cody, N. M.*, Capt. R. L. HUST, Albuquerque; base hospital, Capt. C. S. LOSEY, East Las Vegas. Base hospital, for instruction, Lieut. C. W. FULTON, Raton.
To *Camp Logan, Texas*, Capt. F. L. ANDERSON, Roswell.
To *Fort Riley* for instruction, Lieuts. C. B. ELLIOTT, W. W. JOHNSON, Dawson.
To *New Haven, Conn.*, Yale Army Laboratory School, for instruction, Lieut. J. B. VAN ATTA, Albuquerque.

New York

To *Camp Custer, Mich.*, Lieut. S. N. MacVEAN, New York.
To *Camp Devens, Mass.*, base hospital, Major W. S. GOODALE, Capt. W. S. DRISCOLL, Buffalo. Base hospital, for instruction, Capt. L. F. JOY, Fulton; H. G. CASE, Syracuse. For instruction, Lieut. H. POMERANZ, New York.
To *Camp Dix, N. J.*, base hospital, Lieuts. C. W. BROWN, C. SHOCKOFF, Brooklyn. Base hospital, for instruction, Capt. J. A. SHIELDS, Brooklyn; Lieut. J. E. WHITE, Malone.
To *Camp Hancock, Ga.*, base hospital, Lieut. J. E. WINDSIEL, Amsterdam.
To *Camp Jackson, S. C.*, base hospital, for instruction, Capt. J. H. LEWIS, Buffalo.
To *Camp Lee, Va.*, Lieuts. T. L. CRAIG, Davenport; M. E. LEWIS, New York.
To *Camp Meade, Md.*, Lieuts. A. L. CHILD, R. K. JOHNSON, Brooklyn.
To *Camp Pike, Ark.*, base hospital, for instruction, Capt. R. H. V. DANN, Elmira.
To *Camp Sevier, S. C.*, base hospital, for instruction, Capt. J. H. EVANS, Buffalo.
To *Camp Shelby, Miss.*, to examine the command for nervous and mental diseases, Capt. D. O. THOMPSON, Buffalo.
To *Camp Sheridan, Ala.*, base hospital, Capt. W. L. PHILLIPS, Buffalo.
To *Camp Wadsworth, S. C.*, base hospital, Capt. C. HERRMAN, New York.
To *Camp Wheeler, Ga.*, base hospital, Lieut. C. M. SAUTTER, New York.
To *Danville, N. Y.*, Lieut. H. R. ETHERIDGE, Fort Slocum.
To *Fort Jay, N. Y.*, Capt. F. L. CHRISTIAN, Elmira.
To *Fort Oglethorpe* for instruction, Major G. F. CHANDLER, Kingston; Capt. T. L. FOGARTY, Brooklyn; T. W. CONNORS, E. P. LOTHROP, Buffalo; C. V. BROOKS, Canandaigua; G. L. WHITING, Canisteo; F. H. STARR, Corning; R. L. ELLITHORP, Gloversville; E. T. O'CONNOR, Irvington; E. FAHNESTOCK, T. J. TOBIN, H. A. VEDDER, L. A. WING, New York; G. T. IMRIE, W. B. LARGE, Rochester; J. J. BUETTNER, Syracuse; H. R. WILLSE, Westfield; Lieuts. L. M. BROWN, Astoria; H. BLAUVELT, L. L. COHAN, R. A. GERBER, F. B. GILLESPIE, J. A. O'REILLY, Brooklyn; A. C. CALLAHAN, J. J. KOHLHS, E. R. LINKLATER, Buffalo; C. L. CAREY, Elmira; A. J. STEWART, Falconer; J. S. EDLIN, J. M. KUTISKER, Fort Slocum; R. C. FESS, Jamestown; H. U. CRAMER, Lockport; J. L. CROFTS, Middleville; R. S. BREAKEY, Monticello; J. ARONSON, N. N. BLOOM, P. M. BUTTERFIELD, A. CANFIELD, J. H. CHILDS, S. COHEN, I. ECKERT, W. W. ELDRIDGE, J. HEIMAN, H. S. JACOBS, J. M. MAYER, R. D. MOFFETT, E. M. OVERTON, A. ROBERTIELLO, I. F. SHAPIRO, M. J. SIEGELSTEIN, L. E. SPROUT, New York City; A. H. PAINE, Rochester; J. E. GROFS, Rome; G. L. WRIGHT, Syracuse; H. C. STORRS, Thiells; J. M. GRIFFIN, Warrensburg.
To *Hoboken, N. J.*, Capt. E. R. FISKE, Brooklyn; Lieut. P. B. BROCKWAY, Brooklyn.
To *Lakewood, N. J.*, Capt. R. G. SNYDER, New York.
To *New Haven, Conn.*, Capt. J. J. LLOYD, Rochester; Lieuts. W. A. McLAREN, Brooklyn; F. J. LENNON, Buffalo. Yale Army Laboratory School, for instruction, Capt. W. F. JACOBS, Buffalo; Lieuts. S. KOROWITZ, New York City; W. I. WALSH, Troy.
To *Newport News, Va.*, Lieuts. F. E. BRUNDAGE, Buffalo; I. T. BROADWIN, New York.
To *New York*, Lieut. R. T. REID, New York. Neurological Institute, for instruction, Capt. J. R. HARDING, Elmira.
To report to the commanding general, Eastern Department, Capt. A. K. BRODIE, Derby; E. E. BAUER, Owego; Lieut. P. J. BARRETT, Tupper Lake.
To *Rockefeller Institute* for instruction, Lieut. A. HOFHEIMER, New York.

North Carolina

To *Fort Oglethorpe* for instruction, Capt. C. C. ORR, Asheville; Lieut. R. O. MILBEE, Cove City.

North Dakota

To *Fort Oglethorpe* for instruction, Lieut. O. B. NUGENT, Harvey.
To *Fort Riley* for instruction, Capt. L. B. DOCHTERMAN, Williston; Lieut. G. H. COFFIN, Drake.

Ohio

To *Camp Custer, Mich.*, base hospital, Capt. G. H. HOLT, Cincinnati.
To *Camp Dix, N. J.*, Capt. E. H. HARSH, Cleveland.
To *Camp Meade, Md.*, Lieut. H. R. GRAVES, Ashtabula.
To *Camp Pike, Ark.*, base hospital, for instruction, Lieut. F. J. KEELEY, Cleveland.
To *Camp Sheridan, Ohio*, base hospital, for instruction, Capt. L. S. BROOKHART, Cleveland.
To *Camp Sherman, Ohio*, base hospital, Lieut. C. H. HOFFHINE, Columbus. Base hospital, for instruction, Lieut. E. R. ARN, Dayton.
To *Camp Zachary Taylor, Ky.*, base hospital, for instruction, Capt. W. J. KIRKBRIDE, Toledo; Lieut. R. W. CALDWELL, Jackson.
To *Fort Oglethorpe*, Capt. G. B. PARISEN, Toledo. For instruction, Capt. E. I. STANLEY, Albany; D. W. PHILO, Fremont; H. W. W. WERTZ, Montpelier; W. H. PRICE, Stony Ridge; R. J. MORGAN, Van Wert; Lieuts. R. A. GREGG, Akron; G. E. MOATS, Antwerp; D. S. BURNE, Bryan; F. W. KEHRER, Bucyrus; R. H. CLEARY, Caldwell; C. E. HAUSER, R. STEVENSON, Cincinnati; R. J. BEELS, D. SELMAN, H. E. YODER, Cleveland; W. J. HULTENSCHMIDT, Cleveland Heights; J. M. THOMAS, Columbus; C. W. DEWEY, Conneaut; M. E. COY, Dayton; F. R. HARRISON, East Liverpool; C. W. EMMONS, Fairport Harbor; G. K. DENNIS, Jamestown; E. L. CRUM, Lodi; W. D. GARDNER, Plain City; W. A. BRAUNLIN, Portsmouth; A. SILVER, Sidney; V. L. MAGERS, Tiffin; J. M. FRICK, Toledo;

A. C. HUNTER, West Alexandria; L. H. WHISLER, Willard; C. BURTON, Willow Wood.
To report to the commanding general, Central Department, Capt. T. A. EVANS, Columbus; Lieuts. A. B. DEVERS, Cincinnati; W. H. MERRIAM, Mount Eaton; H. H. EWING, Willard.
To *Walter Reed General Hospital*, Capt. R. A. RICE, Columbus.

Oklahoma

To *Camp Beauregard, La.*, base hospital, for instruction, Capt. P. A. SMITHE, Enid.
To *Camp Travis, Texas*, Lieut. E. E. DARNELL, Clinton.
To *Fort Oglethorpe* for instruction, Capt. J. A. GILLIS, Frederick; J. D. BEWLEY, J. H. WOODCOCK, Miami.
To *Fort Riley* for instruction, Lieuts. J. L. BROUGH, Coyle; G. Y. MCKINNEY, Henryetta; G. W. AMERSON, Milo; J. M. FORTSON, Tecumseh.

Oregon

To *Camp Lewis, Wash.*, Lieuts. H. A. CANFIELD, Drain; B. R. BROOKE, Portland. Base hospital, Lieut. G. E. HENTON, Portland. For instruction, Capt. W. M. CAMPBELL, C. C. MOORE, Portland.
To *Fort Oglethorpe* for instruction, Lieut. P. W. BYRD, Salem.
To *Fort Riley* for instruction, Lieuts. A. H. CANTRILL, Portland; J. F. HOSCH, Redmond.
To report to the commanding general, Western Department, Lieuts. U. C. COE, Bend; H. DENMAN, Crane; O. C. DIXON, Gold Hill; H. B. HAILE, Madras.

Pennsylvania

To *Buffalo, N. Y.*, Lieut. M. M. MacKALL, Monaca.
To *Camp Beauregard, La.*, base hospital, for instruction, Capt. K. I. SANES, Pittsburgh.
To *Camp Crane, Pa.*, Lieut. W. J. PROBST, Pittsburgh.
To *Camp Hancock, Ga.*, base hospital, for instruction, Lieut. W. R. CAMPBELL, East Smithfield.
To *Camp Jackson, S. C.*, base hospital, for instruction, Capt. J. L. ATLEE, Lancaster; W. M. CAMPBELL, Pittsburgh.
To *Camp Lee, Va.*, Lieut. H. J. BENZ, Pittsburgh.
To *Camp Meade, Md.*, Lieuts. F. S. BAKEWELL, Greenville; A. R. MEGAHAN, Latrobe. For instruction, Capt. C. C. MECHLING, Pittsburgh.
To *Fort Oglethorpe* for instruction, Capt. R. A. THOMPSON, Butler; H. S. STONE, Franklin; H. B. MEAD, New Brighton; H. P. LEOPOLD, H. LOWENBURG, C. B. WORDEN, Philadelphia; L. H. CHEESMAN, Pittsburgh; G. R. DRAKE, Plymouth; C. O. BROWN, Scranton; Lieuts. E. B. HENRY, Bellevue; F. R. BRADEN, Coraopolis; I. C. DUNCAN, East McKeesport; J. H. JOHNSON, Glenmore; A. A. BASIL, W. O. LUBKEN, Johnstown; N. H. JENKINS, Kingston; R. L. YOUNG, Ludlow; W. R. BUCKLEY, Mount Carmel; O. H. WILSON, Philadelphia; W. E. BOOHER, F. W. BREMER, H. G. CARMALT, L. M. MITCHELL, H. R. WOODS, Pittsburgh; W. S. ADAMS, Sykesville; O. K. GRIER, Wilkes-Barre; A. M. BENSHOFF, Windber.
To *New Haven, Conn.*, Yale Army Laboratory School, for instruction, Capt. W. L. STEEN, New Castle; Lieut. A. D. DYE, Masten.
To *Plattsburg, N. Y.*, Capt. C. C. WHOLEY, Pittsburgh.
To *Walter Reed General Hospital, D. C.*, Capt. C. H. HAYES, Pittsburgh.

Rhode Island

To *Camp Dix, N. J.*, base hospital, for instruction, Lieut. J. J. HEALEY, Providence.
To *Camp Gordon, Ga.*, base hospital, for instruction, Lieut. J. G. WALSH, Providence.
To *Fort Oglethorpe* for instruction, Capt. M. E. VANCE, Pawtucket; Lieuts. L. J. A. LEGRIS, Phenix; V. K. PAPAVALILION, Providence.

South Carolina

To *Fort Oglethorpe* for instruction, Lieut. O. P. WISE, Saluda.

South Dakota

To *Camp Dodge, Iowa*, base hospital, for instruction, Capt. R. J. JACKSON, Rapid City.
To *Fort Oglethorpe* for instruction, Capt. F. M. MAHIN, Lake Preston.

Tennessee

To *Camp Meade, Md.*, Lieut. P. S. WILLIAMS, Oakdale.
To *Fort McHenry, Md.*, Lieut. F. B. MOORE, Memphis.
To *Fort Oglethorpe* for instruction, Capt. H. M. CASS, Johnson City; Lieuts. W. H. SMITH, Brunswick; F. A. NILES, Daysville; A. G. BENTLEY, Quite.
To *Fort Riley* for instruction, Lieut. E. A. GUYNES, Knoxville.

Texas

To *Camp MacArthur, Texas*, base hospital, for instruction, Capt. H. A. McDANIEL, Bonham; S. A. WOODWARD, Fort Worth.
To *Camp Travis, Texas*, Lieut. C. M. COVINGTON, Montgomery. Base hospital, for instruction, Capt. W. W. SAMUEL, Dallas; L. M. WEINFELD, San Antonio.
To *Fort Oglethorpe* for instruction, Capt. W. E. CHILTON, Fort Worth; J. H. BRICE, Lamesa; Lieuts. O. W. ROBINSON, Baird; C. M. IRWIN, Charlotte; C. T. BRADFORD, Klondike; J. H. VAUGHAN, Liberty Hill; J. R. ELLIOTT, Palacios; A. T. HAYS, Tula.
To *Fort Riley* for instruction, Capt. W. E. CAMPBELL, Ennis; Lieuts. R. C. SHANKS, Bells; B. F. CHAMBERS, Bullard; G. L. GRAY, Donna; H. G. BEVIL, Doucette; C. C. HILL, Grapeland; J. D. DAVIS, Munday; G. L. LEWIS, San Angelo; B. L. CHIPLEY, San Antonio; A. L. PETERSON, Texarkana.
To *Fort Worth, Texas*, base hospital, Capt. M. E. GILMORE, Fort Worth.
To report to the commanding general, Southern Department, Lieuts. T. H. ELLIS, Clarendon; C. S. CREW, DeKalb; O. L. WOODALL, Goree.

Utah

To *Fort Riley* for instruction, Lieut. W. H. MOSSLER, Modena.
To report to the commanding general, Western Department, Capt. G. H. MAGHEE, Salt Lake City; F. E. ESTES, Standardville.

Virginia

To *Fort Oglethorpe* for instruction, Capt. J. C. BODOW, Hopewell; J. W. HUNTER, JR., Norfolk; Lieuts. T. W. EDMUNDS, Danville;

G. T. FAUST, Dorchester; B. L. NAIMAN, Hopewell; O. A. WEATHERBY, Raven; W. B. FELLERS, Roanoke; C. W. JENNINGS, Williamsburg.

To *Newport News, Va.*, Lieut. G. R. FISHER, New Hope.

Washington

To *Camp Lewis, Wash.*, Lieuts. H. A. GREENWALD, Kettle Falls; C. BALLANCE, L. A. FULLERTON, Seattle; H. M. MAKINS, Selah; A. P. HUGHES, Spokane.

To report to the commanding general, Western Department, Lieut. L. S. ROACH, Mount Vernon.

West Virginia

To *Camp Sevier, S. C.*, Lieut. R. L. HUNTER, Jarold's Valley.

To *Camp Sheridan, Ala.*, base hospital, for instruction, Lieut. G. L. VIEWEG, Wheeling.

To *Camp Wadsworth, S. C.*, Capt. L. F. MILLIKEN, Blair.

To *Fort Oglethorpe* for instruction, Capt. J. H. CHAPMAN, Brown; H. G. NICHOLSON, Charleston; H. H. PETTRY, Lawson; D. C. CASTO, Parkersburg; S. H. BURTON, Weston; G. B. CAPITO, White Sulphur Springs; Lieuts. A. G. DE FOE, Bruceton Mills; J. G. POGERS, Cairo; R. M. RILEY, Clarksburg; D. J. RUDASILL, Kingwood; B. F. SOMMER, Leon; F. W. BILGER, Maybeury; H. E. GAYNOR, Parkersburg; T. E. RYMER, Ripley; O. M. STAATS, Wheeling.

Wisconsin

To *Camp Grant, Ill.*, base hospital, Capt. W. A. SMITH, Boyd.

To *Fort Oglethorpe* for instruction, Capt. R. J. GOGGINS, Oconto Falls; Lieuts. I. G. DAVIS, Arcadia; W. M. JOHNSTON, Dale; R. C. PYNN, Delavan; F. S. FISCHER, Milwaukee; A. J. LOUGHNAN, Oconomowoc; M. M. BUNCH, Oshkosh; W. J. HOMMEL, Whitewater.

To *Fort Riley*, as tuberculosis examiner, Capt. J. W. LOCKHART, Oshkosh. For instruction, Lieuts. R. D. JAMIESON, La Crosse; G. E. FORKIN, Menasha; W. E. FOX, W. G. HYDE, Milwaukee; L. C. COMBACKER, Osceola.

To *New Haven, Conn.*, Yale Army Laboratory School, for instruction, Major G. C. RUHLAND, Milwaukee.

Wyoming

To *Fort Riley* for instruction, Capt. E. G. DENISON, Sheridan; Lieuts. I. N. FROST, Casper; T. F. Hamilton, Crosby; J. W. PRICE, Laramie.

To report to the commanding general, Western Department, Capt. G. M. SELBY, Sheridan.

ORDERS TO OFFICERS OF THE MEDICAL CORPS, U. S. ARMY

Arkansas

To *Camp Jackson, S. C.*, as tuberculosis examiner, from New Haven, Capt. E. E. HOLT, Mena.

California

To *Camp Shelby, Miss.*, from Camp Jackson, Lieut. J. A. STEED, Dalton.

To report to the commanding general, Western Department, Lieut. F. CHANNOSIAN, Fresno.

District of Columbia

To *East Norfolk, Mass.*, from the Surgeon-General's Office, Lieut.-Col. W. H. SMITH.

Illinois

To *Camp Jackson, S. C.*, as tuberculosis examiner, from New Haven, Capt. A. H. BEEBE, Stillman Valley.

To *Camp Meade, Md.*, evacuation hospital, from Fort Oglethorpe, Lieut. A. G. GRAN, Chicago.

To *Camp Shelby, Miss.*, from Camp Jackson, Capt. W. YATES, Bonfield; E. P. STAFF, Ramsey.

To *Fort Des Moines, Iowa*, from Fort Oglethorpe, Capt. J. MYERS, Chicago.

To *Fort Hancock, N. J.*, from Fort Monroe, Lieut. C. B. ALEXANDER, Chicago.

To *Washington, D. C.*, Surgeon-General's Office, from Garden City, Lieut. T. A. WAYLAND, Dallas City.

Indiana

To *Camp Abraham Eustis, Va.*, from Fort Monroe, Lieut. W. F. JOHNSON, Indianapolis.

To *Camp Shelby, Miss.*, from Camp Jackson, Capt. J. T. HAZEL, Freedom; B. A. BROWN, Indianapolis; H. M. SCHULTZ, Logansport.

Iowa

The following order has been revoked: To *Camp Greene, N. C.*, base hospital, from Southern Department, Capt. E. M. P. SWARD, Glenwood.

Kentucky

To *Camp A. A. Humphreys, Va.*, as tuberculosis examiner, from New Haven, Lieut. G. M. WELLS, Summer Shade.

Maine

To *Camp Jackson, S. C.*, as tuberculosis examiner, from New Haven, Lieut. E. B. FRISBEE, Bridgeton.

Maryland

To *Camp Jackson, S. C.*, as tuberculosis examiner, from New Haven, Lieut. W. A. BRIDGES, Towson.

To *Camp Shelby, Miss.*, to examine the troops for cardiovascular diseases, from Camp Upton, Major A. D. ATKINSON, Baltimore.

Massachusetts

To *Camp Abraham Eustis, Va.*, from Brockton, Capt. J. J. McNAMARA, Brockton.

To *Camp Shelby, Miss.*, from Camp Jackson, Lieut. N. HOLDEN, Malden.

To *Rockefeller Institute*, for instruction in the treatment of infected wounds, and on completion to his proper station, from Camp Beauregard, Major G. H. GRAY, Lynn.

Michigan

To *Camp A. A. Humphreys, Va.*, as tuberculosis examiner, from New Haven, Lieut. A. W. SCHMIDT, Gay.

To *Newport News, Va.*, Lieut. F. H. COLE, Detroit.

Minnesota

To *Camp Jackson, S. C.*, as tuberculosis examiner, from New Haven, Lieut. L. G. GUYER, Waseca.

Nebraska

To *Camp Shelby, Miss.*, from Camp Jackson, Capt. F. P. DORSEY, Hartington.

To *Rochester, Minn.*, Mayo Clinic, for instruction, and on completion to *Camp Grant, Ill.*, base hospital, for instruction, from Fort Riley, Lieut. G. E. PETERS, Bloomfield.

New York

To *Army Medical School*, for instruction, Lieut. W. D. GILL, New York.

To *Camp A. A. Humphreys, Va.*, from Fort Oglethorpe, Capt. J. A. CONWAY, Hornell.

To *Camp Bowie, Texas*, from Camp Abraham Eustis, Capt. T. W. JENKINS, Albany.

To *Camp Hancock, Ga.*, as orthopedic surgeon, and on completion to *Boston, Mass.*, Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieut. J. B. L'EPISCOPO, Brooklyn.

To *Camp Jackson, S. C.*, as tuberculosis examiner, from New Haven, Lieuts. M. E. BORK, Buffalo; M. GREENWALD, New York; C. M. MANN, Petersburg.

To *Camp Meade, Md.*, for instruction, from Jefferson Barracks, Capt. E. W. BROWN, Mount Kisco.

To *Williamsbridge, N. Y.*, from Fort Ontario, Capt. B. S. MOORE, Syracuse.

The following order has been revoked: To *Camp McClellan, Ala.*, to examine the troops for cardiovascular diseases, from Lakewood, Lieut. A. TOWBIN, Flushing.

Ohio

To *Camp Shelby, Miss.*, from Camp Jackson, Capt. H. PRIMM, Ravenna.

Pennsylvania

To *Camp Jackson, S. C.*, as tuberculosis examiner, from New Haven, Lieut. L. G. FLANNERY, Philadelphia.

To *Camp Sherman, Ohio*, from Syracuse, Lieut. J. N. CAMP, Foxburg.

To *Fort Oglethorpe*, for instruction, Lieut. D. RIESMAN, Philadelphia.

South Carolina

To *Camp Shelby, Miss.*, from Camp Jackson, Lieut. C. HOUSTON, Florence.

Tennessee

To *Mays Landing, N. J.*, from Camp Devens, Capt. T. A. R. JONES, Knoxville.

Texas

To *Newport News, Va.*, from Fort Oglethorpe, Lieut. T. M. GORDON, Stephenville.

Wisconsin

To *Camp Crane, Pa.*, evacuation ambulance company, from Fort Riley, Capt. M. E. RIDEOUT, Hortonville.

To *Washington, D. C.*, Surgeon-General's Office, from Camp Custer, Capt. B. H. HOLMES, Delavan.

ORDERS TO OFFICERS OF THE UNITED STATES PUBLIC HEALTH SERVICE

Asst. Surg.-General C. C. PIERCE, directed to proceed to New York City for conference relative to post war work.

Sen. Surg. G. M. Magruder, proceed to Kansas City, Mo., to establish venereal disease control measures in Kansas City and adjacent cities.

Surg. EDWARD FRANCIS, relieved from duty in influenza control in Pennsylvania and assume charge of extra-cantonment sanitation in the District of Columbia.

Acting Asst. Surg. J. M. BIEDLER, proceed to Richmond, Va., for organization of medical and sanitary work at the Government loading plant.

Acting Asst. Surg. RICHARD T. LEADER, relieved at Charlotte, N. C., proceed to Lincoln, Neb., to assume charge of venereal control work.

Acting Asst. Surg. C. W. WOOD, proceed to Burlington, Vt., relative to the inauguration of venereal disease control measures.

Asst. Sanitary Engr. SIDNEY BOWNE, relieved at Millington, Tenn., proceed to Charleston, S. C., for duty in extra-cantonment sanitation.

Asst. Sanitary Engr. M. G. PARSONS, relieved at West Point, Miss., proceed to Columbus, Ga., for duty in extra-cantonment zone sanitation.

Asst. Sanitary Engr. F. D. MESSENGER, proceed when convenient, to Brownsville, Texas, to investigate the public health value of contemplated improvements.

Asst. Sanitary Engr. FRANK R. SHAW, proceed to New Orleans, La., for conference relative to influenza control.

Chief Sanitary Insp. HARRY S. LUCAS, relieved from duty in the District of Columbia. Proceed to Florence, Ala., for duty in extra-cantonment sanitation.

Scientific Asst. W. H. PRICE, relieved at Anniston, Ala., proceed to Washington, D. C., for duty in extra-cantonment sanitation.

Asst. Director Educational Work E. V. PRICE, proceed to New York City for conference relative to venereal disease control.

Asst. Director Educational Work DAVID ROBINSON, proceed to necessary points in the States of California, Oregon, Washington, Montana, Wyoming and Idaho for conference relative to instructions to drafted men to be carried out under government supervision.

Regional Field Director HARRY R. MINOR, proceed to necessary points in the states of Virginia, West Virginia, South Carolina, North Carolina and Georgia for conference relative to instructions to drafted men, to be carried out under government supervision.

Regional Field Director A. G. SPAULDING, proceed to necessary points in the states of Texas, Nebraska and Oklahoma for conference relative to instructions to drafted men, to be carried out under government supervision.

Association News

SUPPLEMENTARY REPORT OF THE WAR COMMITTEE

At the meeting of the Board of Trustees, held October 25, the War Committee submitted the following supplementary report covering the work done since the last annual session. The Board of Trustees received and directed that it be published in *THE JOURNAL*.

To the Board of Trustees of the American Medical Association:

This report of your War Committee is supplementary to that which the committee submitted to the House of Delegates at its meeting held in Chicago, June last. We repeat what was said at that time that the profession has responded for war service in a manner that has received universal favorable comment, and your committee is gratified to record the part which this Association has taken in this mobilization of the medical profession for war.

The Association's records show that more than 200,000 blank forms for making application for commission in the Medical Reserve Corps have been printed by the Association and circulated among physicians, and as a result upward of 30,000 applicants have been commissioned in the Army. In addition, more than 3,000 have been commissioned in the Navy.

The appeal of the Surgeon-General of April 3, 1918, was published in *THE JOURNAL* on April 13. This was more effective than any community propaganda could possibly have been. Since our last (June) report, according to the Association's record, the applications for commission in the Medical Corps were: June, 2,416; July, 2,841; August, 3,814; September, 4,171, and to October 24, 2,507; a total of 15,809 in four and a half months.

The American Medical Association has been the center of information to physicians. The replies to individual inquiries have involved several departments, and letters to individual physicians have averaged over 100 each week. In addition, since June 1, more than 5,000 pamphlets covering information pertaining to entrance into the Medical Corps have been distributed in response to individual requests. The expense incident to all this, including printing, postage, and other items, have been borne by the Association.

The American Medical Association has supplied state and county organizations with detailed information concerning physicians in their own communities who were available for civil and industrial practice, and has cooperated with its branch organizations in endeavoring to provide the services of additional physicians where the needs of a locality could not be met by physicians still active in these communities.

Early in the year, on the suggestion of the officers of the Association, the Provost Marshal-General requested the Surgeon-General to assign a medical officer to the office of the Provost Marshal-General in order that this medical officer might act as an adviser on the medical features of the Selective Service Regulations. Col. Frank Billings was assigned to this post.

As an outgrowth from this beginning, a medical division for the Provost Marshal-General's Office was created on August 1, which, at the present time, has a personnel of four medical officers and five enlisted men and clerks. The function of this medical division relates to the selection and induction of registrants together with the statistical details arising therefrom. This medical division in the Provost Marshal-General's Office has brought about more intimate relations between this office and that of the Surgeon-General of the Army. Through the coordination thus made possible, the physical examinations of registrants by the Selective Service Boards and those made at the cantonments and camps are being standardized.

Your committee congratulates the Association on the service which, by virtue of the information which it has made available, it has been able to render in the solution of medical questions that have arisen in connection with the execution of the Selective Service Regulations.

Although neither the Surgeon-General of the Army, of the Navy, or of the Public Health Service, nor the Provost Marshal-General, may officially recognize any civilian organization in the mobilization of the medical profession for military service, your committee respectfully recommends that the American Medical Association continue as heretofore to render whatever aid it may to these Surgeon-Generals and to the Provost Marshal-General and that the Association continue the policy which it has constantly followed of aiding in every possible way with the individual members of the organization to determine and meet their obligations in these matters.

In this connection, the War Committee recalls the fact that the medical officers of the staffs of the Surgeon-Generals, the members of the Medical Corps of the United States Army, of the medical forces of the United States Navy, of the United States Public Health Service, of the medical division of the Provost Marshal-General's Office, and the medical section of the Advisory Commission of the Council of National Defense, are practically all members of the American Medical Association and that all commissioned medical officers of the United States Army, the United States Navy, and the United States Public Health Service, while on active duty, are also ipso facto Fellows of the American Medical Association.

Your War Committee calls attention to the fact that the Provost Marshal-General, through legally constituted provision, has assumed control of all men, including physicians, between the ages of 18 and 46 inclusive, for war service. The District Exemption Boards under the Selective Service Regulations, are empowered to place physicians of draft age in deferred classes for the protection of industries, communities, hospitals, medical schools, and public health service. These District Exemption Boards, and they alone, may for good and sufficient reasons exempt physicians of draft age from military service. In a word, all physicians under 46 years of age are under the direction of the Provost Marshal-General who, in turn, has empowered the Exemption Boards of the Selective Service System to induct physicians into military service or to detain them for civilian service as these boards deem best. At the same time, the Surgeon-Generals of the Army and Navy may commission physicians who volunteer in the Medical Corps of the Army or in the Medical Force of the Navy. Moreover, by mutual agreement with the Provost Marshal-General, these Surgeon-Generals may transfer physicians who have been inducted into the Army through the Selective Service Regulation from the line into the Medical Corps, and commission them.

Inasmuch as this is the first meeting of the Board of Trustees since June, 1918, our committee takes this opportunity to advise what position it believes the Association should take in regard to the Volunteer Medical Service Corps.

It is not a military organization, therefore its members cannot be placed under military discipline, nor can any member of the organization be forced to serve in the Army, Navy, Public Health Service or in the Office of the Provost Marshal-General. In consequence, it is not quite clear how it is to accomplish its announced object or purpose. Had the draft age not been raised to 45, or had the inactive list of the Medical Reserve Corps been continued, the organization would probably have been of assistance, provided it had been placed under military control, in solving the problem of securing a sufficient number of medical officers for the Army and Navy without seriously crippling the civilian practice.

With the increase of the draft age, a sufficient number of medical officers in the Army and Navy is now readily available, and the need of the civilian practice has become the function of the Selective Service Boards.

The Volunteer Medical Service Corps has received the approval of the President of the United States, which fact must receive due consideration. Your committee, therefore, recommends that we recognize the Volunteer Medical Service Corps as an organization in which physicians who are past military age, or whose services, because of physical or other conditions, are not available for the Army or Navy, may show their patriotism and willingness to give their services to which their qualifications entitle them.

It should be borne in mind that the government has constantly refused to draft the medical professional as a class, and has left physicians who are above the draft age, free to volunteer their services. This same freedom of action still remains to all physicians who are beyond draft age, 46 years. Membership in the Volunteer Medical Service Corps does not relieve the individual physician of his personal obligation to the country, nor does it affect his individual responsibilities to decide what his duty is regarding offering his service directly to the department of the government in which he desires to serve.

A. R. MITCHELL,
FRANK BILLINGS,
W. C. PHILLIPS,

HUBERT WORK, Chairman,
ARTHUR D. BEVAN,
GEORGE H. SIMMONS,
ALEXANDER R. CRAIG.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Baby Health Centers Opened.—The Children's Aid Committee of San Francisco announces that thirty baby health centers will be opened in the city as soon as possible after the subsidence of the epidemic of influenza.

Los Angeles Unit Leaves for France.—The Woman's Hospital Unit of Los Angeles, assigned for active work in France, left for New York. The unit is composed of ten women physicians, Drs. Etta G. Gray, Margaret M. Gilliland, Cecilia Reiche, Margaret Isaac Wilson, Maria C. Wells and Eva K. Greene, all of Los Angeles, and four other physicians, ten hospital aids, an ambulance driver and a chauffeur.

San Francisco Physicians Called Before State Board.—A number of physicians were ordered to appear before the State Board of Medical Examiners, October 22, to show why their licenses should not be revoked. Among these were Dr. William S. Card, San Francisco; Franklin P. Duncan and Charles L. Calhoun, charged with the performance of illegal operations; "Dr." Harry Ryberg, chiropodist, charged with advertising so as to give the impression that he is a physician; "Dr." C. L. Davis, an osteopath, charged with giving medicine, and Dr. David I. Hicks, charged with the performance of illegal operation and fictitious advertising.

League for Conserving Public Health.—At a conference held in Redding, recently, the Shasta County unit of the League for the Conservation of Public Health, was organized, and the following officers were elected: president, Dr. Ferdinand Stabel, Redding; vice presidents, Drs. George E. Flora, Anderson, and John P. Sandholdt, Kennett, and secretary-treasurer, Dr. Carl A. Mueller, Redding. League branches have been established and are in active operation in Santa Clara, San Mateo, Monterey, San Joaquin, Sacramento, San José, Sonoma, Stanislaus, Fresno, Alameda, San Francisco, Los Angeles, San Diego and Riverside counties.

Personal.—Dr. Ellis Harbert, Stockton, who has been seriously ill, is now believed to be out of danger.—Dr. Frank H. Pritchard, Colton, is reported to be seriously ill with influenza.—Dr. Casper L. Rinker, Madero, is said to be seriously ill with influenza.—Dr. Ray R. Dearborn, Madero, while making an emergency call sustained painful injuries by the overturning of his automobile.—Dr. George H. Galbraith, Long Beach, who has been ill with influenza, is convalescent.—Dr. Edward R. Kellogg, Los Angeles, has been reelected president of the Children's Home Society of California.—Dr. Edwin H. Crabtree, police surgeon of San Diego, has resigned to enter the United States service.—Bail is said to have been ordered forfeited in the case of Dr. Alexander M. Lesem, San Diego, charged with violating the drug act regarding the prescribing of narcotics.—Dr. August Schmidt, Los Angeles, is said to have been held pending federal investigation on charges of having made statements to injure the sale of Liberty Loan Bonds.—Dr. Homer L. Wells, San Diego, charged with violation of the state drug act, was acquitted.

DELAWARE

Liquor Prescribing Stopped.—On complaint that Dr. Thomas O. Cooper, Wilmington, was issuing hundreds of prescriptions for liquor, Deputy Attorney-General Green and Chief of Police Blank are said to have visited his office, October 19, and warned him to cease his activities.

Personal.—Dr. Allen A. Perkins, city physician of Wilmington, has resigned to accept a position as physician to a shell plant at Port Penn.—Dr. Eli Nichols, Wilmington, who had been seriously ill with pneumonia, is reported to be convalescent.—Dr. John L. Fisher is reported to be seriously ill with influenza.—Dr. Joseph B. Waples, Georgetown, has been elected physician to the Sussex County Almshouse, to succeed Dr. George E. James, who has entered the military service.

ILLINOIS

Illegal Practitioner Arrested.—Kathryn Forbrich Thumm was arrested by the Department of Registration and Education of the State of Illinois for practicing medicine without a license and was fined \$25 and costs.

Rock Island Physician Liberated.—Dr. James D. Banta, Rock Island, who was arrested, tried and found guilty of violating the Harrison Narcotic Law, about six months ago, and was sentenced to five years imprisonment in the federal penitentiary, Leavenworth, Kan., was released, October 28, as it was found that he had been convicted and imprisoned under invalid acts.

Thanks for Medical Officers.—In view of the valuable assistance rendered by medical officers at Camp Grant, during the recent epidemic of influenza, Marlin H. Day, chairman of the Red Cross emergency influenza committee, Rockford, sent letters of thanks to Capt. F. D. Harrison, R. E. Jones and N. M. Johnson, M. C., U. S. Army, who were assigned to duty at the three emergency hospitals opened in Rockford in October.

Health Investigation of Working People.—The Illinois Health Insurance Commission appointed to investigate illness in working people not covered by the Workman's Compensation Act, and to make recommendations to the legislature looking toward the solution of the problems related thereto held a series of public meetings in the following cities: Chicago, November 7 to 9; Moline, November 11; Peoria, November 12; East St. Louis, November 13; Springfield, November 14; Champaign, November 15, and Danville, November 16. Labor organizations, employers of labor, representatives from the medical profession, health department officials, representatives of insurance companies and fraternal orders, social workers and others interested participated in these conferences.

IOWA

Hospital Corner Stone Laid.—The corner stone of St. Luke's Hospital, Davenport, was laid, October 2, with impressive ceremonies. The services were in charge of Bishop Morrison, Iowa City, and Rev. LeRoy M. Kauffman, Davenport, delivered the principal address. The hospital will cost about \$200,000 and will contain 100 rooms for patients.

Personal.—Dr. Jay M. Crowley, Rock Rapids, is seriously ill with pneumonia following influenza.—Dr. Dennis F. Fitzpatrick, Iowa City, has been appointed local surgeon for the Rock Island System, to succeed Dr. John G. Mueller, deceased.—Dr. Edgar L. Bay and Richard F. Shahan, Eddyville, are reported to be seriously ill with pneumonia.—Dr. Ewen M. McEwen, Iowa City, is ill with diphtheria in the isolation hospital.—Dr. Chauncey P. Smith, Mason City, has been made chairman of the medical advisory committee for the local exemption boards, to succeed Dr. Channing E. Dakin, who has resigned to enter the military service.—Dr. Max E. Witte, Clarinda, has been reappointed superintendent of the Clarinda State Hospital.

LOUISIANA

Dowling Made Professor.—Dr. Oscar Dowling, Shreveport, president of the state board of health, has been elected adjunct professor to take charge of the course of hygiene in the School of Medicine of Tulane University, and to arrange the course of instruction for the students at Camp Martin.

New Health Board Appointments.—Governor Pleasant, October 29, announced the following appointments: as member and president of the state board of health, Dr. Oscar Dowling, Shreveport, and as members of the state board of health, Dr. Theophilus T. Tarlton, Grand Coteau, and Dr. Thomas A. Roy, Mansura, all reappointed.

MARYLAND

Health Conditions Almost Normal.—According to a statement made by Dr. John D. Blake of the health department, Baltimore came out with fewer fatalities and with less inconvenience in the recent influenza epidemic than did most of the large cities. The disease has disappeared almost entirely, there being only eight cases reported in the last twenty-four hours. A total of thirty-five persons died from all causes. This is the normal death rate in Baltimore. There were 4,664 deaths in the city from all causes during October, compared with 847 for the same month last year. The death rate per thousand of the whole population was 91.52. Lobar pneumonia, following influenza, killed 1,685, and bronchopneumonia 385. Other diseases were fatal in the following number of cases: tuberculosis, 167; heart disease, 200; diseases of babies of less than 2 years of age, 152; typhoid fever, 19; scarlet fever, 2; whooping cough, 23; diphtheria, 12; erysipelas 1; tetanus, 1; cancer, 47; epidemic meningitis, 5; apoplexy, 62; bronchitis, 26; Bright's disease, 105. The health department also reported thirty-one fatal accidents, fourteen suicides and eleven murders.

MICHIGAN

Personal.—Dr. Edward A. Runyan, health officer of Harbor Springs, has resigned, and has been succeeded by Dr. Levi W. Gardner.—Dr. Joshua G. R. Manwaring, Flint, who has been critically ill at Fort Oglethorpe with pneumonia, is reported to be improving.—Dr. Garner M. Byington, Charlotte, has been appointed a member of the state board of health and placed in charge of the newly created department of communicable diseases.—Dr. Henry M. Warren, Jonesville, has retired after more than fifty years of practice.

MINNESOTA

Postponement of Meeting.—Owing to the epidemic of influenza and the great number of physicians at present in military service, the executive council of the Southern Minnesota Medical Society announces that the society will not be convened in annual session on November 25 and 26.

Personal.—Dr. Patrick G. McGill, health commissioner of Superior, Wis., who has been working unremittingly since the first relief train from the fire-devastated region of Northern Minnesota arrived in Superior, and also in the influenza epidemic, is under treatment in a local hospital. Dr. Charles H. Mason has been appointed health commissioner during the illness of Dr. McGill.—Dr. Hibbert W. Hill, secretary of the St. Paul Public Health Association, has been appointed by the northern division of the American Red Cross to take charge of all relief work for fire and influenza patients.—Dr. Arthur E. Nichols, St. Paul, has been appointed director of school hygiene.—Dr. Herman W. Foehlich, Thief River Falls, has been appointed epidemiologist for Pennington and the surrounding counties.—Dr. Adolph E. Voges, White Bear Lake, has been elected physician of Ramsey County, to succeed Dr. Ernest W. Cowern, North St. Paul, who has entered the military service.

NEBRASKA

Hospital Corner Stone Laid.—The corner stone of the New Lutheran Hospital, Falls City, was laid recently. The building is to cost between \$80,000 and \$90,000.

Personal.—Dr. J. P. Connolly, Omaha, is making plans to proceed to Shanghai this month to take the position of clerk of the United State District Court of China.—Dr. Charles W. M. Poynter, Omaha, acting chief of the Nebraska University, has been appointed State Red Cross representative to act in conjunction with the state board of health during the influenza epidemic.—Dr. Irvin C. Munger, Lincoln, has been appointed physician to the State Penitentiary, to succeed Dr. George E. Williams, Havelock, who has entered the military service.

NEW MEXICO

Personal.—Dr. Eugene M. Fisher, Roswell, who has been seriously ill with influenza is improved.—Dr. Perry M. Baker, Artesia, has established headquarters at the Carrizozo at the Dr. Lucas Hospital.—Dr. James M. Doughty has purchased the interests of his partner in the Tucumcari Hospital.

State Society Meeting Postponed.—The secretary of the New Mexico Medical Society announced that the annual meeting of the society has been indefinitely postponed after

a careful investigation of the situation and after consultation with the Bernalillo County Medical Society which was to have been the host on that occasion. The large number of the members of the society in service and the few who could attend the meeting determined this action of the council.

NEW YORK

Staff of Bureau of Venereal Diseases.—Permanent appointments to the staff of the Bureau of Venereal Diseases of the New York State Department of Health have recently been made as follows: Drs. Joseph S. Lawrence, Albany, chief; Edward H. Marsh, Brooklyn, consultant; Walter S. Goodale, Buffalo, hospital and dispensary inspector and organizer; Frederick S. Honsinger, Syracuse, lecturer on social diseases, and Maud Casey, supervising nurse and social worker.

Influenza.—The total number of influenza cases in New York state from October 2, when the first signs of an epidemic became manifest, to November 1 was approximately 114,486. Since the epidemic started the state has had supervision over 126 nurses and thirty-eight physicians engaged in fighting the disease throughout the state. The services of ninety-four of the nurses and four of the physicians were obtained under the special appropriation of \$50,000 made available by Governor Whitman for emergency medical and nursing service. One hundred and four communities in the state have been furnished nursing assistance. Of this number only fifty-five are today considered as under actual epidemic conditions. Thirty-four have been freed to the extent that they are now able to cope with the situation without further state aid.

New York City

License Revoked.—At its July meeting it is reported that the North Carolina State Board of Medical Examiners revoked the license of Dr. J. W. Summers, Charlotte, on the grounds of his having been sentenced to a term in prison for manslaughter in malpractice in performing an illegal operation.

Harvey Society Lecture.—The second lecture of the Harvey Society series will be delivered by Dr. Alonzo E. Taylor, Philadelphia, of the United States Food Administration of the War Trade Board, on "The World Food Situation," at the New York Academy of Medicine, November 20, at 8:30 p. m.

Hospital Notes.—An Emergency Hospital was established in Asheville for the care of influenza patients at the high school, October 19. There were 150 new cases of the disease, October 18. The staff of the institution is composed of Drs. Carl V. Reynolds, S. Westray Battle, Arthur W. Calloway, Lewis W. Elias, William C. Brownson, Charles H. Cocke, Arthur L. Denchfield, and Philip R. Terry.

More Buildings Taken for Government Hospitals.—In accordance with the plan of the Hospital Division of the Medical Corps of the U. S. Army which calls for the securing of at least 5,000 new beds each month, in addition to taking North Brother Island, the government has taken the nine buildings which are in Exposition Park, Rochester, N. Y., and the Westchester Almshouse, which after alterations will accommodate 2,000 patients. The alterations necessary to equip these newly acquired buildings for hospital purposes will cost approximately \$175,000, and will be effected by Jan. 1, 1919.

After-Care of Influenza and Pneumonia Patients.—The health department began to make physical examinations to detect any ill after-effects among influenza patients at the different relief stations where physicians of the department are on duty, November 11. As an emergency measure food will be provided for the very needy. The health department in its effort to provide homes for children bereft of their parents during the epidemic, declares that from a cursory examination of death certificates 2,000 young children have been left orphans. The health department is particularly desirous of placing these children in good homes.

Polyclinic Hospital Offered to Columbia University.—At the meeting of the trustees of Columbia University, November 4, it was announced that the New York Polyclinic Hospital, by unanimous vote, had offered to transfer the property of that institution to Columbia University, with the provision that it be maintained and perpetuated for the public service and for advanced research in medicine and surgery. In response to this offer the trustees of Columbia University adopted resolutions, receiving with grateful appreciation the proposal by the trustees of the Polyclinic Hospital, and appointing a subcommittee to arrange the detailed terms and conditions of accepting the proposed gift. The uni-

versity will not be able to use the hospital for some time to come as it is now in possession of the government and is conducted as a military hospital.

OHIO

Personal.—Dr. Herbert M. Platter, Columbus, has been elected secretary-treasurer of the Ohio State Medical Association, to fill the unexpired term of Dr. Clarence D. Selby, Toledo, resigned.—Dr. Charles Lukens, Toledo, has been elected councilor of the fourth district, to succeed Dr. Edwin A. Murbach, Archbold, who has resigned to enter the military service.—Dr. Henry W. Cook, Hicksville, is seriously ill at his home as the result of a cerebral hemorrhage.—Dr. Guy H. Williams, for fifteen years assistant superintendent of the Columbus State Hospital, has been appointed superintendent of the Cleveland General Hospital, to succeed Dr. G. A. Hyde, who has been made superintendent of the Massillon State Hospital, to succeed Dr. Henry C. Eyman, who has resigned.

Care of Discharged Soldiers.—The construction of institutions for the care of discharged soldiers is a legitimate war measure and the need in Ohio is great. The state department of health has been notified of 865 discharges of Ohio soldiers on account of tuberculosis. Despite careful follow-up work, it has been found impossible to place more than thirty-one of these men in hospitals, where they would be given the care which they should have and which would protect their families and associates against possible infection. The department estimates that 400 of these men would be glad to enter sanatoriums, if facilities permitted this, and that many more men rejected by draft boards would also undergo treatment. To meet both this and the regular pre-war demand Ohio has 1,570 hospital beds available to the public, and last year these beds were 90 per cent. occupied at all times, making it necessary for applicants to remain on waiting lists for long periods before gaining admission to hospitals. Enlargement and extension of existing hospitals in the state and establishment of new district sanatoriums are being urged by the department.

OREGON

Voluntary Commitment Law Asked.—Dr. R. E. Lee Steiner, superintendent of the State Hospital for the Insane, Salem, in his biennial report, recommends that on account of the number of nonresident insane persons brought into the state a voluntary commitment law should be enacted, which would enable patients to obtain treatment without having to go to court or to jail.

Personal.—Dr. George F. Koehler, Portland, has been appointed surgeon in chief of the National Guard of Oregon, with the rank of major, to succeed Dr. William M. Campbell, who has resigned to enter the United States Service.—Dr. Luther E. McDougal, Eugene, who has been ill with influenza, is reported to be convalescent.—Dr. Thomas W. Ross, Portland, has been commissioned acting assistant surgeon of the United States Public Health Service, with station at Camp Sherman, Chillicothe, Ohio.—Dr. Walter H. Lott, Westport, is reported to be seriously ill.—Dr. Margaret E. Pomeroy, Salem, is reported to be seriously ill in Portland with pneumonia following influenza.—Dr. Bertram R. Shoemaker has been appointed physician to the State Soldiers' Home, Roseburg, to succeed Dr. Earle B. Stewart, who has resigned to enter the military service.—Dr. Alvane C. Seely, Roseburg, has been appointed assistant surgeon of the United States Public Health Service and acting state health officer, with headquarters at Portland.—Dr. James H. Robnett, has been elected health officer of the public schools of Albany.—Dr. Harvey J. Clements has been appointed surgeon to the S. A. T. C. at Willamette University, Salem.

PENNSYLVANIA

Will Establish Science Hall.—The will of the late Dr. John C. McClenathan, Connellsville, shows the value of the estate to be approximately \$160,000, of which the bulk is given to his widow, and at her death to be diverted to the trustees of Washington and Jefferson Colleges to erect a building to be known as the McClenathan Hall of Science.

Philadelphia

The Alvarenga Prize.—The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Señor Alvarenga, and amounting to about \$250, will be made on July 14, 1919, provided that an essay deemed by the committee of award to be worthy of the prize shall have been

offered. Essays intended for competition may be on any subject in medicine, but cannot have been published. They must be typewritten, and if written in a language other than English should be accompanied by an English translation, and must be received by the secretary of the college on or before May 1, 1919. Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author. It is a condition of competition that the successful essay or a copy of it shall remain in possession of the college; other essays will be returned on application within three months after the award. No Alvarenga Prize for 1918 was awarded.

CANADA

Hospital News.—Old St. Andrews College, Toronto, which was taken over by the federal government for hospital purposes, is now receiving patients.

Appointments.—Major Charles McMane, North Vancouver, B. C., becomes A.D.M.S. at Quebec in place of Major George A. Winters, Toronto, who has joined the Siberian Force; Capt. Adam F. Menzies has been appointed cholera expert for the Siberian Force; Capt. Percy H. Desnoes, New York City, becomes chief surgeon at the Fredericton Military Hospital, New Brunswick.

Influenza Decreasing.—Dr. Charles J. C. O. Hasting, M. O. H., Toronto, says the epidemic of influenza there is rapidly declining. On the middle of the past week the total number of deaths from all causes registered thirty-eight, while during the height of the epidemic they totalled as many as 150. Statistics are now being prepared of the deaths in all the hospitals in Toronto, so that the toll of influenza and the pneumonias may be computed.

Personal.—Dr. John R. Irwin, Cobourg, Ont., who has been overseas for the past three years with the C. A. M. C., has returned to Cobourg. He was decorated for devotion to duty in going to the help of some entombed men at great personal danger.—Dr. John M. Rogers, Ingersoll, Ont., who two years ago was nominated to contest South Oxford in the Liberal interest for the Ontario Legislature, has resigned.—Major W. Harley Smith, Toronto, is now with the Fourteenth General Hospital, B. E. F., France, being in charge of wards for officers, and having both surgical and medical cases. This hospital is established in a big hotel and in huts on the coast.

FOREIGN

Honorary Memberships for Americans in Leading French Medical Society.—The Société Médicale des Hôpitaux de Paris elected at a recent meeting, as corresponding members *honoris causa*, Dr. Alexander Lambert, the president-elect of the American Medical Association, director of the medical service of the American Red Cross in France; Col. James T. Case, editor of the *American Journal of Radiology* and chief of the radiologic service of the American Army in France; Prof. William S. Thayer of Johns Hopkins, consultant to the American Expeditionary Force; Prof. Morton Prince of Tufts College, New York; Dr. Simon Flexner, director of the Rockefeller Institute for Medical Research, and Prof. Beverley Robinson of the University and Bellevue Hospital in New York, a former intern of the Paris hospitals. At the same time, five British physicians were also elected, including Sir Almroth Wright, Sir Bertrand Dawson, Sir Thomas Barlow, Sir Dyce Duckworth and Sir William Leishman. The motion to elect these eleven honorary members was presented by Netter, the president of the society, Chauffard, Bécclère and Major Rist. The latter had not long returned from a visit to America.

New International Ear, Nose and Throat Journal.—During the last two years there has been published at Stockholm the *Nordiskt Tidskrift för Otiatri, Rhinologi och Laryngologi*. The editorial staff consists of Professors Schmiegelow of Copenhagen, Uchermann of Christiania, Af Forselles of Helsingfors, and Bárány of Upsala, with Prof. G. Holmgren of Stockholm as the editor in chief. The articles were in the various Scandinavian languages but were followed by a résumé in one of the "congress languages." The *Nederlandsch Tijdschrift* now announces that it has been decided to transform it into an international journal, to be called the *Acta Oto-Laryngologica*, to publish articles in the writer's own language, including French, German and English. A number of other specialists in the five neutral countries have been added to the editorial staff, including Professors Burger of Amsterdam, Kan of Leyden, Benjamins and De Kleijn of Utrecht, and Schutter of Groingen. It is hoped to obtain a

world-wide circulation for this new international journal. It is to appear at irregular intervals as material accumulates, each part to consist of 500 or 600 pages, and the subscription per part is to be 20 Swedish crowns, about \$5. Address Prof. H. Burger, Keizersgracht 317, Amsterdam. Our Netherlands exchange adds that this new undertaking is not only of scientific moment, but is a step on the road to an actual League of Nations. It urges physicians in the Netherlands, interested in these specialties and their borderlands, to seize the opportunity to present a favorable impression of their country's scientific achievements.

Winkler's Jubilee.—Professor Winkler of Utrecht completes twenty-five years of professional work this year, and Professor Pekelharing sketches in a recent issue of the *Nederlandsch Tijdschrift* Winkler's contributions to science, especially his work on the brain. To his initiative was due the foundation of the Central Institute for Research on the Brain, established in connection with the Institute for Anatomy at Amsterdam by the Brain Commission. It has been in operation several years, in charge of Dr. A. Kappers. Winkler is a leading member of the Brain Commission, organized by the International Association of Academies. The publication of an atlas showing the finest details of the microscopic anatomy of the brain and spinal cord was planned by the commission, but the work has been interrupted by the war. Only two of the members of the commission have done their part of the work; these are Winkler and Monakow of Zurich. Winkler's research on the brain has brought to his laboratory such men as Monakow, Golgi, Van Gehuchten, Edinger and Sherrington, among others, to discuss his views and study his microscopic specimens. Winkler's "Manual of Neurology," published simultaneously in Dutch and French, testifies to his indefatigable efforts to benefit the sick by delving into anatomy and physiology. Winkler is now 63. Until 1914 he was connected with the University of Amsterdam, but then accepted a call to Utrecht, attracted by the new model psychiatric clinic. He has never founded a "school," as conditions in the Netherlands do not foster the gathering of a school of student workers around a professor, but he has always been popular as a teaching professor.

BUENOS AIRES LETTER

BUENOS AIRES, October 7, 1918.

Pan-American University Interchanges

The faculties of the medical department of the universities of Buenos Aires and Montevideo have recently concluded an agreement by which they are to interchange professors monthly from May to October. The interchange professors are to lecture on the special subjects in the branch of medicine which their chairs represent. In conformity to this agreement, the Buenos Aires professors, Drs. G. A. Alfaro and A. Gutierrez have been lecturing in Montevideo. From Montevideo has come to Buenos Aires Prof. A. Turenne.

The professor of clinical neurology at Rio de Janeiro, Dr. A. Austregesilo, has been spending some time in this city, visiting all its medical institutions in detail.

Several Argentine professors have been invited to the Fifth Brazilian Medical Congress which is soon to be held at Rio de Janeiro, and several have already left for Rio, including Drs. G. A. Alfaro, J. Spangenberg, J. Guglielmetti and others.

The professor of physiology at Rio de Janeiro, Dr. A. Osorio de Almeyda, has been visiting in Buenos Aires, and has been conferring with research workers here.

Reforms in University Administration

The acting interim dean, Dr. Canton, having served out the term, the *consejo directivo* of the university held a meeting and nominated Dr. A. Gandolfo to the position of dean. Dr. Canton wished to retain the dean-ship, but the *consejo* did not heed his appeal.

The national government has finally approved of the plan for reform of the statutes of the universities. The plan contains a number of changes sanctioned by the university centers, but some of the innovations are open to serious discussion.

The members of the *consejo directivo* for the various faculties in the university are to be nominated in a special assembly. This will designate also the delegates to the superior *consejo universitario* whose term of office is to be two years. The dean is to be elected in the same manner, and he is to hold office for three years, and can be reelected after being out of office for one term. The members of the *consejo* are to serve for three years.

The change which is the greatest innovation and the most open to discussion is the constitution of this assembly. It is to comprise the titular professors, with an equal number of associate professors (*suplentes*) and an equal number of the students of the last three years.

The right is granted for associate professors, graduates and other persons with proper credentials to give open courses of lectures which the faculty will consider valid. Attendance at classes is not compulsory.

The retirement of professors reaching the age limit—*la jubilacion*—is also to be enforced for those who have reached this age.

The appointment is also provided for of *interventores* in the different departments of the universities for the purpose of presiding at the new elections. Prof. J. Arce has been appointed *interventor* in the Facultad de Medicina.

Delegates to Conference on Hygiene, Microbiology and Pathology

The national government has appointed as its representatives in this conference which is to convene at Rio de Janeiro, October 15, Drs. A. Bachmann, Cases Irigoyen, E. Pagniez, A. Vidal and S. Mazza. It has been a matter for general surprise that the better elements have thus been excluded from these appointments, those which had been making preparations for this gathering, especially the members of the Instituto Bacteriologico of the Departamento Nacional de Higiene, especially as it is this institution that gave the initiative for these South American conferences. The members of this institution have prepared thirty-two articles and several addresses.

Habitual Constipation

The Sociedad Medica Argentina has been holding a series of meetings devoted to discussion of this subject from both the medical and surgical standpoints.

New Professor of Clinical Medicine

Dr. M. R. Castex has been appointed to the chair of clinical medicine to succeed the late Prof. A. Ayerza.

Prevention of Serum Sickness by Beef Serum

The experience of Drs. Fernandez and Zubizarreta at the Children's Hospital has brought them to different conclusions from those recently announced by Dr. Penna at the Academia de Medicina. They observed twenty instances of serum sickness among sixty-seven patients injected, and hence they are unable to confirm that beef serum is able to ward off serum by-effects.

MEXICO LETTER

MEXICO CITY, October 30, 1918.

The Leading National Medical Organization

The Academia Nacional de Medicina on October 1 entered on its fifty-fifth year of work. The dean of the University of Mexico, Sr. N. Macias, presided at the meeting. The officers that have been elected for the year 1918-1919 are: president, Dr. R. Cicero; vice president, Dr. E. F. Montañón; first secretary, Dr. D. Lopez, and second secretary, Dr. M. R. Soberon. The treasurer and editor of the *Gaceta Medica de Mexico*, the official organ of the Association, is Dr. E. Landa. [The *Gaceta* is now in the eleventh volume of the third series, and recently the issues have been condensed into two large numbers during the year. It is indexed and reviewed regularly in the Current Foreign Literature Department of THE JOURNAL.]

Influenza in Mexico

Influenza has spread with extraordinary rapidity throughout the City of Mexico. The disease has already caused numerous deaths. In some cases it takes the form of an extremely acute bronchopneumonia lasting two or three days. In other cases there is merely the simple catarrhal form, but with temperature up to 106 and 107. Copious epistaxis is a common accompaniment. Congress appropriated the sum of \$200,000 for the Departamento de Salubridad to defray the first expenses connected with the campaign against this universal epidemic disease.

Campaign Against Venereal Diseases

The Sociedad Mexicana Sanitaria y Moral de Profilaxis de las Enfermedades Venereas has just organized and opened a free advisory clinic for applicants with gonorrhea or syphilis. Certain members of the society and other persons

in the capital contributed funds for installing this *consultorio*. It is open daily, with physicians belonging to the society in charge.

PARIS LETTER

PARIS, Oct. 17, 1918.

The Influenza Epidemic

The prevailing epidemic of grip continues to be the subject for discussion in medical gatherings. The Société médicale des hôpitaux de Paris devoted its last meeting to the discussion. It seemed to be the general opinion that the present epidemic, to date, is less severe than that of 1889, the number of cases in this epidemic totaling only about one third the number of cases occurring during the similar period in 1889. Taking it as a whole, the present epidemic from the bacteriologic and clinical point of view, is similar to the 1889 epidemic. There is, however, one great difference, and that is the age of those affected. In the 1889 epidemic older persons were affected mostly, while in the present epidemic nearly all the victims are young persons. This statement was made by Dr. Louis Rénon and it is supported by the observations of his colleagues. Dr. Souques, physician of the hospices de la Salpêtrière and de Bicêtre, stated that he had not seen a single case of grip among the inmates of these institutions, numbering more than 3,000 aged persons, while among the personnel of the hospitals, all young persons, dozens of cases occurred. It can be said that in the present epidemic only persons between 15 and 40 years of age are affected.

It was the unanimous opinion that malignant grip is grave by reason of the pulmonary and pleural complications. It is mainly the pneumococcus that is concerned in the pathogenesis of these lesions; the streptococcus is encountered less often. Serotherapy seems to be indicated in treatment. Drs. Rénon and Mignot have obtained excellent results from its use. Seven patients who developed pulmonary complications in the course of grip were treated by antipneumococcus serum; all recovered. Dr. Netter used the serum in twenty cases and obtained most satisfactory results. Drs. Josué, Florand and Sergent emphasized the importance of phenomena from suprarenal insufficiency in the course of grip, and advised the use of epinephrin in such cases.

The Conseil d'hygiène du département de la Seine likewise devoted its last session to the discussion of influenza. The permanent committee on epidemics was charged to draft suggestions which would prove useful to the people in aiding to avoid the disease.

Bacteriology of Influenza

At the last meeting of the Académie des Sciences, Dr. Roux, director of the Institut Pasteur, reported the results of experimental research on the pathogenesis of grip. This work was done on monkeys at first, then on the human, by Drs. Nicolle and Lebailly of the Institut Pasteur of Tunis. Their observations showed that the infection is carried during the active stage of the disease by the nasal and bronchial mucus of grip patients. The monkey can be inoculated with the virus applied to the nasal mucous membrane or injected under the conjunctiva. The symptoms of grip are manifested in about six days. A man developed the same symptoms in about the same time when inoculated subcutaneously with bronchial mucus diluted ten times with physiologic saline solution. The infecting agent seems to be a very small micro-organism which passes through the Chamberland filter and which is distinct from all other microbes hitherto described, and notably from the bacillus of Pfeiffer. The subcutaneous injection of this organism into humans reproduces the disease. Intravenous injection, however, does not convey the disease to man or monkey.

Unrecognized Septicemias

Drs. Gauléjac and Nathan called attention at one of the recent meetings of the Académie de médecine to a class of latent apyretic septicemias, monosymptomatic, of which the most perfect type is that following the crushing of spongy bone. As a rule these cases are apyretic, not painful, and no matter how severe or extensive the contusion of the bone may be, they go unrecognized unless a most careful and thorough search is made. Pain, discomfort and loss of function appear about the tenth day, when the lesion of the spongy diaphyseal bone extends to the compact bone and to the joint. During this stage of the affection only one sign or symptom makes its appearance—a relative tachycardia. With an even temperature of 37.5 C., the pulse rate is 90, 100, 110. No other sign or symptom is present. It is always a case of septicemia, because in almost every instance blood

culture reveals the enterococcus, more rarely the pneumobacillus of Friedlaender and they most certainly come from the bone focus because cultures made from excised bone nearly always yield one or the other of these organisms. The septicemia arises only in the bone, and when the contused bone is completely excised, the local lesion is repaired rapidly, and further septicemia does not occur, or is insignificant in degree. If the excision is incomplete, chronic osteo-arthritis develops, with a tendency to ankylosis, and a prolonged state of septicemia. The patient becomes pale, loses appetite and weight, becomes cachectic, and sometimes, months after the traumatism, a positive blood culture is obtained. These sequelae occur often.

This latent and monosymptomatic septicemia is essentially characteristic of lesions limited to the spongy bone, but when the soft parts are involved, there occur as a rule a febrile reaction and pain which overshadow the symptom from the bone lesion. All sorts of febrile septicemias with enormous oscillations may be observed, and even in the purely bone cases one may find associated with the enterococcus and the pneumobacillus the proteus, mesentericus, tetragenus, pyocyanus, staphylococcus, and even gas bacilli.

The diagnostic value of the symptomatology of this form of septicemia is thus emphasized, and the pulse and blood culture permit control of any surgical intervention that may be undertaken and its being made thorough in time.

MADRID LETTER

MADRID, Oct. 1, 1918.

Persecution of Loyal Physician

Dr. Gomez Casas, physician of the Almeida prison, reported to his superiors the presence of influenza among the inmates of the prison early in the first epidemic. The governor of Almeida was not pleased at having his province invaded by the disease, and he summoned Dr. Casas and ordered him to sign a written report to the effect that he had been mistaken in his diagnosis, and retract his statements as to the existence of influenza in the prison. Dr. Casas refused to do this and he was fined. The amount of the fine was not much, but it was important because it signified arbitrary officialdom and lack of appreciation of the conscience and moral courage of a man devoted to science. The medical corps in the province of Almeida on this occasion set an example of loyalty. The Colegio Medico publicly announced that it would stand by Dr. Casas and subscribe the amount to pay the fine which a governor ignorant of his duties had imposed on him. At the same time an official protest was filed with the central public health authorities, the Consejo de Sanidad.

Payment of Health Officers by the State

The case of Dr. Casas is a sample of the restrictions imposed by the local authorities on the activity of physicians, but unfortunately for the latter their sufferings in very many cases and their complaints have motives more prosaic and at the same time more vitally important for their own existence. The immense majority of the population of Spain scattered through rural districts and hamlets get their only medical care from the so-called *medicos titulares*, physicians paid by the local authorities. As many of these hamlets are small and poor, the sums which they can afford to pay for the medical care of their poor neighbors (and nearly all are poor in these localities) is inadequate to support a physician. One single physician may have to visit two, three, four, up to eight or ten of these villages, many miles apart, and by ways accessible only on horseback as there are no practicable roads, in mountain zones where fogs and snow are almost constant. Sometimes on account of the actual poverty of the villages and hamlets, and at other times on account of political organizations to which the physician does not belong or is opposed, the local authorities exhaust the money at their command without paying the physician's salary, and years may pass without his receiving his money, as he is put off with promises which are fulfilled tardily, inadequately or never, as the case may be.

Similar conditions used to prevail in respect to school-teachers, until one minister of public instruction, intelligent and impressed by the realities of the life of the nation, the Count de Romanones, ordered that the teachers in public schools should be paid by the government. Since then other ministers of public instruction have carried out further reforms in this line so that today the schoolteachers have a brilliant present and a splendid future before them. A group of physicians who have attained enviable renown and

positions as statesmen have organized a movement for the payment of the *medicos titulares* by the government in the same way as the schoolteachers. This leading group of physicians in the senate is headed by Dr. Cortezo, a former minister of public instruction and member of the cabinet, the Consejo de Estado, Dr. Pulido, vice president of the senate, Dr. Gimeno, formerly minister of the navy and Dr. F. Rodriguez, also at one time minister of public instruction. Paid by the state, the *medicos titulares* would then be independent of petty local politics, and they could act with greater force and directness in matters affecting the public health, in which now they have little if any influence, directly to the detriment of all interested, local politicians being usually ignorant of the principles of sanitary science.

The great difficulty which the *medicos titulares* encounter in their aspirations is the general agitation for rebellion against too much centralization of power. Politics recently, after a period of centripetal tendency, during which all attributes and all authority were diverted to the central head, has lately become centrifugal, seeking to spread authority around among the provinces and the municipalities. As far as public health matters have been concerned and the support of those entrusted with carrying out provisions for the public health, only the centrifugal principle has prevailed, and this has demonstrated its inefficacy. In spite of the modern tendencies for decentralization and distribution of authority, in matters of public health there can be no question that a unified and graduated system with payment of the officials by the state is the only efficient principle.

LONDON LETTER

LONDON, Oct. 15, 1918.

German Savagery to Prisoners

The report of Mr. Justice Younger's committee on the treatment by the Germans of prisoners of war taken during the spring offensives of 1918 has been issued. As in all previous reports, the tale is one of monotonous barbarity enlightened at only rare intervals by the conduct of a German officer who can be described as human. The statements were collected of upward of seventy British prisoners who succeeded in escaping. Each man took his life in his hand; but as one of them, Corporal A. J. Coney, said, "All the men in our compound felt that they might as well risk being killed getting back to British lines as remain in German lines to be killed by our shells or starved by Germans." The treatment of the prisoners is indicated by the statement of a German officer, March 22, at Marchiennes: "We will break your brave English hearts tomorrow." After capture the men were in nearly every instance left without food for periods varying from twenty-four to forty-eight hours, during which they were kept constantly on the march. Wounded prisoners got no dressing or attention and were forced to march with the others. Even the French peasants who tried to give the prisoners food were prevented, and when they reached water the men were not allowed to fall out to drink it. There was an utter disregard by the German command for its obligations whether entered into before or during the war. Prisoners were employed under pain of death on operations directly concerned with the German offensive. They were billeted in buildings, such as churches, without a roof, and with nothing to lie on or only verminous straw. The following is a typical day: Reveille at 3 a. m., a drink of coffee but no food. Marched to work, which would start about 8 a. m. Rest from 12 to 1; then work to 5 p. m. Nothing to eat until 7 p. m., when soup made of a kind of fried fish and lentils and a loaf to three men were given. The prisoners, of course, became very weak and exhausted. During the spell between 12 and 1 they collected nettles, which they brought to the camp at night to eat. The result was that most of them became ill with bad feet and dysentery, but they were still made to work. The camp was in a very insanitary condition, and there were no beds or blankets or straw. The prisoners of the Army Medical Corps volunteered to take over the sanitary arrangements of the camp, but this was refused. Of the hospital at Valenciennes an escaped prisoner gives a gruesome account. The food was bad, the sanitary arrangements appalling. Eggs were sometimes issued to the men who had lost limbs, but the German orderlies stole them and in some cases even the clothing of the prisoners, who had to lie in bed with nothing on except the bed covering made of papier mâché. One man, Private Ellis, lay in bed with a bullet wound in his lung for some days unattended. As he was in great pain he was crying, and was taken to a German doctor, who hit him a punch on the jaw. He came back crying and died next morning.

Boycott of German Scientists

The interallied conference on the future of international organization in science has met in London and unanimously adopted a statement which is intended to serve as a preamble to a number of resolutions, dealing with the withdrawal of the Allied nations from existing international associations and the formation of new ones to take their place. The confirmation of the academies represented at the conference is required before the text of the resolutions can be made public: "When more than four years ago the outbreak of war divided Europe into hostile camps, men of science were still able to hope that the conclusion of peace would join at once the broken threads, and that the present enemies might then once more be able to meet in friendly conference, uniting their efforts to advance the interests of science, for ever since the revival of learning in the middle ages, the prosecution of knowledge has formed a bond strong enough to resist the strain of national antagonism. And this bond was strengthened during the latter part of last century, when branches of science developed requiring for their study the cooperation of all the civilized nations of the world. International associations and conferences rapidly multiplied, and the friendly intercourse between the learned representatives of different countries grew more intimate, in spite of their political differences. In former times, war frequently interrupted the cooperation of individuals without destroying the mutual esteem based on the recognition of intellectual achievements; peace then soon effaced the scars of a strife that was ended. If today the representatives of the scientific academies of the Allied nations are forced to declare that they will not be able to resume personal relations in scientific matters with their enemies until the Central Powers can be readmitted into the concert of civilized nations, they do so with a full sense of responsibility; and they feel bound to record the reasons which have led them to this decision. Civilization has imposed restrictions on the conduct of nations which are intended to serve the interests of humanity and to maintain a high standard of honor. Such are the recognition of the sanctity of treaties—especially those designed to apply to a state of war—and the avoidance of unnecessary cruelties inflicted on civilians. In both these respects the Central Powers have broken the ordinances of civilization, disregarding all conventions and unbridling the worst passions which the ferocity of war engenders. War is necessarily full of cruelties; individual acts of barbarity cannot be avoided and have to be borne. It is not of these we speak, but of the organized horrors encouraged and initiated from above with the sole object of terrorizing unoffending communities. The wanton destruction of property, the murders and outrages on land and sea, the sinking of hospital ships, the insults and tortures inflicted on prisoners of war, have left a stain on the history of the guilty nations which cannot be removed by mere compensation of the material damage inflicted. In order to restore the confidence, without which no scientific intercourse can be fruitful, the Central Powers must renounce the political methods which have led to the atrocities that have shocked the civilized world."

The Influenza Epidemic

The influenza epidemic, which apparently had passed off, has undergone recrudescence in as widespread a form as before. The public health committee of the London County Council reports that the influenza epidemic between June 15 and August 3 caused from 1,600 to 1,700 deaths in London. The clinical features leave no doubt that the disease was identical with the epidemic influenza of 1890, but the difference in age incidence is noteworthy. In 1918, as compared with earlier epidemics, the incidence is higher between ages 5 and 45, and lower at ages over 45. Concurrently with influenza mortality, there was a large increase in deaths from bronchitis and pneumonia; and as this increase cannot be accounted for by any abnormal climatic conditions by which these diseases are governed, it is reasonable to assume that the major part of the added deaths from these causes are of influenzal origin. The epidemic was first reported in Spain. Generally speaking, it moved northward in Europe and eastward in India, and this movement would be consistent with a hypothesis of spread from the Mediterranean. In previous similar epidemics the progression has been westward in Europe, the country of origin usually being Russia. The war, however, has fundamentally changed the general character of European traffic—that from east to west being suspended, while the north and south traffic has been greatly augmented. The abnormal progression of the present epidemic may have been mainly determined by the changed lines of intercommunication.

Deaths

James Edward Moore ☉ Minneapolis; one of the most notable surgeons of the Northwest; died at his home in Minneapolis, November 2, from pernicious anemia. He was born in Clarksville, Pa., March 2, 1852, pursued his medical studies at Bellevue Hospital Medical College, New York City, from which he was graduated in 1873. After three years of practice in Fort Wayne, Ind., six years in Emlenton, Pa., and three years of postgraduate study abroad, he located in Minneapolis in 1882. He specialized in surgery since 1888. He had been surgeon in chief of the Northwestern Hospital, Minneapolis, since 1907; and connected with the University of Minnesota since its organization in 1888; had been professor of surgery in its medical department since 1904, and chief of that department since 1908. He was made chairman of the Section on Surgery, General and Abdominal, of the American Medical Association in 1902, and had been a member of the Judicial Council of the Association since 1911. He was president of the Western Surgical Association in 1902, and was an honorary member of the American Orthopedic Association. He was an extensive contributor to the literature of his specialty, and was the author of *Moore's Orthopedic Surgery*, which was published in 1898.

James Jackson Putnam ☉ Boston; Harvard Medical School, 1870; aged 72; distinguished as a neurologist; lecturer on diseases of the nervous system in his alma mater from 1872 to 1875; clinical instructor from 1875 to 1885; instructor from 1885 to 1893; professor from 1893 to 1912, and professor emeritus from 1912; neurologist to the Massachusetts General Hospital from 1874 to 1909, and since that time consulting physician to the same institution; consulting neurologist to many public and private hospitals; author of several works, principal among which was the *Memoirs of Dr. James Jackson*; died at his home, November 4, from heart disease.

Lieut. John Gabriel Long, M. C., U. S. Army ☉ Lancaster, Pa.; Johns Hopkins University, Baltimore, 1916; aged 27; resident surgeon at St. Agnes' Hospital, Baltimore, until June, 1918, when he became assistant instructor in treatment of infected wounds at the War Demonstration Hospital of the Rockefeller Institute for Medical Research, New York City; died in St. Joseph's Hospital, Lancaster, October 24, from pneumonia following influenza.

Jesse Sidney Wyler ☉ Cincinnati; Medical College of Ohio, Cincinnati, 1904; aged 39; a member of the Cincinnati Academy of Medicine and American Academy of Ophthalmology and Oto-Laryngology; assistant clinical professor of ophthalmology in the University of Cincinnati; attending ophthalmologist to the Jewish Cincinnati General Hospital; died at his home in Avondale, Cincinnati, October 23, from bronchial pneumonia following influenza.

James Gifford Lynds ☉ Ann Arbor, Mich.; University of Michigan, Ann Arbor, 1888; aged 55; acting professor of gynecology and obstetrics in his alma mater from 1897 to 1898; and clinical professor of obstetrics and demonstrator of gynecology and obstetrics until 1901; director and chief surgeon of the Ann Arbor Sanitarium; died at his home, October 24, from pneumonia following influenza.

William W. Hipolite, DeVall Bluff, Ark.; University of Michigan, Ann Arbor, 1857; aged 84; and once president of the Prairie County Medical Society; a member of the Arkansas Medical Society; formerly surgeon of the Memphis and Little Rock Railroad; surgeon in the Confederate Service during the Civil War; died at his home, October 24.

Isaac Norris, Philadelphia; University of Pennsylvania, Philadelphia, 1855; aged 85; from 1856 to 1876 professor of

chemistry in the Central High School; director of Franklin Institute; a member of the American Philosophical Society and of the Academy of Natural Sciences; one of the secretaries of the College of Physicians of Philadelphia; died in Florence, Italy, October 22.

Joseph Kaufman ☉ New York City; Long Island College Hospital, Brooklyn, 1910; aged 30; a member of the American Urological Association; genito-urinary surgeon to the People's Hospital, and chief of the urological clinic of St. Mark's Hospital; secretary of the New York Physicians' Association; died at his home, October 28.

Joseph T. Cox, Penn Yan, N. Y.; Chicago Homeopathic Medical College, 1888; aged 52; at one time a member of the Medical Society of the State of New York; for several terms coroner of Yates County; and up to the time of his last illness health officer of Penn Yan; died at his home, October 25, from pneumonia following influenza.

William Francis Conway, Albany, N. Y.; Albany (N. Y.) Medical College, 1909; aged 31; a member of the Medical Society of the State of New York; attending ophthalmologist and otologist to the Infants Home, and surgeon to the Eye, Ear, Nose and Throat Clinic, Albany; died at his home, November 1, from influenza.

John Peter Heyen, Northport, N. Y.; New York University, New York City, 1883; aged 59; a member of the Medical Society of the State of New York; health officer of Northport, and Suffolk County, since 1900; surgeon to the Huntington Hospital; formerly a druggist; died at his home, October 30.

Marcel Joseph De Mahy, New Orleans; Tulane University, New Orleans, 1910; aged 32; a member of the Louisiana State Medical Association, and a specialist in neurology; a member of the staff of the Touro Infirmary; died in that institution, October 15, from pneumonia following influenza.

Lieut. Cole Fro Smith, M. C., U. S. Army ☉ San Antonio, Texas; University of Texas, Galveston, 1910; aged 34; a specialist in diseases of the skin; on duty at the Embarkation Hospital, Camp Stewart, Newport News, Va.; died in that institution, October 16, from pneumonia following influenza.

Charles Sudranski ☉ Greencastle, Ind.; Medical College of Indiana, Indianapolis, 1905; aged 38; died, October 27, from an incised wound of the throat, self-inflicted, it is believed, with suicidal intent, while despondent on account of the death of his wife from influenza.

Lieut. Alexander Renold Lundgren, M. C., U. S. Army ☉ Spokane, Wash.; John A. Creighton Medical College, Omaha, 1907; aged 34; surgeon for the Spokane International Railway, and awaiting his call to service; died at his home, October 24, from pneumonia following influenza.

Walter L. O'Hagan, Pittsburgh; University of Pittsburgh, 1907; aged 36; at one time a member of the Medical Society of the State of Pennsylvania; for some time a school physician of Pittsburgh; died in Mercy Hospital, Pittsburgh, October 31, from pneumonia following influenza.

John Charles Brown, Battle Creek, Mich.; Fort Wayne (Ind.) College of Medicine, 1886; aged 65; a member of the Michigan State Medical Society; once president of the Calhoun County Medical Society; died at his home, about October 28, from pneumonia following influenza.

Erastus E. Case, Hartford and Windsor Heights, Conn.; New York Homeopathic Medical College, New York City, 1874; aged 71; president of the Connecticut Homeopathic Medical Society in 1888; died at his home in Windsor Heights, October 27, from pneumonia.

Britton Emery Taylor, Brighton, Mo.; National University of Arts and Sciences, St. Louis, 1912; aged 30; a member of the Missouri State Medical Association; died in the Springfield Hospital, Springfield, Mo., October 22, from bronchial pneumonia following influenza.



JAMES EDWARD MOORE, M.D., 1852-1918

Chesley Lightbourne Evans, Los Angeles, University of California, San Francisco, 1912; aged 30; a member of the Medical Society of the State of California; house physician of the Good Samaritan Hospital, Los Angeles; died in that institution, October 25, from pneumonia.

Thomas Justin Aller ☉ Philadelphia, University of Pennsylvania, Philadelphia, 1910; aged 33; also a dentist; who had served with a medical unit in France, but returned to America in the spring of 1918; died at his home, October 29, from pneumonia.

Lieut. Gordon Greenleaf Williford, M. C., U. S. Army ☉ Tifton, Ga.; Emory University, Atlanta, 1914; aged 33; on duty at Camp Joseph E. Johnston, Jacksonville, Fla.; died in the base hospital at that post, October 13, from pneumonia following influenza.

Walter F. Payne, Prairie Creek, Ind.; State College of Physicians and Surgeons, Indianapolis, 1907; aged 37; a member of the Indiana State Medical Association; died at his home, October 24, from pneumonia and meningitis, following influenza.

Roy Richard Longino, Fort Stockton, Texas; Tulane University, New Orleans, 1911; aged 30; a member of the State Medical Association of Texas; and a specialist on diseases of the eye, ear, nose and throat; died at his home, recently, from influenza.

John F. Dunwoody, Detroit; Detroit College of Medicine and Surgery, 1911; aged 34; a member of the Michigan State Medical Society; for two years a member of the staff of St. Mary's Hospital, Detroit; died at his home, October 20, from pneumonia.

Nicholas Shelby Veatch ☉ California, Pa.; University of Pennsylvania, Philadelphia, 1873; aged 75; while going over a grade crossing at Phillipsburg, Pa., October 25, was struck by a train, receiving injuries from which he died, a short time later.

Asst. Surg. Lawrence Lyle McLendon, Lieut. (j. g.), U. S. N. R. F. ☉ Opelika, Ala.; Emory University, Ga.; aged 25; intern in the Wesley Memorial Hospital, Atlanta; died in that institution, October 21, from pneumonia following influenza.

Lieut. Joseph Harold Boyes, M. C., U. S. Army ☉ Hebron, Neb.; Ensworth Medical College, St. Joseph, Mo., 1893; aged 49; founder and owner of the Blue Valley Hospital, Hebron; died at his home, October 24, from pneumonia following influenza.

Charles Byron Tefft, Utica, N. Y.; Albany (N. Y.) Medical College, 1864; aged 80; a member of the Medical Society of the State of New York; twice coroner of Oneida County; died in a hospital in Utica, October 31, from cerebral hemorrhage.

Lieut. Robert Harrison Murdock, M. C., U. S. Army ☉ Wilkes-Barre, Pa.; Hahnemann Medical College, Philadelphia, 1913; aged 28; assigned to duty with the Forty-Seventh Infantry overseas, was recently killed in action in France.

Walter Eugene Gregory ☉ Dansville, N. Y.; University of Buffalo, N. Y., 1889; aged 61; a specialist in nervous diseases and a member of the staff of the Jackson Health Resort, Dansville; died at his home, October 26, from pneumonia.

Wallace Winn Bacon, Albany, Ga.; New York University, New York City, 1870; aged 69; a member of the Medical Association of Georgia; city physician of Albany, and physician of Dougherty County; died at his home, October 24.

Arthur Hardy Cutter ☉ Lawrence and Methuen, Mass.; Harvard Medical School, 1901; aged 45; for several years chief of the surgical staff of the Lawrence General Hospital; died at his home in Methuen, October 4, from pneumonia.

William Cletus Cooney, Indiana Harbor, Ind.; Chicago College of Medicine and Surgery, 1917; aged 23; physician for the Inland Steel Company of Indiana Harbor; died in Mercy Hospital, Gary, Ind., October 11, from pneumonia.

Ralph Waldo Homan, Webster City, Iowa; State University of Iowa, College of Homeopathic Medicine, Iowa City, 1894; aged 49; formerly a member of the faculty of his alma mater; died at his home, October 31, from cerebral embolism.

Miles Underwood Lieser, Vancouver, Wash.; University of Oregon, Portland, 1908; aged 39; at one time a member of the Washington State Medical Association; died at his home, October 25, from pneumonia following influenza.

Rufus Alvin Egbert, Custer City, Pa.; University of Michigan, Ann Arbor, 1875; aged 69; a member of the Medical Society of the State of Pennsylvania; died at his home, November 5, from pneumonia following influenza.

William James Churchill, Longmont, Colo.; Medico-Chirurgical College of Philadelphia, 1905; aged 42; a member of the Colorado State Medical Society; died in the Longmont Hospital, October 25, from influenza.

William James Backus, Stockton, Calif.; Trinity Medical College, Toronto, Ont., 1904; aged 28; a member of the Medical Society of the State of California; died at his home, October 27, from pneumonia following influenza.

William Glenn Miller, Morrisville, Mo.; Barnes Medical College, St. Louis, 1909; aged 35; a member of the Missouri State Medical Association; died at his home, September 29, from bronchial pneumonia following influenza.

Thomas Garfield Dodds, Oakland, Calif.; University of California, San Francisco, 1907; aged 40; at one time a member of the Medical Society of the State of California; died at his home, October 27, from influenza.

Lieut. Claude Dean, M. C., U. S. Army ☉ Bogalusa, La.; on duty at Fort Oglethorpe, Ga.; Tulane University, New Orleans, 1914; aged 33; died at Fort Oglethorpe, October 20, from pneumonia following influenza.

Hervey S. Keller, Frankfort, Ky.; Pulte Medical College, Cincinnati, 1892; aged 47; for five months connected with the Santa Fe Coast Line Hospital, Albuquerque, N. M.; died at his home in that city, October 28.

Michael John Shiel, Indianapolis; Indiana University, Indianapolis, 1914; aged 32; a member of the Indiana State Medical Association; died in St. Francis' Hospital, Indianapolis, October 20, from pneumonia.

Robert Grosvenor, Newport, R. I.; College of Physicians and Surgeons in the City of New York, 1918; aged 26; died in the Waldorf-Astoria Hotel, New York City, October 28, from pneumonia following influenza.

Myron E. Stephens ☉ Gardiner, N. Y.; Albany (N. Y.) Medical College, 1888; aged 63; health officer of Gardiner, and county physician of Ulster County; died at his home, about October 29, from influenza.

Lieut. James Gordon DeVane, M. C., U. S. Army ☉ Adel, Ga.; Atlanta (Ga.) School of Medicine, 1911; aged 32; a member of the Medical Association of Georgia; died at his home, October 21, from influenza.

Andrew Joseph Mackay, Salem, Mass.; College of Physicians and Surgeons, Baltimore, 1902; aged 39; at one time an official of the health department of Salem; died at his home, October 29, from acute gastritis.

James Gladney Evans, Farmerville, La.; Vanderbilt University, Nashville, Tenn., 1898; for eight years coroner of Union parish; died at his home, about October 23, from pneumonia following influenza.

Clark L. Myerly, Burr Oak, Kan.; University Medical College, Kansas City, Mo., 1913; aged 32; a member of the Kansas Medical Society; died at his home, October 21, from pneumonia following influenza.

Harry Andrews Mills, Jacksonville, Fla.; Medical College of Ohio, Cincinnati, 1904; aged 38; a member of the Florida Medical Association; died at his home, October 16, from pneumonia following influenza.

Perry Ped Laughlin, Steubenville, Ohio; Toledo (Ohio) Medical College, 1913; aged 34; a member of the Ohio State Medical Association; died at his home, October 24, from pneumonia following influenza.

Joseph H. Blatner, Albany, N. Y.; Albany (N. Y.) Medical College, 1872; a member of the Medical Society of the State of New York; died, October 27, from injuries received when run down by an automobile.

Charles Robert Blake, Dillon, Mont.; Rush Medical College, 1913; aged 33; a member of the Medical Association of Montana; died at his home, about October 30, from pneumonia following influenza.

Herbert Eddes Brown, Houston, Texas; Memphis (Tenn.) Hospital, Medical College, 1901; aged 43; at one time a member of the State Medical Association of Texas; died at his home, October 25.

Lieut. Dorsey Elbrooks Payne, M. C., U. S. Army ☉ Cordele, Ga.; Meharry Medical College, Nashville, Tenn., 1917; aged 25; died at his home, October 8, from pneumonia following influenza.

Thomas Joseph Connors, West Haven, Conn.; University of Maryland, Baltimore, 1912; aged 28; died at the home of his parents at Shelton, Conn., October 24, from pneumonia following influenza.

Rufus K. Merriam, Fort Rock, Ore.; Starling Medical College, Columbus, Ohio, 1892; aged 49; died in St. Elizabeth's Hospital, Baker City, Ore., October 29, from pneumonia following influenza.

Lieut. Lewis Zion, M. C., U. S. Army ⊕ New York City; College of Physicians and Surgeons in the City of New York, 1915; aged 29; died at Fort Slocum, N. Y., October 31, from pneumonia.

Edward Bulger Chapman, Brockport, N. Y.; University of Michigan, Homeopathic Medical School, Ann Arbor, 1907; aged 36; died at his home, October 26, from pneumonia following influenza.

Lieut. Wayne Person Hanson, M. C., U. S. Army ⊕ Los Angeles; Jefferson Medical College, 1912; aged 30; died in Philadelphia, October 26, from bronchial pneumonia following influenza.

Lieut. Milton Sylvester Sell, M. R. C., U. S. Army ⊕ Pittsburgh; University of Pittsburgh, 1908; aged 40; died at the home of his brother in North Side, Pittsburgh, November 5.

William Waller Vest, Clarksville, Va.; Medical College of Virginia, Richmond, 1901; aged 44; a member of the Medical Society of Virginia; died at his home, October 25, from pneumonia.

Harleston Read Simons ⊕ Charleston, S. C.; Medical College of the State of South Carolina, Charleston, 1909; aged 32; died at his home, October 21, from pneumonia following influenza.

Samuel Donald Stout, Cleveland; University of Texas, Galveston, 1918; aged 23; an intern in the City Hospital, Cleveland; died in that institution, October 1, from pneumonia.

William Henry Monagan, Mount Alton, Pa.; University of Pittsburgh, 1912; aged 37; a member of the Medical Society of the State of Pennsylvania; died at his home, recently, from influenza.

John S. Wood, Hot Springs, Ark.; Tulane University, New Orleans, 1906; aged 35; health officer of Garland County; died at his home, October 27, from pneumonia following influenza.

Lewis F. Frey, Baltimore; Baltimore Medical College, 1888; aged 52; a member of the Medical and Chirurgical Faculty of Maryland; died at his home, November 1, from heart disease.

Solon Slade Barnette, Kilgore, Texas; Universities of Nashville and Tennessee, Nashville, 1910; aged 34; died at his home, October 21, from pneumonia following influenza.

George O. Quesenberry ⊕ Hinton, W. Va.; College of Physicians and Surgeons, Baltimore, 1887; aged 55; died at his home, October 20, from pneumonia following influenza.

Julian Ormal Walter ⊕ Bristol, Ind.; Indiana University, Bloomington and Indianapolis, 1912; aged 35; died at his home, October 28, from pneumonia following influenza.

Frank Townsend Stannard ⊕ Troy, N. Y.; Albany (N. Y.) Medical College, 1888; aged 52; a specialist in compensation insurance; died at his home, October 29, from influenza.

Hiram Pacco Whitford, Bridgewater, N. Y.; Eclectic Medical Institute, Cincinnati, 1860; aged 92; for many years a justice of the peace; died at his home, October 28.

William Elmer Kiser ⊕ Bellaire, Ohio; Cleveland-Pulte Medical College, Cleveland, 1911; aged 33; died at his home, October 25, from pneumonia following influenza.

Frederick Bellosa, New Haven, Conn.; Yale University, New Haven, 1872; aged 75; a member of the Connecticut State Medical Society; died at his home, October 20.

Donald Cuyler McKinnon, Lowell, Mass.; Tuft's College, Boston, 1918; aged 23; intern in the Lowell Corporation Hospital; died, September 28, from influenza.

George W. Betson, Jr., Quantico, Md.; Baltimore Medical College, 1905; aged 43; died at his home, about October 27, from pneumonia following influenza.

J. Edwin E. Olander ⊕ St. Paul; University of Minnesota, Minneapolis, 1904; aged 41; died at his home, October 25, from pneumonia following influenza.

Richard H. L. Garrett, Sellers, Ala.; Maryland Medical College, Baltimore, 1902; aged 38; died at his home, October 25, from pneumonia following influenza.

William Wilson Cassidy ⊕ Durand, Wis.; University of Illinois, Chicago, 1900; aged 42; died at his home, October 25, from pneumonia following influenza.

Abbott Lathrop Cooley ⊕ Chicopee Falls, Mass.; University of Michigan, Ann Arbor, 1897; aged 60; died at his home, October 28, from pneumonia.

John Smits ⊕ Leadville and Glenwood, Colo.; University of Paris, France, 1904; aged 49; died at his home in Glenwood, October 26, from pneumonia.

Lee Franklin McKay, Martin, Tenn.; Vanderbilt University, Nashville, Tenn., 1897; aged 44; dropped dead in Illinois Central Park, Martin, October 25.

Loyal Maximilian Martin ⊕ Newkirk, Okla.; Rush Medical College, 1913; aged 31; died at his home, October 19, from pneumonia following influenza.

Theodore John Trautmann ⊕ Hayti, Mo.; Marion-Sims Medical College, St. Louis, 1899; aged 43; died at his home, October 16, from pneumonia.

William J. Cook, Long Beach, Calif.; Baltimore Medical College, 1895; aged 48; died at his home, October 26, from pneumonia following influenza.

Ottmar von Schallern ⊕ Ripon, Wis.; University of Illinois, Chicago, 1891; aged 70; for thirty years a druggist of Ripon; died at his home, October 21.

George Washington Burk, Sisson, Calif.; Cooper Medical College, San Francisco, 1893; aged 46; died at Yreka, Calif., October 24, from pneumonia.

John Garnes Craig, Chicago; University of Michigan, Ann Arbor, 1891; aged 53; died at his home, November 6, from carcinoma of the tongue.

Richard A. Hasbrouck, Salt Lake City, Utah; Bennett Medical College, Chicago, 1882; aged 60; died at his home, October 24.

Albert Guy Alley ⊕ Minneapolis, Minn.; University of Minnesota, Minneapolis, 1905; aged 38; died in St. Paul, October 25.

Clinton Charles Moffat ⊕ Prosser, Wash.; University of Oregon, Portland, 1914; aged 35; died at his home, about October 29.

John Edward Wilson, Denver; Harvard Medical School, 1905; aged 39; died at his home, October 24, from influenza.

Arthur James Todd, New Boston, N. H.; Boston University, 1884; aged 52; died at his home, about October 15.

William Joffe ⊕ Chicago; Rush Medical College, 1904; aged 38; died at his home, October 21, from pneumonia.

Albert Roy Richey, Herreid, S. D.; State University of Iowa, Iowa City, 1905; died at his home, October 16.

William Mann Radcliff, Los Angeles; Jefferson Medical College, 1889; died at his home, October 22.

Marriages

CAPT. SOLON MITCHELL LANGWORTHY, M. C., U. S. Army, Cedar Rapids, Iowa; on duty with the American Expeditionary Forces in France, to Miss Madeleine Thomas of New York, in Paris, October 1.

LIEUT. JOHN PHILIP STRICKLER, M. C., U. S. Army, San Francisco, on duty at Camp McDowell, Angel Island, Calif., to DR. FLORENCE EDETHA DUNLOP, also of San Francisco, October 24.

LIEUT. FRANCIS X. MCGOVERN, M. C., U. S. Army, on duty at Walter Reed General Hospital, Washington, D. C., to Miss Lottie Brown of Washington, D. C., October 30.

ASST. SURG. FRANK MULLEN CANNON, Lieutenant (Junior Grade), U. S. Navy, Great Lakes, Ill., to Miss Katherine McGovern of Vaile, La., at Great Lakes, October 30.

LIEUT. LESTER CHARLES SCULLY, M. C., U. S. Army, San José, Calif., on duty at Camp Logan, Texas, to Miss Gladys Neilson of Berkeley, Calif., at Camp Logan, recently.

LIEUT. LEONARD J. MURPHY, M. C., U. S. Army, Fairland, Ill., on duty at Camp Grant, Rockford, Ill., to Miss Rosalie Dulaney of Slater, Mo., October 23.

MAJOR EVERETT LOGAN GOAR, M. C., U. S. Army, to Miss Italia West, both of Houston, Texas, October 27.

HANS CHRISTIAN HOLM, Washington, D. C., to Miss Alice May Butler of Boston, October 16.

JAMES CARL DRAKE, Kerman, Calif., to Miss Rosalie Lord of Redwood, Calif., October 21.

BURR BURTON MOSHER to Miss Juliet Holmes Griffith, both of Brooklyn, October 26.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

MORE MISBRANDED NOSTRUMS

Jacobs' Liver Salt.—This preparation was sold by the Jacobs' Pharmacy Co. of Atlanta, Ga., and, according to government reports, consisted largely of sodium phosphate, sodium sulphate, and common salt, incorporated with a dried mixture of washing soda, and citric acid. It was falsely and fraudulently claimed to be a remedy for headache, rheumatism, gout, gastritis, and sore throat. It was further misbranded, in that it was claimed to contain lithium phosphate in appreciable quantities, when, as a matter of fact, there was little, if any, lithium phosphate present. The company was fined \$25 and costs.—[Notice of Judgment No. 4992.]

Lydia Pinkham's Vegetable Compound.—This widely advertised, alcoholic nostrum, put out by the Lydia E. Pinkham Medicine Co. of Lynn, Mass., was reported by the govern-

Tired Nervous Mothers

Should Profit by the Experience of These Two Women

Buffalo, N. Y.—"I am the mother of four children, and for nearly three years I suffered from a female trouble with pains in my back and side, and a general weakness. I had professional attendance most of that time but did not seem to get well. As a last resort I decided to try Lydia E. Pinkham's Vegetable Compound which I had seen advertised in the newspapers, and in two weeks noticed a marked improvement. I continued its use and am now free from pain and able to do all my housework."—Mrs. B. B. ZIELINSKA, 202 Wells Street, Buffalo, N. Y.

Portland, Ind.—"I had a displacement and suffered so badly from it at times I could not be on my feet at all. I was all run down and so weak I could not do my housework, was nervous and could not lie down at night. I took treatments from a physician but they did not help me. My Aunt recommended Lydia E. Pinkham's Vegetable Compound. I tried it and now I am strong and well again and do my own work and I give Lydia E. Pinkham's Compound the credit."—Mrs. JOSEPHINE KIMBLE, 935 West Race Street, Portland, Ind.

Every Sick Woman Should Try

LYDIA E. PINKHAM'S VEGETABLE COMPOUND

LYDIA E. PINKHAM MEDICINE CO. LYNN, MASS.

ment to contain 17.9 per cent. alcohol, and 0.56 grains of solids to each 100 c.c., with vegetable extractive material present. It was falsely and fraudulently claimed to be effective as a remedy for falling of the womb, leucorrhea, inflammation and ulceration of the womb, for curing diseases of women and for all female ailments and affections, diseases of the bladder, and effective as a cure for dysmenorrhea, uterine tumors, diseases of the ovaries, etc., and as a preventive of miscarriage, "when, in truth and in fact, it was not." The company was fined \$50.—[Notice of Judgment No. 4997.]

Maguire's Extract of Benne Plant and Catechu Compound.—The J. & C. Maguire Medicine Co. of St. Louis sold this product, which contained over 39 per cent. of alcohol and $\frac{1}{10}$ grain of morphin to each fluidounce, besides camphor, catechu and peppermint. The government charged that the claims made that it was a reliable specific for diarrhea, dysentery and cholera morbus, and a preventive of Asiatic cholera, were false and fraudulent, and further that the statement that it was "perfectly harmless" was false and misleading, in that it indicated that the article was composed of harmless medicinal agents as its principal and most active ingredients, when as a matter of fact, its principal and most active ingredient was a dangerous, habit-forming drug, morphin. The company pleaded not guilty, but the jury decided otherwise. The company then filed a motion for a

new trial and the case having come on for retrial, the concern was again found guilty, and was fined \$200 and costs.—[Notice of Judgment No. 4988.]

Hood's Sarsaparilla.—The C. I. Hood Co. of Lowell, Mass., was charged with misbranding "Hood's Compound Extract of Sarsaparilla." The federal chemists reported that the

The Triple Combination Spring Medicines

Hood's Sarsaparilla
The Superlative Blood Purifier

Peptiron Pills
Are an agreeable and skillful combination of Pepsin, Iron, Nux. Castory, with other tonics.

Hood's Pills
The Superlative Family Cathartic

SELLING ARGUMENT—If you are conscious of humors and need of purifying your blood,—no appetite, that spring tired feeling,—you need Hood's Sarsaparilla. If you are anemic, pale or nervous, weak, unable to sleep well,—you need Peptiron Pills. If constipated with sluggish liver,—you need Hood's Pills.

If your blood is impure or scrofulous, if you are also anemic or nervous, if you are constipated besides, and have headaches—thousands of people have all these ailments,—you need ALL THREE MEDICINES. A wonderful combination for health. Makes PURE Blood, gives STRENGTH of Iron.

JOBBER PRICES, \$2, \$4, \$8. DISCOUNT 5% ON \$25 LOT ASSORTED.

product was a mixture of alcohol (16½ per cent.) and water, containing about 0.90 per cent. of potassium iodid, 5.5 per cent. of sugars, 6.5 per cent. of vegetable extractives, which bore indications of the presence of sarsaparilla, licorice and a laxative drug resembling senna. The preparation was sold under the claim that it was a remedy for "scrofula," eczema, "cancerous humors," "catarrh," rheumatism, "female weakness," consumption, dropsy, varicose veins, and various other conditions. These claims were declared false and fraudulent, and the company was fined \$50.—[Notice of Judgment No. 4990.]

Hyomei.—Booth's Hyomei Co. of Buffalo, N. Y., sold a preparation under the name of "Booth's Hyomei Dri-Ayr." Government chemists reported that the product consisted essentially of oil of eucalyptus, together with a small amount of resin-like solids and a mineral oil; also a little alcohol. It was sold under the false and fraudulent claim that it was a remedy for catarrh, asthma, bronchitis, hay-fever, and catarrhal deafness, "when in truth and in fact, it was not." The company was fined \$10.—[Notice of Judgment No. 4991.]

Hill's Kidney Kaskara Tablets.—These tablets were put out by the W. H. Hill Co. of Detroit, Mich., and, according to government analysis, were an iron oxid, sugar-coated tablet carrying emodin, caffeine, acid resin, magnesium carbonate and talcum. It was sold as a remedy for diabetes, Bright's disease, "consumption of the kidneys," renal calculi, etc., claims which were obviously false and fraudulent. The com-

ONE CENT A DOSE

HILL'S KIDNEY KASKARA TABLETS

FOR BACKACHE FOR DIABETES
RENAL CALCULI BRIGHT'S DISEASE
Urinary and Bladder Troubles.

FOR RESTORING
The Kidneys and Liver to a Healthy Condition.

pany filed a motion to quash the information, but the motion being denied, the company pleaded guilty and was fined \$50.—[Notice of Judgment No. 4993.]

Hancock Sulphur Compound.—The Hancock Liquid Sulphur Co. of Baltimore was charged with misbranding its products, "Hancock Sulphur Compound," and "Hancock Sulphur Compound Ointment." Federal chemists reported that the former was a solution of calcium polysulphids and calcium thiosulphate, while the latter was an ointment containing petrolatum, with 0.91 per cent. of sulphur, 0.38 per cent.

ash (mainly lime), and carbolic acid (phenol). The liquid preparation was sold as a remedy for eczema, catarrh, sore throat, granulated eyelids, rheumatism, piles, blood diseases, etc., while the ointment was represented to be a remedy for eczema, skin diseases, all eruptions of the skin, scalp diseases, etc. The claims for both were declared false and fraudulent, and the company was fined \$25 and costs.—[*Notice of Judgment No. 4994.*]

Palmer's Skin Whitener.—"Dr. Fred Palmer's Skin Whitener" was sold by the Jacobs' Pharmacy Co. of Atlanta, Ga. The Bureau of Chemistry reported that the product contained a poisonous and deleterious ingredient, namely, 7.85 per cent. mercury calculated as ammoniated mercury, mixed with a fatty base. It was sold under the claim that it was "absolutely harmless," which claim was false and misleading. It was also falsely and fraudulently claimed to be a remedy for all forms of eczema and skin eruptions. The company was fined \$25 and costs.—[*Notice of Judgment No. 4995.*]

Grossman's Specific Mixture.—This preparation was sold by Wright's Indian Vegetable Pill Co. of New York City, and, according to federal chemists, was a mixture composed of two layers, the upper layer containing alcohol, water, opium and coloring matter, the lower, making up about 92 per cent. of the total mixture, being chiefly balsam copaiba and oils. The stuff was sold as a specific for the cure of gonorrhea, gleet, stricture, etc., and as a preventive of gonorrhea. These false and fraudulent claims brought about a fine of \$100.—[*Notice of Judgment No. 4996.*]

Correspondence

"VACCINES IN INFLUENZA"

To the Editor:—The current comment in your issue of October 19 prompts me to call attention to the efforts of this laboratory and base hospital to do something specific for influenza. It was obvious from the first that the virus was an overwhelming one, and it was noteworthy that uncomplicated influenza was associated with leukopenia and that the complicating pneumonia raised the leukocytes very little, seemingly inadequately.

In casting about for a simple, efficient and safe means to raise the leukocytes, antiserum from recovered patients was used with some profit but without a great leukocyte reaction. We then prepared a serobacterin, using the serum of patients recovered from simple influenza and from influenza complicated by pneumonia. The bacteria used were two strains of influenza bacilli, one strain each of pneumococcus Type I and Type IV, one strain of hemolytic streptococci and one strain of nonhemolytic streptococci, all recovered from postmortems. This was administered subcutaneously, the leukocyte curve was watched, and it was found that there was a drop in leukocytes from six to twelve hours, followed by a rise at the end of eighteen hours, sometimes to 300 per cent. In no case was there any form of protein shock, and in only a few cases was there a slight local skin reaction. After the first few cases this bacterin has been given in doses of 100,000,000, 200,000,000 and 400,000,000, at intervals of twelve hours. In uncomplicated influenza, about forty cases, pneumonia has not occurred. Of nine pneumonia patients, two that were practically moribund have died and the rest have improved faster than patients similarly affected in the same ward. Some of this material has been supplied to Dr. J. H. Flexner of Louisville, who reports a very pronounced improvement and rapid fall of temperature after two doses. This gentleman also thinks that there has been pronounced improvement in cases of pneumonia.

We are still critical of this procedure and do not claim anything; but this letter is written because it would seem from the above mentioned "comment" that THE JOURNAL would be glad to have more information and because we

should like to have others attempt this treatment in a critical spirit. It seems to be as simple and safe a means of producing hyperleukocytosis as can be imagined.

HERBERT FOX, M. D.,
Camp Zachary Taylor, Louisville, Ky.
Major, M. C., U. S. Army.

THE PHYSICIAN AND THE PROBLEMS OF RECONSTRUCTION

To the Editor:—I hope that no reader of THE JOURNAL failed to scrutinize the London Letter, Nov. 2, 1918, p. 1504.

As the close of the war draws near, the problems of reconstruction come more and more to arrest the attention of thoughtful citizens both at home and abroad. We have heard much in recent years of the physician in politics. Are we as a profession measuring up to the requirements of the situation or are we lagging behind our colleagues across the seas?

It is not ours to decide in full the future rôle of our profession. We need only to glance at Russia for the confirmation of this statement. In that troublous land of red revolution, the soviet government has definitely assigned the physician to a place with the bourgeoisie. In spite of his twenty-four hour day and his Sundayless week, the physician is to have no part in the dictatorship of the proletariat. In the purview of Lenine and Trotzky he is not a worker at all.

We scarcely anticipate anything like this in American politics, yet strange ferments are at work in our sociological brew. Just now, to read the *Congressional Record*, it would appear that we are menaced by the repudiation of the intelligensia. Certain members of Congress, during the recent discussion of a reserve for the Public Health Service, gave voice to a fear that medical men may achieve undue political influence. And one member—Mr. Sisson—saw fit to ignore the wise counsel of Burke, and to impeach the honor of a whole profession. It may be well, in these trying hours of war, when medical men are doing their best, to pause one moment to get the lawyer-politician's view:

I will say that some years ago in my own state, when I was a member of the legislature, we had an appropriation for one of these funds for the purpose of taking care of the yellow fever epidemic if it should arise. Unfortunately, as long as that appropriation was in existence we had an annual yellow fever scare. As soon as that appropriation was withdrawn and no \$50,000 or \$75,000 was placed at the disposal of the health authorities, we had no more yellow fever epidemics except where they were real and genuine.

That little experience has led me to believe that if you turn our good physicians—and we all have great respect for them—if you turn them loose, frequently they will find reasons sufficient, in their own mind, for calling into existence appropriations; whereas, if there was a limit placed upon it, a limit placed on the number of men that might be appointed, their activities would be very much lessened.

If our profession were placed wholly under government control, with salaries payable from the public funds, we should yet fall far short of congressional puissance, where a pull on your own bootstraps is all that is required to raise your salary.

Seriously, and to revert to the London letter, it is time to "get busy." I do not have reference to any movement for self-aggrandizement. We must do our part for the general welfare. Much of the "wisdom" of our teeming legislative halls is Poll-parrotism covered with cobwebs. The medical profession possesses a splendid reserve of trained intelligence which can be mobilized for service in legislative and executive positions. The modern education of the physician will prove, in the period of reconstruction, the most valuable asset of the state. It is not bookish exclusively. It commands a view of the fundamental sciences first-hand. The lawyer-politician, deficient as a rule in these vital elements of modern statesmanship, will take his place to the rear.

Finally, the physician's voice will be the voice of the larger humanity. He has never been a man of dollars. His heart beats the rhythm of that of the good Samaritan. He does not patent his inventions for human welfare and seek wealth from their exploitation. He has always carried his load of "charity practice"—a burden that properly belongs on the shoulders of the state. There is no man extant more competent to deal with rampant individualism; for his whole training and life work is a lesson of self-denial and sacrifice.

In the clear dawn of the new political day we shall perceive the outlines of the coming service-state, and shall behold the physician, pill-bags and scalpels for the moment aside, in the front ranks of the "forward looking" men of the time, doing service with the master-builders.

WILLIAM Y. WARD, M.D., Ivanhoe, Texas.

TREATMENT OF INFLUENZA

To the Editor:—During the recent epidemic of influenza I saw a great number of cases in which one of the most prominent symptoms was hemorrhage from the nose, which lasted usually several days and was often profuse. What struck me in these cases was that none of the patients developed pneumonia and all recovered. . . . Does this bleeding give us a hint to employ bloodletting more frequently in cases in which pneumonia is suspected or beginning to develop?

JULIUS MARTINSON, M.D., New York.

To the Editor:—Having passed through a severe epidemic of influenza here we are sure that there have been some important things left unsaid concerning the nature and treatment of this disease. . . . The patient should breathe pure warm air, instead of cold air, which is the popular teaching at this time. With the patient extremely prostrated and perspiring and a further complication with bronchitis, it is certainly a contraindication to apply in the sick room the open air treatment. With the given pathologic condition, the cold air treatment will certainly prove a failure. The patient should breathe cold air in the febrile stage, but should avoid it by all means when that stage passes. The prostration requires rest in bed, and judicious medical stimulation and attention to dietetics.

W. E. NEIBERGER, M.D., Bloomington, Ill.

"TOMATO LEAVES AND DERMATITIS"

To the Editor:—In THE JOURNAL, Oct. 5, 1918, Dr. E. S. Lain of Oklahoma has a paper on "Dermatitis Lycopersicum Esculentum (Tomato Plant)." He calls the tomato "one of our most harmless and luscious vegetables." A few years ago there appeared in the *Correspondenz-Blatt für schweizer Aerzte* an observation of several cases of hematuria following the eating of tomatoes. Dr. Lain cites authors who attribute the dermatitis to individual susceptibility and even "anaphylactic reaction of a sensitized person." Is there not another possibility that would at the same time explain the cases of hematuria? The doctor says that the tomato belongs to the *Solanaceae*, nightshades, and mentions several other representatives of this group. But he forgot the most important one, the *Solanum tuberosum*, the potato. This, too, contains a poison in the eyes of the tuber that is removed in boiling. Every farmer knows how sensitive the potatoes are to the conditions of soil, of climate, rain and sun, place of growth, etc., as to development, taste, etc. The same is true of other peculiarities of other nightshades. The nettles, another representative, for example, may be handled with impunity in some places; in others, the slightest touch will have very painful consequences.

The following conclusions may be drawn: 1. The tomato is not under all circumstances "one of our most harmless vegetables." 2. The plant, as well as the fruit, may under certain not yet investigated conditions produce substances that are decidedly toxic to the skin and kidneys, and maybe to other tissues.

JACQUES HOLINGER, M.D., Chicago.

DEVICES FOR DISABLED MEN

To the Editor:—I am sending to you the descriptions of some devices for men having lost one or both arms. They are founded on the last four years of experience among wounded and disabled men in England, and are the work of Dr. Arthur E. Shipley, vice chancellor of Cambridge University, who is now touring this country with the British Educational Mission.

The man who has lost an arm is usually sensitive about it, and does not like to attract attention, especially in public.

Among other difficulties are those of cornering food on the ordinary plate. For this purpose Dr. Shipley has designed a plate with an overhanging lip and also a special plate that enables the patient to get the last drop of soup without tilting the plate, a feat that would be impossible for a one-armed man.

For convenience of commerce it has been suggested that the plates should be named, and "Unimanus" has been suggested

(cf. Livy 35, 21 and 41, 21), but Dr. Shipley believes that it seems simpler and is certainly shorter to call them "man-chot" plates.

The plates have been made in several styles, some as cheaply as possible, and all may be obtained of Messrs. Thomas Goode & Co., 19 South Audley Street, London. Messrs. Goode,

who are solely financially responsible, have kindly consented to devote rather more than 20 per cent. of the profits to the Serbian Relief Fund.

When the patient has been unfortunate enough to lose both arms, he has not even the solace of reading, and the device

illustrated enables him to turn over the pages of a book without calling in assistance. The disk which he holds in his teeth is made of rubber, and the shaft is aluminum with a light rubber tip.

If one may learn from the enemy, a good suggestion can be obtained from the fork that is specially made for the kaiser. The outside prong contains a cutting edge which transforms it into a combination knife and fork, and so obviates the use of the knife with the other hand. These would have to be made right or left handed.



Fig. 2.—Device for enabling an armless person to turn the pages of a book.

I am sure there are many other devices which could render the life of the one armed, or otherwise disabled, much less difficult.

R. TAIT MCKENZIE, M.D., Philadelphia.

AN INTERNATIONAL MEDICAL COUNCIL FOR THE RECONSTRUCTIVE PERIOD

To the Editor:—With the termination of actual hostilities, new problems will confront the medical profession in three main directions: (1) physical fitness; (2) the increased incidence of certain infective diseases, and (3) the insanitary, pestilential conditions resulting from the war.

The ideal method of preparing for this vitally important work would be by the creation of an international medical council to be composed of two or three representatives from each nation belonging to the Allies. The aims of such a body would be multiple, as follows: 1. To promote unity of purpose and action and to maintain friendly relations during postbellum days or the reconstruction period. 2. To exchange information bearing on the conditions, situations and methods, both medical and sanitary, of individual nations, and in this way facilitate the immense work to be done in combating disease, and in hygiene, sanitation and physical reconstruction. 3. Direct assistance could be rendered by one or more nations in unusually trying local situations resulting from devastations. In this connection America would be in a position to lend a strong hand, although we shall not enjoy an immunity from new and difficult medical, sanitary and other problems.

The door is already wide open and invites to professional thought and action in international terms. Shall we enter? The international council herein proposed could be inaugurated and conducted under the auspices of the American Medical Association or the American Red Cross or the Surgeon-Generals of the Army, Navy and Public Health Service, with the official sanction of the President of the United States.

J. M. ANDERS, M.D., Philadelphia.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

MADURA FOOT (MYCETOMA) IN THE UNITED STATES

To the Editor:—1. Has the true "Madura foot" ever occurred in the United States? 2. Has it been determined how the mycetoma invades the human body?

J. H. M., Texas.

ANSWER.—1. Under the title "Madura Foot in America," Randolph Winslow says that up to October, 1917, the date of publication of his article, seven cases of Madura foot had been reported in the United States and Canada. Six were of the ochroid form and one of the melanoid form. Three occurred in Mexicans living in Texas, one in a French Canadian who had always lived in Canada, one in a young man born in Iowa, and one in a young woman living in Kansas. J. Homer Wright observed the only case of the black variety reported in this country in an Italian woman who had lived in America for several years. Sutton described two cases in which the *Streptothrix madurae* was found. This is believed to be the organism responsible for true Madura foot, though some authors include the ray fungus of actinomycosis as one of its causes.

2. It is believed that the organism always enters by way of a punctured or other wound, the foot being a favorite site of the disease on account of its exposure among those who go barefoot.

The following may be consulted:

- Winslow, R.: Madura Foot in America, *Ann. Surg.*, 1917, **66**, 496.
Adami and Kirkpatrick: *Tr. Am. Phys.*, 1895.
Hyde, Senn and Bishop: *Jour. Cutan. and Gen.-Urin. Dis.*, 1896, **45**, 1.
Sutton, R. L.: Mycetoma in America, *THE JOURNAL*, May 3, 1913, p. 1339.
Burres: Madura Foot in Western Panama, *Am. Jour. Trop. Dis.*, 1916, **3**, 610.
Ricketts and Dick: *Infection, Immunity and Serum Therapy*, Ed. 2, 1911, p. 633.
Solari, E. F.: Madura Foot in Argentina, *Semana med.*, 1917, **24**, 573; abstr., *THE JOURNAL*, March 30, 1918, p. 967.
Navarro, Horatio: Report of a Case of Madura Foot in Colombia, *THE JOURNAL*, Sept. 21, 1918, p. 967.

Blood Transfusion in Surgical Patients.—Blood transfusion is superior to all other methods for a prompt restoration of the circulation in anemic individuals and is the surest means to prevent the more pronounced, sudden, and usually fatal circulatory depression prone to occur during surgical operations on such patients.—*Review of War Surgery and Medicine*.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

DELAWARE: Wilmington, Dec. 10-12. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

FLORIDA (E): Jacksonville, Dec. 16-17. Sec., Dr. G. A. Munch, 1806 Franklin St., Tampa.

FLORIDA (R.): Miami, Dec. 2-3. Sec., Dr. W. M. Rowlett, Citizens Bank Bldg., Tampa.

ILLINOIS: Chicago, Dec. 9-11. Mr. F. C. Dodds, Supt. of Registration, Springfield.

IOWA: Des Moines, Dec. 10-12. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.

LOUISIANA: New Orleans, Dec. 2-4. Sec., Dr. E. W. Mahler, 730 Audubon Bldg., New Orleans.

MARYLAND: Baltimore, Dec. 10. Sec., Dr. J. McP. Scott, 137 W. Washington St., Hagerstown.

OHIO: Columbus, Dec. 3-5. Sec., Dr. H. M. Platter, State House, Columbus.

RHODE ISLAND: Providence, Jan. 2-3. Sec., Dr. B. U. Richards, State House, Providence.

TEXAS: Dallas, Nov. 19-21. Sec., Dr. M. F. Bettencourt, Mart.

VIRGINIA: Richmond, Dec. 10-13. Sec., Dr. J. W. Preston, 215 S. Jefferson St., Roanoke.

WEST VIRGINIA: Charleston, Nov. 19-21. Sec., Dr. S. L. Jepson, Masonic Bldg., Charleston.

Massachusetts May Examination

Dr. W. P. Bowers, secretary of the Massachusetts Board of Registration in Medicine, reports the oral, practical and written examination held at Boston, May 14-16, 1918. The examination covered 13 subjects and included 70 questions. An average of 75 per cent. was required to pass. Of the 53 candidates examined, 41, including 1 osteopath, passed; and 12, including 7 osteopaths, failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Howard University	.....	(1916)	76.9
Rush Medical College	.....	(1917)	81.7
Johns Hopkins University	.....	(1917)	81.9
University of Michigan Medical School	.....	(1903)	76.9
Boston University	(1917) 78; (1918) 75.8, 77.1, 78.3, 79, 79.2, 80.9, 81.1, 84.4.		
Harvard University	.....(1911) 79.8; (1912) 80; (1916)		82.6
	(1917) 81.5, 81.9, 83.7; (1918) 75.5, 76.7, 79.3, 81.1, 81.2, 81.4, 81.5, 82.2, 82.5, 82.9, 83, 83, 83.9.		
Tufts College Medical School	.....	(1918)	75, 80.4
Bellevue Hospital Medical College	.....	(1892)	80
Columbia University	.....	(1900)	80
University of Pennsylvania	.....	(1883)	80
Meharry Medical College	.....	(1915)	75
Medical College of Virginia	.....	(1917)	76.2
Wisconsin College of Physicians and Surgeons	.....	(1905)	75

FAILED

Maryland College of Eclectic Med. and Surg.	.....(1914)	68.1
College of Phys. and Surg., Boston	(1915) 59.4, 67.2; (1917)	71.7
University of West Tennessee	.....(1916)	62.5

Texas June Examination

Dr. M. F. Bettencourt, secretary of the Texas State Board of Medical Examiners, reports the written examination held at Austin, June 18-20, 1918. The examination covered 12 subjects and included 120 questions. An average of 75 per cent. was required to pass. Of the 73 candidates examined, 72 passed and 1 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
College of Physicians and Surgeons, Chicago	.....	(1906)	77.8*
Tulane University	.....(1917) 88.6; (1918) 87.7, 89.4		
Eclectic Medical University	.....	(1918)	77.7, 78.7
University of Pennsylvania	.....	(1918)	88.3
College of Physicians and Surgeons, Memphis	.....	(1911)	71.2†
Meharry Medical College	(1918) 75.6, 77.8, 85.		
Baylor University	(1918) 80.9, 81, 82.7, 85.7, 86, 86.3, 86.4, 87.2, 87.6, 88.7, 89.6, 90.1, 93.5.		
Fort Worth School of Medicine	(1918) 76.1, 76.4, 77.5, 82.4, 82.6, 82.9, 84.7, 85.3, 86.8.		
University of Texas	(1916) 90.3; (1918) 83.3, 84.6, 85, 85.4, 86.1, 86.2, 86.3, 86.4, 86.5, 86.5, 86.6, 87.1, 87.4, 87.5, 87.8, 87.8, 88.9, 88.9, 89, 89.1, 89.3, 89.6, 89.7, 89.7, 89.8, 89.9, 90, 90.2, 91, 91.6, 91.9, 92, 93, 93.8, 93.9.		
University of Virginia	.....	(1918)	86.1
National School of Med., Mexico	(1888) 72+30 yrs.; (1904)		85.9‡

FAILED

Baylor University(1917)	73
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*Plus 12 years. †Plus 7 years. ‡Plus 14 years.

Social Medicine, Medical Economics and Miscellany

REHABILITATION OF THE WOUNDED

A conference was held in Philadelphia, September 20, by the American Academy of Political and Social Science, at which the rehabilitation of the wounded was discussed. The nature and scope of the problem were presented by Dr. W. W. Keen. He pointed out that the fundamental difference between the surgical conditions during the Civil War and the present world war is our ignorance in 1861 and the enormous increase in our knowledge since that date. The almost virgin fields of battle during the Civil War held few bacteria; although tetanus was not common, it was deadly, killing nine of every ten victims. In the early days of the present world war it exacted a fearful toll of lives, exact figures of which can be given only after the war is over. As soon as there was a sufficient supply of the tetanus antitoxin, the mortality was close to nil. In the Civil War, compound fractures killed two out of every three, and amputations averaged over 50 per cent. mortality. Only 25 per cent. of the cases of compound fractures are now fatal, instead of 66 per cent. as in the sixties. Today the victory over infection is the reason for the greatly diminished number of amputations now done. Moreover, the mortality of amputations at present is low; in some series every one has recovered. While engineering and chemistry have done very much to develop modern sanitation, bacteriology has been the most important factor in this movement. Typhoid has been banished from the Army. In the entire army, numbering over 1,500,000 men at the end of December, 1917, there had been during the year 242 admissions to hospitals on account of typhoid, with eighteen deaths. During the corresponding period in 1861, when the Northern Army was being mobilized, there were about 9,500 cases of typhoid with less than one quarter of the strength of the present Army, with about 1,800 deaths. During the past year there was but one death ascribed to antityphoid vaccination among more than 1,500,000 men. This would seem to be an overwhelming testimony to the value of the method and to the fact that making it compulsory was essential to winning the war. The heart was first laid bare and sewed up for a stab wound twenty-one years ago (1897). Operations on the heart have now been done hundreds of times and have saved the lives of about half of those operated on. In the present war, missiles have been removed from the interior of the heart and even from the large blood vessels.

RECLAMATION OF MAIMED IN INDUSTRIES

Dr. Harry E. Mock, lieutenant-colonel, M. C., U. S. Army, speaking on the reclamation of the maimed in the industries, said that in warfare a number of men are bound to become disabled, but very few need remain so. The Medical Department of the Army began at the earliest moment to plan for the reclamation of the soldiers, and it is desired to make closer the cooperation between the Medical Department and the general public in the reconstruction and rehabilitation of the soldiers and sailors. During the past decade a new specialty has been developed in industrial medicine and surgery. In order to prevent waste, deformity and inefficiency, many industries have appointed a staff of physicians to look after men in the first-line trenches of the industrial army. Today one tenth of the workers of the nation are receiving the benefits of this work. Too often men injured in the industries are given positions without consideration of their fitness; if trained they could fill a gainful position. The most unfortunate among the injured and disabled in the industries are those not employed by the firm for which they worked. They must not only be cured, but trained for and given suitable positions affording them equal income to that received before their disability.

WHAT THE GOVERNMENT HAS DONE

Mr. James Phinney Munroe, vice chairman of the Federal Board for Vocational Education, pointed out that the colossal

outpourings of wealth which the orgy of war has forced will possibly be redeemed in one generation by the spirit of saving which, with many other hard and salutary lessons, war has taught. Under the vocational rehabilitation act, the Federal Board for Vocational Education, made up, ex officio, of the secretaries of agriculture, commerce and labor and the commissioner of education, and of three other members appointed by the President, is charged with responsibility for the placing back in economic life and, if need be, for the training of every soldier and sailor so far disabled in military service as to have become a beneficiary under the war risk insurance law. So long as that soldier or sailor needs daily hospital care or so long as he is adjudged fit to return to full or limited military service, he is the sole ward of the medical military authorities; but from the moment that he is discharged from military service, either because his disabilities are such as to preclude further Army service, or because he is relieved from such duty by the coming of peace, he becomes automatically a ward of the Federal Board of Vocational Education, and as such ward, has established rights which he alone and by his own free choice can surrender. After he has elected to receive training, the board, together with the War Risk Insurance Bureau, assumes not only his support and that of his dependents, should he have any, during the process of training, but also undertakes to follow him up after placement, and to give him reasonable opportunity for further training should the first venture prove ill suited to his capacities. The jobs that these men undertake will be theirs because they are fitted to take them. In this placement the board has the specific right under the law to ask the cooperation of the Department of Labor; it has the general right under the debt that we owe to these disabled men to seek the cooperation of every employer in every line of activity. The government will fulfil its sacred obligation to make these men as efficient as possible physically and also vocationally in the widest possible field of effective economic service.

TRAINING OF THE BLIND

Lieut.-Col. James Bordley, M. C., U. S. Army, discussed the training of the blind in the rehabilitation of soldiers and sailors. He emphasized the fact that in no phase of reconstruction are there more difficulties to overcome than in the training of the blind. The public has the conviction that the blind are industrially useless, forgetting the long list of distinguished blind statesmen, musicians, poets, warriors, merchants and inventors. A blind man can perform any operation except one in which judgment must be based on sight. The Surgeon-General of the Army, working in conjunction with the Surgeon-General of the Navy, has established in Baltimore, on a beautiful estate tendered the government for that purpose by Mrs. T. Harrison Garrett, a hospital training school for the blind sailors, soldiers and marines, and Congress has endowed the Federal Board for Vocational Education with money and power to supplement that training whenever necessary, and to provide the opportunity for employment. The American Red Cross has caused to be organized the Red Cross Institute for the Blind to supply such economic and social supervision as may be found necessary after the discharge of the blind by the various governmental departments. Vocationally, courses are classified as professional, agricultural, commercial, industrial, house work and blind shop work. Individual study of the men must determine into which of these classes they should go. The significance of the work is reflected in the hearty cooperation of every industry studied. If the blind man fails to make good, the employer will be relieved of all embarrassment by the removal of the blind man and his reeducation for another trade.

THE RÔLE OF THE AMERICAN RED CROSS

Mr. Curtis B. Lakeman, assistant to the Director-General of Civilian Relief, American Red Cross, said that the Red Cross will subordinate itself to government leadership and bend all its enthusiasm and resources to the promotion of the official plans and to the filling of such supplemental needs as may arise. Home service offers the channel through which patriotism and neighborliness combine to assist and

protect the dependent wives, children, mothers and other relatives of soldiers and sailors. The Red Cross has in operation a special piece of war service machinery peculiarly adapted to assist in the after-care of the disabled soldier. Under the Department of Military Relief of the Red Cross there has been conducted also the pioneering research and educational work of the Red Cross Institute for Crippled and Disabled Men in New York, and the more recently established Red Cross Institute for the Blind supplementing the work of the Army Hospital at Baltimore. The home service organization is assisting the military medical authorities in obtaining essential data as to the previous history of the blind men, in explaining the government's plan to the family, and selecting the relative who will be taken to Baltimore by the Red Cross Institute and trained side by side with the blinded soldier.

READY-MADE FARMS FOR RETURNING SOLDIERS AND SAILORS

Frederic C. Howe, commissioner of immigration at the port of New York, pointed out that the United States Employment Service is a proper agency for carrying through the work of demobilization. All of the warring countries are emphasizing the necessity of returning the soldier to the land. In England, Australia and Canada the farm colony is being developed. Experts have submitted that the soldier will not take up an unbroken piece of land isolated from his fellows. Official commissions in England and Australia are developing plans by which the state will sell to the returning soldiers ready-made farms of from 3 to 30 acres which one man can cultivate. Farms are grouped as a community with educational, recreational and cooperative agencies for marketing and buying. Men are sold farms with a house, barn and sufficient capital on easy terms, the state advancing nine tenths of the capital to be repaid on long-term instalments. The experience of Australia and of Denmark demonstrates the success of this plan. In the United States such colonies should be located in New England, the Southern, Central and Western states, each adjusted to a special kind of farming. Tractors and farm machinery should be owned in common. Such a program involves no permanent burden to the nation. Such a comprehensive agricultural program is demanded by the drift of population to the cities, the growth of tenancy, and the exhaustion of the soil.

OPPORTUNITIES FOR EMPLOYMENT

Miss Gertrude R. Stein, employment secretary, Red Cross Institute for Crippled and Disabled Men, New York, said that the inception of the United States Employment Service has made every one ponder on what an ideal public bureau should be. In initiating an employment bureau for the handicapped, the Red Cross has the advantage of having the bureau a small one. No organization of this kind is truly valuable unless it is flexible. Employment work does not mean the mere securing of positions, but the securing of the chance to make a livelihood at congenial work, with the opportunity to make use of the best powers of the man. In New York there is an effective clearing house which is invaluable in widening the opportunities open to crippled men. A placement bureau for the handicapped must be more efficient than the average bureau or it will not live; it must have a file of satisfied employers who can be called on when the applicant seems suited for their particular job. It should be capable of securing a position for a teacher as well as for an elevator man, for a draftsman as well as for a lathe hand. An industrial survey of the opportunities for cripples in the city must be carried on in conjunction with the employment work. The whole system of placement is valueless unless it is properly followed up. Follow-up work in the factories should be discouraged; it is much better to advise the man and have him settle his industrial difficulties himself. By keeping systematic and full records together with a follow-up system a mass of valuable industrial facts is secured by one of the most economical and effective methods.

FURTHER DETAILS OF GOVERNMENT PLANS

Mr. T. B. Kinder, vocational secretary, Invalided Soldiers Commission of Canada, now on duty with the Vocational

Educational Rehabilitation Division at Washington, stated that the United States goes farther than any other country in the care of its fighting men in that it provides that any man entitled to compensation as a result of his injuries may be provided after his discharge from service with a course of training at the expense of the government. In Canada every case is considered individually in the light of every factor with a possible bearing. This plan has been adopted also by the federal board at Washington in dealing with American soldiers. One of the most important factors in this connection is the man's educational history. His industrial history is also of great importance. The disabled man must have the will to succeed with his reeducation and successful placement. The man elects his course, but he must be assisted to select wisely and in the light of all the information with which his vocational advisers can provide him. A careful medical examination is made to determine the man's abilities, and medical and technical experts are consulted. In Canada, 1,347 men have completed courses of reeducation for new occupations; 1,868 are at present-taking courses. More than 2,000 men are taking courses during convalescence. Many of the men receiving active treatment in bed are being trained vocationally. The large majority of men completing courses are in positions as good as were held before their service, and many are vastly better off. They are self-supporting, capable members of the community, fulfilling their duties in peace as they did in war. There is now before Congress a bill to provide for vocational rehabilitation for the injured in the industries and their return to employment. Of the men returned to Canada unfit for further military service only about 10 per cent. required reeducation for other occupations. An interesting fact also is that up to June 1, 1918, out of nearly 30,000 disabled men returned to Canada less than 1,500 had suffered a major amputation. The commission has proved the value of the occupation for mind and body of the men. It is disciplinary both for the disabled man himself, in that it prevented that moral and social deterioration always the result of prolonged idleness, and in the institution itself.

WHAT PENNSYLVANIA IS DOING

Mr. Lew R. Palmer, acting commissioner of the state department of labor and industry, said that 50,000 jobs are open and waiting in Pennsylvania for disabled soldiers returning from France. Industrial accidents in this state in two and a half years, ending July 1, have crippled more men than were crippled in the Canadian army in four years of war. Pennsylvania was the first state in the Union to take steps toward providing employment for the blind and the crippled after the war. Seven months before Congress adopted the rehabilitation act, Pennsylvania, through the department of labor and industry, submitted questionnaires to 900 industrial plants to ascertain in what capacity each plant could employ the disabled war veterans. Of the 50,000 jobs awaiting the crippled heroes, 47,000 are in industrial work; 900 are clerical; 16 are in agricultural lines, and 1,200 are miscellaneous. The number of amputations due to industrial accidents in this state were 3,798 in two and a half years, while in the four years of war Canada's army had only 1,200 amputations. In Pennsylvania, 1,157 eyes were lost as the result of industrial accidents, while up to last spring only thirty-four Canadian soldiers had been blinded.

EMPLOYMENT OF DISABLED SERVICE MEN

Mr. Frederic W. Keough, of the National Association of Manufacturers, pointed out that manufacturers will go the limit in appreciation and care of the injured. Bringing the physically unfit and disabled men to an irreducible minimum is a national obligation. If disabilities make it inadvisable for a man to follow his former occupation, he should be fitted for a new occupation by appropriate training. The greatest number of openings undoubtedly are in the clerical fields. In France, blind soldiers have been trained to take dictation on a special machine and to transcribe their notes rapidly and accurately. Among the industries open to disabled men are the plate glass, machinery building, boiler-making and printing. In the underwear industry many firms have offered to take disabled men, one firm even offering to employ them up to one sixth of the operating force. For men who have

suffered the loss of their arms, the chemical industry is particularly inviting. The large number of processes that require little manual labor but careful watching make it possible to employ men lacking both arms. One chemical firm in Maryland has offered to take fifteen such men and train them to watch processes. An Ohio chemical firm has made a similar offer. An electrical manufacturer in the United States has discovered that blind men can be employed with great success in winding armatures. Many and varied industrial opportunities have been offered, proving that no industry is entirely closed to these workers. It has been the experience of firms already employing disabled men that they are so keenly appreciative of the opportunity offered that their spirit of willingness more than makes up for the disability. The matter, however, has been most aptly summed up by a New England firm, which says that the crippled workers in its employ are so satisfactory that the firm has often wished it had more such employees.

Book Notices

MODERN DENTISTRY. By Joseph Head, M.D., D.D.S., Dentist to the Jefferson Hospital, Philadelphia. Cloth. Price, \$5 net. Pp. 374, with 309 illustrations. Philadelphia: W. B. Saunders Company, 1917.

The author has attempted to cover most of the different branches of dentistry, a difficult thing to do, since no one individual can be equally well informed on such diversified subjects. The chapter devoted to the care of the teeth is well worth reading, and the clear pictures illustrating the proper methods of brushing and otherwise caring for the teeth will be helpful to those who have not given this subject sufficient attention. Some of the conclusions arrived at by the author as a result of his research work are rather startling. For instance, he goes into great detail and has constructed elaborate instruments to prove that decalcified enamel can be rehardened. One cannot but admire the writer's enthusiasm, although his conclusions will hardly be accepted without further verification. The author states that if the pulp of a tooth is destroyed mechanically under a local anesthetic and the root canals filled, the dentin will still live and be nourished by the peridental membrane. This is not in accordance with biologic principles as understood by scientists; if true, the works of Black and others will have to be completely revised.

Under the head of vaccines in the treatment of mouth infections, the author cites some remarkable cures of secondary conditions following their administration. One cannot but wonder if the writer has not attributed too much virtue to the vaccines and not enough to the surgical removal of the primary mouth infection.

There are chapters on filling teeth, orthodontia, prosthetic appliances, roentgenography, etc. The pictures made from roentgenograms have been fairly well selected, and they are clearer and their outlines more distinct than is usually seen in such publications. The illustrations are numerous and excellent.

THE ACTION OF MUSCLES, INCLUDING MUSCLE REST AND MUSCLE REEDUCATION. By William Colin Mackenzie, M.D., F.R.C.S., F.R.S., Member of the Council of the Anatomical Society of Great Britain and Ireland. Cloth. Price, \$3. Pp. 267, with 99 illustrations. New York: Paul B. Hoeber, 1918.

This book will be of especial value to those having in charge the reconstruction of the soldier who has suffered injury to muscles with loss of function. So impressed is Mackenzie by the importance of scientific rest and reeducation of muscles that he advocates having as a principal feature in every orthopedic institution a department of myology. Massage and electricity should be entirely subsidiary agencies. As one reads his book one is convinced of the ignorance of the ordinary surgeon and of many orthopedic surgeons as to these important matters. The principles underlying the treatment of weak muscles are clearly set forth, with details for the application of these principles in the care of separate muscles. Diagrams and other illustrations aid one to understand the technic.

Medicolegal

Liability of Insurer for Medical Aid Depends on Notice

(*American Indemnity Co. v. Nelson et al. (Texas), 201 S. W. R. 686*)

The Court of Civil Appeals of Texas reverses a judgment for \$150 against the indemnity company that the parents of a boy obtained for the expense of medical services rendered by a physician during the first week after the boy had been injured in an employment in which the employees were insured by the company under the Workmen's Compensation Act of Texas of 1913, because there was no evidence that any notice of the boy's injury was given to the company before the physician was employed by the boy's parents to treat him, or that the company knew of his injury during the time he was being treated. The court says that it seems to it that this statute is plain and unambiguous, and that by its plain terms no association or insurance company organized or acting thereunder in insuring the employees named in the act can be held liable for medical aid furnished an injured employee unless the insurer is given reasonable notice of the injury before such medical aid is furnished. The obvious purpose of requiring this notice to be given is to give the insurer an opportunity to select and contract with a physician of its own choosing. The final result of an injury to an employee and the consequent amount of the insurer's liability may often depend on the medical treatment given during the first week of the injury, and charges for such treatment might be much less when done under a contract made by the insurer than when left to be determined by evidence, which is often conflicting, of the reasonable value of the medical treatment. For these reasons it seems to the court entirely proper that before an insurer is made liable for money paid or incurred for medical aid furnished an insured employee, the insurer should be given an opportunity to furnish such aid. But whatever may be the reason for the statute the court thinks its language is plain and unambiguous, and it must be construed as making the liability of the insurer dependent on failure to furnish medical aid after reasonable notice of the injury. Statutes of other states similar to this one have been so construed. But the majority of the court does not think the right to sue for money paid or incurred for medical services rendered an injured employee is given by the statute to the employee only, but it takes the view that any person who pays for such medical aid or incurs liability therefor may sue the association and recover the amount so paid or incurred.

Performing Necropsy to Ascertain Cause of Death

(*Woods v. Graham et al. (Minn.), 167 N. W. R. 113*)

The Supreme Court of Minnesota, in affirming an order sustaining a demurrer to defendant Graham's answer, holds that it was no defense to an action to recover damages caused by a necropsy performed on the body of the daughter of the plaintiff, without the consent of the next of kin, that the defendant, as the attending physician, was unable to ascertain the cause of death and performed the necropsy for that purpose so as to be able to give a certificate, as required by law, stating the cause of death. The court says that the plaintiff brought this action to recover damages for a necropsy performed without her consent on the body of her daughter by defendant Graham. His answer admitted performance of the necropsy without the consent of the plaintiff, a widow, and set up as a defense that he was the county physician; that he attended the girl as a charity case in her last illness, and that a necropsy was necessary in order to ascertain the cause of death; that the undertaker in whose hands the body had been placed applied to him to execute the medical certificate required by law, stating the cause of death, and that he was obliged to perform the necropsy in order to be able to give this certificate. The answer alleged that the defendant made the necropsy in good faith, for the purpose of ascertaining the disease or injury which caused the death, and solely that he might be able to make and subscribe such certificate and

in order that a permit might lawfully be issued for the burial of the body; it was further alleged that the necropsy was made in a decent and scientific manner, and that no incisions were made that were not necessary in order to ascertain the cause of death.

It was conceded that the plaintiff's consent to the necropsy was not obtained or asked for, and that she had no knowledge thereof until after the necropsy was performed. The defendant claimed freedom from liability on the ground that it was necessary to have the necropsy in order to discover the cause of death and to be able to give the certificate required by Section 4652 of the General Statutes of Minnesota of 1913. That section requires the undertaker to obtain and file a medical certificate subscribed by the attending physician, stating the disease or injury causing death, with contributory cause or complication, etc. Section 4654 provides that a burial permit shall not be issued except on the filing of a proper certificate of death. Section 4658 provides that no body shall be interred until a proper certificate of death has been filed and a permit issued. Section 4662 provides that any person wilfully refusing to perform any duties imposed by the act is guilty of a misdemeanor.

The supreme court agrees with the trial court that the answer stated no defense to the action. The sections of the statute referred to do not in terms authorize a necropsy to ascertain the cause of death. This court is unable to hold that they authorize it by implication. Section 8745 makes it a gross misdemeanor to dissect the dead body of a human being, except in cases "specially provided by statute," or where the direction or will of the deceased authorizes it, or where the coroner authorizes it, or where the "husband, wife, or next of kin, charged by law with the duty of burial, shall authorize dissection for the purpose of ascertaining the cause of death, and then only to the extent so authorized." It cannot be held that this was a case "specially provided by statute."

No Injunction Against Unlawfully Practicing Medicine

(*Crowder v. Graham (Texas)*, 201 S. W. R. 1053)

The Court of Civil Appeals of Texas holds that an order granting a temporary injunction in the suit of plaintiff Graham, as county attorney, to restrain defendant Crowder, a masseur, from unlawfully practicing medicine, must be reversed and judgment rendered vacating the order and the writ issued thereunder. The court says that it is of the opinion that the offense of "unlawfully practicing medicine," within the meaning of the provisions of Chapter 6, Title 12, of the Penal Code, is not a "trade, business, or occupation injurious to the health of those in the neighborhood," within the meaning of Article 694 of the Penal Code and of Article 148 of the Code of Criminal Procedure, authorizing the issuance of a writ of injunction after indictment or information has been filed alleging such offense. Article 694 prescribes as a punishment a fine of not less than \$10 nor more than \$100, while by Article 756 the punishment prescribed for the unlawful practice of medicine is a fine not less than \$50 nor more than \$500, and by imprisonment in the county jail for a term not exceeding six months; and those articles are in separate and distinct chapters of the statutes. The acts denounced as an offense in Article 694 constitute a public nuisance under the common law. The court is of the opinion that such is the only character of acts made an offense by that statute, as indicated by those acts described in other articles of the same chapter, which are specifically made criminal offenses and specific penalties are prescribed therefor, and that by Article 148 of the Code of Criminal Procedure it was not intended to authorize the issuance of writs of injunction to restrain the commission of such an offense as the unlawful practice of medicine. It is well settled that, in the absence of some statute specifically authorizing it, an injunction will not lie to restrain the violation of a penal statute, simply because the act enjoined is denounced as an offense, but that an injunction will lie to restrain the act, even though it is an offense, if it constitutes a public nuisance under the common law. The court is of the opinion, however, as indicated above, that the business followed by the defendant would not constitute such a public nuisance.

Society Proceedings

COMING MEETINGS

American Public Health Association, Chicago, Dec. 9-12.
Medical Association of Porto Rico, Ponce, Dec. 14-15.
Southern Surgical Association, Baltimore, Dec. 17-19.
Western Roentgen Society, Chicago, Nov. 20-22.

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA

Sixty-Eighth Annual Session, held at Philadelphia, Sept. 23-26, 1919

(Continued from page 1608)

New Medical Conditions, and Developments in Previously Recognized Complaints, Due to War Emergency

DR. J. M. ANDERS, Philadelphia: The enhanced virulence of the streptococcus is the most important problem in dealing with infections of soldiers in the present war. The mortality rate in empyema due to *Streptococcus hemolyticus* is not less than 75 per cent., while in the form due to the pneumococcus, recovery is the rule. The most approved treatment is aspiration, repeated as often as necessary, and intrapleural disinfection with neutral solution of chlorinated soda. Prophylactic vaccination against pneumonia with the hemolytic streptococcus and pneumococci of Types I and II is advised. In the various forms of disordered heart action in soldiers, the patient must not be permitted to entertain the notion that he has a diseased heart. In the higher incidence of tuberculosis in certain foreign countries, the cause in the majority of cases apparently is endogenous, while a considerable percentage may be attributed to primary exogenous infection. According to Sergeant, the most trustworthy physical signs of a lesion of the parenchyma of the lung are "dulness, hemoptysis, increased fremitus, 'clicks,' and a veil or shadow at the apices, fixed, not modified by cough with striae and fly spots on the plate." In my view, the examiner of recruits should rely quite as much on a history, presence or absence of fever, the pulse, detection of bacilli in the urine and of antibodies in the blood, as on the physical signs and roentgen-ray findings. Also tuberculous lesions should be searched for in all other organs of the body besides the lungs. The tests to be applied to keep the latent cases of tuberculosis out of military service cannot be too stringent.

DISCUSSION

DR. THOMAS McCRAE, Philadelphia: Dr. Anders draws attention to the presence in the Army of problems other than surgical. The cases of disturbed heart action are the bane of every medical man in the Army. Infection plays a very small part. This is true also of internal gland secretion. The overwhelming factor is the nervous element. There is nothing concerned with the disordered heart action as seen in the Army that one does not see in civil life. Dr. Anders suggests the possibility of aggravation by the strain of war; many of the men never get to war. One very big problem is the part played by tobacco. I think it is agreed that while tobacco may not have been the original cause of the condition, it plays a large part in aggravating it when once present, and it is a very difficult problem to handle in the Army. When the quantity of tobacco used by a man amounts to forty cigarettes a day it must be realized that he is taking a drug that poisons him. The question of the proper allowance of tobacco to men with disturbed heart action should be considered. Regarding the question of a certain number of men being sent back from the French front line with a diagnosis of tuberculosis when only a certain proportion had the disease, I think there is no reflection on the diagnostic ability of the French surgeons. It is to be remembered that all these men had lost weight, and the majority had acute bronchitis with bloody sputum; signs were probably present throughout the lungs. To say whether or not they had acute tuberculosis passes the ability of any man up in the front and of the man in the base hospital until he has time to observe them.

Coordination of Laboratory and Clinical Researches in Pneumonia

DR. S. SOLIS-COHEN, Philadelphia: See abstracts in *THE JOURNAL*, June 1, 1918, p. 1635.

DISCUSSION

DR. DAVID RIESMAN, Philadelphia: In no disease is the close cooperation of laboratory workers and clinicians more opportune than in pneumonia, the most fatal and most serious infectious disease we have to deal with in this climate. I cannot feel that quinin is a specific in pneumonia. Of serums we have only one that is of value. The problem of pneumonia must be attacked more from the point of prevention than hitherto. From the standpoint of a sanitarian and a physician, one of the most important discoveries is that a healthy carrier may spread the disease.

DR. GEORGE D. HEIST, Philadelphia: In our research work we found that the serum of one man who had received 5 and sometimes 10 grains of quinin dihydrobromid every three hours over a period of a number of days killed pneumococci with great regularity after an exposure for twenty-four hours. In other cases the pneumococci were very decidedly inhibited in their growth. The bactericidal elements in the serum was proportionate to the quantity of quinin received by the patient. The dihydrobromid was the most active salt. The serums of recovered patients and of those who received no quinin showed no bactericidal action. Dr. Cohen had long pointed out to us that the patient with pneumonia does not feel the quinin as does one not having the disease. This observation was confirmed by me in our work.

DR. S. SOLIS-COHEN, Philadelphia: Quinin has never been put forth as a specific in pneumonia. Midway between the expectant treatment and treatment by serums and bacterins is the definite method of the treatment by quinin: quinin given in a definite way and for a definite purpose. In my own experience no other medicinal treatment is equal to it.

Laboratory Methods: Their Value and Practicability in General Medicine

DR. M. HOWARD FUSSELL, Philadelphia: I wish to plead for accurate diagnosis, possible only by history taking, thorough physical examination, and routine laboratory examinations. The man does not live who can guess at conditions and not sooner or later take a cropper. I would advise the man not educated in the more accurate diagnostic methods to associate with himself a young man who can do this routine work for him.

DISCUSSION

DR. HENRY RHEA DOUGLAS, Harrisburg: A boy, aged 9 years, was treated for years for an eye condition accompanied by anemia and glandular enlargement. Subsequent laboratory examination revealed a + + + + Wassermann reaction.

DR. H. W. MITCHELL, Warren: Laboratory study practically settles all doubt in diagnosis in a large group of patients admitted to the hospitals for the insane.

DR. PAUL G. WESTON, Warren: I would enter a plea for the more frequent use of lumbar puncture for diagnostic purposes. The technic is simple and does not require extraordinary skill. The chemical analysis of the blood should accompany urinalyses.

DR. CHARLES RAE, York: To be borne in mind in making our diagnoses is the relative unimportance of negative findings. I would emphasize the importance to every man with a large practice of having a trained assistant to do his laboratory work.

Some Drug Eruptions

DR. M. B. HARTZELL, Philadelphia: A large number of drugs produce eruptions, but relatively few affect all individuals. The same drug does not always produce the same form of eruption. The iodids usually produce an acneiform eruption, but may cause more serious conditions; the same is true of the bromids. The hypnotics frequently produce eruptions of varying character; those resulting from the administration of barbital are often accompanied by severe itching

and burning; a chronic pruritus may be a symptom of opium addiction. The preparations of arsenic occasionally produce herpes zoster; they cause a variety of keratosis possibly followed by epithelioma. Arsphenamin sometimes causes a violent dermatitis with symptoms of nephritis. In the presence of an unusual form of eruption, the possibility of its drug origin should be considered.

DISCUSSION

DR. JULIUS H. COMROE, York: In one case the administration of 270 grains of potassium iodid, three times a day, in ascending doses, for almost three months failed to produce the least suggestion of a rash, yet in another case the administration of 3 grains developed a most intense rash. Rather than advise routine ascending doses, it would seem better practice to treat each case as an individual entity, and on the slightest evidence of a rash, either diminish or interrupt the dose; also by giving more attention to the emunctories during the administration of bromids, iodids, etc., we should be meeting in a better way the prophylactic requirements of the problem.

Follow-Up System of the Pennsylvania Department of Health for Former Tuberculous Patients

DR. KARL SCHAFFLE, Harrisburg: The follow-up system of the Pennsylvania Department of Health for the tracing and reporting of patients discharged from the state sanatoriums and dispensaries consists in actual face-to-face inquiry and inspection of the former patient by the dispensary nurse who has been intimately acquainted with his physical condition and economic status during his enrolment as an active case. One hundred and thirty nurses carry on these special investigations throughout the state in addition to their supervision of the home care of those in regular attendance. Such follow-up visits are made for a period of two years after the patient's discharge, at intervals of six months.

DISCUSSION

DR. B. FRANKLIN ROYER, Harrisburg: In dispensary and sanatorium treatment some such follow-up system must be relied on to prove the end-results. The campaign of tuberculosis is almost wholly an educational one; we aim to teach the individual how he should live in order that Nature may effect the cure. After all, it is a question of food and open air, rest when needed and exercise when needed. It is a careful direction of the habits of life which results in the cure of the individual once infected, and it is a question of teaching that individual such methods of living that he will not infect the children who surround him. It will take from twenty-five to fifty years of just such an intensive educational drive in order to reach a point where our final statistics will show.

DR. CHARLES H. MINER, Wilkes-Barre: One part of the work in the dispensary is of special interest today, and that is to look up the soldiers who register and who have been rejected by the draft boards and the Army camps for tuberculosis. At this time, of course, that is of greater importance than almost any other feature of the tuberculosis work of the department because many of these men have never suspected that they had any trouble of that kind and they especially should be sought out and urged to secure some advice and treatment. Many of them are very skeptical about having any trouble and are patients who need the advice of the nurses and the physicians at the dispensary.

DR. KARL SCHAFFLE, Harrisburg: We have received through the cooperation of Major Murdock, who is in charge, the names of more than 1,200 draftees rejected by selective service boards throughout the state, and we write a letter to each man so rejected telling him that we have received confidential information that he has been rejected on account of tuberculosis and advising him to seek treatment through his family physician, or through a private institution if he can afford to do so, or, if not, through the department by means of its dispensaries and sanatoriums. We follow up that letter by sending a dispensary nurse from the dispensary nearest the man's home to call on him personally, and to explain the matter at great length, and to urge that he seek

treatment because practically all of these cases are the early cases, cases that are curable. We have the same difficulty, however, that we have with the average incipient case. A great many of these persons refuse to believe they have the disease.

Present Status of the Treatment of Syphilis

DR. JAY F. SCHAMBERG, Philadelphia: There are three recognized drugs in the treatment of syphilis—arsphenamin, mercury and the iodids. Arsphenamin is generally recognized to be the remedy of paramount value. Its effect on symptoms is due to the fact that it has a powerful destructive effect on the spirochete and that it may be administered in large dosage. Arsphenamin is fifty times less toxic for experimental animals than is mercury. Arsphenamin likewise has a roborant or tonic effect which mercury does not possess. The spirochete is vulnerable to arsphenamin and to mercury. The iodids do not appear to have direct destructive influence on the spirochete. Wechselmann has warned against the use of mercury precedent to the use of arsphenamin, on the grounds that most of the arsphenamin fatalities are due, in large part, to renal insufficiency, and that in the majority of cases it was mercury that damaged the kidneys. My belief is that the use of three inunctions of mercury a week is a valuable measure to associate with the use of arsphenamin, particularly in the primary and secondary stages of syphilis. No one is in an authoritative position today to state how long the treatment of syphilis should continue. Too often the physician will cease treatment after a single series of arsphenamin injections and perhaps a course of mercury, because the Wassermann reaction has become negative. Experience proves that such a course usually requires the later resumption of treatment, with valuable time lost. While it is difficult to prescribe any routine formula, we may at least indicate an irreducible minimum of treatment. Before any patient with syphilis is discharged from observation, a diagnostic spinal puncture should be made.

DISCUSSION

DR. FRANCIS X. DERCUM, Philadelphia: Arsphenamin has been used extensively at the Jefferson Hospital, and I have used it in the exudative form and in the form represented by tabes and paresis. Our experience with regard to paresis has been that not infrequently we had remissions. I am glad to hear Dr. Schamberg say he uses inunctions every other day. In the old days they were used every day. I use half a dram of mercury every other day with arsphenamin and feel my way. I think we use the drug too frequently. There ought to be an interval of ten days or two weeks. Very frequently I allow an interval of two weeks.

A Method of Tracheotomy Without Loss of Blood

DR. DONALD GUTHRIE, Sayre: The low operation of tracheotomy, unless there is an enlargement of the thyroid, is the more suitable for all cases—even the struggling child. The child is wrapped in a blanket or sheet to control its struggling and placed on the table. A pad of some sort is put under the shoulders, and the head is hung over the end of the table—steadied by an assistant. The operator stands on the right hand side of the table and, steadying the skin with the left hand, makes an incision in the midline of the neck from $1\frac{1}{2}$ to $1\frac{3}{4}$ inches long. The skin and the superficial fascia are incised and the wound is held open by a pair of catspaw retractors which should not be more than an inch in breadth. When the deep cervical fascia is cut, the parallel branches of the anterior jugular veins are seen in the wound. The retractors are reset to pull these veins aside, and the sternohyoid and sternothyroid muscles are separated by blunt dissection. If care can be exercised during this step of the operation, the muscles can usually be separated without injury to the thyroid ima beneath. The retractors are again reset, the left blade holding aside the skin, the fascia and the two muscles, and the right blade the skin fascia, the muscles and the thyroid ima vein. This exposes the trachea to view. It is incised, the head is straightened, and the tracheotomy tube inserted. This method has been employed fourteen times in all types of cases.

DISCUSSION

DR. GEORGE P. MÜLLER, Philadelphia: From my own thought and experience I mostly disagree with Dr. Guthrie. Surgeons know the exact anatomy of these structures. They are used to dealing with hemorrhage and do not have the slightest fear of it. It does not matter to a surgeon whether he does a high or low tracheotomy; but it seems to me that it is by no means as easy for the general practitioner to do the low operation as the high. When it comes to operation in emergency in a patient with diphtheria or membranes, or other choking condition in the upper air passages, the high operation is preferable. A low tracheotomy is dangerous if suppuration results, as it is liable to travel into the mediastinum.

Anatomic Incision for Groin Surgery

DR. J. NORMAN WHITE, Scranton, Pa.: An incision 3 inches long, three-fourths inch external to the spine of the pubes, commencing at and at right angles to Poupart's ligament and extending toward the umbilicus gives access to the inguinal canal and round ligament, and extension downward and slightly inward exposes the femoral ring. If a femoral has been mistaken for an inguinal hernia, or vice versa, no new incision is required nor extensive prolongation of the one already made. The wound never fills with fluid, as often happens with other incisions. No blood vessels need be tied because none are cut. The incision is parallel rather than across the blood and lymph vessels. Leaving the blood and lymph supply intact infection is less frequent. Any operation in the inguinal region can be performed through the one incision including appendectomy.

DISCUSSION

DR. T. TURNER THOMAS, Philadelphia: I have tried this incision in about a dozen cases. It does not give the same free and easy exposure of the canal as does the ordinary oblique incision. The novice would have trouble in locating the external oblique ring, but the experienced operator would not. Very few, if any, blood vessels are divided. There is enough advantage in the small number of blood vessels divided to warrant using this incision in spite of the little restriction in the exposure of the field.

Thoracic Surgery

DR. GEORGE P. MÜLLER, Philadelphia: Pierre Duval has shown that the exposure of the lung and the removal from it of a foreign body is as safe as most other major operations, and not only enables us to remove the bullet but also to clean the pleural cavity of its contained blood clot. Shortly after the receipt of the injury, when reaction has occurred, ether is administered by the open method (an endotracheal apparatus is not necessary), and an incision 9 or 10 inches long is made over the fourth or fifth rib. About six inches of the rib is then removed, and after cutting the intercostal membranes the pleura is carefully separated with the fingers above and below for some distance, to mobilize it. The pleural membrane is then rapidly divided the full length of the opening and a rib spreader is placed in position rapidly and sprung open. The lung is then taken by a pair of grasping forceps and pulled to the wound. If these maneuvers are done rapidly the mediastinum is steadied before the pneumothorax has had time to work injury to the circulation. The lung can then be drawn out onto the chest, the bullet easily felt, the lung incised over the bullet, which is removed, and the incision closed by one or two fine catgut sutures. Blood clots are scooped out, the cavity is gently mopped and disinfected, if thought necessary, by ether (Duval) or perhaps by neutral solution of chlorinated soda. The lung is then replaced but still steadied by the grasping forceps and the pleura is closed. The muscles are next pulled together with catgut mattress sutures and the skin is sutured with silk-worm gut. No drainage should be introduced. Finally, the pneumothorax is emptied by aspiration. If it is determined not to search for the bullet, aspirate the pleural cavity on the slightest suspicion of the onset of infection, and if coverslip smears confirm suspicion, the chest must be opened and drained.

DISCUSSION

DR. SAMUEL J. MELTZER, New York: About eight years ago I constructed a simple apparatus for intratracheal insufflation for Dr. Carrel. I have seen many of his experimental dogs in which the thorax was transversely opened widely—double pneumothorax. These dogs recovered without having had an infection. In the course of the last year, I demonstrated to several hundred military officers anesthetized and curarized dogs with the chest wide open. The entire heart was exposed to full view. The animals were kept alive and with normal blood pressure by pharyngeal insufflation. I have often demonstrated a fact of practical importance, namely, that if artificial respiration was sufficient, the heart could be handled freely with impunity; but even a slight touch of the heart often led to fatal fibrillary contractions if the artificial respiration was suspended or was insufficiently executed.

Operation: Designed to Permit Future Child-bearing, Without Complications

DR. JOHN COOKE HIRST, Philadelphia: My experience with this operation comprises a total of 141 cases. Not all these women were of child bearing age, though the majority were, but the same technic was used in all of them. I have seen no primary failures, and none of the cases have required a second operation, as far as I know. The result as to subsequent delivery: Of forty-nine known cases, seven have become pregnant. Of these, two miscarried, due probably to overexertion, of which there was a definite history in each case. Five went through labor at term, one of them twice. Four of the five, including the one with two deliveries, show a very normal looking anterior vaginal wall, the surgical result is good, and they are symptomatically well. In the fifth case there is a measure of recurrence. The anterior wall sags considerably, but nothing like the extent of the previous cystocele. The patient is symptomatically well. Whether the cystocele will increase in size, it is as yet too early to determine. It seems to be stationary up to the present.

(To be continued)

INTERSTATE ASSOCIATION OF ANESTHETISTS

Fourth Annual Meeting, held at Indianapolis, Sept. 25-27, 1918

(Concluded from page 1607)

What the Expert Anesthetist Should Be

DR. A. S. McCORMICK, Akron, Ohio: A specialist in any branch of medicine or surgery must have the foundation of a proper academic and professional education, with considerable general experience and a great deal of special study and practice of his chosen branch. Aside from this he must have a liking and aptitude for his specialty if he is to succeed in it. Furthermore, he must devote his time exclusively to his particular line of work. In anesthesia these requisites would comprehend a collegiate course, followed by four years at an A 1 medical school, which gives proper attention to anesthesia in its curriculum and clinics, an internship in a hospital in which anesthesia is under the control and supervision of experts, then postgraduate study in various centers where the latest methods of anesthesia may be studied and tried out, followed by intensive practice of the specialty in some chosen community in which there is an opportunity for becoming connected with several prominent surgical teams or hospitals in which surgery is on a distinct plane of excellence. Having achieved this much, the anesthetist owes it to himself to maintain an equipment of apparatus that will enable him to meet the anesthetic requirements for any surgical procedure with safety and comfort to the patient and satisfaction to the operator.

The Anesthetist on the Hospital Staff

DR. ISABELLA C. HERB, Chicago: In accepting a staff position at any hospital, the anesthetist should assume all the duties and responsibilities applying thereto with a sense of their seriousness, for life itself is being entrusted into his

keeping. As a member of the staff he is virtually a consultant, and if he is at all competent he will be in a position to advise with regard to the proper preparation of all patients for anesthesia and operation. He must know how to care for patients postoperatively so that no matter how hazardous or desperate the operative procedure or how difficult the anesthesia, the patient's convalescence can be assured and protected from untoward incidence of shock, hemorrhage, pneumonia or toxemia.

If he is staff anesthetist to a teaching hospital, he should constantly be working out the newer problems in his specialty and utilizing the interns and nurses at his disposal for the technical phases of this clinical or research activity. As a member of the staff, the anesthetist should take an especial pride in the anesthetic and operative records of his hospital. If the institution provides the opportunities and facilities for giving postgraduate instruction in anesthesia, the staff anesthetist should develop himself to the point at which he can handle this additional responsibility with credit to himself, his hospital and with satisfaction to his students. The staff anesthetist should participate as much as possible in the experimental phases of hospital and faculty research that has any anesthetic interest, so that this phase of the research may be coincidentally developed and recorded.

The Downtown Anesthesia Clinic

DR. RALPH M. WATERS, Sioux City, Iowa: For a long time there has been a widespread need for some sort of facility for performing minor surgical and dental procedures without taking patients to the hospital. This need has been felt by surgeons and dentists alike, and within the past few years some effort has been made to meet it by the establishing of so-called downtown anesthesia clinics in some of the larger cities of the country by specialists in anesthesia. These clinics are situated, as a rule, in buildings especially arranged for professional service, and within easy access of all means of transportation. These clinics are in charge of some specialist in anesthesia who arranges the apartment to care for patients before, during and after operation, and provides all facilities for the surgeon or dentist to perform any operation that may be desired, under safe and efficient anesthesia, administered by an expert and with proper nursing assistance, if required. In this way the busy surgeon and dentist can accomplish operative procedures without discommoding himself or his own offices, also being relieved of the preparation and after-care of the patients. These clinics have been unusually successful. All professional arrangements with regard to patient and operation are made through the physician or dentist, and all financial arrangements for the service rendered direct with the patient.

Such a clinic must have several retiring rooms fitted for the preparation and after-care of patients, an operating clinic adapted to any minor surgical or dental procedure, with the best of equipment, and a business office. The staff is composed of the anesthetist and an office attendant, and one or more trained nurses as the work done may require.

Anesthesia in the Curriculum and Clinic

DR. WILLIS D. GATCH, Indianapolis: The development of modern surgery has resulted not only in improved methods of administering anesthetics, but also in an intensive study of shock, postoperative complications, and the by-effects of anesthetic agents in relation to the resistance of tissues to disease. Thus instruction in anesthesia must be broadened to include all that is important in this collateral material. To meet this requirement, as a professor of surgery, I emphasize the study of surgical physiology in the second year of the medical course, in which are included all pertinent data regarding anesthesia in its relation to surgical technic and its effects on the patient. Only after the students have been well grounded in these essentials are they inducted into the routine administration of anesthetics. In the clinical work of the third and fourth years the same matters are frequently emphasized at the bedside and in the operating room. By this method we dispense with the necessity of a formal course, and present the subject of anesthesia in its proper relations to clinical medicine and operative surgery.

Current Medical Literature**AMERICAN**

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

November, 1918, **16**, No. 5

- 1 *Infant Feeding. High Protein Feeding vs. High Calcium Absorption as Cause of Increase in Body Temperature of Infants. A. W. Bosworth and H. I. Bowditch, Boston.—p. 279.
- 2 *Effect of Alkali and Malt Preparations on Retention of Calcium in Infancy. A. Sato, Japan.—p. 293.
- 3 *Relative Efficiency of Different Mercurial Preparations in Treatment of Congenital Syphilis in Infants and Children. W. R. Ramsey, St. Paul, and M. R. Ziegler, Minneapolis.—p. 299.
- 4 Case with Vascular, Joint, Muscle and Skin Disturbances of Uncertain Etiology. R. M. Smith and W. R. Sisson, Boston.—p. 307.
- 5 *Migraine in Childhood; Report of Case. W. Tileston, New Haven, Conn.—p. 312.

1. **Calcium Absorption.**—The experiments reported on by Bosworth and Bowditch show that the ingestion of large amounts of calcium and the absorption of this calcium as organic salts, if not accompanied by the ingestion of sufficient chlorin or phosphorus to permit of the formation of soluble salts will result in an accumulation of calcium in the tissues which is followed by a toxic condition and the elimination of calcium lactate in the urine. The toxic condition produced when a high protein synthetic food was fed was probably the result of the high calcium content of the food, and not the result of the high protein content, the protein being responsible only to the extent that it is the carrier of the calcium in the form of calcium caseinate. Whether the toxic condition is the result of the accumulated calcium itself or to a calcium salt, possibly calcium oxalate, the authors are not prepared to state.

2. **Effect of Alkali and Malt Preparations on Retention of Calcium.**—Sato's experiments were made on the same child and with the same malt preparation in order to determine whether the beneficial effect on the calcium retention attributed to malt extracts is due to the extract itself or to the added alkali. He found that the addition of alkali to milk produced not only no favorable effect on the retention of calcium but a distinctly unfavorable one. Malt extract alone without alkali acts beneficially on calcium storage. If malt soup has a favorable effect on calcium metabolism, it is not as a result of the alkali originally contained in it or added to it. Malt extract to which a considerable amount of alkali has been added seems to have a rather unfavorable influence on the calcium balance.

3. **Mercurial Preparations in Treatment of Congenital Syphilis.**—A series of experiments was undertaken by Ramsey and Ziegler to determine, if possible, the extent of absorption of mercury into the circulation as indicated by the elimination in urine, when the ordinary methods and dosage were employed and the time during which mercury continues to be eliminated in the urine after the mercury has been discontinued. The effects of the various forms of mercury on the kidneys as determined by the appearance of protein, casts, or blood in the urine, was also to be estimated when possible. In infants and children, mercury, when given by the mouth, by inunction or intramuscularly, is excreted at least partly by the urine. In new-born infants and older children mercurial ointment when placed in contact with the skin, without any friction being used (protected and sealed by wax paper from being volatilized and inhaled), is taken up by the skin and excreted in the urine and continues to be excreted in the urine for a variable time after all treatment has been discontinued. By inunction (with rubbing) mercury is readily taken up by the skin and eliminated in the urine and continues to be eliminated for a considerable time. When one inunction is given, the maximum daily amount of mercury is usually eliminated during the following twenty-four hours, smaller amounts being eliminated for a variable time. Where continuous inunctions are given there is an accumulation in the system and considerable amounts are eliminated at inter-

vals with only traces between. It is, therefore, probable that it is unnecessary to have mercury in contact with the skin, either with or without rubbing as often or as long as has been generally thought necessary. This, however, must be determined by further clinical investigation.

Mercuric salicylate suspended in oil and given subcutaneously continues to be eliminated in the urine in appreciable amounts for eight days, or longer, the daily amounts eliminated varying widely. It is, therefore, probable that a repetition of the treatment, not oftener than at intervals of eight days would be sufficient. Mercuric chlorid by intramuscular method continues to be eliminated for eight days or longer. In all cases in which mercuric chlorid was used either by mouth or the intramuscular method protein was found in the urine.

Calomel, 0.016 gm. every two hours for four doses, and gray powder, 0.03 gm. every three hours for three doses, continued to be eliminated in appreciable amounts in the urine for as long as nine days; the maximum daily elimination usually occurred during the twenty-four hours following administration. It is, therefore, probable that the daily use of any of the mercurial salts in the amounts usually prescribed, is unnecessary and presumably harmful.

5. **Migraine in Childhood.**—Tileston's patient was 6 years of age. Since the age of 3 years, he had been subject to periodic attacks of headache, accompanied by vomiting. Acetone occurred abundantly in the urine at these times. The attacks came at intervals of from one to three months, as a rule, but had occurred as often as once a week. There was an aura the day before, consisting of pallor, nervousness and an abnormal appetite, usually poor, but sometimes increased to a pathologic degree. The headache was intense and always preceded the vomiting; it was bilateral and frontal in distribution and accompanied by photophobia. The duration of the attack was about twenty-four hours. Between attacks the boy was well and free from headache. There has been a distinct intolerance of eggs; if he takes more than one egg a week he is almost certain to have an attack. He has not taken large quantities of meat. The treatment consisted in withdrawal from school, the correction of the refractive error and alteration of the diet. Throughout the month of March no meat or fish was eaten. During April the child was put back on his former diet. It was now found that he had an increased tolerance for eggs, he has been practically free from headache since beginning of treatment, having had but one slight attack from March to June, 1918.

American Journal of Ophthalmology, Chicago

October, 1918, **1**, No. 10

- 6 Parinaud's Conjunctivitis. (Leptothricosis Conjunctivae.) F. H. Verhoeff, Boston.—p. 705.
- 7 Transient Relapsing Ectophthalmos of Sympathetic Origin. J. de J. González, Leon, Mexico.—p. 713.
- 8 Glioma of Retina, Three Cases Treated with Radium. R. Duncan, Los Angeles.—p. 715.
- 9 Plasmoma of Conjunctiva (Pascheff). K. Hiwatari, Kyotom, Japan.—p. 719.
- 10 Solid Edema; Report of Three Cases. W. B. Weidler, New York.—p. 722.

Arkansas Medical Society Journal, Little Rock

October, 1918, **15**, No. 5

- 11 Foreign Bodies in Trachea and Esophagus. R. Caldwell, Little Rock.—p. 84.
- 12 Case of Meckel's Diverticulum. E. E. Barlow, Dermott.—p. 86.

Boston Medical and Surgical Journal

Oct. 24, 1918, **179**, No. 17

- 13 Venereal Disease. C. M. Smith and O. M. Lewis, Boston.—p. 525.
- 14 Rodent Ulcer. W. Beatty, Dublin, Ireland.—p. 527.

Endocrinology, Los Angeles

April-June, 1918, **2**, No. 2

- 15 Thyroid Hormone and Its Relation to Other Ductless Glands. E. C. Kendall, Rochester, Minn.—p. 81.
- 16 Pituitary Body and Polyuria. B. A. Houssay, Buenos Aires.—p. 94.
- 17 Seasonal Variation in Iodin Content of Thyroid. F. Fenger, Chicago.—p. 98.
- 18 Confusional Insanity and Ovaries; Case History. G. H. Hoxie, Kansas City, Mo.—p. 101.
- 19 Diabetes Insipidus. K. Motzfeldt, Christiania, Norway.—p. 112.

- 20 Vascular Changes Produced by Epinephrin in Vertebrates. F. A. Hartman, L. G. Kilborn and R. S. Lang, Toronto.—p. 122.
- 21 *Suppuration of Goiterous Thyroid Following Administration of Thyroid Extract. E. A. Tracy, Boston.—p. 143.
- 22 Case of Parathyroid Insufficiency. A. F. Hertz, London.—p. 145.

21. **Goitrous Thyroid Following Administration of Thyroid Extract.**—When first seen Tracy's patient, a woman, aged 51, was melancholic and sleepy in the daytime. She had a moderate-sized goiter. A half grain desiccated thyroid after each meal was prescribed. After a week's administration of the material the right lobe of her thyroid became painful. The treatment was stopped. After two weeks the painful lobe reddened and a week later "broke," three days after the patient, on her own volition, had applied a bread and water poultice. The mental condition cleared up rapidly after the administration of the desiccated thyroid. Tracy points out that this case illustrates the care with which thyroid extract must be given in such cases. In goiter, with myxedema symptoms, he should commence with half a grain of desiccated thyroid a day, and watch carefully for the least sign of trouble, such as slight pain in the thyroid. On its appearance he omits the medication. Enough may have been given to awaken the dormant tissue to renewed activity. If not, one should carefully renew medication, and watch again.

Illinois Medical Journal, Chicago

October, 1918, 34, No. 4

- 23 Personal Experiences Concerning Operation for Senile Cataract. F. Allport, Chicago.—p. 185.
- 24 Status Thymus Lymphaticus; Report of Case. E. F. Garraghan, Chicago.—p. 189.
- 25 Focal Infection in Relation to Diseases of Eye. T. Faith, Chicago.—p. 193.
- 26 Some Eye Injuries that Can be Prevented. W. O. Nance, Chicago.—p. 199.
- 27 Treatment of Intranasal and Accessory Sinus Diseases. O. J. Stein, Chicago.—p. 202.
- 28 Middle Ear Infections. C. E. Price, Robinson.—p. 204.
- 29 Case of Multiple Sclerosis with Eye Findings. E. R. Crossley, Chicago.—p. 209.
- 30 Ligation of Vessels to Arrest Hemorrhage after Tonsillectomy. H. R. Boettcher, Chicago.—p. 212.
- 31 Spontaneous Pulsating Exophthalmos. G. W. Boot, Chicago.—p. 217.

Journal of Biological Chemistry, Baltimore

October, 1918, 36, No. 1

- 32 *Uric Acid Metabolism. I. Influence of High Protein Diets on Endogenous Uric Acid Elimination. H. B. Lewis and E. A. Doisy, Urbana, Ill.—p. 1.
- 33 *Id.: II. Proteins and Amino-Acids as Factors in Stimulation of Endogenous Uric Acid Metabolism. H. B. Lewis, M. S. Dunn, and E. A. Doisy, Urbana, Ill.—p. 9.
- 34 Role of Inorganic Sulphates in Nutrition. A. L. Daniels and J. K. Rich, Madison, Wis.—p. 27.
- 35 Methods for Determination of Phosphoric Acid in Small Amounts of Blood. W. R. Bloor, Boston.—p. 33.
- 36 *Distribution of Phosphoric Acid in Normal Human Blood. W. R. Bloor, Boston.—p. 49.
- 37 Cholesterol in Milk. W. Denis and A. S. Minot, Boston.—p. 59.
- 38 Vitamin Studies. Catalase Activity of Tissues in Avian Polyneuritis. R. A. Dutcher, St. Paul, Minn.—p. 63.
- 39 Epimeric Hexosaminic Acids. P. A. Levene, New York.—p. 73.
- 40 Action of Nitrous Acid on Epimeric Hexosaminic Acids. P. A. Levene, New York.—p. 89.
- 41 Colorimetric Determination of Phenols in the Blood. S. R. Benedict and R. C. Theis, New York.—p. 95.
- 42 *Phenols and Phenol Derivatives in Human Blood in Some Pathologic Conditions. R. C. Theis and S. R. Benedict, New York.—p. 99.
- 43 Mucins and Mucoids. P. A. Levene and J. López-Suárez, New York.—p. 105.
- 44 *Antiscorbutic Property of Desiccated and Cooked Vegetables. M. H. Givens and B. Cohen, New Haven, Conn.—p. 127.
- 45 *Colorimetric Estimation of Cholesterol in Blood, with Estimation of Coprosterol in Feces. V. C. Myers and E. L. Wardell, New York.—p. 147.
- 46 *New Volumetric Method for Determination of Uric Acid in Blood. L. J. Curtman and A. Lehrman, New York.—p. 157.
- 47 *Nutritive Value of Banana. K. Sugiura and S. R. Benedict, New York.—p. 171.
- 48 *Preparation of Antipolyneuritic Substances from Carrots and Yeast. K. Sugiura, New York.—p. 191.
- 49 *Dietary Properties of Potato. E. V. McCollum, N. Simmonds and H. T. Parsons, Baltimore.—p. 197.
- 50 Decreased Plasma Bicarbonate During Anesthesia and Its Cause. Plasma Carbon Dioxid, Blood and Urine Ketone, and Blood Catalase Analyses in Operative Patients. S. P. Reimann and G. H. Bloom, Philadelphia.—p. 211.

- 51 Influence of Certain Salts on Enzyme Action. I. S. Falk, New Haven, Conn.—p. 229.

32. **Studies in Uric Acid Metabolism. I.**—Normal men were maintained by Lewis and Doisy on purin-free high protein diets of high and low content in arginin and histidin. No differences in the excretion of uric acid following the ingestion of these two types of high protein diet were evident. This would indicate that, under the experimental conditions of the present study, arginin and histidin function no more than the other constituents of the protein molecule in the stimulation of the output of endogenous uric acid following ingestion of a high protein diet.

33. **Id. II.**—The subject of this experiment was a healthy young man, 22 years of age, and about 58 kg. in weight. During a period of over six months, a meat-free low protein diet, free also from purin-containing beverages, which may be considered as a purin-free diet, was consumed with the exception of a few meals during the holidays, at which a small amount of meat was taken. No attempt was made to secure a quantitative uniformity of the diet. On the evening preceding the day of an experiment, a light supper was eaten, and no further food was ingested until the completion of the day's experiment, except the substance whose influence on uric acid excretion was to be studied.

Ingestion of purin-free protein food resulted in an increased uric acid output in the fasting subject, which reached its maximum the third and fourth hours after ingestion of the food. No quantitative differences in the action of three types of protein food, cottage cheese, egg white, and glidin (a wheat protein preparation), in their effect, were observed. Amino-acids also increased uric acid excretion, the maximum effect being produced within two hours after ingestion, more rapidly than in the case of the proteins. The effect of the amino-acids is considered to be the result of a stimulation of uric acid production rather than of a more rapid excretion of the uric acid already present in the system, since successive doses of glycocoll on the same experimental day resulted in an increased elimination of uric acid in each case. Sarcosin, methyl glycocoll, an amino-acid which does not pass through the same path of catabolism as do the other amino-acids, did not influence uric acid excretion. Ammonium chlorid and urea, products of deamination of the amino-acids, were also without effect on endogenous uric acid excretion.

Since the secretory activity of the digestive tract is not stimulated by amino-acids, it is believed that the experiments as a whole speak against the hypothesis of Mares that the secretory activity of the alimentary glands is mainly responsible for the increased uric acid excretion observed after protein ingestion. It is suggested that the effect is to be considered rather as one due to a general stimulation of all cellular metabolism by amino-acids, the products of the digestion of protein.

36. **Phosphates in Blood.**—On the basis of the results reported by Bloor, phosphoric acid compounds found in human blood may be divided into two classes: (1) the acid soluble—soluble in dilute acids and precipitated with the proteins by alcohol-ether—and (2) the lipoid-phosphoric acid compounds—soluble in alcohol-ether and precipitated with the proteins by dilute acids. The two groups are apparently sharply defined and since, in general, their sum is equal to the total phosphates, the presence of other forms of phosphoric acid combination in blood in significant amounts is doubtful.

42. **Phenols in Blood.**—Phenols have been determined by Theis and Benedict in eighty-three specimens of blood, covering a variety of conditions. Although thirteen different conditions are represented, little difference in the phenol value can be detected and that value bears no relation to the amount of uric acid present. Three hernia cases averaged rather higher than the others, which perhaps is due to increased intestinal putrefaction. A polycythemia case had been treated with benzene for some time, but the phenol was not increased. Ten cases of sarcomas averaged higher than the others.

44. **Antiscorbutic Property of Vegetables.**—To determine whether drying at various temperatures, or first cooking and

then drying vegetables, destroys the antiscorbutic properties of these foods. Givens and Cohen conducted experiments on guinea-pigs with cabbage and later with potatoes. A small daily addition of raw cabbage to a scurvy-producing diet was found to prevent scurvy in the guinea-pig. Cabbage dried in a blast of air at 40 to 52 C. retained some of its antiscorbutic value in that it would considerably delay the onset of scorbutic symptoms, thereby prolonging life. Furthermore, it could be employed as a dietotherapeutic agent if the signs of scurvy were recognized early enough. Low dried cabbage will prevent scurvy in the guinea-pig and initiate recovery from scorbutic symptoms, provided that the animal will consume a diet supplement of 1 gm. daily. Cabbage heated in an oven for two hours at 75 to 80 C., then dried at 65 to 70 C. for several days lost its antiscorbutic power. Cabbage cooked for thirty minutes, then subjected to drying for two days at 65 to 70 C. exhibited no potency as an antiscorbutic. Potatoes cooked and dried for two days at 65 to 70 C., in the amounts used, possessed no antiscorbutic value. These experiments also indicate that roughage is not the determining factor in the course of scurvy in guinea-pigs. They also confirm the work of Cohen and Mendel in indicating that the antiscorbutic property is not identical with the so-called fat-soluble and water soluble dietary essentials at present recognized.

45. Colorimetric Estimation of Cholesterol and Coprosterol. A method is described by Myers and Wardell for the colorimetric estimation of cholesterol in blood, in which the cholesterol is directly extracted from the blood with the solvent (chloroform) employed in the development of the color reaction, thus rendering the estimation very simple. A modification of the method is described whereby it is possible to determine the coprosterol (?) of the feces.

46. Uric Acid in Blood.—An experimental study of a number of metallic salts as precipitants for uric acid in a solution alkaline with sodium carbonate was made by Curtman and Lehrman. The results showed that nickel is the best of those tried. A 0.0004 N iodine solution was found suitable for the estimation of small amounts of uric acid provided certain conditions are adhered to. Based on these considerations, a new method has been developed by the authors for the determination of uric acid in blood, the chief features of which are: (a) The precipitation of the uric acid by means of nickel acetate in a solution alkaline with sodium carbonate. (b) The estimation of uric acid in the precipitate by means of a dilute solution of iodine. The method was applied with good results to aqueous solutions of uric acid as well as to blood serum to which known amounts of uric acid were added. Low and inconsistent results were obtained when the method was applied to sheep's blood to which known amounts of uric acid were added. This was shown to be due to the inadequacy of the procedure generally employed for the coagulation and preliminary treatment of the blood. The colorimetric method when used in the analysis of samples of the same blood also gave low and inconsistent results for the same reason. Comparison tests show that the volumetric method is fully as accurate as the colorimetric method, and possesses the advantage of requiring no special apparatus.

47. Nutritive Value of Banana.—Sugiura and Benedict present a study of the nutritive value of bananas as determined by the maintenance and growth of albino rats when placed on a diet of bananas, or bananas together with certain supplementary substances. It was found that the banana is deficient in (a) protein and (b) the water-soluble accessory as a foodstuff for the growth or maintenance of albino rats. A diet of bananas, purified casein, and yeast or carrot-extract is sufficient for the perfect growth and reproduction of the albino rat. Such a diet is not, however, adequate for the production of proper milk by the mother. This statement holds true whether the litter of young is large or small in number, showing that the failure in milk is qualitative in nature, and not simply a deficiency in the quantity of milk product. It is interesting to observe that a diet can be adequate for the production of young and for growth after the eyes of the young open, but inadequate for the proper production of milk. Purified casein supplements the banana other

than by the simple addition of protein. The casein in the ration cannot be satisfactorily replaced by washed and dialyzed beef.

48. Antipolyneuritic Substances in Carrots and Yeast.—Sugiura's experimental results show that the extracts of fresh carrots and crystalline substances from yeast preparation may cure polyneuritis in pigeons in those cases in which the disease has developed quickly; namely, in about twenty days. However, these same substances did not prevent the polyneuritic pigeons from death, if the symptoms appeared more slowly.

49. Dietary Properties of Potato.—The results of studies made by the authors show that the dietary properties of the potato closely resemble those of the cereal grains. In this tuber the first limiting factor for growth is the relative shortage of the elements, calcium, sodium and chlorine, as has been found to be the case with the seeds thus far examined. The content of fat-soluble A is too low for the promotion of nutrition at the optimum, and the biologic value of the nitrogen which it yields seems to be of the same order as that of the cereal grains. The results on the value of the potato nitrogen for growth place it in a very different light from those reported by other investigators who have observed its value for the maintenance of nitrogen equilibrium in the adult.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

September, 1918, 12, No. 2

- 52 *Primary Depression and Secondary Rise in Blood Pressure Caused by Epinephrin. H. McGuigan and E. G. Hyatt, Urbana, Ill. —p. 59.
- 53 Effects of Various Agents on Superficial Hemorrhage and Efficiency of Local Hemostatics. P. J. Hanzlik, Cleveland. —p. 71.
- 54 Effects of Various Systemic Agents on Superficial Hemorrhage. P. J. Hanzlik, Cleveland.—p. 119.

52. Depression and Rise in Blood Pressure Due to Epinephrin.—In most dogs, especially mature animals in good health, the intravenous administration of adequate doses of epinephrin (0.5 to 1 c.c. of 1:10,000), after a quick rise in the blood pressure is followed by a rapid fall and a secondary rise. Various hypotheses were investigated by McGuigan and Hyatt. The cause of the secondary rise is apparently due to a central action of the epinephrin acting through the sympathetic ganglions. The basis for this belief is that the removal of the head or pithing of the brain prevents the occurrence of the phenomenon. Also paralysis of the ganglions with nicotin prevents it. It occurs after the sectioning of the vagi and the administration of atropin or pilocarpin. The vagus apparently is not involved in the mechanism. Artificial intracranial pressure during the administration of the epinephrin will cause similar changes in the blood pressure.

Journal of Urology, Baltimore

August, 1918, 2, No. 4

- 55 *Acriflavine in Treatment of Gonorrhea. E. G. Davis and B. E. Harrell, Baltimore.—p. 257.
- 56 *Urinary Antisepsis—Secretion of Antiseptic Urine Following Intravenous Administration of Organomercury Phthalein Derivative. E. G. Davis, E. C. White and R. Rosen, Baltimore. —p. 277.
- 57 *Id.: Secretion of Antiseptic Urine Following Intravenous Administration of Acriflavine and Proflavine—Preliminary Report. E. G. Davis and E. C. White, Baltimore.—p. 299.
- 58 *Id.: Antiseptic Properties of Normal Dog Urine. E. G. Davis and R. F. Hain, Baltimore.—p. 309.
- 59 *Surgical Treatment of Gonorrheal Epididymitis. M. E. Blahd, Cleveland.—p. 321.
- 60 Calculus Impacted in Vesical Diverticulum Removed by High Frequency Cauterization. H. W. E. Walther, New Orleans. —p. 325.
- 61 Classification of Disturbances of Sphincteric Control Resulting from Wounds and Contusions of Lumbosacral Region (With and Without External Wound). F. Cathelin.—p. 329.

55. Acriflavine in Treatment of Gonorrhea.—Davis and Harrell made an experimental and a clinical study of various diffusible antiseptics. Acriflavine was found to inhibit the development of the gonococcus in protein-containing mediums in a dilution of 1:300,000. (Has 600 times the strength of protargol.) It will penetrate through the submucosa of the

urethra and bladder. It is nontoxic and only slightly irritating to the urethral mucous membranes. The average duration of a gonorrhea under this treatment is distinctly less than with the usual methods. In an occasional case it seems without effect on the course of the disease. The authors have used dilutions varying from 1:2,000 to 1:1,100, and have found the 1:1,000 most satisfactory; it is just as efficient as the more concentrated solutions and the smarting is less, in fact, with this strength it is almost negligible. There have been no complications following the use of a 1:1,000 solution.

In the anterior cases, about 3 c.c. of a 1:1,000 solution were injected into the anterior urethra the patient retaining it for five minutes. In the posterior cases 15 to 30 c.c. were injected through into the bladder, distending the urethra and having the patient retain the dye in the urethra for five minutes and in the bladder till the next voiding. Injections should be given twice a day until all organisms have disappeared from the discharge and then once a day until the patient is considered well. All results were controlled by daily examination of smears from the urethral discharge and of the urine voided in three glasses. Recurrences were noted as is the rule with any form of treatment. A striking feature of this form of therapy appeared to be that in many cases the dye acts almost as a specific, while in an occasional one it seems without any effect whatever.

56. Urinary Antiseptic Value of Chlormercury Fluorescein.—This paper is a discussion of the chemistry, antiseptic properties, toxicity and excretion of chlormercury fluorescein, a synthetic compound which, administered intravenously in minute doses, will cause the secretion of antiseptic urine, for a definite period of time, without injury to the animal. Chlormercury fluorescein is formed by the introduction of one atom of mercury into the fluorescein molecule. It is more effective in acid than in alkaline urine, in the case of both the colon bacillus and the staphylococcus. Even in alkaline urine, however, the development of both organisms was inhibited by a dilution of 1:10,000. (Phenol, in urine, permits a growth of the colon bacillus in a concentration of 1:1,000.) It is excreted by the kidney after intravenous injection as rapidly as is phenolsulphonephthalein. Nearly all of the dye is excreted by the normal kidney a short time after injection but this excretion is accompanied by a cleavage in the organism into fluorescein and some form of mercury combination. The lack of toxic effects either immediate or cumulative after large and repeated doses makes it probable that the mercury may find its exit in the feces. No clinical value is yet claimed for this drug.

57. Urinary Antisepsis with Acriflavine and Proflavine.—Preliminary experiments made by Davis and White indicate that acriflavine and proflavine may prove of value for internal use in alkaline infections of the urinary tract. Chlormercury fluorescein is relatively more efficient in acid urine.

58. Antiseptic Properties of Normal Dog Urine.—According to Davis and Hain normal dog urine, obtained by aseptic catheterization, shows a distinct antiseptic action, which is particularly marked against organisms of the colon typhoid group, less effective against *Staphylococcus aureus*, and entirely inert against at least one strain of *Staphylococcus albus*. This antiseptic action is not constant for all dogs, nor for the same dogs on all occasions. It was exhibited, however, by the urine of one dog in twenty-nine out of thirty catheterizations.

59. Surgical Treatment of Gonorrheal Epididymitis.—The operation recommended by Blahd consists simply in making an incision about one-half inch in length through the scrotal wall and tunica vaginalis, immediately over the most swollen area of the epididymis, and permitting the serous or purulent exudate to escape. If the fluid which escapes is serous in character, as is prevalent in the vast majority of cases, the incision is closed with one silkworm gut suture, one or two strands of catgut being left for drainage. The latter is generally removed after twenty-four hours. If pus is present the incision is packed with a small strip of plain gauze and the wound allowed to granulate. Either a local anesthetic or gas is used. It is said that immediate relief is obtained from this simple procedure, and the patient is able to resume his duties in a few days and shortly thereafter to submit to treatment for his urethritis.

Missouri State Medical Association Journal, St. Louis

October, 1918, **15**, No. 10

- 62 *Passing of Curet or Conservative Treatment of Abortion. G. C. Mosher, Kansas City.—p. 347.
- 63 *Sterility Due to Retrodisplacement of Uterus; Nonoperative and Operative Treatment. E. L. Dorsett, St. Louis.—p. 350.
- 64 *Vaginal Drainage in Pelvic Cases. F. Hinchey, St. Louis.—p. 356.
- 65 Summer Diarrhea of Infants. J. Zahorsky, St. Louis.—p. 358.
- 66 Unna's Dressing in Treatment of Leg Ulcers. H. E. Happel, St. Louis.—p. 360.

62, 63, 64. Abstracted in THE JOURNAL, June 15, 1918, pp. 1888 and 1889.

Modern Hospital, Chicago

October, 1918, **11**, No. 4

- 67 Edward L. Trudeau Institution in France. W. C. White, France.—p. 247.
- 68 Hospital of Extended Grace to Women and Children. R. S. Hall, Seoul, Korea.—p. 252.
- 69 How America May Help Belgium After the War. R. Sand.—p. 256.
- 70 Canadian Civil Hospital's Part in War Work. M. T. MacEachern, Vancouver, B. C.—p. 257.
- 71 Efficiency System for Medical Work of State Hospitals. H. D. Singer, Hospital.—p. 260.
- 72 Community Hospital the Outgrowth of Popular Demand. J. M. Dodd, Ashland, Wis.—p. 264.
- 73 Hospital Accounting. C. A. Porter and H. K. Carter.—p. 266.
- 74 Department of Laboratories. M. Kahn, New York.—p. 271.
- 75 Volunteer Medical Service Corps. F. Martin.—p. 275.
- 76 War Program of Vital Importance. F. F. Simpson.—p. 278.
- 77 War Time Hospitals Present Ideal Conditions for Investigation. T. J. van der Bent, New York.—p. 279.
- 78 Little Journeys to Places and People Worth Knowing. M. J. Robinson.—p. 281.
- 79 Obstetrics and the Hospital. C. E. Paddock, Chicago.—p. 29.
- 80 Hospital—Past, Present and Future. A. S. Monro, Vancouver, B. C.—p. 292.

Nebraska State Medical Journal, Norfolk

October, 1918, **3**, No. 10

- 81 Differential Diagnosis Between Benign and Malignant Tumors of Female Breast. J. E. Summers, Omaha.—p. 297.
- 82 Sinusitis and Conservative Treatment for Selected Cases. S. G. Zemer, Lincoln.—p. 301.
- 83 Granuloma Pyogenicum; Report of Two Cases. M. G. Wohl, Omaha.—p. 304.

New Jersey Medical Society Journal, Orange

October, 1918, **15**, No. 10

- 84 Hospital Standards. J. M. Baldy, Philadelphia.—p. 337.
- 85 Simple Operation for Double Inguinal Hernia; One Incision. D. T. Winter, Jr., Jersey City.—p. 340.
- 86 Pneumococcal Infections of Eye. T. R. Paganelli, Hoboken.—p. 341.
- 87 Indol Amblyopia. T. R. Paganelli, Hoboken.—p. 342.

Ohio State Medical Journal, Columbus

October, 1918, **14**, No. 10

- 88 Head Injuries. C. M. Harpster, Toledo, and Others.—p. 580.
- 89 Institutional Supervision. A. F. Shepherd, Dayton.—p. 584.
- 90 Consideration of Etiology and Treatment of Pernicious Anemia. G. L. Lambricht, Cleveland.—p. 585.
- 91 Why Is the General Practitioner. J. W. Clemmer, Columbus.—p. 588.

Oklahoma State Medical Association Journal, Muskogee

October, 1918, **11**, No. 10

- 92 Complete Avulsion of Arm and Scapula; Recovery. G. A. Wall, Tulsa.—p. 315.
- 93 Modern Treatment of Burns. F. S. Clinton, Tulsa.—p. 320.
- 94 Diagnosis of Stone in Kidney and Ureter. J. H. White, Muskogee.—p. 323.
- 95 Chronic Pus Foci—Common Location. W. H. Livermore, Chickasha.—p. 326.
- 96 Surgery of Accidents. J. C. Williams, Picher.—p. 327.
- 97 Knife Swallowing; Report of Case. D. F. Stough, Geary.—p. 331.

Southern Medical Journal, Birmingham, Ala.

October, 1918, **11**, No. 10

- 98 Malaria Question and Farmer. A. J. Ochsner, Chicago.—p. 661.
- 99 Incidence and Importance of Pleurisy in Early Tuberculosis. P. P. McCain, Sanatorium, N. C.—p. 663.
- 100 Fulguration and Roentgenotherapy in Malignancy. J. H. Edmonson, Birmingham.—p. 665.
- 101 Treatment of Skin Diseases with Kromayer Lamp: Phototherapy. C. A. Simpson, Newport, R. I.—p. 669.
- 102 Different Phases of Work to be Done in Whole Time County Health Officer and County Organizer. G. G. Altman, Helena, Ark.—p. 675.

- 103 *Health Education in Rural Districts. L. A. Riser, Columbia, S. C.—p. 678.
- 104 Clinical Data on Goiter. E. G. Jones, Atlanta, Ga.—p. 682.
- 105 Unique Case of Prostatic Abscess. G. F. Lydston, Chicago.—p. 685.
- 106 *Treatment of Acute Diffuse Peritonitis. H. A. Gamble, Greenville, Miss.—p. 686.
- 107 What Local Surgeon Can Do in First Aid Work. J. A. Mitchell, Tullahoma, Tenn.—p. 688.
- 108 Treatment of Shock with or without Hemorrhage. T. D. Frizzell, Quanah, Texas.—p. 694.
- 109 Traumatic Intra-Ocular Hemorrhage. W. G. Harrison, Birmingham.—p. 696.
- 110 Woody Phlegmon of Neck (Reclus): Report of Two Cases. T. C. Worthington, Baltimore.—p. 699.
- 111 Pneumococcus Infection of Eye, Ear, Nose and Throat. L. D. Brose, Evansville, Ind.—p. 701.
- 112 Advantages of Tour of Duty in Medical Officers' Training Camp. I. W. Cooper, Camp Shelby, Miss.—p. 705.
- 113 Efficiency in Medical Teaching. W. D. Cutter, Augusta, Ga.—p. 706.

103. Abstracted in THE JOURNAL, Dec. 22, 1917, p. 2143.

106. Abstracted in THE JOURNAL, Dec. 15, 1917, p. 2066.

Southwest Journal of Medicine and Surgery, El Reno, Okla.

October, 1918, 26, No. 10

- 114 Two Cases of Dual Personality in Inbred Migraines. S. G. Burnett, Kansas City, Mo.—p. 217.

Wisconsin Medical Journal, Milwaukee

October, 1918, 17, No. 5

- 115 Mental Deficiency. J. F. McFadden, Jefferson Barracks, Mo.—p. 178.
- 116 Ubiquitous Anaerobe. W. E. Bannen and A. A. Skemp, La Crosse.—p. 180.
- 117 Beck's Bismuth Paste in Treatment of Cervicitis, Endocervicitis and Endometritis. A. R. Hollender, Linden.—p. 181.
- 118 Traumatism Factor in Etiology of Pancreatic Cysts. R. W. Jones, Wausau.—p. 183.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Oct. 5, 1918, 2, No. 3014

- 1 State and Prenatal Hygiene. E. McConnell.—p. 365.
- 2 Exercise Blood Pressure Test of Myocardial Efficiency. G. Lambert.—p. 366.
- 3 *Pulmonary Fat Embolism and Its Relation to Traumatic Shock. G. E. Sutton.—p. 368.
- 4 Surgical Cure of Uterine Prolapse. H. P. Costobadie.—p. 370.
- 5 *Method for Immediate Treatment of Fracture of Femur on Battlefield at Site of Casualty. F. B. Chavasse.—p. 373.
- 6 Splint for Fractured Shaft of Femur. H. E. Griffiths.—p. 374.
- 7 Acidosis and Hydrogen-Ion Concentration. W. M. Bayliss.—p. 375.

3. **Pulmonary Fat Embolism and Traumatic Shock.**—Examination of a considerable number of battle casualties which have terminated fatally at a casualty clearing station has led Sutton to the conclusion that 10 per cent. have pulmonary fat emboli demonstrable by gross methods. He is convinced that this percentage would be increased if sections of lung tissue were stained for fat in all cases. Fat emboli have been found in cases of fractures, wounds involving fatty tissue and wounds penetrating the abdomen, with laceration of the liver. Sutton has particularly noticed that in compound fractures reaching a casualty clearing station with splints imperfectly applied, and where, consequently, immobility was not complete, symptoms, resembling "shock" were invariably present. He has seen pulmonary fat embolism more often following a compound fracture without comminution than with comminution. During a recent crisis, when patients had to be evacuated to casualty clearing stations more hurriedly than in ordinary times a number of cases were received, many in a profound state of "shock." The blood loss in some was not great, as evidenced by the condition of their clothing and stretchers. Among these, few showed any response to resuscitation measures.

In this series Sutton examined the lung tissue in eight cases, and found pulmonary fat embolism in six. Sutton does not claim that all fatal cases of shock are due to pul-

monary fat embolism, because the physical and chemical properties of lipemic blood are such that acidosis cannot be avoided, and it is still to be proved whether the terminal mechanism is not the same. The occurrence of pulmonary fat embolism in the war area is much more frequent than has been suspected, owing, probably, to lack of thorough examination of lung tissue for evidence of fat. Associated with pulmonary fat embolism, disseminated fat is found in the other tissues of the body, included in the capillaries. This undoubtedly accounts for the delirium so frequently associated with this condition.

Prophylactic treatment consists in fixation of fractures with extension where possible; early and efficient surgical interference for fractures; at operation on wounds involving fatty tissue it is imperative to secure careful and complete hemostasis, particularly the ligation of the nonbleeding proximal ends of veins as well as the bleeding distal ends. Active treatment is only symptomatic. Small amounts of sodium bicarbonate (2 per cent.) are helpful. The administration should be regulated by the condition of the right heart. Transfusion of blood in small amounts may be useful.

5. **Immediate Treatment of Fractured Femur.**—The principle of the method proposed by Chavasse is the application of very powerful extension, followed by fixation in the extended position. A stretcher and two slings are required. It is the rule for each of the four bearers in a squad of regimental stretcher bearers to carry a sling. Thus two slings are still available for carrying the stretcher (should this method of carrying be possible or desirable). If there are no slings, puttees can be used. Spare slings should be available at aid posts.

The procedure is as follows: Expose and dress the wound. Enlarge the adjustable loop of one sling to its maximum by shifting the grip plate as far as it will go. Slip the loop over the foot on the injured side and pass it up as far as the groin. Tie the ankles and knees firmly together (with narrow fold triangular bandages, or other bandages or make-shifts). Open the stretcher and place on it a small pillow where the knees will be. (A waterproof sheet, doubled from side to side and loosely rolled from end to end makes a suitable pillow). Place the patient on the stretcher so that his heels project an inch or two beyond the edge of the canvas, or more if he is a tall man. The heel on the injured side should be a little lower than the other if possible. Adjust the loop of the other sling so that it is equal in length to the distance between the poles of the stretcher (1 foot, 7 inches). Slip it over one handle and wind very tightly about the feet. That is to say, pass it from one handle across the soles of both feet, up across both insteps, behind both ankles, down across both insteps, then through the loop (to avoid torsion of the feet), and thence across the soles of both feet to the opposite pole. Secure by buckling the small strap around the opposite handle, making all as taut as possible. To avoid the small strap tearing away owing to the strain, the small loop to which it is sewn should be turned inside out, thus causing the strap to pass actually through the small loop.

Gently raise the stretcher almost into the perpendicular, so that the patient is hanging by his feet. Draw the patient down head first far as he will come. (If the patient continues to have pain he may be left for a few minutes until the muscles are tired. He may then be drawn down a little farther.) The stretcher may be propped up against something. See that the back of the loop is well behind the buttock. Adjust the loop so that the grip plate will almost lie on the surface of the stretcher when the strain is taken. (This position of the grip plate tends to correct the flexion abduction and external rotation of the upper fragment.) Put a very heavy strain on the groin sling and secure by buckling the small strap around the pole handle by the head in such a way that it does not rotate and slip. While making fast the strong pull must be kept up in order that everything shall be taut after making fast. (There is no possibility of the groin loop constricting the femoral vessels, as in the rifle splint and a badly applied long Liston. For the sling loop is so oblique that it does not cross these vessels at all.) Level the stretcher. Tie a bandage round pelvis and stretcher.

Lay a rifle, bolt removed, along the outside of the limb to steady it. Bandage it in position. The patient is now ready for his journey.

British Medical Journal, London

Oct. 12, 1918, **2**, No. 3015

- 8 Renal Dropsy. T. C. Allbutt.—p. 395.
- 9 Acute Ulcerative Gingivitis. C. G. Colyer.—p. 396.
- 10 Amino-Acid Content of Nutrient Media. I. W. Hall.—p. 398.
- 11 Analysis of Causes of Breakdown in Flying: Nervous Mechanism of Flying Man. N. S. Gilchrist.—p. 401.
- 12 Some Aspects of Maxillary Antrum Disease. W. B. Brownlie.—p. 403.
- 13 Intravenous Saline in Blackwater Fever. A. Patrick.—p. 404.
- 14 Two Cases of Artificial Pneumothorax. C. G. R. Goodwin and F. C. Coley.—p. 405.
- 15 Filariasis among Australian Troops. R. Rimer.—p. 405.

Journal of Tropical Medicine and Hygiene, London

Oct. 1, 1918, **21**, No. 19

- 16 Minor Cutaneous Affections Seen in Anglo-Egyptian Sudan. A. J. Chalmers and A. Marshall.—p. 197.

Lancet, London

Oct. 5, 1918, **2**, No. 4962

- 17 *Sensory Changes in Diagnosis of Trench Fever. D. W. C. Jones.—p. 443.
- 18 Pathologic Diagnosis in Gunshot Injuries of Peripheral Nerves. J. S. B. Stopford.—p. 445.
- 19 Macroscopic and Microscopic Methods of Diagnosing Amebic and Bacillary Dysentery. J. G. Thomson and L. F. Hirst.—p. 448.
- 20 Types of Dysentery Bacilli Isolated. J. G. Thomson and L. F. Hirst.—p. 449.
- 21 Amebic Dysentery. J. G. Thomson.—p. 451.
- 22 Fractures of Femur: Calliper as Instrument of Extension. P. L. W. Williams.—p. 452.
- 23 Ether Anesthesia for Face and Jaw Surgery. J. C. Clayton.—p. 454.
- 24 *Transfusion of Blood in War Surgery: New Modified Direct Method. S. R. Harrison.—p. 455.
- 25 Abnormal Conditions of Enamel in Cases of Malnutrition. J. L. Dick.—p. 456.
- 26 Angina Pectoris: Changes in Electrocardiogram During Paroxysm. G. Bousfield.—p. 457.

17. **Sensory Changes in Trench Fever.**—Among the patients examined by Jones were about 130 cases of "fever" of various kinds, including trench fever, malaria, cerebrospinal meningitis, scarlet fever, measles, rose measles, mumps, diphtheria and surgical septicemia. Of these, trench fever and malaria were commonly associated with hyperalgesia of three definite groups of segments which do not correspond with those belonging to any viscera. In no other fever was anything of this kind found; cases in which there were clear symptoms or physical signs pointing to inflammation of any viscus often showed hyperalgesia over the appropriate segments, but that was all. The parotitis of mumps, the bronchitis of measles and the nephritis of scarlet fever all showed typical areas, and throughout the fevers, in cases of severity, the eleventh dorsal area, corresponding to the kidney, was often hypersensitive, and when this was so, albumin was nearly always to be found in the urine; this is especially true of surgical septicemia. The inference is that the kidney suffers damage in the process of eliminating bacteria and their toxins. But hyperalgesic areas of unexplained origin were found only in trench fever and malaria.

In these fevers the following were found: the eighth cervical and first dorsal, the seventh dorsal, and the first, second, third, fourth and fifth lumbar. This is the full trench fever distribution, and is found frequently in its entirety, and in nearly every case which is diagnosed as trench fever on clinical grounds this distribution is to be found more or less complete.

In this series seventy-three cases of trench fever were examined. The segmental areas of hyperalgesia found were as follows:

Upper Group—		
8 C., 1 D.	29	39
1 D. (alone)	10	
Middle Group—		
7 D. (alone)	55	68
7 D. + adjacent areas	13	
Lower Group—		
1, 2, 3, 4, 5, L.	57	67
Incomplete lumbar	10	
"Full Trench Fever"—		
8 C., 1 D.; 7 D.; 1, 2, 3, 4, 5 L.	24	5
Nil		

Eighteen cases of malaria were examined, of which sixteen showed precisely similar areas to those found in trench fever. In no other fever was this the case. It is suggested, by Jones that hyperalgesia of these particular segments is diagnostic of a group of diseases consisting of malaria and trench fever, and it is remarkable that one of them is mosquito-borne and the other louse-borne; that both appear to be protozoal, with a definite cycle of development, as shown by the periodicity of the febrile attacks induced by them; that both appear to lie dormant for considerable periods within the body; and that both are associated with enlargement of the spleen. These hyperalgesiae are precisely similar to those found in inflammation of the viscera, but it is difficult to see to what viscera they can correspond, though a few possibilities suggest themselves. The eighth cervical and first dorsal areas, perhaps, indicate an affection of the thyroid; a case of acute thyroiditis examined showed some hyperalgesia of the first dorsal. The seventh dorsal area may possibly indicate the spleen, which is enlarged in both the diseases concerned, or else the suprarenal gland, since there is evidence of increased excitability of the sympathetic in trench fever. Also the physiologic association between thyroid and suprarenal should be borne in mind.

The cause of hyperalgesia of the lumbar segments is quite obscure; it does not appear to be any condition of the small intestine, kidney, testis or large intestine, and it is difficult to see what remains. In the only two cases of cystitis examined some lumbar segments were found involved, in one of them the first three, but the absence of symptoms pointing to any vesical disturbance makes such a view difficult to accept; at present it must be said that the significance of a lumbar hyperalgesia in these diseases is unexplained.

24. **Transfusion of Blood in War Surgery.**—The indications for transfusion of blood in war surgery according to Harrison are: (1) anemia, caused by (a) loss of blood, (b) prolonged sepsis; (2) retarded healing of wounds, including compound fractures. In primary hemorrhage, with suitable conditions and suitable blood, it is always beneficial. In secondary hemorrhage and sepsis transfusion causes increase in volume and constituents of the blood; increase of coagulability of blood, which often stops the capillary oozing so frequently found in septic cases; increased healing, appetite, and well being of patient; lowering of pulse rate and temperature; loss of edema and albuminuria. If the transfusion is not carried out with "technique de rigueur," and an efficient agglutination test has not been carried out, certain alarming or even fatal results may take place. Immediate: hemolysis, agglutination, possibly causing sudden death; cyanosis, with feeble pulse, possibly caused by giving too large a volume of blood when the heart muscle is degenerated from sepsis. Later: sweating, rigors, pyrexia, apparently found more frequently after giving citrated blood; hematuria.

Practitioner, London

October, 1918, **101**, No. 4

- 27 *Fractures in Warfare. A. Lane.—p. 181.
- 28 Medical Notes. T. Horder.—p. 191. To be continued.
- 29 Recent Progress in Gynecology. F. McCann.—p. 194.
- 30 Review of Tropical Diseases. R. T. Hewlett.—p. 200.
- 31 Administration of Concentrated Intravenous Injections of Novarsphenamin (Novarsenobenzol) in Treatment of Syphilis. S. E. Dore.—p. 209.
- 32 *Intravenous Injections of Arsenious and Mercuric Iodids in Syphilis and Yaws. R. L. Spittel.—p. 212.
- 33 *Technic of Large Intravenous Injections. C. H. Whiteford.—p. 216.
- 34 Scurvy. H. V. O'Shea.—p. 217.
- 35 Breaking of Vicious Circles by Surgery. J. B. Hurry.—p. 225.

27. See Abstract No. 15, THE JOURNAL, Feb. 16, 1918, p. 491. Also published the *Lancet*, London, Jan. 5, 1918, p. 4.

32. **Iodids in Syphilis and Yaws.**—In the past three and a half years Spittel has given over 5,000 injections of a modification of Donovan's solution in syphilis and yaws. In an emergency, a very efficient injection may be made out of ordinary Donovan's solution, diluted with an equal quantity of strained sterile water; it is then rendered slightly alkaline by adding drops of a 15 per cent. solution of sodium hydroxid while testing with litmus paper. The dose of this is from 7 to 12 c.c. for intravenous administration. Its disadvantage

is that it contains too much mercuric iodid, and is apt to cause much salivation if not cautiously used. The solution Spittel uses as a routine is as follows: mercuric iodid, 50 grains (3.24 gm.); arsenious iodid, 40 grains (2.59 gm.); sodium (or potassium) iodid, 8 drams (28.42 c.c.); distilled water, 40 ounces (1,000 c.c.). The dose for an adult is 8 to 15 c.c., small to begin with and gradually increased according to tolerance. Four to six injections at intervals of four days to a week constitute a course. Several such courses should be given, with intervals of a month or six weeks between them.

The injection is administered with a 20 or 30 c.c. glass syringe, into which the required quantity of solution is drawn; the syringe is then filled up to its full capacity with sterile water. This further dilution is necessary to obviate the slight phlebitis that is otherwise apt to ensue rendering future injections into the same vein somewhat difficult. The solution is introduced into the vein after the usual manner of intravenous injections; should any of it escape into the tissues outside the vein, pain, tenderness and induration are caused. The reaction depends on the dosage employed; it is negligible and evanescent if the dose is graded to tolerance. Heart and kidney disease are no contraindication to cautious dosage.

One or more of the following symptoms may be produced within a few hours of injection: chill, fever, malaise, headache, vomiting, pains and a burning sensation in the body. Later effects are gingivitis and salivation, coryza, lacrimation, diarrhea and griping.

33. Technic of Large Intravenous Injections.—Whiteford injects the solution into the vein by means of a Higginson enema syringe. The apparatus required includes a Higginson syringe, to which is attached 1 foot of stout walled rubber tubing, with a lumen of one-eighth inch. At the end of this tubing is a metal cannula with a bulbous point. All injections are secured with stout silk, tightly tied. The solution is contained in an enamelled iron jug, the mouth of which is 5 to 6 inches in diameter. A piece of tape, or stout silk, is attached to the syringe, just beyond the bulb, and its ends tied to the handle of the jug, in order to prevent the syringe from slipping out of the jug. The vein is exposed, the syringe, tubing, and cannula are filled with solution by a few squeezes of the bulb and the cannula is tied into the vein. The force required to make the solution pass through the lumen of the actively contracted vein of a shocked patient is considerable and is worthy of notice by those who contend that in shock the veins are in a state of dilatation. As soon as the cannula has been tied into the vein only one pair of hands is required to attend to the injection.

Bulletin de l'Académie de Médecine, Paris

Sept. 10, 1918, 80, No. 36

- 36 *Cardiovascular Disturbances in Aviators. D. Berthier.—p. 232.
37 Streptococcus Responsible for Complications of Influenza. Le Marc'hadour and Denier.—p. 233.
38 Influenza. Antoine and Orticoni.—p. 235.

36. Cardiovascular Disturbances in Aviators.—Berthier found the liver extremely congested in one aviator and also, accompanied by organic lesions, in a second. Both the young men had been taken with vertigo and had lost consciousness on reaching a high altitude. The heart seemed sound on superficial examination, but the blood pressure was very low and, in the morning, in bed, the pulse was weak and slow. He urges the necessity for systematic testing of the blood pressure of aviators with the Pachon oscillometer, as this records the minimal pressure. Any tendency to liver disturbance and nervous upset is liable to affect the circulation dangerously, when the blood pressure is too low. He is convinced that the aviator himself, and not the stalling of his engine, is often responsible for the fatal accidents.

Bulletin de la Société Médicale des Hôpitaux, Paris

June 21, 1918, 42, No. 22

- 39 *Incontinence of the Pylorus. G. Hayem.—p. 623.
40 *Acute Mikulicz' Disease. E. de Massary and Tockmann.—p. 627.
41 *Progressive Myopathy. C. Achard and L. Binet.—p. 630.
42 *Acute Nephritis with Gangrene. R. Nuñez.—p. 635.
43 *Emetin in Bilharziasis. A. Lemierre and P. Lantuéjoul.—p. 640.
44 Multiple Deformities. L. Babonneix and H. David.—p. 643.
45 *Fate of Bone Graft in Skull. Sicard and others.—p. 648.

- 46 Pernicious Anemia or Leukemia? Nobécourt and others.—p. 650.
47 Influence of Age on Frequency of Contagious Diseases among the Troops. P. Nobécourt.—p. 655.
48 *Albumin and Blood in Stools. M. Labbé and G. Canat.—p. 659.
49 *Early Diagnosis of Tuberculosis. Sakorrafos.—p. 661.
50 Syphilitic Hyperostosis. Sakorrafos.—p. 662.

39. Incontinence of the Pylorus.—Hayem refers to an article recently summarized in THE JOURNAL, abstract 34, page 1011, saying that what the writers call incontinence of the pylorus is the same disturbance which he described eleven years ago as premature evacuation of the stomach. He said then that the resulting diarrhea is the triumph of kefir treatment. It may benefit likewise when there is constipation instead of diarrhea. Bismuth subnitrate may sometimes prove useful in the same way.

40. Acute Mikulicz' Disease.—The parotitis had a sudden onset simulating mumps, but it passed into a chronic phase, and the lacrimal glands shared in the process. The Wassermann reaction is strongly positive.

41. Progressive Muscular Dystrophy.—In the case described there was no apparent disturbance in carbohydrate metabolism, no creatin in the urine, and nothing to indicate an endocrine origin. The thyroid and the pituitary body seem to be normal.

42. Acute Nephritis with Gangrene.—Seven years after pneumonia with albuminuria of 7 gm. to the liter, acute nephritis developed in the man of 34, with gangrene of the right leg. Several similar cases are on record; in some the gangrene affected all the extremities. The patients were all comparatively young and they speedily succumbed. The gangrene in the majority was of the dry type.

43. Emetin in Bilharziasis.—The emetin was injected by the vein, a total of 0.92 gm. in thirteen injections in five weeks. No ova were discovered after the eleventh injection, and there was no further hematuria or pain after the completion of the course during the month the young man was under medical supervision.

45. Fate of Bone Graft in Skull.—Sicard is an advocate of utilizing a piece of bone from another skull to close a gap in the skull. The graft is cleared of fat, and is sterilized, and fitted into the breach where it is fastened with catgut. Necropsy ten months after one operation of the kind showed the complete tolerance of the tissues, and that the catgut had sufficed to fasten it securely in place. Each surface of the bone graft had become covered with a dense and extremely resistant fibrous membrane, solidly adherent to the adjoining tissues. Only the inner surface of the bone graft showed slight signs of a tendency to resorption.

48. Albumin and Blood in the Stools.—Labbé and Canat found soluble albumin in the stools in about 16 per cent. of 113 cases of chronic gastro-intestinal disease, and acetoprecipitable albumin in about 50 per cent. Blood was found in 5 per cent. Comparison of the findings with the clinical course shows that the presence of acetoprecipitable albumin in the stools is a sign of moderately severe dyspepsia; soluble albumin, of grave dyspepsia. The presence of blood in the stools is also a sign of grave gastro-intestinal disturbance, but not necessarily the same kind of disturbance as in the cases with soluble albumin, although they are frequently associated. The blood comes from some bleeding point in the digestive mucosa, but soluble albumin, they reiterate, points to ulceration.

49. Early Diagnosis of Tuberculosis.—Sakorrafos warns that completely healed lesions in the chest, of tuberculous or other origin, may give roentgen findings liable to be mistaken for florid tuberculous lesions. On the other hand, he thinks that tuberculosis may be regarded as certain, although there may be no signs of pulmonary involvement, when the glands in the neck, axilla and inguinal region are hypertrophied and the blood shows pronounced lymphocytosis. It may also be regarded as certain in tall, blonde young men with tachycardia and low blood pressure, high urea and high phosphate content of the urine, the chest long and narrow, with poor expansion, and often a tendency to pityriasis versicolor. Under the influence of the physical stress of active service and unhygienic living, men in this group develop pulmonary tuberculosis. Sakorrafos is professor of clinical medicine at Athens.

Lyon Médical

September, 1918, 127, No. 9

- 51 *Infection of Skin. Favre, R. Mathieu and P. Richard.—p. 385.
52 Syphilitic Reinfection in a Diabetic. Molle.—p. 428.

51. **Infection of the Skin.**—Favre, Mathieu and Richard expatiate on the change in the conception of skin diseases which has been brought about by the war. It is becoming realized more and more that persisting dermatoses are maintained by local infection in many cases which have previously been attributed to diatheses, etc. Ill advised treatment may also have contributed its share.

Paris Médical

Aug. 17, 1918, 8, No. 33

- 53 *War Fractures of Forearm. E. Destot.—p. 133.
54 Continuous Tachycardia of Emotional Origin. R. Charon and G. Halberstadt.—p. 140.
55 *Local Action of Liver Fat.—E. Savini.—p. 143.
56 Lip Reading. H. Marichelle.—p. 145.
57 Locomotor Sequels of War Wounds. A. Mouchet.—p. 145.

53. **Fractures of the Forearm.**—Destot says that surgeons are constantly sinning against four great laws that should govern every case of fracture of the forearm, namely, that the relative length of the two bones must be maintained, as also the natural curve of the radius and its excentric position, and the hand must be kept in supination to maintain the bones in the normal axis. An immediate prosthesis is necessary to guide cicatrization and prepare conditions for a secondary graft. He reiterates that if surgeons could follow their cases of fracture of the forearm to final healing, they would appreciate better the difficulties of correcting parts healed in a vicious attitude, and they would realize what might have been done to avoid this. Especially in the matter of grafts improved technic is desirable. He describes a useful instrument for cutting grafts, etc.

55. **Liver Tissue in Local Treatment of Wounds.**—Savini recalls the statements of Schoull and Weiller that wounds healed more rapidly when treated with lipoids from the liver. This treatment was suggested, he says, by the current observation that the spontaneous appearance of jaundice in the wounded shortens considerably the healing of the wounds. Vigen in 1915 reported excellent effects on the healing of burns and torpid wounds of an ointment composed of lard, wax, olive oil and beef gall. Savini then applied the principle, using an ether extract of chopped liver tissue, desiccated at 70 C., pulverized and placed in a Soxhlet apparatus to extract the lipoids with ether. The lipoids thus derived are emulsified at 5 or 10 per cent. in olive oil. To keep it aseptic a little ether is added from time to time. Before using, it is warmed by setting it in hot water, and is well shaken. He sprinkles the wound with this about every second day, after lavage with saline, and applies a dressing. The results have been very encouraging; he reports some typical cases. He has found it particularly useful in promoting the healing of Thiersch flaps, and of varicose ulcers and suppurating hemorrhoids, of burns from flame and from caustics, and also for lavage of the intestines in local treatment of colitis, and in ulceration of the uterine cervix. No effect was apparent with eczema or syphilitic lesions. The lipoids probably act as general stimulants of the cell functions, activating their defensive power and their capacity for regeneration in a remarkable manner.

Presse Médicale, Paris

Sept. 23, 1918, 26, No. 53

- 58 *Treatment of Acute Arthritis. P. Nolf.—p. 485.
59 *Lethargic Encephalitis. P. Sainton.—p. 487.
60 *Secondary Suture. Ehrenpreis.—p. 490.
61 *Quinin and Malaria. G. Pépin.—p. 492.
62 Factitious Skin and Venereal Lesions. R. Burnier.—p. 493.

58. **Treatment of Acute Arthritis.**—Nolf has published several reports on the efficacy of parenteral injections of peptone in treatment of infectious diseases, alone or with other therapeutic measures. He here gives the details of a few cases which seem to show the superior efficacy of association of peptone with the usual sodium salicylate treat-

ment in rebellious cases of acute articular rheumatism, and also in septicemia from the staphylococcus or hemolytic streptococci. He uses 8 or 10 c.c. of a 10 per cent. solution of peptone, with or without 0.5 mg. epinephrin. If there is reason to anticipate much of a reaction, he dilutes it in 150 or 200 c.c. of isotonic saline solution. The intravenous injection is made very slowly, under constant control of the pulse, suspending the injection if the pulse runs up above 35 per quarter minute, and waiting a few moments until the pulse calms down.

59. **Lethargic Encephalitis.**—Sainton analyzes what is known to date in regard to lethargic encephalitis. He is inclined to regard it as the result of the localization in the brain of the prevailing influenza. This is suggested among other things by the coincidence of the two epidemics, both this year and in 1890, by the purulent rhinopharyngitis of both diseases, the similar onset, and the long period of weakness afterward. Lethargic encephalitis has less analogy with poliomyelitis, especially the difference in the age of the patients, the absence of a meningeal reaction, the lesser changes in the nerve cells, and finally the complete, integral recovery.

60. **Indications and Technic for Secondary Reunion of Wounds.**—Ehrenpreis gives six illustrations to demonstrate the preferable technic. The wound must be clinically sterile, flat, and the sutures must be applied without tension, each tier of soft parts sutured separately.

61. **Best Technic for Quinin Administration.**—Pépin urges the importance of watching over the elimination of quinin as a gage for its absorption and therapeutic efficacy, and a guide for the next dose. Twenty-two persons, sick and well, were given an intramuscular injection of 0.8 gm. quinin and the proportion eliminated in the urine was determined at regular intervals. One healthy person eliminated 21 mg. in the second hour urine; 46 mg. the twentieth hour, to a total of 216 mg. in forty-eight hours. Corresponding figures in a malarial subject were 13 and 54 mg. to a total of 158.6 mg. in forty-eight hours and 161.4 mg. in sixty-nine hours. In one case, 0.8 mg. were reformed in the urine in thirty minutes. The quinin could also be recovered from the stools. He gives findings also after the quinin had been administered by other technic. He does not give his technic for extraction of the quinin, as it has been already published in the *Bulletin des sciences pharmacologiques*, January-February, 1918, 25, 19.

Progrès Médical, Paris

Aug. 24, 1918, 33, No. 34

- 63 Gastritis as Factor in Dyspepsia. F. Ramond.—p. 289.
64 *State of Shock. W. B. Cannon.—p. 290.
65 *Italian Method for Grafting on Old Wounds. R. Bonneau.—p. 291.
66 Phlebitis from Contusion Alone. Narich.—p. 294.

Aug. 31, 1918, 33, No. 35

- 67 *Intravenous Injections of Hexamethylenamin. Loeper and L. Grosdidier.—p. 297.
68 *Pathogenesis of Meningitis. J. Lochelongue.—p. 298.
69 Spinal Anesthesia. H.-P. Achard.—p. 299.
70 *Local Treatment of Anorectal Lesions. A. Bernard.—p. 300.

64. **Shock.**—Cannon is professor of physiology at Harvard, and this article is a summary of an address made at a meeting of the Société médicale franco-américaine at Dijon. Among the points he emphasizes is the necessity for warming up from the very first a man in shock. If hot water bottles are used, one should be placed at the feet and one on the abdomen, covered by the hands, one in each axilla, and one between the thighs. No operation should be attempted until the blood pressure has been raised above the critical level; this seems to be 70 mm., or 80 mm. in case of hemorrhage.

65. **Italian Method of Grafting.**—Bonneau describes the technical points for applying this method to grafting operations on the legs.

67. **Intravenous Injections of Hexamethylenamin.**—A review of practically the same article was published, Oct. 19, 1918, p. 1350.

68. **Pathogenesis of Meningitis.**—Lochelongue says that in his work as chief of a bacteriologic laboratory he has been

impressed by the way in which the presence of sugar and of albumin promotes proliferation of bacteria in culture mediums, and also in the cerebrospinal fluid. Hence he suggests that before any operation on the skull and in general infections the spinal fluid should be tested for sugar. An overhigh sugar content should be regarded as calling for special prophylactic measures. He adds that addition of a little sugar to specimens of fluid being sent in for examination will be more apt to maintain the vitality of the meningococci.

70. Medication of Anorectal Lesions.—The *introduceur* is a blunt tube with holes in the side near the tip. The salve placed in it is forced out with a piston. A rubber ring is adjusted on the tube to ensure that it enters the rectum only to the exact depth required. The patient can then continue the treatment himself.

Policlinico, Rome

Sept. 8, 1918, 25, No. 36

71 *Factors in Pulmonary Tuberculosis. G. Breccia.—p. 845.

72 *Traction on Amputation Stumps. G.-L. Fiori.—p. 850.

Sept. 29, 1918, 25, No. 39

73 *Influenza. T. Pontano.—p. 917; G. Morelli.—p. 926; C. M. Pavesi.—p. 931; Committee Report.—p. 936.

74 *Bacillus of Influenzal Septicemia. R. Ciauri.—p. 924.

June, 1918, 25, Surgical Section No. 6

75 *Test Azoturia. E. Pirondini.—p. 161.

76 *Gas Infection of Wounds. V. Calo.—p. 176. Cont'n.

Aug. 15, 1918, 25, Surgical Section No. 8

77 *Tuberculosis of the Thyroid. G. Giacinto.—p. 225.

78 *Functional Kidney Tests in the Young. E. Pirondini.—p. 230.

79 Abdominal Wounds. G. Egidi.—p. 240. Cont'n.

71. Cooperating Factors in Tuberculosis.—Breccia reiterates that the campaign against tuberculosis requires centralization as a government function.

72. Traction on Soft Parts of Stump.—When the skin flaps had to be cut too short to cover the stump, Fiori has succeeded in pulling them down by traction with weights hung from a loop formed by two strips of adhesive plaster crossed over the stumps and carried high up on the skin. By shifting the traction to different points of the plaster loop, the skin can be drawn down evenly all around. Healing was complete in thirty-five days in a case described in which the soft parts had been extensively sacrificed on account of gas gangrene.

73. Influenza.—Pontano discusses the epidemic from the clinical and other points of view, remarking that not a corner of the country (Italy) seems to have escaped. When several members of a household are attacked, the passage of the germs through others seems to enhance their virulence. The epidemic begins to decline in three or four weeks, and after six weeks no new cases develop. All ages are affected, but the smallest proportion of cases are among the elderly, and the disease is milder in them, suggesting eventual immunization from preceding epidemics. The general mortality from the epidemic has been 2 or 3 per cent. The incubation period does not seem to be more than one or two days. In Pavese's experience, the epidemic spread by zones, like a cyclone, but he could always trace possible carriers.

74. The Bipolar Bacillus of Influenzal Septicemia.—Ciauri is director of the Stazione sanitaria marittima at Cotrone. He here reports the cultivation from the sputum and blood of patients with severe influenza of a micro-organism which induces septicemia in guinea-pigs. It appears in two forms, rods and ovals, but both take the stain strongly at both poles. The rods are gram-positive, the ovals gram-negative, but the two are always found together in the cultures. This bacillus was found only in the graver cases, those which seemed to be of a septicemic type. He calls it the bipolar diplomorphous hemoseptic bacillus. It does not develop on Endo-agar nor in Haffkine bouillon, and in glucosed agar it loses its bipolar staining properties, and there is no gas production. On plain agar plates, small low colonies develop in twenty-four hours, the outline slightly wavy, with the central portion granulated like yellowish sand. On Drigalski agar it forms small, polycyclic colonies with uneven surface, like a map in relief. [A cable news dispatch gives further details,

such as that rats, fowls and rabbits are not susceptible to infection with this bacillus, and that up to five days may be required for the colonies to develop in culture mediums.]

75. Urea Test of Kidney Functioning.—Pirondini's work in this line has been previously described (Aug. 28, 1915, p. 835). Time seems to have confirmed the value of this test. The patient reclines, and the urine of a half hour is collected. Then he drinks 150 or 300 c.c. of water in which 10 gm. of urea has been dissolved, and after this the urine is collected at half hour intervals, the volume, urea content per thousand and the absolute content being recorded for each specimen. In all his cases the findings strictly paralleled the Ambard ureosecretory constant and the results of the phenol-sulphonphthalein test. In four of six cases of infiltrating bladder tumors, the urea test findings corresponded perfectly to the necropsy findings in the kidneys. In two of these fatal uremic cases the liver was found extremely pathologic also.

Catheterization of the ureters is not usually necessary. The functional disturbances which this induces are liable to obscure the interpretation of the findings. He extols various advantages of this test over experimental polyuria and other tests, and relates the findings with it after nephrectomy, especially in the pregnant. He reiterates that nephrectomized women may bear healthy children, even when the nephrectomy had been done with a pregnancy already under way.

76. Gas Infection of War Wounds.—Calo emphasizes that venous stasis offers specially favorable conditions for development of gas infection, and cites cases in which this or tetanus occurred without a wound, the limb being merely frost-bitten. Wounds of blood vessels and "closed" wounds are the ones in which gas gangrene develops by preference. When the conditions suggest that it is impending, besides ample opening up of the wound to let the air penetrate into its remotest crevices, preceded by scarification of the venous territory in the infected zone, he urges generous venesection followed by mummification of the tissues affected with the gas infection. The tissue can be "mummified" with the actual cautery, a hot iron, or with unslaked lime. The lime absorbs powerfully the secretions and draws the water out of the tissues, reducing it to a mummified condition not only on the surface but down through the entire mass of the infected tissues, while it has no action on the sound tissue. It thus mummifies selectively; searing with a hot iron, etc., destroys the sound along with the infected tissues. The latter are evidently softened and the cells separated by the action of the anaerobes, so the calcium can penetrate the tissue, while it is unable to permeate normally compact tissues. The calcium disinfects also as it works into the tissues. He has never had any mishaps with it, not even disagreeable sensations in wounds, etc., treated with it. The best quality of anhydrous lime on the market is powdered fine and kept in sealed packages till ready to use. It is scattered freely over the raw surfaces after the surgical toilet, trying to get it into every recess of the wound. When the gas infection is spreading, amputation must be prompt and quick—plane amputation close to the root of the limb, with live lime to the stump.

77. Cure of Tuberculous Goiter.—Giacinto reports the case of a nun, 42 years old, who for eight months had noticed that the right lobe of the thyroid gland was enlarging. Irregular neuralgic pains were also felt in the tumor, irradiating downward and outward or upward. These pains were variable, appearing usually in the evening, and were not modified by the ordinary sedatives. The temperature rose slightly toward evening. The hard tumor was tender, with irregular surface, and immovable except for slight movement during swallowing. There was slight emotional tachycardia, but no signs of exophthalmic goiter. The urine was normal. The weight had dropped over 15 pounds in two months. The diagnosis wavered between malignant goiter and woody thyroiditis, but an exploratory incision showed the capsule much thickened and bound down to adjacent tissues. A wedge was excised, 5 cm. long by 3 cm. wide; the inner end seemed to be normal tissue, but a cheesy tubercle was apparent above. No tubercle bacilli could be discovered. Treatment was by daily injection of alternating iodine and arsenic. Then two

weeks after the exploratory operation, when the wound was covered with granulations, the thyroid was exposed to the roentgen rays. Six exposures were made of ten minutes each in the course of six weeks. By the fourth exposure the pains were less, and the thyroid began to subside. Each exposure was followed by malaise and general prostration which was thrown off in twenty-four hours. In two months the wound was almost completely healed but the evening rise in temperature persisted a while longer. By the fifth month the patient had gained 22 pounds in weight, the complexion was good, there had been no pains for two months and the thyroid had returned to normal size and consistency except for slight hardness of the upper pole of the right lobe. The clinical recovery has persisted unmodified to date. No trace of tuberculosis elsewhere had been found at any time except a few small hard, movable and indolent glands in the right supraclavicular region, which were apparently not influenced by the treatment. Giacinto has found nine operative cases of tuberculous strumitis on record with an abscess; two terminated fatally and in one a fistula persisted. In the nine cases of ligneous tuberculous thyroiditis, three of the patients succumbed soon to complications, or to thyreopriva cachexia. The operation was done in these nine cases on assumption of cancer. The roentgen rays demonstrated a curative action also on an extensive tuberculous lesion on the tongue in a case reported by Stropeni in 1913. Gebele has published a case in which, after resection of part of the thyroid, the remainder was treated by roentgen exposures, and permanent clinical recovery followed. The retrospective diagnosis was tuberculosis.

78. Tests of Kidney Functioning in the Young.—Pirondini reports application of the urea test (described in Abstract 75), to children over 6 to puberty and to adolescents. The findings seem to indicate that the smaller size of the kidneys in the young is compensated for by a higher functional capacity, so that the functional performance does not differ materially from that in adults.

Riforma Medica, Naples

Aug. 24, 1918, **34**, No. 34

- 80 White Suprarenal Dermographism. R. Massalongo.—p. 666.
81 Occult Spina Bifida in Adult. L. Coleschi.—p. 668.
82 *D. Cotugno, 1736-1822. G. Gradenigo.—p. 671.
83 Immunization against Snake Venoms. E. Aievoli.—p. 674.

82. The Anatomist of the Labyrinth.—Gradenigo quotes from the great Italian work of D. Cotugno, 1761, to show that the latter was the pioneer in the anatomy and physiology of the internal ear. Time has confirmed the correctness of his statements, but Helmholtz published the same thing in 1862 as the results of his own original research, with no reference to Cotugno. Gradenigo suggests that it might be to the advantage of other nations, as well as Italy, to begin to take an inventory of their scientific patrimony, instead of continuing to accept at its face value the frequently recurring "Made in Germany" stamp.

Rivista Critica di Clinica Medica, Florence

Aug. 24, 1918, **19**, No. 34

- 84 Localization of Foreign Bodies by Horizontal Displacement of Roentgen Tube. E. and E. Pittarelli.—p. 397. Commenced in No. 33, p. 385.

Anales de la Facultad de Medicina, Montevideo

June, 1918, **3**, No. 3-4

- 85 *Gastro-Intestinal Derangement in Infants. L. Morquio.—p. 161.
86 *The Pathology of Labor. S. C. Rossi.—p. 233.
87 *Cancer with Pregnancy. Bottaro and M. B. de Bengoa.—p. 239.
88 Experiences with Various Forms of Scrotherapy of Anthrax. H. J. Rossello.—p. 251.
89 *Normal Horse Serum in Treatment of Anthrax. A. B. Langon.—p. 258.
90 Negative Seroreactions in Typhoid. A. N. Berta.—p. 265.

85. Gastro-Intestinal Derangement in Young Infants.—In this concluding instalment of his long study of this subject, Morquio discusses the therapeutic indications after the diet has been regulated. He discusses further the treatment of malnutrition and of diarrhea from other causes than the food. He emphasizes in particular that calomel is directly contraindicated in this latter type of diarrhea, and he does not

advise its use for digestive disturbances of any kind in infants. In fact he declares that purges are given too much in treatment of infants. In some exceptional cases diarrhea may develop at some phase of teething, appear and disappear with it, without any other cause being apparent. If the gum is much swollen and the tooth close to the surface, the diarrhea may justify lancing the gum although he does not advise this as a regular thing. He warns that the urine should be examined for evidences of nephritis whenever we encounter a clinical picture in an infant which we are unable to explain. Palpation of the kidney may reveal a swollen pelvis. This is particularly liable to be encountered with digestive or influenzal infectious processes, or both combined.

86. Occupational Diseases.—Rossi discusses the pathology of labor as the first lecture of a course on occupational diseases.

87. Cancer of Uterine Cervix in Pregnant Woman.—Bottaro and de Bengoa report the cure of the cancer under radium and the successful termination of the pregnancy—the case apparently demonstrating that the fetus does not suffer from radium exposures, at least after the fifth month. The woman was at about the seventh month of her sixteenth pregnancy (with thirteen living children), and an infiltrating carcinoma, starting in the cervical mucosa, had been probably responsible for occasional metrorrhagia during the last twelve months. There had never been any pains. Six radium exposures were given in the course of six weeks, under which the neoplasm decidedly retrogressed. Then a vigorous child was extracted by cesarean section, which was followed by pan-hysterectomy. Six weeks later the radium exposures were renewed and supplemented with roentgen exposures. The woman has seemed to be in good health during the months since. The cicatrix in the vagina is movable, and there is no pain on pressure anywhere.

In conclusion they call this the "rochar" method of treating cancer of the cervix during pregnancy. This term is made up from the initials of the procedures applied, namely, radium, observation, cesarean, hysterectomy, annexectomy and radiations. They add that V. Asa of Madrid has reported a similar case, confirming that the radium exposures do not damage the fetus. Aza's patient, however, succumbed to heart disease in less than three weeks, so their case is the first conclusively successful one of the kind.

89. Normal Horse Serum in Treatment of Anthrax.—Langon reports 13 new cases, which added to Montebruno's 4 and 18 he has previously published, bring to 35 the number of patients with anthrax given subcutaneous injections of normal horse serum. He began with 30 or 40 c.c., to a total of from 40 to 100 c.c. and the lesion healed over promptly in every case, with no signs of serum sickness. Some of the cases were extremely severe ones but there was no mortality.

Revista de Medicina y Cirugia Practicas, Madrid

July 21, 1918, **120**, No. 1515

- 91 *Production of Heat with Thyroid Treatment. M. Bañuelos.—p. 65.
Aug. 7, 1918, **120**, No. 1517
92 *Physical Exercise and Memory. M. Bañuelos and Girbau.—p. 129.
93 Extraction of Projectiles under Radioscopic Control. R. V. Zeballos.—p. 134.

91. Production of Heat During Thyroid Treatment.—The rabbits tested showed always a marked increase in heat production under the influence of thyroïdin. It was proportional to the dose.

92. Influence of Physical Exercise on Memory.—The capacity of fixation and retention of auditory and visual impressions seems to become reduced under the influence of physical exercise. The tests were made on Spanish students and soldiers.

Siglo Medico, Madrid

Aug. 17, 1918, **65**, No. 3375

- 94 *Bladder Stones. Angel Pulido Martin.—p. 661.
95 *Thyroid Deficiency. J. C. M. Fournier.—p. 665.
96 *Dynamics of Heart. M. B. Garcia.—p. 669. Cont'n.

Aug. 24, 1918, **65**, No. 3376

- 97 Handwriting and Drawing of the Insane. R. P. Valdes.—p. 685.
98 Case of Beriberi in Spain. J. G. Castro.—p. 690.

94. **Bladder Stones.**—Martin calls the concretions which develop in an inflamed organ secondary calculi, and reports ten cases of the kind in children and in adults. The stones perpetuate the inflammation. Some of his cases emphasize the necessity for refraining from the use of silk in operations on the urinary passages, as it is liable to form the nucleus for stones. Also the necessity for keeping up the clearing out and disinfecting of the bladder until the interior surface has entirely healed over. Otherwise salts may be deposited on some scrap of tissue sloughed off around the high incision.

95. **Congestive Form of Hypothyroidism.**—Summarized on page 321 of *THE JOURNAL*, July 27, 1918, when it appeared elsewhere.

96. **The Dynamics of the Heart.**—Garcia discusses the effects on the heart activity of stimulation of the vagus nerve under different conditions of repletion and isomeric contraction.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

Jan. 12, 1918, 2, No. 2

- 99 *Uric Acid Metabolism in Asthma and Rhinitis. A. de Kleyn and W. S. van Leeuwen.—p. 68.
100 *The Blood Picture in Pneumonia. N. Benstz.—p. 76.
101 Scabies in the Netherlands. M. W. Marsman.—p. 80.
102 The Food Supply. D. van den Bergh.—p. 81.
103 Mucocoele of the Ethmoid. C. J. A. van Iterson.—p. 83.
104 Paretic Dementia; Negative Wassermann Reaction. H. Bolten.—p. 85.

99. **Treatment of Asthma and Rhinitis.**—De Kleyn and van Leeuwen confirm the statements of others in regard to the changes in uric acid metabolism just before, during and after an attack of asthma and attacks of vasomotor rhinitis. They tabulate the metabolic findings in twelve cases on a purin free diet, and during and after a day on which 100 gm. each of meat and of kidney or sweetbreads had been ingested. In comparison with normal persons, the excretion of uric acid in the urine was of the same type as in gout. This suggested treatment on the same basis as for gout, reduction of the purins in the diet and antigout drugs. The effect was remarkable in some of the rhinitis cases, and some benefit was apparent in the asthma cases but less pronounced. The significance of the abnormal conditions in respect to elimination of uric acid in their cases of asthma and vasomotor rhinitis was enhanced by the frequent discovery of metabolic diseases in other members of the families, especially gout. They urge others to inform them of cases of vasomotor rhinitis, asthma, gout and hay-fever in one family, specifying whether the diagnosis of gout is based on metabolic research or on the gouty big toe. The outlook is encouraging for great relief and improvement in vasomotor rhinitis under abstention from purins, with calcium chlorid according to indications, and possibly other antigout drugs. Acid drinks and dishes should be avoided as well as the purins.

100. **The Blood Picture in Pneumonia.**—Benstz examined the blood every noon before the midday meal in forty-four cases of croupous pneumonia. The displacement to the left of the Arneth count was most pronounced in the severer cases. Examination of the blood therefore usefully supplements and confirms the findings of clinical examination.

Hospitalstidende, Copenhagen

Aug. 28, 1918, 61, No. 35

- 105 *Functions of the Cerebellum. S. Ingvar.—p. 1137.

105. **Functions and Topography of the Cerebellum.**—Ingvar presents an array of arguments, based on original research and the findings of others, to sustain the assumption that the main function of the cerebellum is to maintain and regulate the static and kinetic forces of the body, combating by reflex action the attraction of gravity and inertia. The remarkable uniformity in the structure of the cerebellum through the entire series of vertebrates is thus not so wonderful as it seems without this explanation.

Hygiea, Stockholm

Aug. 15, 1918, 80, No. 15

- 106 Case of Bulbopontine Tumor. L. Brahme.—p. 865.
107 Disease of Urinary Apparatus in Children. G. Lindberg.—p. 890.

Ugeskrift for Læger, Copenhagen

Aug. 22, 1918, 80, No. 34

- 108 Typhoid Cholecystitis; Recovery. W. Munck.—p. 1346.
109 Cat and Dog with Scabies. Frisch.—p. 1348.
Aug. 29, 1918, 80, No. 35
110 *Roentgen Treatment of Exophthalmic Goiter. S. Nordentoft.—p. 1371. Commenced in No. 34, p. 1331.

110. **Roentgen Treatment of Exophthalmic Goiter.**—Nordentoft reports fifty cases of exophthalmic goiter given roentgen treatment, and discusses the participation of the thymus. The roentgen exposure was made for from forty to sixty minutes, at one sitting. Two or three exposures generally sufficed, with intervals of from four to eight or six weeks. The subjective improvement was marked from the first, the restlessness, tremor and subjective heart disturbances subsiding first, the goiter and exophthalmos more gradually; the tachycardia last of all. Even in the most favorable cases, the patients still display an unstable pulse and tendency to tachycardia on slight provocation. In several cases the desired effect was realized with a single exposure. This method of a few large doses with long intervals may be better adapted for certain cases than for others, as time will reveal. In any event, it is far more convenient for all concerned than a larger number of smaller doses. His fifty patients were given a total of ninety-nine sittings; in eighty-four the thymus was exposed as well as the thyroid, as he is convinced that the thymus is a factor in certain cases of exophthalmic goiter. He cites a number of cases from the literature in which with exophthalmos and tremor, etc., the thyroid was of normal size while the thymus was much enlarged, and marked improvement followed thymectomy. The thyroid and the thymus under other conditions seem to have an antagonistic action, but with exophthalmic goiter they seem to work in concert.

He presents series of data which sustain the assumption of a "thymus Basedow" and a "thymogenous exophthalmic goiter." If the thymus is mainly responsible, then removal of the thyroid would have little effect on the disease. The thymus is the organ that should be removed in such a case. This might entail spontaneous retrogression of the thyroid. These assumptions throw light on the 20 per cent. of failures reported in the larger statistics of thyroidectomies. He describes several cases of probable thymus origin, one in a man of 50 who had been under treatment for exophthalmic goiter two years before. The tachycardia, palpitations, slight exophthalmos, tremor, and Graefe's symptom, but no Moebius' symptom, were not accompanied by goiter, but they were so severe as to incapacitate him completely. His thyroid and thymus were given a single roentgen exposure, and within two months apparently complete health was regained and has persisted during the five months since.

Such experiences teach the necessity for applying roentgen treatment to the thymus as well as to the thyroid, or possibly to the thymus alone at the first sitting. Operative removal of the thyroid should not be done until after the failure of roentgen treatment, which Nordentoft says will be of rare occurrence. He queries whether it is not our duty to expose the thymus to the roentgen rays before any operation on the thyroid. In Sjølling's postmortem examination of eighteen exophthalmic goiter cases he found a persisting thymus in sixteen. The question also arises whether the cases of exophthalmic goiter that respond most promptly and favorably to roentgen treatment may not be those of thymogenous origin. Thymectomy is a dangerous operation, but the thymus is exceptionally sensitive to the roentgen rays. The effect begins to be apparent in about twenty-four hours. He reports some cases of spasm of the glottis with hypertrophied thymus, cured by roentgen exposure of the thymus. In conclusion he cites statistics showing 13 per cent. fatal cases of exophthalmic goiter among 1,300 given medical treatment alone, and 25 per cent. in the seventy-five cases at the Frederiks Hospital. In contrast to this is the zero mortality in Fischer's ninety-four and his own fifty cases given roentgen treatment. The full details of his fifty cases are tabulated. More or less benefit was realized in all and the improvement has persisted to date; only a few have been lost track of.

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MULTIPLE INFECTIONS

A STUDY OF THE RELATION OF ONE INFECTION
TO ANOTHER *

WILLIAM W. DUKE, M.D. (KANSAS CITY, Mo.)

Physician Attached to the American Red Cross

FRANCE

It is generally recognized that when a person has one or more infectious diseases, one may influence the other occasionally to the apparent advantage of the patient, but more frequently to his disadvantage. In other words, increased susceptibility to one organism may result from infection with another. This subject has been dealt with in the literature under such titles as mixed infection, metastatic infection, secondary infection and focal infection. It may be illustrated by familiar clinical examples. It is well known, for instance, that latent tuberculosis may become active and rapidly progressive after an attack of tonsillitis, measles or pneumonia. Osler mentions the fact that quiescent maladies, such as congenital syphilis and tuberculosis, may be lighted into activity by vaccination. Urethritis or chronic prostatitis is often unfavorably influenced by the onset of a new infection. Urethritis that is apparently cured may occasionally recur after an attack of tonsillitis, bronchitis or other acute infection. In a patient whom I observed, a urethral discharge in which gonococci were abundant was noticed a few days after a severe attack of tonsillitis. The patient gave a history of having had urethritis two years previously, but since that time had apparently been well and had not been exposed to fresh infection. Chronic cystitis of a mild type may become severe following an attack of diarrhea, cholecystitis or appendicitis. A patient who had specific disease that had been thoroughly treated and had been apparently latent for four years was covered with a copper colored papillary rash and gave a positive Wassermann test at the end of the first week of convalescence from typhoid fever. Another patient had an attack of pneumonia after the appearance of an acute alveolar abscess. Several weeks later he had a recurrence of active tuberculosis that had been latent for many years and had not interfered with the most active mental and physical work.

Chronic infections of a milder nature may also have deleterious influence on other infectious diseases with which a person may be afflicted. This influence is often quite marked. The ill effect of chronic infections of the nose and throat on persons with tuberculosis is

generally recognized, and proper local measures for the cure of these are looked on as an important part in the regimen for treating tuberculosis in many institutions. Oral sepsis may have an important influence on tuberculosis, and the eradication of oral sepsis may be of material value in arresting the progress of the disease.

Staphylococcic infections of the skin, such as acne and chronic furunculosis, according to Sutton, are often more amenable to treatment after the eradication of infected tonsils, alveolar abscesses, etc. In a patient with *Staphylococcus aureus* septicemia of more than two months' duration, the temperature fell to normal a few hours after the extraction of an infected tooth and remained normal for ten days. The case eventually ended in complete recovery. The roots of the tooth showed *Streptococcus viridans* in almost pure growth when cultures were taken, while repeated cultures of the urine and two blood cultures gave a growth of *Staphylococcus aureus*.

One chronic mild infection may influence the course of other chronic mild infections. For example, tonsils that appear to be chronically inflamed often become smaller and appear relatively normal after the eradication of severe oral sepsis. Chronic infection of the nasal sinuses may often be reduced in severity or apparently cured by the removal of infected tonsils or alveolar abscesses. Persistent cases of pyorrhea often yield rapidly to treatment after the removal of chronically infected tonsils or after the extraction of abscessed teeth. A patient who had been subject to recurrent attacks of slight jaundice associated with slight fever and pain in the region of the gallbladder for several years was apparently relieved permanently by the extraction of one abscessed tooth. Numerous similar examples with which careful observers are familiar could be mentioned.

EFFECT OF CHRONIC SEPSIS ON SYPHILIS OF NERVOUS SYSTEM

The ill effect of chronic sepsis on the course of syphilis of the nervous system is often very great, and on account of its practical importance will be dealt with in some detail. Syphilis of the central nervous system was suspected clinically and verified by lumbar puncture in 6 per cent. of 1,000 cases in office practice in which I made examinations on account of general medical complaints. One or more additional chronic infections thought to be of serious moment were found in nearly all of these. The coexistence of syphilis of the nervous system and chronic sepsis in persons observed in office practice is therefore common and very important. The fact that an infection in no wise related to syphilis may hasten the course and augment

* A portion of this article has been reported in brief by the writer in a monograph entitled "Oral Sepsis in Its Relationship to Systemic Disease."

the symptoms of *tabes dorsalis* is well illustrated by the subjoined cases:

CASE 1.—A man, aged 35, had been treated two years for *tabes dorsalis*. Before treatment was started he had noticed slight ataxia and bladder disturbance and was subject to mild attacks of darting pain in the legs. He improved very satisfactorily under specific treatment, and after he had been free from pain and bladder disturbance for more than a year, he had an attack of acute tonsillitis. With the onset of this there followed a recurrence of the most severe lightning pains that he had ever experienced. Morphine and salicylates to the limit were required to keep him out of agony. Nothing was disclosed except the attack of tonsillitis to account for the sudden recurrence of severe symptoms of *tabes*. A tonsillar abscess developed, and when this was incised, the lightning pains at once ceased almost completely. A few slight pains were noticed until the tonsils were removed three weeks later. During two years since that time, the patient has been practically free from any active symptoms of *tabes dorsalis* and has required very little treatment of any kind to prevent recurrence of his previous symptoms.

Since observing this case I have made a careful search for chronic sepsis in patients with syphilis of the nervous system, and on finding it have eradicated it thoroughly before beginning antisyphilitic treatment. It has seemed apparent from the results obtained that many of the symptoms of early *tabes dorsalis* that one might attribute to progress of the disease, such as lightning pains, increasing numbness, paresthesia, ataxia and visceral disturbances, may be rendered worse by chronic sepsis and may be relieved to a considerable degree by its removal. In fact, one might assert, with reason, that in persons suffering from *tabes dorsalis* the removal of chronic sepsis as a therapeutic measure for arresting the disease ranks in importance barely second to specific medication itself.

CASE 2.—A man, aged 50, with *taboparesis*, had been given thorough specific treatment for years. When he came under my observation he was unable to attend to business, and spent most of his afternoons in bed. All known methods of treatment had been pushed to the limit, and it appeared that very little improvement could be expected from further specific measures. The patient had large tonsils and several abscessed teeth. These were removed, whereupon the patient improved steadily and to an unbelievable degree. Within less than a month he was able to engage again in business. He has continued mild specific treatment, and has remained in active business since that time.

CASE 3.—A man, aged 45, was brought in with a diagnosis of *tabes dorsalis*. Physical and laboratory examination left no doubt concerning this. The onset had been stormy, and for three weeks the patient had been fairly convulsed with darting pains and had hardly been able to control himself. He was so nervous and irritable at the time of the examination that it was almost impossible for him to remain quiet long enough to permit a specimen of blood to be obtained for examination. Lumbar puncture could not have been performed without general anesthesia. The teeth showed an advanced degree of sepsis. The abscessed teeth were all extracted. Within a few days the patient's condition was so much improved that he went back to work. He felt and acted like a well man even though specific treatment had not yet been administered.

Many cases similar to the foregoing could be cited. These are not unusual cases, but represent almost an average experience.

ALLERGY

The problem of multiple infections and the relationship which one infection bears to another is deeper and of greater interest than the simple fact that a

person bombarded by two or more infections is worse off than if he had only one. One infection has an interesting relationship to other infections with which a person may be affected, and may be explained in part at least through phenomena described under the term allergy, protein sensitization and anaphylaxis.

A true toxin is not formed by any of the microorganisms that ordinarily take part in the pathology of infection in human beings with the exception of tetanus and diphtheria bacilli. Killed cultures of all other organisms or extracts of the organisms, or the culture mediums in which they have grown may be injected in large quantities into healthy guinea-pigs without immediate gross ill effect. They differ strikingly in this respect from tetanus and diphtheria bacilli, each of which produces a true toxin that is poisonous in high degree when administered subcutaneously even in very minute doses to animals. The products formed by other organisms that cause disease may be extremely toxic, however, through an entirely different mechanism, namely, the development in an individual of a condition known as allergy. This term introduced by Pirquet, is used to designate the changed condition of human beings or animals, caused by infectious diseases or produced by inoculation with alien proteins, which causes the individual to react in a peculiar way if the bacteria responsible for the infectious disease or if the protein with which he may have been inoculated is reintroduced into the circulation. The ensuing reaction is in some respects protective and beneficial, but in other respects may be harmful and even dangerous.

Allergy and its effects are well illustrated by the action of tuberculin. Killed tubercle bacilli or their extracts, or mediums in which tubercle bacilli have grown, may be injected in large amounts into normal untreated animals without gross immediate ill effect. If even minute quantities are injected into animals or persons with tuberculosis, however, the effect is entirely different. Instead of its being apparently inert it causes a reaction which may result quickly in death. The changed condition of the animal produced by the tuberculous infection which renders it sensitive to the products of the tubercle bacillus is the condition known as allergy. Several striking phenomena follow the introduction of tuberculin into tuberculous persons or animals which never appear in the nontuberculous. These are, first, pain, swelling, redness and sometimes necrosis at the site of inoculation. This is known as the local reaction. Second, a rise in temperature and pulse rate and general symptoms of toxemia, which phenomena are known as the general reaction. Third, inflammatory changes at the site of all active tuberculous lesions. This is known as the focal reaction. This last phase is very interesting and may be used in explaining many of the phenomena observed in multiple infections. It may be slight or may be well marked. It may hasten the breaking down of tuberculous tissue and lead to rapid spread of the disease.

Some persons with tuberculosis become so sensitive to products of the tubercle bacillus that amounts of tuberculin as minute as 0.001 mg. are sufficient to produce severe reactions and to cause local inflammatory reactions at the site of all active tuberculous lesions. Others tolerate larger amounts. A reaction as described above can be produced in tuberculous animals by the subcutaneous injection of living tubercle bacilli as well as by extracts of the organisms. If tuberculous

guinea-pigs are inoculated with living tubercle bacilli, a local and general reaction results within a few hours essentially similar to the reaction produced by the extracts of dead bacilli. If nontuberculous animals are similarly inoculated, no such reaction ensues, but the animal after a period of days or weeks becomes ill and dies of tuberculosis. If a localized tuberculous lesion in human beings (such as a tuberculous joint) is subjected to massage and manipulation, living tubercle bacilli or their products gain entry into the circulation, and a transitory rise of temperature and other symptoms of a general reaction may follow. This may be associated with an increase in the inflammatory reaction at the site of all other active tuberculous lesions (focal reaction).

The foregoing well known facts regarding tuberculous infection and the sensitization produced by it are true of infections in general. An attack of typhoid, for example, renders an individual sensitive to the protein of the typhoid bacillus, an attack of furunculosis renders one sensitive to *Staphylococcus aureus*, etc., so that persons having these diseases usually show a local, general and focal reaction if they are inoculated with killed cultures of the offending bacteria. This may temporarily increase the severity of the infection, the degree of which would depend to a certain extent on the quantity of bacteria injected.

Persons with chronic furunculosis may give a general reaction within a few hours if they are inoculated with an excessive quantity of killed staphylococci, and the furuncles are made temporarily worse. Such persons react similarly when they are subjected to the effect of an increased number of living bacteria due to the development of a fresh furuncle. This often causes both a general and a focal reaction. For example, with the development of a fresh furuncle there may appear fever, malaise, etc. (general reaction) and an exacerbation in the inflammatory process in recent furuncles (focal reaction). In fact, signs of activity, such as itching and redness, may appear in the scars of recently healed furuncles. This may be followed by a discharge of pus containing *Staphylococcus aureus*. These well known principles are true of infection in general and can be used in the explanation of many interesting phenomena. It often explains the reason why with the onset of a new infection signs of irritation and inflammation may appear within a few hours at remote points. Case 4 illustrates this:

CASE 4.—A woman, aged 60, relatively normal for her age, had ten infected teeth extracted. Less than twenty-four hours afterward there developed a severe acute follicular tonsillitis. Several days later the infection began to spread from the gums to the cheeks, pharynx and tongue, and give rise to an extensive ulcerative stomatitis. The point to be emphasized here is the fact that the inflammatory reaction in the tonsils, while relatively distant from the gums, occurred within a few hours and preceded by several days the infection of the neighboring tissues of the mouth. It occurred after too brief a period of time to be the result of direct infection of the tonsil by the organisms disseminated from the alveolar process, and must have been a reaction of tissues sensitized by the organisms already localized in the tonsils. It was analogous in every way to the focal inflammatory reaction in the lungs that may be brought about in tuberculous individuals by the injection of an overdose of tuberculin.

It is by no means uncommon to observe pain in the region of the gallbladder, appendix, stomach, joints, cervical glands, etc., a few hours after the extraction of infected teeth, and such may frequently be inter-

preted as focal reactions caused by the traumatic dissemination of micro-organisms or their products from the alveolar process.

Frequently the clinical manifestations of chronic appendicitis, cholecystitis, gastric and duodenal ulcer, chronic arthritis, etc., clear up rapidly after the extraction of diseased teeth, even though the first effect may have been an increase in the inflammatory processes. Occasionally chronic inflammatory conditions that appear to indicate the need of surgical interference and serious internal diseases that cannot be reached by therapeutic agents partially clear up after as simple a procedure as the extraction of a tooth or the removal of a pair of diseased tonsils. The relief can often be attributed to the fact that sources of bacterial products that have been continuously causing focal reactions in the infected organs have been removed.

This explanation applies very nicely to multiple infections when each lesion is caused by the same micro-organism. It may or may not apply in part to lesions caused by different micro-organisms. This question is an open one about which much might be said. For example, if a person has streptococcic tonsillitis, a latent streptococcic infection in the joints and in the gallbladder, it would be in harmony with accepted theories if an acute exacerbation of the tonsil infection were followed in a few hours by a reaction in the joints and gallbladder that caused pain and other phenomena of a focal reaction. This explanation, as previously mentioned, would not apply in the same way to multiple infection if the various lesions were caused by different micro-organisms, because sensitization against the protein of an infecting organism is thought, and I believe correctly, to be more or less specific. Whatever the theoretical explanation may be, we have this fact, which is beyond dispute: Infection with one micro-organism may lower the resistance against other micro-organisms to a degree that is by no means negligible. I dealt with this above, and mentioned clinical examples. One further illustration even more striking may be added here:

CASE 5.—A patient, aged 35, apparently in good health, had a severe attack of erysipelas, evidently streptococcic in origin. A few days after this a very insignificant pustule no more than 2.5 mm. in diameter which showed *Staphylococcus aureus* on culture began to spread with great rapidity and within a few days gave rise to an extensive phlegmon which persisted for two weeks. In this instance the streptococcic infection certainly had lowered resistance against *Staphylococcus aureus*.

TYPES OF IMMUNITY

There apparently exist two types of immunity—a specific immunity and a nonspecific immunity. Nonspecific immunity has been made use of in the cure of disease by Miller and Lusk, Jobling and Petersen and others, who have injected alien protein of different types (including killed typhoid bacilli) in the treatment of arthritis and other infectious diseases. While the results obtained were not invariably a complete success, they were sufficiently striking to warrant the observers in concluding that nonspecific immunity is often an important factor in the cure of disease. The inoculation of infected persons with an alien protein, such as typhoid bacilli or albumose, may cause general reactions that render the patient's condition temporarily worse. Often it also causes focal reactions in the infected areas. For example, in persons with arthritis the joint pains may often be more severe a few hours

after the intravenous injection of typhoid bacilli. Persons with *tabes dorsalis* frequently have sharp, darting pains in the legs after similar intravenous injections. The reactions that are produced by the injection of alein proteins are often very similar to reactions that follow inoculation with the specific organism that causes the person's disease. It is not inconceivable that frequently repeated inoculations with a nonspecific virus might cause repeated reactions in inflammatory lesions due to other organisms and in this way do harm and cause an exacerbation of the disease. It is possible that one infection may exert a deleterious influence on lesions caused by other micro-organisms in some such way as this and might in part explain the cure of one infection by the removal of another infection in no wise related to it.

PRACTICAL CONSIDERATIONS

This paper has been written because of its practical bearing on the treatment of infections. Whether or not the explanations given are the correct ones, these facts stand, I believe, proved and beyond dispute:

1. In persons suffering from multiple infections, each infection may increase the severity of the others whether due to the same or to different organisms.
2. Removal of one infection may, under favorable conditions, be followed by spontaneous healing or improvement in the others. A physician often is faced by a combination of infections, some of which are removable, and others not. A consideration of problems of the relationship between infections often aids in the practical handling of the situation. If minor infections are promptly taken care of, those that are more serious may take care of themselves.

CONCLUSIONS

1. When a person has several infections, each may increase the severity of the others whether due to the same or different infecting micro-organisms.
2. Acute exacerbation of one chronic infection may stir up other apparently latent infections into activity.
3. The removal of one infection may under favorable conditions be followed by spontaneous healing or improvement in others.
4. If minor infections are properly taken care of, those that appear serious may yield more easily to treatment.
5. Chronic sepsis exerts a serious influence on the course of *tabes dorsalis*, and its removal is frequently followed by amelioration in the symptoms of this disease.

Effects of the War on the Next Generation.—The general physical standard of the men who have joined the colors is necessarily on the average distinctly better than that of the men who have not joined. Only men above a certain level of physique are accepted; men of smaller build or weaker constitutions are rejected. A heavy loss of life has occurred, and is yet to occur among the men who are fighting with our armies. No corresponding wastage is occurring among those who are not fighting. The result must be that the average physical standard in this country of males of the ages of say 20-40 will be much lower after the war than it was before the war. This lowered standard will be reflected in children born in subsequent years; and will begin to be recorded at school medical inspections about the year 1921, when the children born in 1916 are entering on their school life.—Dr. D. Morley Mathieson, M.O.H., South Shields, England, *Medical Officer*.

THE TREATMENT OF LYE STRICTURES OF THE ESOPHAGUS*

THOMAS HUBBARD, M.D.

TOLEDO, OHIO

In 1910, Dr. Jackson made earnest appeal for legislation to protect innocents from lye products sold for domestic use. Careless and misleading labels and indiscriminate distribution of caustic cleansers have been responsible for many of these accidents and food and drug laws do not penalize the manufacturer or agent. They are put on the market to be used by housewives and certain it is that the more careless the housewife the more likely she is to use the stuff and, also, the more liable she is to have more children than she can safeguard.

These overworked women and their children deserve what protection the law can give them against the commercial shark and it seems to become the duty of the medical profession to keep hammering away until they are heard. Caustic alkalis and cleansers should be caution labeled and the sale restricted as are all poisons.

There are a few important features of lye corrosion which should be mentioned. The mouth secretions usually protect by dilution the throat and hypopharynx and, as a matter of clinical observation, the real escharotic effect is usually in evidence at the cricoid or about the depth of the bronchial region and above the hiatus.

It seems that at these points the caustic is arrested briefly, or owing to the somewhat delayed spasm excited by the irritant, the bolus is retarded in the lower esophagus and enters the stomach slowly. This accounts for the fact that comparatively few of these victims exhibit stomach lesions, the acid secretions neutralizing as fast as it reaches the organ. The esophagus is a senseless kind of an organ, that is to say, deficient in sensible nerves and inclined to throw spasmodic fits much to the detriment of its own welfare. But we must label this a conservative physiologic action in that it aids in protecting the more complex, vital organ, the stomach. Most of these victims vomit rather promptly and thus does the stomach repay the self-sacrificing esophagus by furnishing the antidote, acid secretions.

CASES OF LYE TRAUMA

I have seen two fatal cases which I will briefly mention to make clear the serious effects of lye trauma in the stomach.

One, a lad, aged about 12, who had swallowed lye at 2 years of age. The stricture was not complete and he had existed on liquid nourishment for ten years. He was diminutive and emaciated to a skeleton—no hair, no teeth, a pitiful little old man. Gastrostomy was done and an effort made to build him up before dilatation of the stricture was attempted, but there was evidently atrophy of the gastric mucosa, and he died in about a month from inanition.

The other fatal case was that of a girl of 5 years who had swallowed lye six months previously. The stricture of esophagus was of moderate degree, but she could not digest anything and died in a few weeks of inanition.

A third case is reliably reported to me. Lye was swallowed at the age of 5. No esophageal lesion followed, but life has

* Read before the Section on Laryngology, Otology and Rhinology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

been a wretched existence well into manhood. He suffers from malnutrition, poor development, bad teeth, etc., due probably to lye destruction of the gastric mucosa.

The youngest patient I have treated for lye stricture was a baby 1 year old. He had eaten a lump of caustic powder sprinkled on the floor preparatory to a scrubbing. The stricture was in evidence about two months later, located near the cardia. The usual roentgen-ray barium examination, followed by the Sippy wire guide under esophagoscopy control, and then gradual dilatation over a period of about two months effected apparent cure. This family left town and I cannot give the end result.

I have seen just such cases in older children and adults with moderate strictures and big dilatations above having obstruction to deglutition periodically when retained food caused increase of inflammation at the site of stricture. These cases should be watched over a period of years.

The next case presents unusual features, in that the strictures involved the lower 3 or 4 inches of the esophagus and the canal was very tortuous, with small sacculations between constrictions. This was shown in the roentgenogram, and esophagoscopy control in the early period of treatment was very difficult because of the impossibility of passing a tube below the bifurcation level.

This lad of 6 had swallowed lye eight months previously and the esophagus had been occasionally bougied roughly, but finally it had closed tightly. No liquids had passed for four days and he was sent in to the hospital by the family physician for gastrostomy.

Under esophagoscopy control, I passed several whalebone filiforms down and got one through; then a larger bougie and finally a small catheter which was left in, fastened to the teeth. Through this he was fed for two days and on removal he swallowed liquids fairly well, but it soon closed, and again the filiform method had to be repeated.

On account of the dilatation and sacculations above the first stricture, it was impossible to get the Sippy wire guide through without the aid of the esophagoscope, and, as a lad of this age, and Scotch at that, naturally and forcefully resented a steady diet of metal tube, I resorted to the braided string method. It took about five days to get 7 yards down. Any shorter length than that (there was probably some snarling) did not give firm enough anchorage to keep the olive guide in the tortuous passage.

(Experiences in water hunger and starvation nerved this lad of 6 up to willingness to aid in the work, and he played about with the spool pinned to his jacket, and his mother daily cut off a few feet which passed clear through. I mention these details because this heroic little fellow deserves it. Few would tolerate it. His companions learned to appreciate his courage and more than one newcomer got a good thrashing for making fun of him.)

Two weeks, with dilatation every other day, brought the lumen up to 29 (F.). Progress was very slow in this eight-months-old multiple stricture.

Even after that it was difficult to avoid entering a sacculi. For two years the dilatation was held at 31 (F.) and I considered him cured and with prospect of a perfectly useful esophagus, provided it was occasionally dilated as he grew. At about the age of 9 he died of acute septic meningitis, being sick only four days.

Was gastrostomy indicated in this case after the four days' starvation? It was probably more of a venture to attempt dilatation with possibility of failure than to have done gastrostomy with certainty of getting fluid into the stomach. The conclusion is that in patients exhibiting extreme water hunger, prolonged effort to enter the stenosed esophagus should be avoided and preparations for prompt gastrostomy

should be the rule. The string method is not practical because of lack of time.

A little Welsh war baby, aged 2 years, has been under treatment for six months now. She was starving four months after drinking diluted lye. Water hunger was extreme, stools were like chalk and she was emaciated to the limit.

The stricture area begins at the bronchial level and extends to the cardia, three distinct stricture bands being in evidence. For the first month it was necessary to pass the guide through the esophagoscope. The first few dilatations, under light anesthesia and with aid of the esophagoscope, were comparatively easy, but frequently after that it was difficult to pass the guide even though she swallowed liquids readily. There is a crescentic band at the bronchial level and some dilatation above it. In a comparatively recent case like this the difficulty was probably due to softened sloughing mucosa into which the guide would plow.

In all such cases, one must use the esophagoscope and take unusual precautions to avoid perforation until a free straight passage is well established. The dilatation intervals are too long in this case, as the patient lives out of town and progress is slow—now held at 26 (F.) for six months.

DILATATION AFTER GASTROSTOMY

The worst case I have encountered and the one that presents some special features for discussion is that of an adult who swallowed about half an ounce of concentrated sodium hydroxide in an attempt to establish siphon flow by mouth suction through a large rubber tube. Himself a chemist, he was so choked and shocked by the accident that no neutralizing antidote was taken. Spontaneous emesis soon after probably saved him from fatal consequences.

I first saw him about three weeks after the accident and soon thereafter passed the esophagoscope. The throat and hypopharynx were quite denuded of epithelium and a stricture web was forming near the cricoid. This was easily passed, but at the bronchial level the esophagus was nearly closed by edema. Below this, all was macerated and the mucosa peeled off before the tube, or bougie.

There was still considerable pain deep behind the sternum, and it was evident that it was a very serious trauma. No sound was passed, as he was getting sufficient fluid through, and it was decided to try rest and sterile liquid food with local medication to reduce the inflammatory swelling. Bismuth carbonate and argyrol was given, and, to allay spasm and pain, orthoform in emulsion was swallowed prior to taking fluids. Under this treatment he improved.

Three weeks later I succeeded in passing a small tube down to about 2 inches from the cardia, but I could not get even a filiform through the softened, bleeding lower esophagus. Roentgen-ray barium examination about this time was instructive. A fine, narrow thread gravitated into the stomach. In such serious cases it is important to determine the degree of muscle involvement. It would seem that by this means the deglutition muscular activity may be studied. Deep destruction of esophageal wall, including muscle, increases liability of perforation and also affects the prognosis.

Possibly I delayed too long before attempting the string guide method, and this was also unsuccessful. He had acquired the regurgitant habit, and, after getting down a yard or so, would promptly regurgitate, even though fluids passed into the stomach.

Absolute closure came rather suddenly, probably being due to exfoliation of the lower 5 inches of mucosa, and gastrostomy was done to save him from starvation, about four weeks after I first saw him. It was a perfect operation, performed by Dr. Lewis Smead, and three weeks later he was in normal strength and working regularly. Having failed to get the esophagoscope below the bronchial level, I tried to pass the guide from above under fluoroscopic control and failed. Dilatation from below was successful; that is, I passed the bougie—a urethral sound of proper curve—up to 10 inches from the incisors to the upper stricture.

Then I again dilated the firm stricture at this point from above through the esophagoscope and finally succeeded in getting the wire guide through the 5 inches of tortuous canal. Whole plaques of softened mucosa came away with each operation of passing the olives.

Gradually dilatation was accomplished up to 37 (F.), at which we now encounter rather firm resistance, in the form of about four stricture bands in the 5 inches, the worst being at the hiatus.

Was the resting of the esophagus overdone in this case? Probably a bougie could have been passed early, but at the time I first saw him the tip of any bougie seemed to bury itself in any direction in the sloughing tissue, and as submucosa and possibly muscle seemed involved, the indications were to avoid extra trauma. Gastrostomy should have been done two weeks earlier and then the string guide method would not have failed.

Retrograde dilatation seemed very easy on first trial, but on a second and a third attempt with a longer bougie of same curve, I could not find the orifice. Probably this was due to irregular stomach contraction combined with cardia spasm.

METHODS OF DILATATION

Now a few words about the Sippy method. For safety and precision it seems to me ideal. The essentials of the technic, as I have found by experience, are as follows: First, know your measurements; second, be sure that you are well into the stomach with wire guide and then go clear through with the properly selected olive bulb on the cable. If you try too large an olive and fail to get through you may pinch a band of stricture tissue between two of the olives on extraction—rather risky but even at that sometimes beneficial.

The successful dilatation of strictures of this class makes possible but does not insure a cure. The work is only half done. With starvation threatening, these patients are very obedient, but they are liable to neglect subsequent treatments and, every time a stricture tightens up, the tissue is more firm and unyielding. It is important to decide on the maximum dilatation, hold it there, and in children try to keep up with growth. It should be 26 in a 3 year old child and from 35 to 40 in an adult.

I have in mind a rule which establishes the maximum. Dilating olives are graduated on the 1 mm gradation. It usually takes about three stretchings before the olive will pass easily, warranting increase in size the next time. When one has reached a degree of dilatation that allows normal deglutition, one may determine the maximum in that particular case by this test. If five or six dilatations at short intervals bring no improvement, that is, resistance does not yield, the probability is that one has reached the limit. This should be controlled by roentgen-ray bismuth study to determine the amount of dilatation above the stricture (Jackson).

With forcible dilatation of strictures, I must say I have had little experience. In single strictures of limited area, forcible stretching seems indicated. But in lower tortuous multiple strictures with intervening sacculations, such as we usually have in lye cases, it seems to me quite impracticable and even hazardous. The element of danger lies in the fact that the weakest spot will yield first. In crescentic folds this means perforation.

I am in favor of holding the maximum dilatation by passing a specially adapted olive bulb at frequent intervals. This seems better than the flexible bougie. One knows positively when one is through the stricture. With the flexible fiber bougie one is never quite sure, especially in children.

In gastrostomized cases, the stomach tube should be retained even after dilatation is well advanced to give confidence to the patient; and also, in case there is any considerable trauma from dilatation, the esophagus may be rested by direct feeding until inflammatory reaction has subsided.

DANGERS AND LIMITATIONS

At best the work is tedious and slow and there is always an unknown element of danger. Much depends on the intelligence and cooperation of the patient. And as lye trauma occurs chiefly in the very young, it is certain that some of these cases are permanently injured and more or less handicapped for life.

There is liability of unwise restriction of diet. The natural habit is to select only soft, easily masticated foods. This results in malnutrition and retards development of teeth, bone and muscle. These unfortunates may be allowed to eat all kinds of food if only they are trained in the art of proper mastication.

Now it is not a surgical triumph to prolong a wretched existence. We must see these patients through and try and make the end-result creditable to the art.

ABSTRACT OF DISCUSSION

DR. CHEVALIER JACKSON, Philadelphia: It does seem too bad that in practically all of the states of the Union, if a druggist sends out caustic alkali he is compelled to label it, to put a skull and cross-bones on it, giving an antidote; and that caustic alkali is put on the medicine shelf. Next door to the druggist the grocer can sell caustic alkali which goes into the kitchen and is used for dishwashing and various other purposes about the kitchen, but it is not required of the grocer that he put one word on the package as to the poisonous nature of the contents. If there is any mention of poison at all it is so small as to be altogether inconspicuous. This should be regulated by law.

Many other interesting points were made by Dr. Hubbard, but I shall take time to refer to only a very few of them. In regard to the stomach being unaffected, it does seem strange that so little harm is done when caustic fluid goes down into the stomach. I saw one case in which the patient had a pyloric stenosis as well as an esophageal one. It was thought that the pyloric stenosis was due to the effect of caustic alkali; but it seemed to me doubtful. We came to the conclusion that there had existed a congenital pyloric stenosis and that it had increased; but was not due primarily or secondarily to the caustic alkali. In regard to trauma from faulty bouginage, the French clinician, Trousseau, in the pre-esophagoscopic days, said that sooner or later patients with esophageal stricture died of the bougie. Why? Dr. Hubbard referred to a cicatricial band. He knew what the local conditions were because he had looked at them. Blind bouginage is dangerous. Safety necessitates a slow procedure under the guidance of the eye.

Another point that I wish Dr. Hubbard would make reference to in closing is how soon after the accident we ought to use the esophagoscope. I feel reluctant to use it soon. It should be decided whether we should pass the esophagoscope at once and institute the treatment Dr. Hubbard suggests, or wait for three or four weeks. Another point is that in these cases there is nearly always an intermittent difficulty in swallowing. These people will go along with little trouble apparently for awhile and then for perhaps two days at a time they cannot swallow anything, as a result probably of esophagitis.

or the lodgment of food, or both. In regard to dilatation, the matter can be summed up in a few words—that with the rapid method the outcome will be a few brilliant cures but a very high mortality. Esophagoscopy bouginage is safe, but it is very slow.

DR. F. KEIPER, Lafayette, Ind.: One case which I have just finished treating temporarily (I say “temporarily” because very often these strictures have to be dilated again), was in a child, three years of age, who had swallowed only a thimbleful of lye. When I examined that esophagus I found about three inches of a very tight stricture at the cardiac end of the stomach. I believe that in all these cases the first thing to do is to have two roentgenograms, one laterally and one anterior posterior, because they give valuable information that we ought to have in the subsequent dilatation of these strictures. Then, again, no examination should be complete unless the esophagoscope is passed. It is surprising how much assistance this gives sometimes. By passing a large esophagoscope you dilate the esophagus more or less, so that on looking down through the esophagoscope you will be able to find the point of entrance into these very narrow strictures. In this case the stricture was so small that it would accommodate only the smallest of the Jackson filiform bougie, on the end of a long steel rod and then with great difficulty. I attempted to pass a Jackson bougie that carries a string, but I was unable to get through because it is a stiff steel bougie. Then it occurred to me to perforate the filiform and use that as a means of passing the string through the stricture, and I was successful in working the string back and forth through that, and cut the stricture. Of course we get but little help thus but it all counts. Patients will ask, how many dilatations will have to be made; but we cannot tell; it may require fifty or sixty and maybe more. I do think, however, that nothing should be passed, not even a filiform bougie except with the esophagoscope in place.

Another point brought out by the essayist is that it is not necessary to anesthetize the patient. This can be done without any anesthetic whatever. Of course, these little patients require to be restrained, by wrapping them tight in a sheet or blanket and then held by an assistant in order to make the first few passages, but after awhile when the patients understand better we do not have much trouble.

There is another class of burns seen sometimes among farmers when they use hydrochloric acid to burn off warts on cattle. Every once in a while some child takes a drink of that stuff. I have seen two cases where children had been sent to me in order to have the esophagus dilated, because of regurgitating of food, but in those cases I never found a stricture of the esophagus. The hydrochloric acid evidently damages the mucosa of the stomach very seriously. Whenever I find a case of this kind the only thing to do is to turn the patient over to a competent internist in order that they may have the proper care and nourishment.

JOSEPH A. STUCKY, Lexington, Ky.: I have had four cases of stricture of the esophagus as the result of swallowing lye. A few years ago when Dr. Jackson first called attention to this matter I suggested that each one of us consider himself a committee of one on publicity and get in touch with the newspapers, having them say something about it. I am sure that in the last year I have seen a fatality as the result of too much force in passing the bougie. I had seen this child the day before, after giving it some bismuth. It passed out of my hands, but a few weeks later I saw an attempt made to use a bougie. I know that it went through and the child died. We should not only use the greatest care, but we should operate by sight alone. Now that we have the roentgen ray and the fluoroscope there is no excuse for our not seeing what we are doing. In two of my cases there has been involvement of the pylorus, and in order to sustain my patients I had to get the assistance of a general surgeon and have the stomach opened and feed the child that way.

I hope that the attention of the public will be called to this and that the grocer as well as the druggist be obliged to label lye.

DR. GEORGE F. COTT, Buffalo: A few years ago I reported sixteen cases of stricture of the esophagus. You have

heard the sad side of this, but there is also a bright side. A little boy, about two years of age, who had swallowed some lye, came into the hospital and after several attempts to pass a small bougie it was given up. A woman connected with the hospital took pity on the boy and adopted him. He is now enjoying all the luxuries of wealth—that is one of the bright sides.

DR. WILLIAM B. CHAMBERLIN, Cleveland: One thing Dr. Hubbard failed to mention is the decided value of the Jackson two-pronged dilator, which has a very narrow tip. It can be inserted easily into a very small stricture, provided, of course, that you are able to get the filiform through and realize this is the true opening. In my hands this instrument has proved of very great advantage.

DR. JOSEPH C. BECK, Chicago: I have under my care at present a case of trauma of the esophagus, an acute condition which I believe I was instrumental in bringing about. A man weighing 200 pounds came to me with a history that he had had more or less difficulty in swallowing for a year, and this difficulty is increasing so that at times he has considerable difficulty in swallowing saliva. I noticed that the man had a very severe burn on the hand which dated back before the years when he had trouble with his swallowing. In other words, I suspected that this was a case of stricture of the esophagus that we are apt to see following certain conditions of the external part of the body. At any rate, the esophagoscope was passed behind the cricoid and below that the puncture was made. I suspected carcinoma, but when I looked I found a quantity of liquid, like soup, with a little solid food in it. I sucked that out and used the fluoroscope and roentgen ray. The diagnosis was made, but the interesting point is the complication. The man's esophagus closed up so that he could not get any food down. This was seven or eight days ago and he has not had any food, except through the rectum. I consulted a surgeon in this case, but he would not do a gastro-enterectomy in this case as he believes the man is well nourished and does not need this treatment. The next day the urinalysis showed sugar; he probably had it right along. In diagnosing these cases the important point is the examination.

DR. C. C. KNEEDLER, Pittsburgh: Dr. Hubbard spoke of one of his cases as an ambulant case. Do you not consider them all hospital cases?

DR. EUGENE LEE MYERS, St. Louis: A child accidentally swallowed concentrated lye. After prompt antidotal treatment by Dr. A. H. Juengel of St. Louis, the child was brought to me for the difficulty in swallowing. In due time an attempt was made to do an esophagoscopy which revealed three strictures, the lowermost being very difficult of dilatation. The instruments that I tried to use were of no avail. I was in great fear of perforation, as every attempt I made with the bougie would bring the bougie with a turn to the left, and I realized that I had a tortuous channel. I then proceeded to treat this stricture similarly to strictures of the urethra, using glycerin and olive oil as an emollient. I made use of the smallest Killian tube, which has an obturator. With the greatest of care I passed the stricture and removed the obturator and was pleased when the bougie slipped through the tube into the stomach. I then removed the tube, leaving the bougie in situ, after the principle used in leaving a filiform in the urethra. The child was in good condition at that time, but on my return to the hospital that night imagine my surprise and chagrin to find the little one with a temperature of 104 F. and pulse of 170, apparently moribund. I was of the belief that I had punctured the esophagus, but careful examination with Dr. Thomas W. Taylor and Dr. A. H. Juengel brought out the fact that the child had a double pneumonia, the cause of which could not be laid to the anesthetic, as chloroform was used.

Questioning the mother brought out the fact that the child had a severe chest cold previous to the instrumentation and it is probable that our working in the esophagus for the length of time that I found it necessary (two hours) caused the pneumonia to develop. After several dilatations in the office, the family discharged their child, claiming the boy was eating to their satisfaction, notwithstanding all my efforts to have

him bougied at intervals. At the time of my last inquiry the boy was still eating everything without any signs of a stricture.

DR. THOMAS HUBBARD, Toledo, Ohio: With reference to legislation, I would say that some years ago, soon after Dr. Jackson's paper appeared, the Bureau of Chemistry and the Department of Agriculture undertook some legislation in this regard, but it evidently has been hanging fire and nothing has been done. But I think that this organization, with the assistance of the Council on Pharmacy and Chemistry, can push it through. Many of these matters suffer delay through indifference and not positive opposition.

How soon to pass the esophagoscope after trauma? That is a very important question. In the last case I passed it three weeks after the trauma. At that time it looked like a ruined esophagus. As a factor in lessening the trauma, a light anesthetic is needed in most of these cases, especially in children. Sometimes sudden closing of the esophagus is caused by exfoliation of the mucous membrane which peels off and plugs the tube. That is what occurred in the case mentioned. Gastrostomy became urgent. In cases where the patient has been known to swallow lye and there is no esophageal lesion, watch out for gastric lesions. The longer the detention in the esophagus the less likely there is to be stomach disturbance. I have had no experience with the Jackson dilator.

I do not think we should consider all of these cases hospital cases. Just as soon as the acute stage is over they ought to be treated and trained at home. The adult and the child has to be trained and you might as well begin it early. They have to be instructed as to the selection and mastication of food, consequently I think they are home cases just as soon as the more important instrumentation period is over.

THE NATURE OF SURGICAL SHOCK AND HENDERSON'S THEORY OF ACAPNIA *

A. OSORIO DE ALMEIDA

Professor of Physiology, Medical School of Rio de Janeiro

AND

MIGUEL OSORIO DE ALMEIDA

Professor of Physiology, High School of Agriculture

RIO DE JANEIRO

The problem of shock is at present the direct object of energetic research in various scientific laboratories of the United States. The purpose of this research is to determine in the briefest possible time the true nature of this peculiar condition. The urgent need for such investigation is easily understood in view of the fact that large numbers of wounded soldiers are constantly being lost through our inability to treat cases of this nature successfully.

Before the war, the question of shock had been studied in detail, and distinguished among the publications presented on this subject are those of Yandell Henderson. Some time after the appearance of Henderson's work in which the theory of acapnia was advanced, we had occasion to conduct a series of experiments in order to verify the findings of the American physiologist. A paper¹ dealing with the results of these experiments was published in a French journal, but it appears to have remained entirely unknown to the American medical profession. Thinking that our past experience will now be of some value

to other investigators, since all known factors bearing on the question of shock must be taken into consideration, we have decided to summarize briefly the most important observations noted in our former experiments.

There is no necessity for a detailed citation of Henderson's theory or a comprehensive discussion of the series of experiments from which he derived his conclusions, for it is well known that Henderson studied the effect of excessive artificial respiration on dogs which in many instances had the thorax open. These animals, after a period varying from one to three hours, presented a state identical to that condition known as surgical shock.

In experiments so conducted, there occurred the formation of accentuated acapnia, namely, there occurred a considerable reduction of the amount of carbon dioxid in the blood and also in the body tissues.

In his first work, Henderson designated the important part played by carbon dioxid as a hormone and after an extended and ingenious series of deductions, attributed to acapnia the responsibility for the production of the state of shock. One of the most remarkable points about his theory Henderson considers the fact that when artificial respiration is made in such a manner that the air already once breathed is immediately rebreathed, it becomes impossible to obtain shock. Now it is exactly under these conditions that it is impossible to have acapnia, notwithstanding excessive artificial respiration. Today Henderson holds his theory as fundamental and only admits little modifications of the details. Recent research has demonstrated the existence of a condition of acidosis in individuals suffering from shock. Henderson,² basing his views on modern revelations concerning the action of the ions of hydrogen, shows himself inclined to believe that this acidosis plays the part of a compensator of the acapnia, and it is able to produce the death of the individual through apnea excessively prolonged.

With Henderson, the question of knowing which of the two factors is primary, the acapnia or the acidosis, should be resolved in this connection by attributing the condition of acidosis to acapnia.

Our first experiments were intended only to verify that excessive artificial respiration actually produced a state of shock. This work was conducted in Rio de Janeiro, Brazil, during the summer of 1912. In numerous attempts, never was it possible to obtain anything that resembled the state of shock as described by Henderson. The artificial respiration was frequently prolonged for four or five hours or more, without the animals showing the slightest symptom that permitted us to think of it as being in a state of shock. In cases in which the thorax was not open, the animal, if taken from the operating table at the close of the experiment, continued to stand up or walked about, and showed itself to be perfectly conscious, although displaying unmistakable signs of great fatigue.

In the face of such negative results, it was immediately evident that there was present in these experiments a factor quite different from that encountered

* Translated from the Portuguese manuscript, June 4, 1918, by Bartle T. Harvey, Rio de Janeiro, Brazil.

1. De Almeida, A. O., and de Almeida, M. O.: Véritable cause du coma produit par la respiration excessive et prolongée, Jour. de physiol. et de path. gén., 1913, 15, 498.

2. Henderson, Yandell; Prince, A. L., and Haggard, H. W.: Observation on Surgical Shock, THE JOURNAL A. M. A., Sept. 22, 1917, p. 965.

in the work of Henderson. A detailed examination of the equipment proved that it was quite the equivalent of that employed by Henderson.

Therefore, only a foreign factor of importance could influence the results to such an extent. Furthermore, this unknown factor was easily discovered as being in the temperature and humidity of the air actually employed for respiration in the various experiments.

In Rio de Janeiro, the temperature of the air in summer frequently ranges from 32 to 34 C. (89.6 to 93.2 F.) during the day, and its percentage of humidity is always very high. Taking these conditions into consideration, we made the following hypotheses:

1. Excessive artificial respiration is able to produce different effects that vary in accordance with the character of the air employed.

2. The primary effect, already well known, is the formation of acapnia.

3. If the temperature and humidity of the air employed are high, there is no appreciable modification of the internal temperature of the animal.

4. If the temperature and humidity of the air employed are sufficiently low, a progressive internal cooling of the animal occurs.

In our experiments, there was evident formation of acapnia without the slightest change of the internal temperature of the animal, and, moreover, the state of shock did not occur.

The results already obtained seem sufficient to justify the conclusion that acapnia is not the cause of the state of shock that Henderson observed it to be. Then the thought occurred that if the artificial respiration was made with air having an approximate temperature of 18 C. (64.4 F.) and a percentage of humidity ranging from 30 to 40, the internal cooling of the animal would be sufficient to induce a state of coma. The importance of this question is significant when it is realized that the foregoing conditions of temperature and humidity are identical with those ordinarily encountered in the laboratories of the United States and Europe. As we did not know positively the particulars in this respect as to Henderson's experiments, it was permissible to suppose that these were approximately the conditions under which his investigations were conducted. Furthermore, if these conditions should prove sufficient to produce internal cooling of the animal up to the point of inducing coma, it would indicate that shock, as observed by Henderson was nothing more or less than this coma itself. A second series of experiments was directed along this line of investigation for the ostensible purpose of determining the truth of this supposition. Artificial respiration was applied with the same intensity as in the first series of experiments, but the temperature of the air was lowered to 18 C., and its humidity was reduced. The animals thus treated soon manifested a rapid fall of internal temperature, and this cooling process was carried to the point of producing a state of coma that terminated in death.

CONCLUSIONS

Without wishing to enlarge on the details of experiments already published, it is believed that the results of the experiments performed permit the following conclusions to be drawn:

1. Excessive and prolonged artificial respiration produces coma and death only when it is made with air having a sufficiently low temperature and humidity.

2. If the temperature and humidity of the air are sufficiently raised, the respiration may be prolonged indefinitely without obtaining this result.

3. Since the conditions described in the preceding paragraph produce strong acapnia, it is clear that this state has no relation to coma.

4. It was the coma resulting from the internal cooling of the animal that Henderson confused with a state of shock.

5. The continuous failure of Henderson to obtain what he thought was shock, when respiration was made with air already once breathed, proves that under such conditions it is impossible to obtain the internal cooling of the animal because expired air is saturated with moisture and has a relatively high temperature.

OCULAR HEADACHE *

J. W. CHARLES, M.D.

ST. LOUIS

The vagueness of the term headache leads the layman to describe almost any discomfort in the region of the eyes, which has no outstanding characteristic, as "headache." For example, reflex discomforts which bring the patient to the ophthalmologist for headache and which have no foundation in eye disease, such as errors of refraction, muscle imbalance, or a weak accommodation, are frequently caused by a conjunctivitis and are "cured" by lid treatment. Instances are seen in which pressure on the lids give instant, if only temporary, relief from this kind of "headache." These cases must be differentiated from those of deep pains in the eyes without redness, sometimes accompanied by headache, which make one suspicious of nasal sinus disease. These nerve reference pains in the eyes result most frequently from the ethmoids or the frontal sinus, and may be likened to the pain in the knee from hip joint disease.

While headaches from vision for distance alone sometimes occur in otherwise normal people who have ocular errors, these are much more often found when a strain is being forced on the eyes in near work. But headaches occur in so many persons who have only a slight error in refraction or a low degree of muscle imbalance as to force one to the conclusion that the eyes are acting only as an exciting cause which might not be at all effective, were the patient otherwise well and well balanced nervously. The result depends largely on the individual nervous system behind the eyes.

In 1907, Coggeshall and MacCoy¹ found from the study of 1,700 cases that "a neuropathic diathesis is an essential condition of the occurrence of almost all of the chronic headaches of the kind we are discussing," combined with some source of local irritation not otherwise manifested, often with an anemia or a toxemia; and frequently a combination of these causes occurs. The greater the one factor, the less need be

* Read before the Section on Laryngology, Otology and Rhinology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Coggeshall, Frederick, and MacCoy, W. E.: Headache as a Symptom of Local Disorders, *THE JOURNAL A. M. A.*, Jan. 4, 1903, p. 15.

the other. They also emphasized the fact that the local eye-strain may cause headache only when the patient is nervous from some other cause, for example, when the eye-strain headaches occur only at the time of the menstrual period. The deep dull headache from disease in the nasal sinuses may be combined with a muscle imbalance which is itself a reflex of the sinus inflammation. Or the occipital cases due to uterine or ovarian trouble may be aggravated by a muscle imbalance which is increased by the pelvic disease (Coggeshall and MacCoy).

The vicious circle of high blood pressure and pain may be observed in ocular headaches combined especially with the vascular hypertension caused by nervous contraction of arterioles. One of the finger-posts toward diagnosis in these cases is the surprisingly ready relief which often follows complete rest in bed, which does not so promptly reduce hypertension in organic vascular disease. Patients suffering from high blood pressure alone frequently consult the ophthalmologist for headache and discomfort in reading. No amount of change in the glasses will bring relief; and it becomes very difficult to convince such a person that it is necessary to consult an internist, even when one sees the characteristic changes of arteriosclerosis in the ocular fundi. Usually these hypertension headaches are accompanied by a congestion of the conjunctiva, the treatment of which brings comfort. It is therefore no longer proper to tell the patient seeking relief from headache that glasses alone will cure, simply because there is sufficient error in refraction to cause headache; but rather to explain that the ocular error may be only one factor, and to indicate to him the likely direction toward diagnosis and treatment. He is justified in expecting, in addition to specialism's investigation, medical advice and the inauguration of a medical campaign against his discomfort.

EYE-STRAIN

On the other hand, we know positively that there is a large proportion of headache which is caused by eye-strain alone. G. L. Walton² concluded from his statistics that "66 per cent. of patients totally blind from infancy were free from headache." Thirty-one per cent. of seeing patients were free and 29 per cent. with partial or acquired blindness were free. That is, about one half of all headaches are caused by eye-strain. He forever laid to rest the theory that migraine was always to be referred to ocular strain by the assertion that some of the totally blind have migraine, showing that eye-strain cannot be its only cause. Still the alleviation of some cases by glasses indicates that the need of correction of the refraction is sometimes an exciting, or rather, an aggravating, cause.

The headaches caused by ocular errors alone result from a defect in the shape of the eye itself, most frequently manifested by hypermetropia and astigmatism or their combination; from an imbalance of the extrinsic ocular muscles; or from a spasm of accommodation or a strain of the ciliary muscle caused by overuse (frequently during periods of systemic stress as, for example, reading after illness, confinement or a surgical operation).

HYPERMETROPIA AND ASTIGMATISM

The degree of hypermetropia and astigmatism causing headaches is so varying that many high degrees of error cause no discomfort because the patient makes no attempt to obtain clear vision, and

therefore there is no great strain on the accommodation, while many low degrees of departure from the normal shape may cause great pain from the effort to see—even more than is normal in certain cases. The American nervous system seems to require a more refined correction even among the lower classes than that of any other nationality. I remember in the clinic of Voelkers at Kiel, a gross error of something like a hypermetropia of three diopters and an astigmatism of equal amount which I had been at great pains to discover. Prof. Voelkers remarked, "Do not bother about the astigmatism. These stupid people cannot make such fine distinctions."

But there are no rules without great and many exceptions in the results of refractive error. A school-teacher came to me in the nineties, complaining of severe headache. One eye converged. When I gave her full correction of a very high hypermetropia, her headache was relieved but her muscle-balance was disturbed in the other direction and the eye diverged, producing a marked deformity. She was nervous and very much displeased until after a reduction in the strength of the glasses and a tonic course of pilocarpin instillations which brought relief from both conditions: but I was never able to prescribe a full correction. I believe that now I should have given her a full correction and then a muscle operation for the deformity later.

IMBALANCE

The question of imbalance of the ocular muscles is complex and the conditions vary so much with the general health of the patient that again one cannot give a definite list of characteristics in the headaches caused therefrom. "In general, frontal headache, perhaps eyeache, combined with slight or great vertigo, nausea, mental confusion, depending on the degree of muscle error and especially in the absence of refractive error, makes one suspicious of insufficiency of an extrinsic muscle which under fatigue may even cause diplopia" (Bull).

A man, aged 31, came to me in 1908 with a history of frontal headaches at times for two years, which had become daily and constant throughout his waking hours for one year, except when he took headache powders. His refractive error was so slight that he was given an addition to his glasses of prisms of $5^{\circ}+5^{\circ}$ bases out for an esophoria. With these he read with ease and his morning headaches disappeared with their use each day. In five days he remarked, "This is the first Sunday in my memory when I could read the entire paper without a headache." He was advised to take regular exercise with an instructor in a gymnasium, the prisms were gradually reduced to $2^{\circ}+2^{\circ}$, and four years afterward he still worked with comfort without need of a change of glasses.

While actual headache is more infrequent in myopia, it is not too much of a digression to point out that there is a certain mental discomfort connected with the attempt to see, especially in the neurotic myope, which is closely akin to headache. The desire to avoid the appearance of stupidity results in too tense a concentration, which in turn brings on headaches. Another cause of asthenopia, as well as of headache is the half closure of the lids, which results in pressure on the cornea, over the pupil, by the lid margin, which may even cause an actual dent in the epithelium. Bull of Paris demonstrated this occurrence to me after observing it in the eyes of artists who half close their eyes in painting, for the purpose of giving the effect of distance and color values (alinement).

This probably explains some of the discomforts of sitting in the galleries of concert-halls as well as some

2. Walton, G. L.: Boston Med. and Surg. Jour., June, 1905.

of the asthenopias with headaches caused by reading in bed. The sequence of events seems to be pressure on the sensitive nerves of the cornea, constantly maintained over the pupil, with reflex spasm of the ciliary muscle, headache and chronic congestion of the conjunctiva.

While the full correction of a patient's refractive error can be obtained only under a cycloplegic, it very frequently happens that one may not force such strong lenses on the patient immediately. The muscle of accommodation, having been accustomed to make a certain effort for a certain piece of work or distance (of focus), seems to resent assistance by glasses and becomes spasmodic instead of relaxing as we hoped it would do. The effort plus the glass makes a blur and the patient must be given a partial correction for a time in order to avoid another vicious circle of blur, spasm and headache.

STRAIN OF CILIARY MUSCLE

There is a well known form of ocular discomfort with headache which is occasionally observed in patients whose eyes are shaped normally and whose extrinsic muscles are properly balanced, yet the use of the eyes in all near work becomes impossible without the greatest discomfort, which may amount to actual pain in the eyes and head. A strain of the ciliary muscle has occurred when the patient was in a weakened general condition. He would not think of using his arm or leg muscles or his back in lifting weights for fear of strain, but he does not hesitate to attempt the muscular act of accommodation when he is too weak to do anything else. Because he is bored to death, he reads everything in sight.

Therefore the ciliary muscle is subjected to an outrageous amount of abuse, and I believe that the most obstinate trouble we have to treat is a strain of the accommodation. Glasses do not relieve and nothing will restore but complete rest, followed by very gradual resumption of exercise. Complete rest may be obtained only by the use of a cycloplegic because every act of seeing may be accompanied by the use of the ciliary muscle. These cases of painful accommodation are sometimes very puzzling and the patients go from one to another ophthalmologist under the belief that if they could only find the correct glasses, they would become comfortable at once.

This question of painful accommodation, with or without an error in the shape of the eye, is one not lightly to be regarded. The patient may be perfectly and indefinitely comfortable in vision for distance, yet cannot read or sew or embroider without pain in the eyes which often extends to neighboring regions. I believe that there are two distinct causes: (1) a strained ciliary muscle described in the preceding paragraph, and (2) reflexes from focal irritations or inflammations, the most frequent of which are nasal. When we have no history of strain preceding either painful accommodation or ciliary spasm, we cannot avoid the thought that many of these cases are reflex. I remember that when Dr. Sluder and Dr. Ewing began their investigation of frontal and ethmoidal headaches, many of the patients complained of great pain in near work. Dr. Andrews of Chicago has recently emphasized the fact of the reflex path from the nasal mucosa by means of sensory fibers to the sphenopalatine ganglion, the interganglion fibers to the ciliary ganglion, from which arise the motor fibers to the ciliary muscle.

"HEADACHE HABIT" AND "HABIT HEADACHE"

The term "headache habit" is used to designate that condition of the nervous system wherein, after the removal of the principal cause, the patient continues to suffer either constantly, yet in diminishing degree, or interruptedly, with the intervals between attacks becoming wider until there is no more trouble. When glasses have been prescribed, the pain does not subside forever and, although the patient may return in a few days highly satisfied with the new conditions, he still later announces that he had a severe attack the day before, often "the worst I have ever had," due, I suppose, to the contrast between the pain of the relapse and the recent freedom from discomfort. The patient and the physician feel that some remedial measure has been left untried.

Dr. Sluder has observed somewhat the same occurrence after the clearing out of a sinus. Congested nerves and poisoned centers do not always respond immediately to treatment even by glasses, and the physician must counsel patience. In this connection also must be mentioned the "habit headache," which means that the person who has been accustomed to suffer at a given time every day or week may have a tendency to returns at such times after correction has been made, especially when the most onerous burdens come at a special time of day in the life of the patient. This type must, of course, be differentiated from the "psychical recurrent morning pains of frontal sinus suppuration, which was once called sun-pain and supposed to be malarial"; and also from the "psychical nocturnal sphenoidal pains," which are self-evidently another entity (Sluder).

VALUE OF THE FIELD OF VISION

The value of the field of vision to the ophthalmologist in cases of headache is rather negative, in that it is used largely to diagnosticate causes from other sources, rhinologic or neurologic. But in these cases it is often of immense value as an indicator. Indeed a neurologic friend goes so far as to say that no headache should be allowed to go without an investigation of the fields, and to a certain extent he is correct, except that if a field were taken in every case of headache which comes to the ophthalmologist, his entire twenty-four hours would be occupied. There is, however, no doubt that when a headache is accompanied by any evidence of optic nerve involvement (an enlargement of the normal blind spot, for example, leads one to suspect sphenoidal or ethmoidal trouble), also when a headache eludes all other diagnostic methods, it is important to go into the subject of the fields more frequently than is usually done. In this connection, I do not believe that a simple field for form or white is of any value whatever in the diagnosis of beginning nerve involvement. In fact, white is not invaded as a rule until the damage is likely to have been done. In nerve inflammations or atrophies, the order of loss is first a narrowing of the green field, followed by a narrowing of the red, blue and yellow, and finally loss of form.

ABSTRACT OF DISCUSSION

DR. WILLIAM W. PEARSON, Des Moines, Iowa: We can all recall cases like those cited, when we have wondered if it could be possible to find any symptoms anywhere. The doctor has pointed out the cases of weakness and fatigue following long continued illness. So often patients tell us that their headaches followed a major surgical operation, and that they have taken up their eye work at a time when they were abso-

lutely unable to use any other muscles in the body. Surgeons are at fault in not warning patients to refrain from using their eyes during this period. We should all bear in mind that factor of which Dr. Charles spoke with relation to patients whose clear field of vision fails. A few years since a very extensive article appeared in an English journal in regard to the restriction of the field of vision in sinus trouble. It was a good deal along the line of the doctor's paper. One cause that is referred to occasionally in the literature is that of the lid pressure on the globe. I am glad the doctor brought that out. In some individuals who visit the moving picture shows you will notice that their lids are more or less drooped, and you can readily understand how a condition that gives trouble will arise. I am confident that many of these cases are overlooked—headaches resulting from that lid pressure.

DR. OSCAR WILKINSON, Washington, D. C.: One particular form of headache might have been mentioned in connection with Dr. Patrick's paper, but it comes in well with this one. For a number of years I have noticed that basilar headache may be associated with imbalance of the extrinsic ocular muscle, particularly in the exophorias and at times in the hyperphorias. This ocular headache, unlike that spoken of by Dr. Patrick, is not associated with tenderness or with a general infection of the system. It is very frequently, and practically always, associated with the neurotic type of individual with from one to five degrees of exophoria or one to three degrees of hyperphoria. This type of ocular headache is especially associated with neurasthenia. These patients suffer from headache usually the day following severe strain on the eyes; for instance, they wake up in the morning with it. In that respect it must be differentiated from the syphilitic headaches. It is well known that the syphilitic headache is a basilar headache which comes on early in the morning. This headache comes on later than the syphilitic headache and is very often the result of extensive ocular strain.

DR. FRANK ALLPORT, Chicago: This discussion concerns headaches dependent on ocular conditions only. Of course, headaches may arise from other conditions, and I always investigate patients with headaches from all possible angles. If necessary, such patients are referred to general practitioners, neurologists, gynecologists, nose and throat specialists, etc., but I am frequently compelled to limit the cause of the headache to the eye. Headaches are often produced from refractive errors, and especially from astigmatic condition, and more particularly some form of irregular astigmatism. These conditions must, of course, be corrected by glasses, and, when the age of the patient does not prevent, the refractive error should be corrected under the influence of a mydriatic.

Many headaches are produced from instability of the extrinsic ocular muscle, and Dr. Charles advocates the wearing of prisms for such conditions. I do not wish to be understood as saying that prisms should never be worn, but I am convinced that it is a grave error to prescribe them except under very exceptional conditions. A prism is like a crutch—the patient becomes dependent on it, and under its influence the muscle becomes weaker instead of stronger and then stronger prisms must be prescribed. I very much prefer what is known as prism exercise—that is, the exercising or strengthening of certain sets of muscles by prism exercise for a few minutes at a time each day. This almost invariably enhances the power of weak muscles and overcomes the muscular instability and renders the use of prisms in spectacle frames entirely unnecessary.

DR. JOSEPH W. CHARLES, St. Louis: Dr. Pearson spoke of the effect of lid pressure. It is easily explainable. Even one fiber of cotton may cause a lid reflex in testing. The reflex path in these cases of asthenopia caused by lid pressure will be through the long ciliary nerves, through the nasal nerve, through its short root to the ciliary ganglion, the motor fibers from which supply the ciliary muscle. Pressure on the cornea may thus cause spasm of the ciliary muscle. I agree with Dr. Allport in everything he has said about prisms. I think that they have not only been greatly overrated but have done a great deal of damage. The case which I mentioned was an exception. It could not be relieved by any other method; but I do believe in prism exercises.

There is one fact that should be noted in this subject of muscle imbalance. Theobald taught us that a patient may have no imbalance for distance, yet at the reading distance show a decided weakness. He laid down as a general rule that a discrepancy of more than 4 degrees indicated the need of correction or treatment.

TUBERCULOUS EFFUSION, TRAUMATIC IN ORIGIN *

H. A. BRAY, M.D.

RAY BROOK, N. Y.

The case here recorded illustrates the reawakening by trauma of a previous benign tuberculous pleurisy in an apparently healthy person. It also tends to confirm clinically recent experiments on pigs in regard to the pleural reaction in tuberculosis.

REPORT OF CASE

History.—Mrs. L., aged 36, married, housewife, is a large robust woman, weighing 185 pounds. The paternal grandmother, mother and one brother died of pulmonary tuberculosis, and the patient was definitely exposed to this disease for a period of years during childhood. Otherwise the family history is unimportant.

Since the age of 16 she has had repeated attacks of quinsy, and for some years past during the winter months has suffered from recurring attacks of bronchitis.

In 1912, three years previous to the present illness, the patient came to me complaining of pelvic discomfort due to prolapsus uteri. At this time an examination of the chest, suggested by the tuberculous history, revealed a pleuritic patch about the size of the palm of the hand, palpable as well as audible at the base of the right lung posteriorly. Otherwise nothing noteworthy was discovered in the chest. The patient could not recall having had pain or other symptoms referable to this region, and the lesion is of unknown duration. Five subsequent examinations during the next three years, the last, three months previous to the present illness, showed practically no change in the physical signs associated with the pleurisy at the base.

Present Illness.—The onset dates from a wrench of the chest muscles, Aug. 15, 1915, while the patient was in the act of rescuing her small child from drowning. The story of the injury is as follows: Hearing the child's cries for help, she rushed to the stream, stepped from the bank to a projecting rock, and, clutching an overhanging branch with her left hand for support, leaned forward and with the other lifted the child from the water. At this time she felt something within her chest "suddenly give way with a distinct snap," followed by a severe pain at the base of the right lung over the site of the latent pleurisy. It was with considerable difficulty that she returned to the house. The pain grew worse, and that evening she was unable to lie on her right side and was quite short of breath. The pain persisted; she gradually grew weaker, was feverish, and on the tenth day a severe chill sent her to bed. I saw the patient at this time. She was acutely ill, was suffering from severe pain in the chest and had lost considerable in weight. The temperature was 103; pulse, 128; respiration, 32. The physical signs indicated fluid at the base of the right lung extending approximately to the lower angle of the scapula. Otherwise the physical examination was negative. The roentgenograms confirmed the physical findings in all essential details.

The fluid accumulated rapidly, finally occupying the lower two thirds of the chest. Nine hundred and fifty c.c. of clear, straw-colored fluid were removed by paracentesis. Stained specimens showed numerous acid-fast bacilli. Animals inoculated with the fluid developed a typical generalized tuberculosis. The diagnosis, therefore, was tuberculous pleurisy.

* From The New York State Hospital for the Treatment of Incipient Pulmonary Tuberculosis.

The patient was ill for about eight months, suffering from a more or less continuous toxemia and losing 40 pounds in weight. The prognosis for a time was distinctly unfavorable. Convalescence then set in. The effusion was absorbed rapidly, and in a few months the patient had fully regained her former state of vigorous health, which has continued to date, a period of approximately two years. The physical examination and roentgenograms one year after recovery failed to reveal evidence of a pleuritic lesion. The fluoroscope showed a slight decrease and retardation in the excursion of the right leaf of the diaphragm.

COMMENT

In apparently healthy persons the development of a tuberculous effusion following trauma of the thorax is usually thus explained: A latent or healed tuberculous focus of the pleura prior to the injury is assumed, except in those instances in which the bacilli gain access to the tissues through an abrasion or wound at the time of the injury. Pathologic studies have demonstrated the frequency of latent foci of the pleura in persons dying of causes other than tuberculosis. It has also been shown that these healed foci may, and often do, harbor living and virulent tubercle bacilli. It is supposed that the trauma causes a rupture of the fibrous capsule about the focus, and that living tubercle bacilli and their products then escape through the tear into the pleural sac. The extent of the effusion and the rapidity with which it develops depend on the number, virulence and distribution of the tubercle bacilli over the pleural surface, and on the allergic state of this tissue.

The clinical data in support of this theory, so far as I have reviewed the literature, is not conclusive. In the recorded cases, the tuberculous focus was not detected prior to the injury, but its presence assumed after detection of the effusion. Furthermore, the time interval between the trauma and the recognition of the effusion in most instances was sufficiently long to admit of the possibility of other causative factors.

These criticisms are not applicable to the present case, since a latent focus of the pleura was recognized several years previous to the injury, and its reawakening by trauma was apparently established from the clinical notes submitted.

At the time of the injury the patient was stooping forward, the left hand raised slightly above the body grasping a limb for support, and the other stretched forward lifting the child (55 pounds in weight) from the water. This effort imposed a severe strain on the muscles of the back, especially those of the right side, and no doubt resulted in the tearing of pleural adhesions, which would account for the sudden and severe pain in the chest. As tubercle bacilli were discovered in the effusion, one may assume that with the tearing of the pleural adhesions, tubercle bacilli were liberated and distributed over a greater or less area of the pleural surface. This was followed by an acute inflammation with rapid accumulation of fluid.

The case, therefore, is of interest in giving added support to our ideas regarding the development in apparently healthy persons of a tuberculous effusion following trauma. It also tends to confirm clinically Paterson's¹ experimental observations as to the possible recovery of the pleura in guinea-pigs from a marked tuberculous involvement. Furthermore, the realization of the untoward results that may follow a wrench

of the chest muscles, and the fact that a well established tuberculous effusion does not necessarily mean permanent disability, is important from a medicolegal standpoint. Finally, as tuberculous effusion following trauma is not uncommon, the detection of benign lesions of the pleura should receive careful consideration before accepting men for active military service because of their frequent exposure to injury and the possibility of reactivating lesions of this nature.

OBSERVATIONS ON THREE CASES OF
SCURVY

VILHJÁLMUR STEFÁNSSON

NEW YORK

The winter of 1916-1917 was passed in Melville Island by seventeen members of the Canadian Arctic Expedition. The expedition vessel, the *Polar Bear*, had failed to reach the island and we expected to live the winter entirely on fresh or dried musk-ox, reindeer, seal and bear meat. During the darkness of winter, however, our sleds got their steel shoving worn out through a traveling party getting lost among some rocky hills where the sleds had to be dragged scores of miles, mainly over rock. This necessitated my sending a party in midwinter to Winter Harbor on the same island (where in the past several vessels have wintered) to see if they could find abandoned iron or steel and shoe the sleds for the spring work. Some of our people made another trip to the same place during the winter for a different purpose.

At Winter Harbor our men found, besides the metal and other repair materials wanted, several tons of food, kerosene, etc., cached there in 1910 by Captain Bernier, then in the Canadian government service. It was against my judgment, because of fear of scurvy and because of trouble in freighting the food, to use any considerable quantity of these edibles at our winter camp; but the men had an idea that the cached foods were much preferable to meat, and so I allowed them to eat all they wanted of these groceries while at Winter Harbor, though the amount hauled to the base camp and eaten there was less than three full meals per week—one full meal per week would be nearer the actual fact.

The main items of food found at Winter Harbor were flour, salt pork, butter, honey, sugar, pilot bread, preserved fruit in glass containers, pemmican, meat extract, dried fruit, rice, beans and peas. So far as we could judge, all of this food was in perfect condition except the pork and the sugar. Much of the brine had leaked out of the pork barrels, and as they were above the sugar, some of the brine had permeated most of the sugar so that the taste of it ranged from barely perceptible saltiness when used in tea to saltiness that made the sugar disagreeable no matter how used. There may have been a little sugar unaffected. The pemmican was salted to be palatable to the ordinary eater; the meat extract seemed to consist in considerable part of rock salt, some of the particles nearly the size of a split pea. There was also some salt which those of the men who cared for it used with the fresh meat.

On account of their greater portability, I decided to use the groceries found at Winter Harbor along with dried meat and fat on the sledge exploration of

1. Paterson, R. C.: Pleural Reaction to Inoculation with Tubercle Bacilli in Vaccinated and Normal Guinea-Pigs, *Am. Rev. Tuberc.*, 1917, 1, 353:

the spring of 1917. The dried meat yields to no food in portability if used with the right amount of tallow, but as we had to feed some fifty dogs on it as well as the men we were short and should have had to use half dried or green meat in part had we not found the cached groceries. I did not fear scurvy from this use of the groceries, as I expected the men to eat mainly fresh meat all winter and we would have some seal meat on the ice in the spring. But I reckoned without the fact that some of our men had the belief that a varied diet is necessary for health. That phrase may be all right if properly understood; but certainly it is not only untrue as commonly understood by laymen but dangerous when applied on polar expeditions by the ordinary cook or even by that type of doctors who inherit their views of scurvy and anti-scorbutics from Captain Cook's voyages. On this point witness the prevalent scurvy of the carefully groomed, dieted and medically supervised Scott expeditions and the absence of it on the (dietetically) apparently haphazard expeditions of Peary and Shackleton.

Of the five men who went to Winter Harbor in midwinter and there lived for several weeks mainly on the diet given above (the cached stores), three were afterward transferred to parties that lived in considerable part on fresh meat through February and March, and none of them ever contracted scurvy. The other two worked at freighting the groceries to the north coast of Melville Island and (I later learned) ate fresh meat rarely and as only one item of their meals. They also used salt extensively both as direct seasoning and in the form of beef tea from the meat extract. Both these got scurvy late in March or in April. No one else of the seventeen in Melville Island had any symptom of scurvy.

In March, our Melville Island party was joined by Lorne Knight, who had wintered with the *Polar Bear* in Victoria Island and whose diet had been mainly groceries of the ordinary kind, with a little fresh meat now and then, cooked in the ordinary white man's way.

After Knight joined our party, it was subdivided into two sections traveling one behind the other on the same trail, a few days apart. In the advance party were Aarnout Castel (in command), Karl Andersen, Lorne Knight, Harold Noice and one Eskimo; I learned later that the diet of this party had been mainly rice, pilot bread, pemmican, meat extract, sugar (salty), honey and a little fresh meat, cooked. The Eskimo, in addition, occasionally ate some raw fresh meat kept for dog feed. Castel ate the salty, cooked food, but he had previous to taking command of this party lived nearly exclusively on meat all winter, some of it eaten raw and little salt used. He and the Eskimo never acquired scurvy. The second party, that traveled behind, had a diet differing from the first in less use of salt and more of meat, both cooked and raw. No one in that section developed scurvy at any time.

Early in April, Andersen, when my party caught up to the advanced section, complained to me of having been gradually becoming more unwell for a week or two. The first symptom noted by him was dizziness on suddenly standing up, "laziness," gloom and irritability, showing itself in a tendency to condemnatory and uncalled for argumentativeness, proneness to becoming tired, and loosening of the teeth and a swelling and recession of the gums, with a dull, local ache

in the gums or roots of the teeth. The appetite was normal as to both quantity and kind of food desired except that there was an increased aversion to frozen, raw meat—occasionally eaten by most of us in the form especially of frozen liver, a dish few persons can try several times without acquiring a liking. I told Andersen at once that the case looked like scurvy to me, but I added, "It can't be, for you have lived on fresh meat most of the winter." To this he replied, "No, sir, it can't be"—a dutiful reply, but not enlightening. So I decided the gum condition to be pyorrhea alveolaris, and we acted accordingly. I sent Andersen south with the first returning support party going toward our base at Cape Kellett, Banks Island.

I learned later that on the way south Andersen's symptoms continued to develop along the same lines, and he lost gradually in strength. On reaching Melville Island, the party failed to find food at an expected rendezvous, and for two or three days they had been on short rations, arriving without food at a place where several musk-oxen had been killed and one left behind unskinned and intended for dog feed. The coat of this animal is so warm that in the coldest weather of winter, decay for several days proceeds on the basis of the body heat before being arrested by frost. This animal was therefore very "rotten," but the party was hungry and promptly devoured considerable of the frozen meat. All men who know the two methods prefer very high meat raw and frozen to the same meat cooked, and so our party ate most of their food raw for some days. Andersen told me the following summer that after three days of the raw meat he was completely over his abnormal gloom, felt eager to exert himself (as exemplified by a willingness to get up in the mornings, whereas he had formerly to "drag himself out of bed"), he could stand up suddenly without dizziness; and a soreness and stiffness of the joints, lately a prominent symptom, had disappeared. All this had occurred in three days. On a continued diet of meat, sometimes raw, sometimes cooked, but always fresh after the first four or five days, he continued to improve. His full strength came back in two weeks and his gums were firm and his teeth fast in a month. No salt was used, for they had run out of it.

In complete ignorance of the progress of Andersen's disease and of his recovery, my own party proceeded out on the moving sea ice and to a point 140 miles from land. Here scurvy, this time promptly recognized, laid hold of two of my three companions, Knight and Noice. What helped me to a quick decision as to what the trouble was was Noice's telling me that at times, when they were working separated from me, they had eaten practically no fresh meat for a considerable part of the winter, and had been eating everything heavily salted, partly (apparently) as a protest against what they considered my unreasonable instructions that meat should be the main item of diet and salt used sparingly, though both "white men's food" and salt had been found at Winter Harbor.

Noice, who had been on the Winter Harbor diet, and Knight, who had been on the ship's diet, had about the same symptoms, and these were the same as in Andersen's case. Noice's disease, however, was about a week farther advanced than Knight's. We at once started for land, for seals were scarce where we were, and fresh meat not available. I ceased using any salt or

salty food, and for the first week of the journey shoreward the symptoms remained about at a standstill. After that, however, the disease made progress again. The diet at this time was hard bread, rice, pea meal, honey, sugar and casein. What fat we had we used for the dogs.

Before reaching shore, Noice had become unable to walk and had to be hauled on the sleds; Knight was able to walk, but was getting weaker and more wretched. On landing on Ellef Ringnes Island, I at once went inland in search of caribou, the others traveling along the coast to keep abreast of me. On the second day, fourteen caribou were killed, and we pitched camp at the place.

At this time the teeth of both men were so loose that they could be plucked out with the fingers with no effort, and the gums were of such a cheeselike consistency that they were cut (with little bleeding) by wooden toothpicks about as easily as ordinary "American" cheese could be. Every joint was sore and all movements painful, and there was a gloom which, both men later agreed, could not have been caused by mere worry over their danger—we were 700 miles from our vessels and 600 from the nearest Eskimos. There was a marked craving for salt, in consequence of which I threw away a pound of salt we had with us and a little remaining meat extract, to prevent the men eating them surreptitiously. Appetite and digestion seemed normal, except that there were the above-mentioned craving for salt and a pronounced distaste for raw meat—greater distaste than ordinarily. I now put them on this diet: In the morning a potful of meat was boiled, without salt, in enough water to supply drinking needs all day. The boiled meat was all consumed at breakfast, and when they were hungry enough (which was soon), raw frozen meat was eaten as often as desired the rest of the day. This meant that from half to two thirds of the meat was eaten raw. Marrow was also eaten raw.

In three days of this diet both men felt as cheerful as normal, and instead of the previous disinclination to stir there was a desire for activity surprising in view of the weakness from which they had not yet recovered. The pain in the joints was nearly gone, the craving for salt was markedly less, and the appetite for raw meat was much improved. In fourteen days from the first meal of meat, both men were able to walk, and we started south. In another two weeks their teeth were secure and the gums hard, though they did not, of course, regain their former apposition or contours.

All these men have been traveling all winter, having exercise that amounted to hard work, and fresh air night and day. None of them took a bath shortly before, during or immediately after their illness.

I have found among medical practitioners in Alaska that, with the prejudice in favor of fruit and vegetables as antiscorbutics inherited from Captain Cook's interesting observations, they have neglected meat as a preventive and curative agent in general throughout the territory. This led to many uncalled-for deaths while vegetables were as yet not readily obtainable. Fresh meat and fish always have been readily obtainable in most places.

Apart from some cases of scurvy that I dealt with in an article published last May,¹ I have seen in addi-

tion to the foregoing case only my own. I knew in advance I was likely to get scurvy during the winter of 1917-1918 if I continued on the diet forced on me by local conditions in the Mackenzie delta, where I was buying dogs, but I intended to counteract this by a prompt change to a meat or fish diet as soon as that task was done. But just then I was taken with typhoid, followed by pneumonia and pleurisy; and the diet approved and forced on me by those under whose charge I was while extremely ill was one by no means calculated to counteract scurvy—ordinary canned milk. But as this case, both in its cause and cure, differs markedly from the foregoing, I shall decide that space does not warrant my including a full account of it here.

CONCLUSIONS

The present article, together with the one just mentioned, and considerable material gathered but not published, makes clear some conclusions and suggests others. While these may not be exactly new, it is to be judged by the confused nature of many medical works still in use for reference by physicians that further testimony would not be amiss.

It seems, then, that:

1. The strongest antiscorbutic qualities reside in certain fresh foods and diminish or disappear with storage by any of the common methods of preservation—canning, pickling, drying, etc. Fresh tomatoes may be valuable (I have never tried them), but canned tomatoes are of little or no value; fresh potatoes are good, but desiccated potatoes have shown little or no adequacy in our expedition when tried in my absence by believers in that form of diet; the juice just expressed from the fresh lime is said to be excellent, and I have no reason to doubt it; but bottled lime juice has never yet prevented scurvy. (I have just recently gathered interesting but scarcely needed testimony on this point from the Royal N. W. Mounted Police as to the scurvy winter of 1898-1899 at Dawson).

2. Cooking lessens or destroys the antiscorbutic value of most or all foods. Three average raw potatoes are commonly said by miners definitely to turn the tide of scurvy that has not reached an extreme stage; in our own expedition, boiled and roasted fresh bear meat did not relieve scurvy except with such slowness that it is debatable just what its effect was, if any. Our party and persons known to me have had the same experience with venison. I am of the opinion that most men, if left to their own inclinations and supplied with abundant cooked, fresh meat will avoid scurvy; cooked meat acts but slowly on an advanced case—the efficiency of it depending probably on the "rareness" of the cooked meat.

3. Meat and fish slightly or well advanced in the process of ordinary putrefaction seems to be as good an antiscorbutic as fresh flesh, or nearly so—witness Andersen's case above and the well-known fact that Eskimo tribes often live for several months in succession on putrid meat or fish without ever developing scurvy, while Eskimos working for white men or living on purchased provisions have it quite as readily as Europeans living on the same sort of diet.

4. Bodily cleanliness and ventilation are not by any facts known to me shown to have any bearing on the incidence or severity of scurvy. Here it is instructive to compare the filth and good health of Nansen and Johansen, as described in "Farthest North," with the

1. Stefánsson, Villjálmur: Original Observations on Scurvy and My Opinion of the Medical Profession, *Med. Rev. of Rev.*, 1918, 24, 257.

immaculate Scott expeditions with their numerous and serious scurvy cases.

5. Exercise does not prevent scurvy. I have been told, verbally, that the Scott party had it on the return from the pole, after months of continuous and strenuous work in the purest of pure air and in abundant, continuous sunshine; while Nansen and Johansen were in perfect health after a winter of the most nearly absolute inactivity ever known to me to have been described in a book of travel. These are not isolated but typical instances.

6. Salt, while not proved by anything I know to be a cause of scurvy, probably has some direct bearing on the history of the disease, for the following reasons: (a) Salt meats have long been recognized (and probably rightly) as predisposing to scurvy. (b) Many observers have commented on the hankering for salt by scurvy patients and on the disappearance of the longing as the cure proceeds.

Neither am I certain that salt did not cooperate with the heat in lessening the antiscorbutic value of the meat used by four of our eight scurvy patients. The only death and the only long and dragging recoveries were of men who ate their meat cooked and salted during or after cooking. This was at the winter camps which, while they belonged to our expedition, were not at the time under my personal observance, and I have the stories on hearsay.

7. It is a mistake to think (with most laymen and many physicians) that blackening the skin of the leg and softening of the calf muscles are among the early symptoms in nearly all cases. I have never seen either symptom, and in the cases I have heard of from reliable observers these symptoms, if they appeared, appeared late in the disease. Dizziness on standing up and bleeding from the gums are commonly among the earliest symptoms noted by the sick man himself, though it may be right that careful tests would disclose other symptoms earlier.

Harvard Club.

Birth Statistics.—According to an advance report of the Bureau of the Census, during the year 1916 in the recently established birth-registration area of the United States, with an estimated population of about 33,000,000, or 32 per cent. of the total population, the birth rate was 24.8 per thousand of population. This area comprises the six New England States, New York, Pennsylvania, Maryland, Michigan, Minnesota and the District of Columbia. The number of infants born alive was 818,893. The total number of deaths in the same area during the same period was 486,482, or 14.7 per thousand. The births, therefore, exceeded the deaths by 68 per cent. It is said that in all the states and all the cities, and in practically all the counties of the birth-registration area, the births exceeded the deaths, usually by considerable numbers. The deaths of infants of less than 1 year averaged 101 per thousand of living births. The birth rate for the entire registration area fell below that for 1915 by 0.1 per thousand of population, while the death rate exceeded that for 1915 by 0.7 per thousand. Without migration and with the birth and death rates remaining constant in the area to which they relate, the annual increase in population would be about 1 per cent. This rate compounded for a decade would give a decennial increase of about 10 per cent., or about half the rate of increase in the population as a whole between the last two censuses, which was 21 per cent. More births occurred to foreign-born white women than to native white women, amounting to as much as 62 per cent. in Connecticut. The death rate among infants of less than 1 year was practically the same in 1916 as in 1915—101 to 100 in the latter year. It ranged from 70 in Minnesota to 121 in Maryland.

PARALYSIS OF THE SIXTH CRANIAL NERVE ASSOCIATED WITH OTITIS MEDIA*

JOHN M. WHEELER, M.D.

NEW YORK

In the routine practice of ophthalmology when patients present themselves with extra-ocular muscle paralyses which have developed suddenly, one is inclined to be content with inferring probable syphilitic etiology or some toxic cause, in case there is no history of traumatism. This habit of practice has led too often to the neglect of a careful search for a definite underlying cause and a definite pathologic lesion.

There are many conditions that may be responsible for paralysis or paresis of the third, fourth and sixth cranial nerves, and the whole subject is full of interest; but I wish at this time to call attention definitely to paralyses of a single nerve, namely, the abducens, which occur rarely but unmistakably in the course of purulent otitis media.

In 1904, Gradenigo¹ described a symptom complex which is now known as Gradenigo's syndrome or triad. It is characterized by (a) acute otitis media (with or without external suppuration, and with or without mastoid reaction); (b) isolated paralysis or paresis of the abducens nerve of the side corresponding to the diseased ear, and (c) intense and extraordinarily persistent pain localized, not as ordinarily in the mastoid region, but in the frontal, temporal and parietal regions of the same side.

The following case is a clean-cut example of the type:

M. W. S., aged 11, a thin and rapidly growing girl, called at my office, June 9, 1917. Two years before she had been a victim of mastoiditis on the left side and the mastoid was successfully operated on by Dr. John D. Richards. For the last six weeks she had had a running ear on the right side and was being treated conservatively by Dr. Philip D. Kerrison. The child was brought to me on account of double vision, which she overcame by closing the right eye, and very severe pain in the right side of the head, which was most intense over the right eye. Examination revealed complete paralysis of the right external rectus. Gradenigo's syndrome was clearly exemplified, and the condition was reported to Dr. Kerrison, who thought best to perform the mastoid operation. Two days after the patient visited me, the mastoid was cleaned out and it was found to be of the pneumatic type; but nothing unusual was found in spite of careful search for a lead to the sixth cranial nerve. The next day after operation there was decided improvement in the diplopia, and on the third day the diplopia and the pain had entirely disappeared, not to return again. I saw this patient last, Dec. 8, 1917, and at that time the muscles were in balance, and the tropometer showed normal rotations.

Recognition of the symptom group is found in otologic literature by the detailed reports of numerous cases which adhere more or less closely to the definite Gradenigo type; but case reports in eye literature are few, and there is surprisingly inadequate reference to the association of isolated sixth nerve paralysis with otitis in our textbooks and journals, and one is led to believe that the importance of this association has been

* Read before the Section on Ophthalmology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Gradenigo: Tr. Cong. de Bordeaux, 1904.

rather generally overlooked by ophthalmologists. Knapp,² in 1908, reported a well-defined case:

E. B., girl, aged 5 years, a well developed and previously healthy child, after an attack of grip, suffered from headaches and pain in the right ear. This persisted for two weeks and was associated with unusually severe pain in the right half of the face and in the right eye. The gums on the right side of the mouth were so sore that she could not chew. The mother then noticed that the right eye turned in.

Feb. 29, 1908, the right eye was in a convergent position. There was no outward motility beyond the middle line. There was homonymous diplopia. Vision was normal. Sensibility was unchanged. There was no history nor sign of herpes. The field was normal. The right eardrum was red, verging to white, was slightly bulging, and there was no perforation. As there was no pain and the ear condition was on the way to recovery, no paracentesis was done. The child was kept quiet; a hot-water bag and calomel in small doses were prescribed.

March 17, the general condition was much better. The eardrum was nearly normal. The ocular paralysis was unchanged.

March 25, the right eye could be turned outward 20 degrees.

April 8, there was motility not quite to the external canthus; there was homonymous diplopia.

May 14, motility was normal. There was no diplopia. There was an intercurrent attack of headache and earache, but no return of the ocular paralysis.

June 11, the patient was well.

Other cases reported in eye literature are those of Terson,³ Peyser,⁴ Sauvinau,⁵ Koellner,⁶ Goettermann⁷ and Myers.⁸

In 1908, L. Baldenweck,⁹ intern on the ear service of the Lariboisiere Hospital, published a comprehensive essay on the alterations of the gasserian ganglion and paralysis of the sixth nerve in the course of inflammation of the middle ear, with case reports.

In 1910, Perkins¹⁰ reported three cases that had been under his care for mastoiditis with paralysis of the sixth nerve, reports two cases from the practice of Dr. Alfred Wiener, and one that had been treated by Dr. S. J. Kopetsky. He covers the whole subject in an admirable way from the standpoint of the otologist, and gives a comprehensive bibliography.

Rarely paralysis of the sixth nerve is associated with external otitis. For this reason it may be of interest to report the following case:

Feb. 5, 1918, T. L., man, aged 24, came to the eye clinic at the New York Eye and Ear Infirmary complaining of double vision and turning in of the left eye of one day's duration, and pain in the left auricular region. Ten days before he had injured the canal of his left ear with a hairpin, and furunculosis of the canal had developed. The furuncles had been incised five days before. Considerable edema of the canal remained, and there was almost complete paralysis of the left external rectus without involvement of the third, fourth, fifth, seventh or eighth cranial nerves. Examination revealed no evidence of middle ear inflammation. There was, however, mild retinitis of both eyes, with recent hemorrhages and markings which indicated old hemorrhages or exudates. The Wassermann and Noguchi tests of the blood were negative, but the urinalysis showed evidence of an old gonorrheal infection of the urethra. February 9, five days after the patient began to see double, he returned to the eye clinic with orthophoria in the primary position and binocular single vision in all fields. The swelling in the external auditory canal and the pain had disappeared.

In this case it is possible, but not likely, that the sixth nerve paralysis was due to gonorrhea, or that some other constitutional condition was responsible for both the retinitis and the abducens paralysis. Even in such a case as this a transient edema, dependent on the furunculosis and involving the periosteum and fascial tissues at the apex of the petrous pyramid, may affect the sixth nerve in this position. This is the sort of case, however, to which the reflex theory of abducens paralysis best applies. This theory has been

largely abandoned as unnecessary and somewhat fanciful.

The ocular paralysis is always seated in the external rectus of the side corresponding to the otitis. However, in a case reported by Rimini,¹¹ there were double otitis media and double external rectus paralysis. In another case, which I recently observed, there was one-sided mastoiditis with paralysis of both external rectus muscles.

C. T., girl, aged 10, Italian, was admitted to St. Mary's Free Hospital for Children, Feb. 12, 1918, with a history of purulent discharge from the left ear for four weeks, and deviation of the left eye for two weeks. The left mastoid had ruptured and pus had invaded the muscles of the neck. The day after admission, February 13, Dr. Edward D. Truesdell performed a mastoid operation. At the request of Dr. Colman W. Cutler, the consulting oculist to the hospital, I examined the patient, March 9, at which time Dr. Truesdell reported satisfactory improvement as a result of the mastoid



Fig. 1.—Vertical section through skull, posterior view. Arrows point to grooves at apexes of petrous portions of temporal bones, in which the sixth cranial nerves lie.

2. Knapp, Arnold: *Arch. Ophth.*, **38**, 552.

3. Terson: *Ann. d'ocul.*, 1906, p. 503.

4. Peyser, A.: *Berl. klin. Wchnschr.*, 1908, No. 28.

5. Sauvinau, C.: *Ann. d'ocul.*, 1907, p. 321.

6. Koellner: *Deutsch. med. Wchnschr.*, No. 7, p. 112.

7. Goettermann, C.: *Deutsch. med. Wchnschr.*, No. 33, p. 552.

8. Myers, H. L.: *Am. Jour. Ophth.*, **33**, 127.

9. Baldenweck, L.: *Ann. d'ocul.*, 1908, p. 246.

10. Perkins: *Ann. Otol.*, 1910, **19**, 692.

11. Rimini: *Arch. internat. de laryng.*, **21**, 125.

operation. There was a double neuroretinitis of a rather mild type. There was a slight left facial paralysis, and the patient exhibited a most interesting condition in a double external rectus paralysis (complete on the right side, and partial on the left) without any involvement of the other muscles of the eye.

In Gradenigo's syndrome, pain in the areas supplied by the trigeminus is caused by involvement of the gasserian ganglion, and is described as neuralgic in type and very severe. There may be severe toothache, and there may be areas of hyperesthesia or of anesthesia. Herpes sometimes occurs, as in the cases of Grüber¹² and Wiener.¹³ The muscles of mastication (masseter, temporal and external and internal pterygoid) supplied by the inferior maxillary branch of the trigeminus may manifest contractions¹⁴ or paralyzes.

ANATOMIC RELATIONS

In order to understand the probable mechanism of the association of unilateral otitis, sixth nerve paralysis, and pain in areas supplied by the fifth nerve, it is necessary for us to become intimate with the exceedingly interesting anatomy of the region at and about the apex of the petrous portion of the temporal bone. I hope that the accompanying illustrations, made directly from dry and wet specimens, will serve to clarify in a degree the important anatomic relations in connection with this study.

The sixth (abducent, abducens) cranial nerve emerges from the brain at or near the lower border of the pons, and as a cord about a millimeter in diameter passes forward and upward in contact with the dura mater, which covers the basilar surface of the sphenoid bone. This basilar portion of the nerve measures approximately an inch in length. The nerve enters the cavernous sinus through a small perforation in the dura well below the posterior clinoid process and a little below the level of the tip of the petrous portion of the temporal bone, and passes forward through the whole length of the cavernous sinus, then through the sphenoidal fissure in its lower, nasal part near the

ophthalmic vein, thus entering the orbit to supply the external rectus of the eyeball. The course of the sixth nerve in the cavernous sinus is different from that of the third and fourth, which supply the other muscles of the eyeball, in the length of its course and also in its position. The sixth nerve enters at the posterior wall and passes forward through the blood of the sinus supported by a delicate meshwork of fibrillated fascial tissue and sympathetic nerves, and lies in contact with the internal carotid artery, between it and the outer wall of the cavernous sinus. The third and fourth nerves enter the sinus considerably farther forward than the sixth, and lie in contact with the external wall in the anterior part of the sinus only, and thus are less within

the sinus both as to length of course and as to position. The important intimacy with the blood stream of the cavernous sinus probably accounts for the especial vulnerability of the sixth nerve to sinus infection, toxemias from many forms of infection, and the many cases of sixth nerve paralysis from spinal anesthesia.

The important anatomic arrangement that definitely interests us here, however, is that at the apex of the petrous portion of the temporal bone; and in this arrangement the sixth is the only cranial nerve that figures. In following the course of the sixth nerve, after dissecting away the dura where the nerve penetrates it, one sees a layer of connective tissue. The abducens pierces this layer diagonally as it passes upward and forward, and for a

distance of 2 or 3 mm. is enclosed by a covering of areolar connective tissue which resembles superficial fascia. Just in front of this the nerve trunk is found in contact with the periosteum at or near the apex of the petrous pyramid of the temporal bone, at which point it enters the cavernous sinus, usually just external to the junction of the inferior petrosal and cavernous sinuses. The abducens as a rule lies in contact with the external wall of the inferior petrosal sinus for a few millimeters before entering the cavernous sinus, but it may gain entrance to the cavernous sinus through the lumen of the inferior petrosal, by penetrating the external wall a little back of the junction of these two important sinuses. The superior petrosal sinus does not concern us



Fig. 2.—Temporal bone with pneumatic petrous pyramid. Inner table has been removed and a large cell is shown at apex directly under notch for sixth nerve. (Specimen loaned by Dr. Charles E. Perkins.)

12. Grüber: Tr. Soc. autr. d'otol., Nov. 24, 1895.

13. Wiener: Ann. Otol., 19, 694.

14. Ostmann: Arch. Ophth. (Graefe's), 1897, 43, 1.

in the same degree as the cavernous and the inferior petrosal, because it does not follow the superior border of the petrous pyramid to its apex, but curves forward to join the cavernous several millimeters anterior to the petrous apex.

The small area of contact of the abducens with the petrous bone at or near its tip is marked by a little groove, and just external to and behind the groove is a little spicule of bone; and on the border of the dorsum sellae of the sphenoid is another spicule. Between these two spicules of bone, and stretching closely over the sixth nerve, is a firm ligament, which sometimes undergoes partial or complete ossification, and to this ligament is attached the dura mater and fascial connective tissue layer, referred to above, which the abducens penetrates. Thus it will be seen that right at this point the anatomic arrangement is such that exudate or hemorrhage from an inflammatory process or from traumatism, or edema from any cause, would be likely to interfere with the function of the abducens by pressure or strangulation.

In order to understand the severe pain that occurs on the corresponding side of the head in these cases, it is important to have in mind the close proximity of the gasserian ganglion to the tip of the petrous bone. It lies in Meckel's dural cavity and rests in a depression on the anterosuperior aspect of the petrous pyramid at its tip, so that a process which would affect the sixth nerve at the tip would be likely also to affect the gasserian ganglion.

In ordinary otitis media it is entirely possible for the inflammatory process to extend to the apex of the petrous bone and to produce an edema or a local toxemia which will cripple the function of the sixth nerve at the vulnerable point in which we are especially interested in this study. Occasionally the petrous bone is strikingly pneumatic, and it is in such a bone that the purulent process would be most likely to invade the pyramid to the apex. Figure 2 illustrates a petrous bone of pneumatic character with a large cell directly under the groove for the lodgment of the sixth nerve, and is very convincing in this connection.

In order to reach a cell at the petrous tip there are many possible routes of invasion for infection. Perkins¹⁵ mentions the following: (a) The infection may follow the sublabrynthine route extending from

the tympanum below the labyrinth and internal auditory meatus to the petrous tip. An interesting case in which the infection traveled this path is reported by Lombard.¹⁶ Death occurred from meningitis. Necropsy revealed pus in the tip cells with very pneumatic bone. On the healthy side, the cells in the petrous tips were very large, and mercury poured into them emerged in the middle ear. (b) From the mastoid antrum the infection may extend through the subarcuate fossa or petromastoid canal, which passes inward beneath the superior semicircular canal, and reach a layer of cells sometimes lying above the internal auditory meatus and thus arrive at the petrous tip, (c) or this point may be arrived at by way of the carotid canal, access to which is obtained either by eroding the bone on the anterior tympanic wall, or through one of the carotico-tympanic foramina which give passage to the carotid branches of the tympanic plexus, or (d) finally the infection has been found in some necropsies to be through a layer of cells extending along the eustachian tube, thus passing from the tympanum to the petrous tip.

In some cases of mastoiditis, paralysis of the external rectus of the corresponding side has been observed after the mastoid operation has been performed. In some of such cases probably the chief causative factor has been traumatism attending the operation itself, and one would expect this to take place most often in cases in which ebony hard bone has necessitated the vigorous use of the mallet. It is not difficult to see how this might disturb the tissues at the apex of the petrous pyramid in such a way as to produce hemorrhage or edema that would result

in pressure paralysis of the sixth nerve at this vulnerable point.

PROGNOSIS AND TREATMENT

The paralysis may clear up in a few days, and in a few cases has disappeared almost miraculously after mastoid operation, as in Perkins' second case and in my first case. But usually it persists for weeks or months, and there is possibility of permanent impairment of the nerve.

The treatment lies in the field of the otologist, and should be left to him, for recovery from the abducens paralysis depends on his success in treating the ear condition. Although Gradenigo's syndrome may indi-

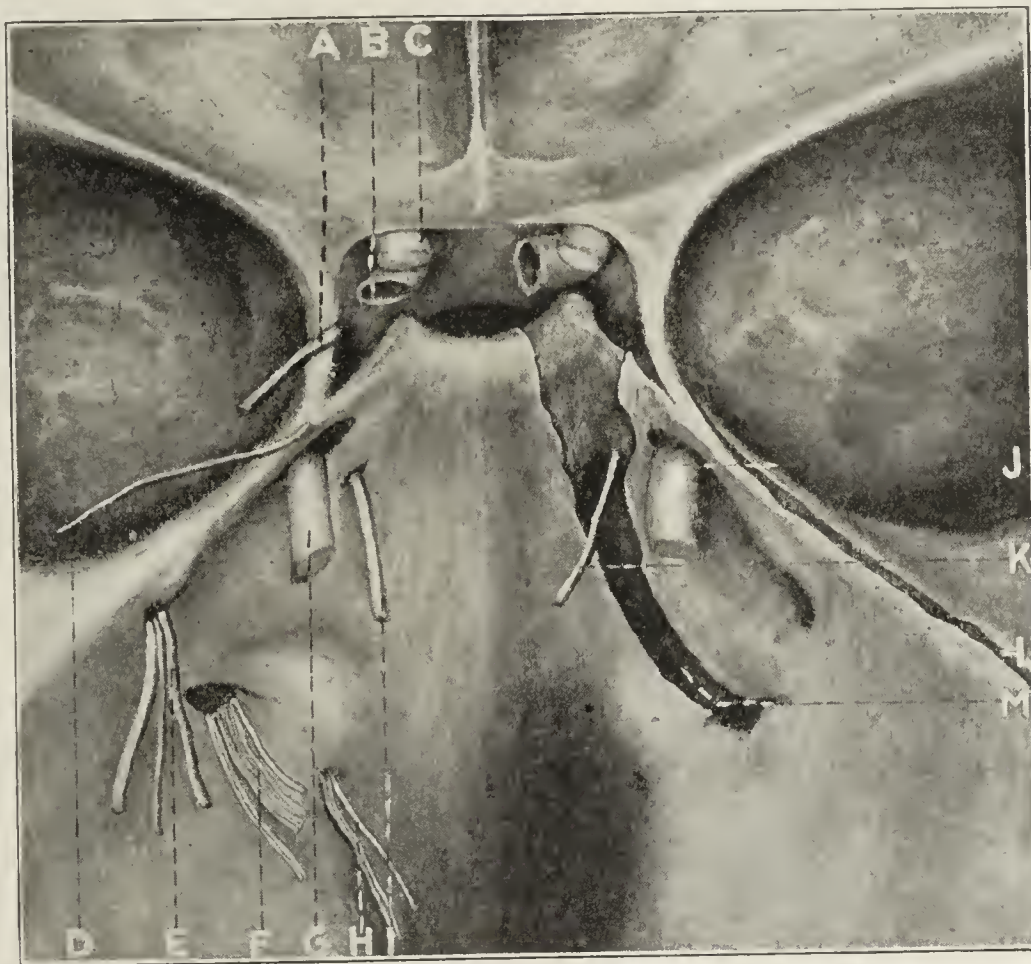


Fig. 3.—Drawing from wet specimen. The brain has been removed. On left side cranial nerves are seen entering dural openings. On right side dura has been removed to show sixth nerve entering connective tissue in posterior wall of cavernous sinus, a little below and behind apex of petrous pyramid. A, third nerve; B, carotid artery; C, second cranial (optic) nerve; D, fourth nerve; E, seventh and eighth nerves; F, ninth, tenth and eleventh nerves; G, fifth nerve; H, twelfth nerve; I, sixth nerve; J, fifth nerve entering Meckel's cavity for gasserian ganglion; K, sixth nerve entering connective tissue; L, superior petrosal sinus; M, inferior petrosal sinus.

cate a deep-seated process, this in itself does not justify mastoid operation in every case, for recovery has occurred in a number of cases without mastoid operation and even without myringotomy.

ABSTRACT OF DISCUSSION

DR. WALTER H. SNYDER, Toledo, Ohio: I have seen only one case of the condition described by the essayist. This was in a young woman who had had an acute otitis media, complicated by mastoiditis. She had been unconscious for about a

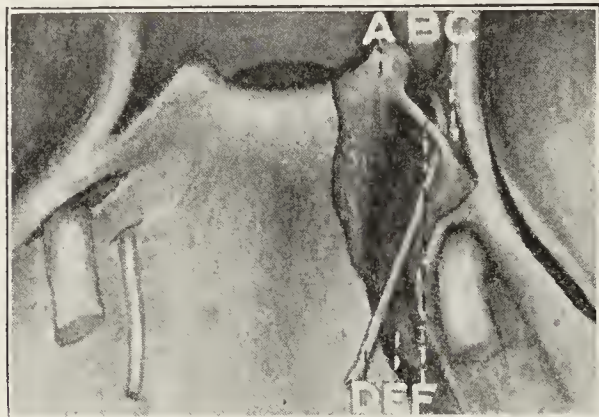


Fig. 4.—Further dissection to show sixth nerve entering cavernous sinus in relation to external wall of inferior petrosal sinus and in contact with apex of petrous pyramid. A, posterior clinoid process; B, carotid artery; C, apex of petrous pyramid; D, sixth nerve; E, inferior petrosal sinus; F, ligament.

week, or, at least, was in a deep stupor, when I first saw her. The day after her admission to the hospital she was operated on and died three days later without regaining full consciousness. The last day it was noted that she had a paralysis of the abducens on the side of the diseased mastoid. In this case the trauma of the operation did not cause the paralysis, as the tissues were very soft, no eburnation of the diseased bone had taken place, and it was easily removed with the hand curet, chiseling not being necessary. It is even possible that the operation did not go far enough, but the condition of the patient precluded any further investigation. We explored the tip especially and felt we had good drainage and that there was no necessity to enter the brain cavity, as apparently every part was draining and clean. Considering the anatomic relations, it is not surprising that this condition occurs; in fact, we would expect to find it much more common than it is, especially where the mastoid involvement has penetrated the inner table of the skull. It is, however, a comparatively rare condition. It is probable that many of the severe cases of mastoiditis exhibit this complication late in the disease, when the patient is moribund or lying with the eyes closed, hence is not noticed. The frequency with which this nerve is affected in basilar inflammations, especially in the syphilitic infections, would lead one to think that this complication would be more common in this rapidly spreading and especially destructive type of mastoid inflammation caused by *Streptococcus capsulatus*, of which the case I mention was an example.

DR. H. H. STARK, El Paso, Texas: I recently had a similar case in a child 4 years old. The case was in the care of a general practitioner for at least three weeks after the primary attack of sore throat, which was followed in three weeks by a discharge from the right ear. In describing the case to me the physician said that it might have been scarlet fever; that he was unable to make a diagnosis. On coming to me the child had the syndrome described, pain with paralysis of the externus on the right side, the side on which the ear was involved. The ear was discharging freely, and a roentgenogram showed involvement of the cells. The temperature at the time was 102 F. The patient was placed in the hospital, and the fever subsided in two days. The discharge continued for two weeks and then stopped. No operative procedure was done. Complete recovery occurred within two weeks after the discharge had ceased. At the time the bacteriologic examination showed a streptococcus infection. I felt that the paralysis was one of toxemia, as we had had during this period of

about six weeks several cases of infection of the same character, in which paralysis of the facial nerve occurred. One patient, a young man of 35, had a temporary hemiplegia lasting two weeks. I do not doubt Dr. Wheeler's deduction in these cases. I believe that they are due to a direct involvement of the sixth nerve from the misplaced cells.

DR. JOHN M. WHEELER, New York: If we will be on the lookout for this syndrome, we will find that this is not a rare condition. The prognosis is, on the whole, good. In some of these cases the paralysis is entirely cleared up a few days after operation; in some cases, within a few weeks or months; in some cases without operation, and in only a very few cases has the paralysis been permanent. The treatment lies entirely within the field of the ear surgeon, and the prognosis depends a great deal on his success in draining the mastoid cells.

ACQUIRED STRICTURE OF THE LOWER END OF THE URETER *

ROBERT H. HERBST, M.D.

CHICAGO

Strictures of the ureter may be due to causes that are either congenital or acquired.

Acquired strictures of the ureter may be classified into those due to (1) trauma resulting from gunshot and stab wounds, postoperative conditions, labor, and passage of calculi; (2) inflammatory strictures, the result of infection. These inflammatory strictures may be classified into, (a) those that are the result of direct extension from periurethral infections, (b) those in which the infection has either ascended along the mucosa from the bladder, or has descended from the kidney, and (c) those resulting from focal infections. Strictures due to tuberculosis will not be considered in this discussion.



Fig. 1.—From plate made by Belfield showing relation of ureter to seminal vesicle. Vesicle filled with collargol solution. Roentgen-ray catheter in ureter.

Hunner,¹ in his excellent report of "One Hundred Cases of Ureteral Stricture," believes that focal infections play an important rôle in the etiology of ureteral

* Read before the Section on Genito-Urinary Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Hunner, G. L.: Bull. Johns Hopkins Hosp., 1918, 29, 1.

strictures. He states that he is firmly convinced that "The majority of ureteral strictures, excluding those of tuberculous origin, should be classified as simple chronic strictures and that they have their origin in an infection carried to the walls of the ureter from some distant focus, such as diseased tonsils, sinuses, teeth

acquired origin of many of them found in middle and later life. Walther⁵ believes that stricture of the ureter is not as rare as we have been led to believe, and states that it should be remembered that this condition may be a possible cause for some of the intractable cases of renal infection failing to respond to the usual treatment.

INFECTING ORGANISMS AS A FACTOR IN STRICTURE

The principal organisms that play the rôle of the exciting etiologic factors in the primary inflammatory stage of stricture of the lower end of the ureter are the colon bacillus, the pus coccus and the gonococcus. In the past it has been commonly believed that the gonococcus played a very small rôle in the production of strictures in this region, owing to the infrequency of infection of the bladder mucosa by this organism. However, I am satisfied that the gonococcus is responsible for no small number of strictures that occur in this location in the male, and that the preexisting infection of the ureteral wall occurs by direct extension from its closely approximated neighbor, the seminal vesicle. I shall later give briefly the history of a case which illustrates this point.

In the literature there are reported numerous cases of strictures of an inflammatory nature spreading to the ureter from adjacent organs. In 1902, Morgan⁶ reported a case in which, after numerous operations on the urinary tract, he found the cause of the trouble to be due to an obstruction of the lower end of the ureter, caused by the binding of the ureter to the seminal vesicle, the result of an inflammatory process which had long existed in the vesicle. Belfield,⁷ in a discussion on the subject of pus-tubes in the male,

Fig. 2.—Cystoscopic view showing ureterocele of right ureter caused by stricture of lower end of ureter.

or the gastro-intestinal tract." His cases have to do entirely with women, and I can therefore understand why he omits the infection of the seminal vesicles among these foci.

Strictures resulting from infection of the seminal vesicles, either by direct extension from these organs, or possibly by organisms of focal origin, are the type to which I shall give chief consideration.

CONGENITAL ORIGIN OF STRICTURE

In the review of some of the earlier literature on the subject of stricture of the ureter, one is struck by the frequency of congenital origin of reported cases. In Bottomley's² extensive review we find that most of his reports are those of children, and are unquestionably due to congenital conditions. However, it is difficult to believe that some strictures, especially those showing no symptoms until middle or later life, are of congenital origin. As quoted by Moloney,³ "How do you explain the delay in development in symptoms until adult life of obstruction of the ureter, when the cause is evidently congenital?" Barringer⁴ in 1913, reporting a case of unilateral kidney calculus complicated by ureterocele of the opposite side, stated: "A ureterocele is a dilatation of the intravesicle portion of the ureter. This dilatation is dependent on a narrowing or stricture of the ureteral opening. It is probable that this strictured condition is always congenital, notwithstanding that such a condition has been attributed to the passage of calculi or blood clots through a ureter." Notwithstanding these earlier opinions of congenital origin of these strictures, one finds a gradual tendency toward the belief in the

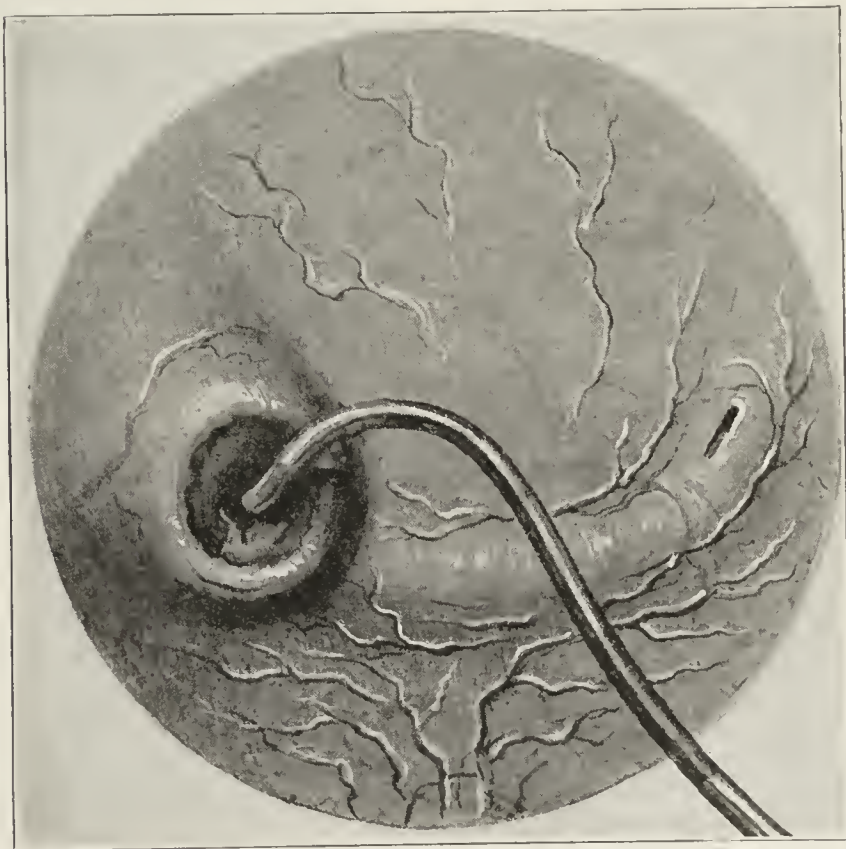


Fig. 3.—Indentation of ureterocele made by attempt to enter strictured extremity of ureter.

stated "The intimate relation between the juxtavesical ureter and the seminal duct seems, therefore, responsible for considerable kidney and ureter disease hitherto unexplored."

2. Bottomley: *Ann. Surg.*, 1910, **52**, 997.

3. Moloney: *Surg., Gynec. and Obst.*, 1917, **24**, III.

4. Barringer, B. S.: *Interstate Med. Jour.*, 1913, **20**, 343.

5. Walther: *New Orleans Med. and Surg. Jour.*, 1916, **69**, 115.

6. Morgan: *Ann. of Surg.*, 1902, p. 528.

7. Belfield, W. T.: *Tr. Am. Urol. Assn.*, 1909, **3**, 13.

McNeill⁸ reported two cases of inflammatory strictures of the right ureter due to a pelvic abscess following ureterotomy of the left ureter. Frank,⁹ in discussing the causes of ureteral obstruction, gave as a cause an extension of inflammation from infection of the uterus and its appendages. Again, we are all familiar with the condition found in the bladder, known as edema bullosum, commonly due to the gluing of a pus-tube to the bladder wall. If the above conditions are possible, it seems more than likely that an infection going on in the seminal vesicles may spread to the wall of the ureter.

The pathogenesis of these strictures is quite similar to that of strictures of the urethra. Let us here briefly consider the course of development of a stricture in the urethra.

First, we find the infecting organism (usually the gonococcus) destroying areas of the superficial mucosa, or what I choose to call the rubber coat of the urethra. The destruction of this mucosa is followed by infiltration of urine with its chlorid constituents. It is the chlorids which have largely to do with connective tissue proliferation and subsequent contraction of the involved area. In the development of strictures in the lower end of the ureter, we find an analogous condition, but reversed in its course. The infection spreads from the vesicle through the outer coats of the ureter, finally involving the lining mucosa with subsequent infiltration and connective tissue proliferation. For this reason some of the strictures become very dense, hard and fibrous, and take on the form of the well known impassible stricture of the urethra. The two cases reported are of this type.

REPORT OF CASES

CASE 1.—M. F., aged 30, gave a history of gonorrhea contracted in 1910. The urethra discharged profusely for a number of months, during which time he developed an infection of his right epididymis, for which both the right epididymis and the testicle were removed. The urethral discharge, accompanied by a severe perineal pain, continued intermittently for five years, and in 1913 an "osteopathic surgeon" made a perineal incision of some kind which left the patient with a fistula opening into the bulbous urethra.

He was admitted to my clinic in August, 1915, and, on examination, the perineal fistula mentioned in the foregoing was found, also both seminal vesicles were greatly enlarged and hard. He complained of pubic pain, and for this reason a cystoscopic examination was made which revealed a normal bladder and both ureters perfectly patent. At this time I made a perineal section and closed the opening in the urethra. He was given massage and instillations, with a hope of clearing up the vesiculitis, but after a few weeks he failed to return for treatment. Two years later, in December, 1917, he returned to the clinic, still complaining of his old condition, also of severe pain in the lower right abdomen which radiated upward toward the region of the right kidney. His vesicles were found to be in about the same condition as when he left, for the relief of which I performed a bilateral vesiculotomy. At this time a cystoscopic examination was again made, and, to my surprise, I found a well marked ureterocele on the right side of the bladder, with the orifice of the right ureter located at its summit. Numerous attempts to enter this orifice with small ureteral catheters and bougies were not successful. The roentgenogram of the entire urinary tract was negative. From these findings, the diagnosis

of acquired stricture and ureterocele of the right ureter was made. After several attempts, I succeeded in cutting the strictured orifice with a hook-shaped knife used through a Senn operating cystoscope. The small opening was further enlarged with scissors used through a Buerger operating cystoscope. The proximal end of the stricture has not been cut, but I am able to enter this with a small bougie, and expect to succeed in dilating this part of the stricture. I report this case because it illustrates that this stricture evidently developed between the two cystoscopic examinations, between which a period of two years elapsed, also that the stricture had its origin in the violent and persistent infection of the seminal vesicles.

The most common and pronounced symptom is pain, which very frequently is that of a typical renal colic, as illustrated by the following case:

CASE 2.—W. G., aged 55, single, stated that some years before he had developed a gonococcus infection which persisted for more than a year and which was accompanied by bladder symptoms, that is, frequent and imperative urination. He consulted me in September, 1913, complaining of a periodic colic-like pain in the back, which was referred to the region of the right kidney. These attacks of pain had come on about every week or two during the previous six months. They were very severe in character, requiring morphin to relieve them. I had the opportunity of seeing him in two of these attacks, and can state that they were typical of renal colic. Examination showed the prostate and seminal vesicles enlarged, the expressed specimen from which contained many pus cells. Cystoscopic examination revealed a normal bladder mucosa. In attempting to catheterize the ureters, I found a complete obstruction of the left ureter, just within the orifice. The right side was found perfectly patent. A roentgenogram of the entire urinary tract showed a small shadow which might be located near the lower end of the left ureter. After numerous unsuccessful attempts to enter the left ureter with very small ureteral bougies, a diagnosis was made of stricture of the lower end of the left ureter. Several attempts to cut the stricture through an operating cystoscope failed. A supra-pubic cystotomy was then made and a small, hook-shaped ureteral knife was forced through the stricture and, by its withdrawal, the entire narrowed portion of the ureter was cut through. A small ureteral curet brought out some fine pieces of gravel which had collected at the proximal end of the stricture, and which had probably been responsible for the shadow seen in the roentgenogram. A No. 8 ureteral catheter was now readily admitted. This patient has been seen and cystoscoped a number of times during the last four years, and the stricture does not show any tendency to recur, nor has he been troubled again by the attacks of colic-like pain.



Fig. 4.—Hook-shaped knife used in cutting stricture.

ETIOLOGY AND TREATMENT

The spasmodic character of these attacks is likely due to complete obstruction of an already very narrow outlet of the ureter. This obstruction may be due to the admission of a pus plug, or a small piece of gravel, into the stricture area, or may be due to the same cause as is found in acute retention of the urine caused by stricture of the urethra. Under these circumstances, the pressure of the urine from behind produces an edema of a canal, already very much narrowed with resulting temporary complete obstruction. The attack promptly subsides on the passage of the obstructing foreign body, or the disappearance of the edema. The pain may be of a constant, dully aching character, referred to either side of the supra-pubic region, or not infrequently radiating along the course of the ureter toward the kidney. I have seen

8. McNeill: New York Med. Jour., 1917, 106, 786.

9. Frank: Interstate Med. Jour., 1914, 21, 1209.

cases of seminal vesiculitis in which the most prominent symptom was this radiating pain along the ureter, and, on catheterizing the ureter, have found what I thought at the time to be a small meatus. However, the pain disappeared after a number of dilatations of the orifice of the ureter. I think it is possible that these were cases in which there was an incipient stricture of the lower end of the ureter. I am also of the belief that in some of my cases of pyelitis which I thought I cured by pelvic lavage, the patient derived more benefit from the passage of the ureteral catheter and the dilatation of a stricture of large caliber, than from the lavage. In such cases, the urine may be perfectly negative during the attack of colic, and may show pus after its subsidence, the pus coming from the infected kidney pelvis after the stricture allows passage of urine from the affected side.

The patients may also have chills, fever, and gastrointestinal symptoms, as one observes in an acute obstruction of the ureter from other causes.

The differential diagnosis of these strictures from the symptoms is necessarily difficult. However, the cystoscope, the ureteral catheter, the olive-tipped bougie, and the roentgen ray with pyelography are absolutely essential, and will usually help one in clearing up these cases. The olive-tipped bougie is extremely valuable in the diagnosis of stricture of large caliber. When the stricture is very small, or even impassible, the ordinary ureteral catheter will clearly define the condition. In the latter type, we frequently find a decided bulging of the end of the ureter into the bladder—the condition known as ureterocele.

IMPORTANCE OF EARLY DIAGNOSIS

Too much importance cannot be placed on the early diagnosis of this condition, since we know that as the stricture becomes more organized, and contracts, the changes in the kidney become more serious.

Strictures of large caliber can usually be readily dilated by means of catheters, bougies and ureteral dilators. In those cases in which, on repeated attempts, we are not able to enter the strictured area, a cutting operation, either through an operating cystoscope or through a suprapubic opening, is indicated. Where this is impossible reimplantation of the ureter, or even nephrectomy, may be necessary. A hook-shaped knife, used in the two cases reported in this paper, has proved very useful in the treatment of those cases requiring a cutting operation, either through the cystoscope or through the opened bladder. To prevent subsequent contraction and recurrence, it is well to practice dilatation for some time following the cutting operation, as is commonly done in operations on the urethra. In cases in which the seminal vesicles are still the seat of infection, treatment must also be

directed to these organs, either by stripping, or by one of the operative measures, such as vasotomy or vesiculotomy.

The prognosis necessarily depends on the amount of destruction produced in the kidney. In the cases in which serious changes have occurred in this organ, especially those of long standing, little benefit may be expected from either dilatation or cutting of the strictured area. Therefore, I again call attention to the importance of an early diagnosis.

SUMMARY

1. Strictures of the lower end of the ureter occur more frequently than is commonly believed, and not a few of them are of the inflammatory acquired type.

2. Strictures of this part of the ureter may result from infection spreading from an adjacent seminal vesicle.

3. Strictures in this locality play an important rôle as the etiologic factor in some of the obscure infections of the kidney.

4. The importance of early diagnosis and treatment, before serious changes occur in the kidney, cannot be too strongly emphasized.

ABSTRACT OF DISCUSSION

DR. V. D. LESPINASSE, Chicago: This paper brings up the question of stricture of the ureter. There is no question that slight disturbances of the ureteral lumen will produce marked symptoms and marked trouble. My observation is that there is a tendency to diagnose stricture of the ureter when there is no stricture there. If the catheter goes in a centimeter or two and cannot go any farther, the inference drawn by many is that a stricture is present. This is not so. When the catheter does

not go clear to the kidney the diagnosis of ureteral stricture from this fact is not permissible. The diagnosis of stricture from the use of the catheter is quite difficult. According to Hunter's teachings, stricture of the ureter is an extremely common condition. Strictures of the ureter, particularly in the lower end of the ureter, are, at least in many cases, due to infections of the vesicles. The peri-vesiculitis causes a periureteritis with infiltration and loss of elasticity in the ureteral walls. Whether such a lesion should be called a stricture is doubtful, although it really is a stricture in the strict anatomic sense; but it may be simply an infiltration of the wall of the ureter, the elasticity of which is interfered with, with no real narrowing, except that in the strict sense of the term it has lost its elasticity. Of course, the treatment there is to remove the infection from the vesicle, if possible, and dilate the ureter by the use of a sound or bougie.

DR. WILLIAM F. BRAASCH, Rochester, Minn.: I question very much the possibility of making a diagnosis of stricture of the ureter by means of the ureteral catheter alone. Physiologic and anatomic changes in the ureter may give a sense of obstruction to a catheter which may lead us to believe we are dealing with a stricture. I have frequently met with such obstruction where no dilatation of the ureter above the apparent obstruction could be demonstrated in the ureterogram. We also must recognize the fact that some ureters are of much

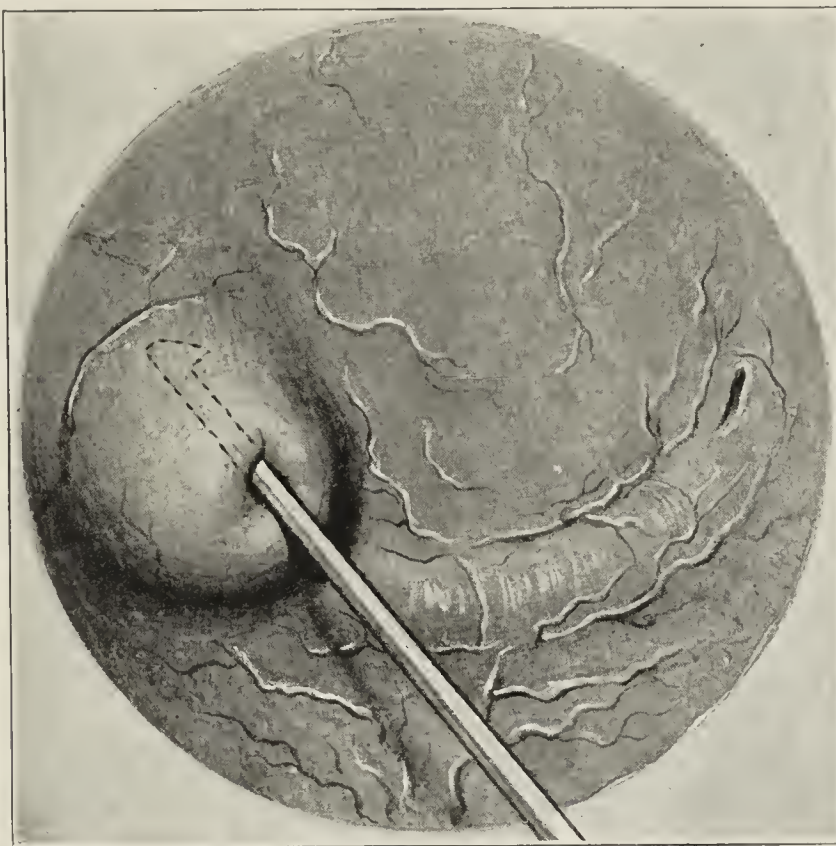


Fig. 5.—Introduction of hook-shaped knife into the strictured area.

larger caliber than others. I have frequently observed definite ureteral obstruction in normal individuals who had no abdominal pain nor any other evidence of ureteral involvement where it was impossible to introduce a No. 6 catheter up to the renal pelvis. There are so many other causes for obstruction to the ureteral catheter that it is quite impossible to make a diagnosis of stricture of the ureter because of such obstruction alone.

Although strictures of the ureter unquestionably do exist, I am certain that they do not occur as frequently as some observers would lead us to believe. I am under the impression that postmortem pathology does not bear out the assumption of the frequency of the stricture of the ureter. When found in conjunction with renal infection, it is consequent to such infection and not an etiologic factor. Actual stricture of the ureter cannot be cured by simply passing a catheter or by a single dilatation. On the contrary, it usually requires repeated dilatation at regular intervals as long as the patient lives.

DR. JOHN R. CAULK, St. Louis: There are two types of ureteral stricture, one in which there is a stricture and the other in which there is not, the latter group predominating. I am in hearty accord with what Dr. Braasch said. I have been impressed with the infrequency of true strictures of the ureter from intra-ureteral causes aside from tuberculosis and an occasional stone impaction. Strictures are not infrequently due to implications in a neighboring inflammation, such as seminal vesicle and pelvic inflammatory diseases. It has been my experience that the most important type of stricture of the ureter and the one which has caused so much confusion and, I believe, false reports, is the spasmodic stricture, or rather the spasmodic contraction of the ureter in the vicinity of an outside inflammation, particularly the seminal vesicles, and it is this condition that I wish to bring to your attention as being responsible for many of the so-called strictures. With the ureter catheter or with bougies it is impossible for any one to differentiate between them in all cases. I want to impress on you the value of large doses of atropin as a means of diagnosis between stricture and spasmodic stricture. Atropin will help the patient out of trouble very often. More attention must be paid to the tissues around the ureter and to ureteral spasm.

DR. GRANVILLE MACGOWAN, Los Angeles: Strictures occur in the ureter just as in any other tube lined with a mucous membrane, arising from influences internal or external to the ureter itself, and some are prenatal. In my experience, strictures of the ureter are usually due to pelvic troubles that produce adhesions followed by contractions in the ureter itself. Acute appendicitis sometimes produces obstructions of the ureter and causes renal colic, but that passes away along with the removal of the appendix or the subsidence of the attack. Chronic appendicitis, in which the appendix becomes bound down in the pelvis in a matted mass of inflammatory tissue, involving the ureter, sometimes will obstruct the ureter, causing Dietl's crises. I have seen two cases of this kind. There is no valid reason why stricture of the ureter should not follow the passage of a stone, although we know it does not do so usually, yet occasionally the injury must be sufficient to cause contracture especially in persons who have the tendency to keloidal degeneration.

Atropin had been used to relax these attacks. Spinal anesthesia alone will relax a patient and allow the differential diagnosis between stricture of the ureter and muscular spasm of its walls. I have three specimens of ureters which show very distinctly strictures within the bladder wall. In one of them, during life, I could pass a catheter very readily; another I never did get a catheter through. The third is merely a postmortem specimen. There can be no just contention that this disease does not exist, but it is not nearly as frequent an occurrence as urologists think it is.

DR. WILLIAM M. SPITZER, Denver: I do not know whether these strictures are true strictures or not. I have met them very frequently in cases of seminal vesiculitis. I know that I cannot pass a catheter more than 1½ c.c. That may be due to outside pressure, or it may be due to stricture, but it is very common, indeed.

DR. GUSTAV KOLISCHER, Chicago: Stricture is caused by the narrowing of the ureteral lumen, due to permanent pathologic changes in its walls. Compression is a temporary condition, due to extraneous causes. There is no doubt that such a condition will form an obstruction to the catheter. You will very rarely find true stricture of the ureter unless after infection. A simple obstruction to passing the catheter does not

prove the presence of a true stricture. It very often happens after a gynecologic operation that either on one side or the other you cannot pass a catheter, but that may be due to distortion of the ureter and not to stricture. There is only one way of proving that a stricture exists, and that is by passing an olive-tipped bougie or raying with a contrast fluid. If repeated examinations show the same result, then we have to deal with a permanent condition and can make a diagnosis of stricture.

I have always been very doubtful, just as Dr. Braasch is, as to whether it is possible to cure a ureteral stricture by inserting bougies. I cannot imagine any circumstances in which a ureteral bougie could overcome the resistance of a real ureteral stricture. If this bougie was sufficiently hard and resistant to stretch the cicatricial wall I would be

afraid to use it, because I would be afraid of perforating the wall. I believe, however, that it is possible occasionally to clear up pyelitis by regular catheterization. I agree with Dr. Braasch that we find a number of normal individuals in whom you are hardly able to enter the ureteral mouth at all, but that is not due to stricture, but to a congenital narrowing of the opening.

The rather energetic treatment recommended by Dr. Herbst in some of his cases, that is, an incision high up into the vesical wall, is rather risky. Real strictures of the ureter may occur after extensive gynecologic operations leading to extensive denudation of the ureter and followed by ureteritis, as proved by postmortems when those patients died from subsequent pyonephrosis.

DR. J. L. BOGGER, St. Louis: I believe that these strictures indicate a pathologic change in the structure. That can take place from mere pressure; there must be a formation of fibrous tissue in the structures which is brought about by the production of cells in the tissues which cause the lessening of the blood pressure from the normal mucous membrane. The necessity on the part of nature for the production of this tissue is either because of infections or from the pressure of the mucous membranes. Without the develop-

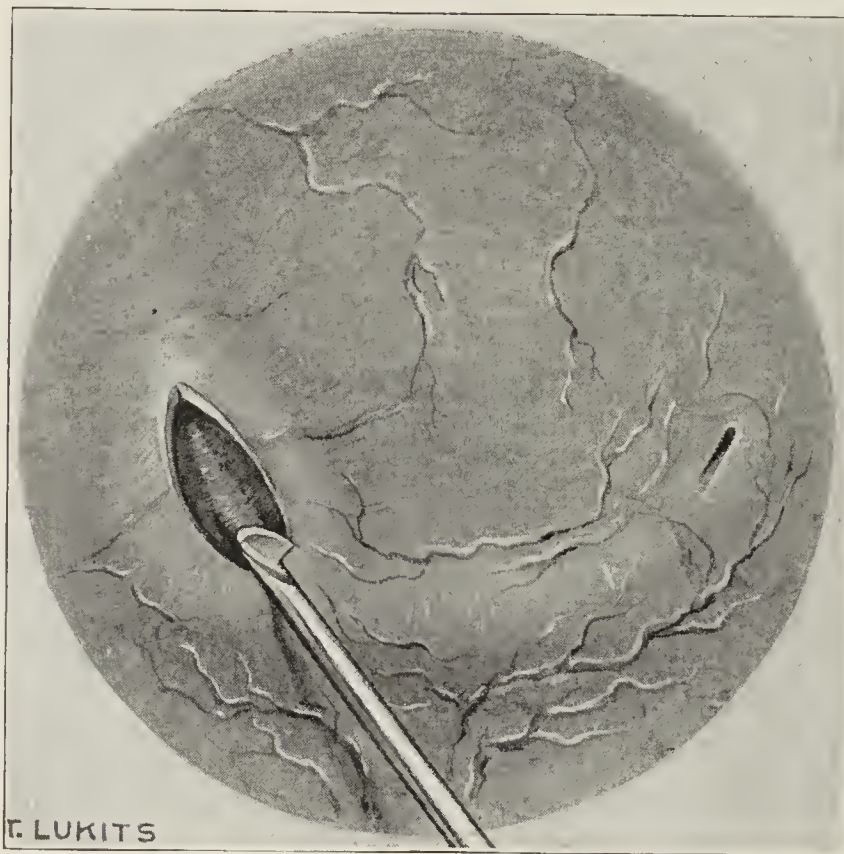


Fig. 6.—Incision of strictured area produced by withdrawal of hook-shaped knife.

ment of the spindle-shaped cell or cells of lessened blood requirements strictures cannot form. Spasmodic strictures may occur, but they cannot be called strictures; they are simply an element which produces a temporary tightening of the lumen of the vesicle; but when we have the pressure of foreign tissue brought into any sort of a channel, I do not see how the passage of any sound can change the character of that tissue. The cause of the production of the peculiar tissue which is there must be discovered and removed. I do not see why a catheter would not cause some irritation and add to the stricture more than it would detract from it.

DR. BERNARD ERDMAN, Indianapolis: With reference to Dr. Braasch's remark about the normal narrowing of the ureter, it seems to me that the meatus of the ureter bears the same relation to the ureter that the meatus of the urethra does to the urethra. It is probably the narrowest portion of the entire canal. Another point that ought to be brought out is this: All ureters do not enter the bladder in the same manner. It is sometimes a very difficult problem to pass a ureter catheter in an individual in whom I absolutely suspect no stricture at all. I would like to take issue with Dr. Boogher about the spindle cells, and I think we have a good deal of trouble with round-cell infiltration, too.

DR. J. DELLINGER BARNEY, Boston: I would like to get an expression of opinion as to the use of papaverin, mentioned by Dr. MacGowan and others. I have tried it in several cases, and have had about as good results by simply attempting to pass a catheter.

DR. WILLIAM F. BRAASCH, Rochester, Minn.: We have used papaverin in the endeavor to remove stone from the ureter in twenty-five or thirty patients. I am under the impression that papaverin was not the greatest factor in the majority of instances in which we were successful. When a stone can be removed by cystoscopic methods, manipulation by the ureteral catheter so as to shift the stone's position is probably the most important factor. Since this is usually done when introducing papaverin, the latter has been given greater credit than it deserves.

DR. ROBERT H. HERBST, Chicago: I agree with the statement made by Dr. Braasch and Dr. Caulk, that the ureteral catheter is of very little value in the diagnosis of stricture of the ureter. There are many conditions which may cause the interruption of the catheter, both into and along the ureter, and one must be very cautious in making the diagnosis in this way without other findings. This is also true of the olive-tip bougie. When one is able to enter the narrowed portion with a catheter, the injection of a contrast fluid and the roentgen ray are of great value in making the diagnosis. However, this is not possible when the obstruction will not admit even the smallest size catheter. The two cases reported were both of the impassable type.

The cases of strictures reported in this paper were of the type which are found at the extreme lower end of the ureter and which have been preceded by severe inflammatory changes in the seminal vesicles. I believe that these obstructions are due to inflammatory changes in the wall of the ureter and not adhesions binding the ureter to the seminal vesicles. The wall of the ureter is too rigid to be compressed in this way. In opening the lower end of the ureter we must keep in mind the danger of making the incision too long. The ureter is inserted into the wall of the bladder for a distance of 2.5 c.c., and the incision must be kept within this limit.

THE RATIONAL ETIOLOGY AND SATISFACTORY TREATMENT OF DACRYOCYSTITIS *

W. R. THOMPSON, M.D.
FORT WORTH, TEXAS

The man who first suggested a lacrimal probe was thinking along scientific lines. By its use he hoped to remove the obstruction from the nasal duct, and restore its normal function. His disappointment came, however, when he learned, from repeated efforts on patients in whom the probe could be passed through the duct into the nose, that in most instances the tendency to an immediate closure was so great that the hope of draining the sac of its infectious contents had to be abandoned. The failure of the probe to give relief by drainage suggested the use of the style, which proved to be unscientific in principle and unsatisfactory in results.

For several years all contributors to this subject seem to have given up the idea of drainage or the restoration of the normal function of the lacrimal sac and nasal duct, and instead have directed their energies to sac destruction or removal, or direct drainage into the nose.

It is not my purpose to criticize the different methods of treatment. In my opinion, however, all methods depending for their success on the complete destruction of the function of the sac and duct are more or less faulty.

In the absence of adequate post-mortem information, it is impossible to determine the exact cause of nontraumatic stricture of the nasal duct. Our textbooks say that inflammation of the nasal mucous membrane and obstructions resulting from the enlargement of the inferior turbinates, nasal polypi, etc., are among the most common causes. There appear to be some very good anatomic reasons for the belief that

other and possibly more rational causes exist.

The nasal end of the nasal duct is by far the best protected of all openings entering the nasal cavity. Nature evidently realized the importance of having this duct perform its function properly at all times; to that end she displayed great wisdom in the construction and location of the inferior turbinates. The duct, as all know, enters the nasal cavity with rather an expanded orifice, immediately beneath the anterior end of the inferior turbinate. The upper border of this bone is thin and is connected to various bones along the outer wall of the nose; the lower border is free, thick, and cellular in structure. The outer surface, looking toward the opening of the duct, is concave and assists in the formation of a large and well ventilated cavity—the inferior meatus, into which the duct opens. When this bone becomes hypertrophied, the enlargement takes place on the inner or

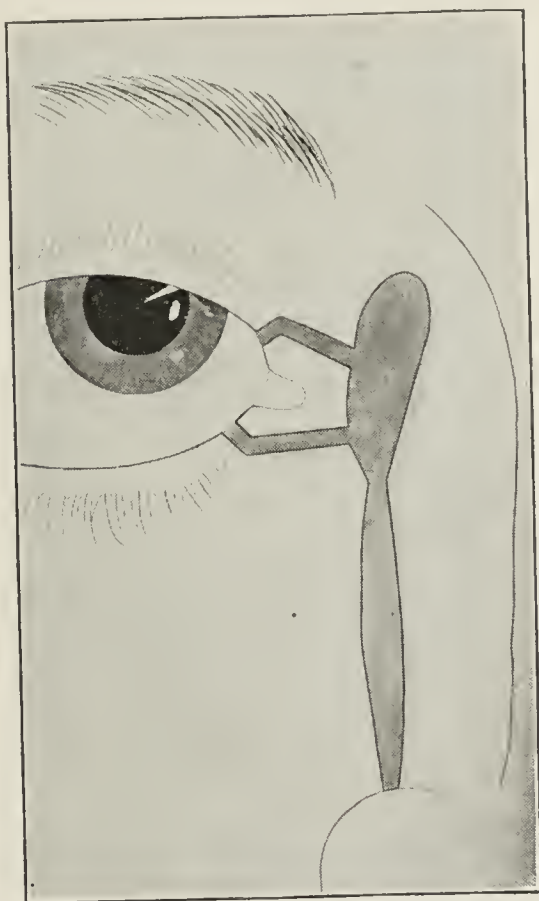


Fig. 1.—Normal sac and nasal duct.

The Microscope.—The first compound microscope was probably invented by the Middleburg lens grinders, Johann and Zacharias Jansen, about 1590.

* Read before the Section on Ophthalmology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

convex surface and on its lower border and does not encroach on the orifice of the duct. When a nasal polyp develops, it is generally above and posterior to the anterior end of the inferior turbinate, and does not reach the neighborhood of the orifice of the duct.

For the past few years I have been observing nasal cases generally, with a view to ascertaining how frequently the duct is prevented from functioning by pressure on its nasal orifice. I find it surprising what distortion of the anterior nares, from deflection of the cartilaginous septum and extreme hypertrophy or polypoid degeneration of the inferior turbinates, can exist without affecting in the least the function of the nasal duct. Certainly there may be cases, but so far I have not seen one, with or without stricture, in which the orifice of the duct did not appear to be surrounded by open space.

Infectious organisms might find their way through the duct from the nasal cavity, but the likelihood is not very great. In case they should so enter and cause trouble, the infection would probably be acute.

It is the function of the lacrimal canals, sac and nasal duct to convey not only liquids to the nasal cavity from the conjunctival sac, but also such solid matter as passes through the canaliculi. The nasal duct is lined with mucous membrane, continuous with the conjunctiva, which contains numerous folds resembling valves. It not only seems possible, but it is very probable that some of these foreign bodies may lodge and become fixed in these folds, since this mucous membrane does not possess ciliated epithelium, nor is the flow through the duct of sufficient force to dislodge them. It requires only a short time for a fixed foreign body to create irritation and erosion of the surrounding structures, as in the case of a foreign body in the nares. When sufficient time has elapsed, these foreign bodies increase in size by the deposition of salts from the tears and serum.

The clinical history of stricture of the nasal duct, from its earliest manifestations (the stage of epiphora) to the time of complete closure with extensive pus formation or mucocele, is exactly what would be expected as the result of the presence of a foreign body in the duct, with its irresistible tendencies to inflammation, ulceration and accretion.

It is generally believed that dacryocystitis is always preceded by obstruction of the nasal duct. Based on my theory of foreign matter as the original cause of this obstruction, the failure of the probe to give relief is explained, as its function is to dilate, not to remove, the stricture.

After becoming weary of repeated dilations followed by practically no improvement, and yet unwilling to give up hope for restoration of the normal function of the sac and duct and to join the band of sac exterminators, I was impressed with the idea of removing rather than dilating the stricture. The plan seemed so feasible, even before it was undertaken, that I was surprised it had not been done before. The

small, sharp, flexible wire ear-curets (Buck's) suggested themselves as the best instruments with which to scale off the semisolid deposit on the walls of the duct, as well as to remove the granulations and other débris from the duct and sac. The technic is as follows:

In children and nervous or sensitive adults, a general anesthetic should be administered. All others are given a hypodermic of morphin, followed in thirty minutes by instillation of some 5 per cent. cocain solution in the eye and an injection above, below, and to the nasal side of the lacrimal sac of a 0.5 per cent. cocain solution.

The canaliculus is slit in the usual way, care being taken to make the opening in the sac sufficiently large to admit easily the largest size curet. Some 1 per cent. cocain solution is injected into the sac with an Anel syringe.

If the case is of long standing, with pus or mucocele, the inner walls of the sac should be curetted with the largest size curet. The sharp edge should be indicated by a mark on the handle, to be located easily at all times. If the sac is free from infection, it should not be molested. The smallest size curet should then be passed into the duct, the same as the probe. When the obstruction is reached, there should be no force employed to push through, but gentle pressure made in connection with an auger-like motion until the curet finds its way into the nasal cavity. This instrument should be manipulated until it passes easily through the stricture and the entire duct. The next larger size is to be used in the same manner, and so on, until a curet practically the size of the duct will pass easily into the nose, and all sensation of roughness at the site of the stricture has been removed.

It is reasonable to suppose, in long standing cases, with pus and mucus in the sac and duct, that there is a tendency to the formation of granulations. In view of the importance of leaving the sac and duct

as free as possible from infection, a skeleton burr has been improvised to be used first in the sac, by rubbing carefully its walls, and then passed repeatedly through the duct until all granulations have been destroyed. With this instrument a 25 per cent. solution of iodine is thoroughly applied to the inner walls of the sac and duct.

If the obstruction has been completely removed and all infection destroyed, the patient will recover without further treatment. If a portion of the deposit on the walls of the duct has been left, it will naturally have a tendency to increase in size; if a focus of infection remains in the sac or duct, it will manifest itself. In either case it will be necessary to repeat the operation.

In my opinion this treatment is applicable to all cases of dacryocystitis except the lacrimal abscess. I would not advise it in recent cases of epiphora until simpler methods have failed. I believe that in every instance in which it is proper to use a probe, the curet



Fig. 2.—Extent to which canaliculus should be slit.

can be employed and in a very large percentage of cases the trouble relieved in a few days.

My experience with this method extends over a period of two and one-half years, during which time cases of epiphora, mucocele and purulent dacryocystitis have been cured and the function of the sac and duct restored. Since most of these patients get well with one operation and no after-treatment, it is very difficult to get accurate statistics, as they all return home immediately, and some of them live in remote localities. Fortunately I have been able to follow a variety of cases, which prove beyond question the value of the method. The following cases are given as illustration:

REPORT OF CASES

CASE 1.—The first person to be operated on by this method was a man, aged 65. He gave a history of having had a purulent discharge from the sac for twenty years. I had treated him with probes sixteen years before, with no success. The sac was considerably dilated, as indicated by a decided depression after he expelled the pus, which he did several times daily. He was well in ten days, kept under observation for two years, and has had no further sac infection, overflow of tears, or lacrimal conjunctivitis.

CASE 2.—A woman had purulent dacryocystitis of long standing, and gave a history of two lacrimal abscesses. A fistulous opening into the sac existed at the time of operation. When seen, five weeks later, she said that she was well a week after the operation. Cocain passed readily into the nose and mouth from the conjunctival sac.

CASE 3.—A man had mucocele of long standing, with severe lacrimal conjunctivitis. He was well in a week after operation. He has been seen monthly for six months, and has no evidence of his old trouble. Cocain passes through the nasal duct into the nose and mouth.

CASE 4.—A woman with epiphora was not benefited by three months of ordinary treatment. She was relieved at once by operation, and has been under observation for seven months without recurrence.

CONCLUSIONS

1. The simplicity of the method makes it attractive.
2. It requires but little skill to perform a good operation.
3. The sac and duct should never be irrigated after operation.
4. No loss of time or hospital expense is incurred.
5. No great outlay is required for instruments.
6. Every type of dacryocystitis can be cured, and function of the duct restored.
7. The danger of fracturing the bone, or making a false passage or producing hemorrhage with the probe, is avoided.
8. Thoroughness is absolutely essential to success.

ABSTRACT OF DISCUSSION

DR. HARRY W. WOODRUFF, Joliet, Ill.: With reference to the etiology of dacryocystitis, as advanced by Dr. Thompson, I believe that he has given us a probable cause for these conditions, the presence of foreign bodies in the nasal duct. We have had no more satisfactory explanation of the etiology of chronic dacryocystitis with stricture. Perhaps many of you

have had the experience of seeing foreign bodies actually lodge in the puncta. Small ones go through easily and may lodge on the mucous surface of the nasal duct. I have a few times removed cilia that had passed into the canaliculus and were too long to make the turn and go down into the sac.

I operated on seven patients by this method. Two of these were cured; at least they have not returned, and they usually return if they are not cured. The remainder were not cured. Dr. Thompson suggested to repeat the operation. I did so on some of them, and I got no results. Dr. Thompson thinks that the cause of failure is lack of thoroughness, but in doing this secondary operation I discovered that I had done the first operation so thoroughly that a great deal of cicatricial tissue had formed. Perhaps my thoroughness, however, was applied in the wrong situation; that is, there had been too much curettement of the sac and not enough of the stricture. One class of cases in which this operation is not indicated is dacryocystitis in infants, congenital dacryocystitis. These cases are all curable by probe and washing when taken very early, and they are curable in one or at most two treatments. In these cases there may be present a membrane about the nasal opening of the duct; as soon as it is broken down an immediate cure follows.

In passing the probe in these young infants, only a few weeks old, it often happens that the membrane is not broken down but is pushed ahead of the probe. You have no means of knowing this, except that when you use the syringe the fluid does not come through into the nose. This is my theory. I have had two cases of that kind in the same family and obtained an absolute cure in each case.

I am not satisfied that Dr. Thompson's method is an absolute cure; neither am I satisfied that it is a failure. I believe that it is a better method than those methods which attempt to make an opening through from the lacrimal sac into the region higher up. In many of these cases we will be compelled to resort to the radical procedure of extirpation of the sac.

DR. JOHN GREEN, JR., St. Louis: Dr. Thompson's statement that the style is "unscientific in principle and unsatisfactory in results" is, in my opinion, rather too sweeping. Given, a narrowing of the bony duct, with simple epiphora, in which the passage of probes of moderate size is possible without the use of force, the wearing of a style not rarely results in a permanent reestablishment of satisfactory drainage. I have

operated in six cases of chronic dacryocystitis in the following manner: After cocainizing the sac with 5 per cent. epinephrin cocain solution, the canaliculus is slit freely, and a small probe, say a Bowman 4, is passed to the nostril; a few drops of 10 per cent. cocain with epinephrin is injected into the bony duct. This is repeated twice at intervals of three minutes. During each injection the head is held forward so that any of the solution that reaches the nasal end of the duct will flow out of the nostril. The duct is then dilated rapidly up to 8 or 10 Theobald. The sac and duct are then curetted according to the method described by Dr. Thompson. None of these patients have complained of pain, which I attribute to the free use of 10 per cent. cocain prior to the introduction of the larger probes and curet. Too short an interval has elapsed to speak of ultimate results, but the immediate improvement was very striking, the reestablishment of free drainage and the cessation of pus formation in the sac. I was very glad to hear Dr. Woodruff speak of the use of probes in the dacryocystitis of infants. It is my impression that many of us still resort to temporizing methods, allowing these children to go month after month, when one or two probings will effect a permanent cure.

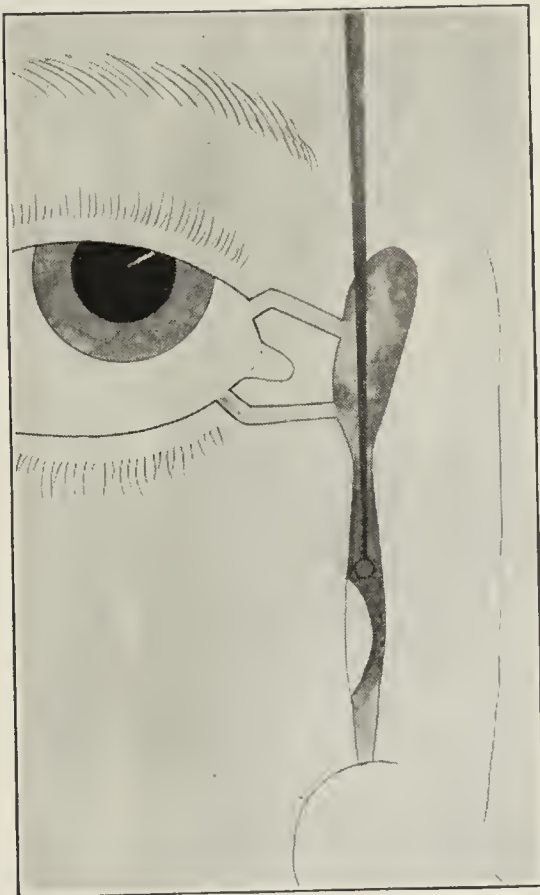


Fig. 3.—Curet in position for augur-like motion.

DR. ARTHUR E. PRINCE, Springfield, Ill.: Dr. Woodruff's method of treating infantile dacryocystitis is endorsed. In my experience two probings have been sufficient to cure every case that I have seen, and it would be very unwise, almost criminal, to lacerate the mucous membrane of the canal in a case of that kind. I take exception to Dr. Woodruff's statement questioning the wisdom of opening the sac directly into the nose, and thus obtaining permanent drainage. Three years ago I published a preliminary report in the *Ophthalmic Record* of an operation for draining the sac directly into the middle meatus of the nose. Since that date I have never had occasion to remove a single lacrimal sac, neither have I had recourse to the excellent method of Dr. Gifford for destroying the lacrimal sac with trichloroacetic acid. I take exception to the treatment by curetting the nasal duct on the ground that the curettement would probably cause an additional stricture and would be contraindicated in cases of congenital epiphora, as has been pointed out by Dr. Woodruff.

DR. HAROLD GIFFORD, Omaha: I want to compliment Dr. Thompson on his theory and on his practice, if it is as successful as he says it is; and the proof of the pudding is the eating. So far as I know, this method is original with Dr. Thompson. The idea that strictures are commonly due to the accumulation of small foreign bodies at the narrowest portion of the sac or duct is well worth consideration. To account for this we really ought to find that in these people who have these strictures, the lacrimal puncta must be unusually large to allow these foreign bodies to enter. It certainly is rather rare to find any foreign bodies in the sac, but then, as Dr. Woodruff says, the fact that we have all seen a cilium part way through the punctum, shows that a foreign body of appreciable size certainly can make the passage. When I first heard of the method of Dr. Thompson I felt that it was a good way of destroying this duct and of getting a permanent closure, but Dr. Thompson's results indicate that I was wrong. I can easily see how, if his idea is correct, if granulation tissue forms in that neighborhood, the removal of it with a smooth curet might be of very permanent value.

DR. MELVILLE BLACK, Denver: I was very much interested in Dr. Thompson's theory of causation. It is not borne out by the fact that most cases of dacryocystitis are double. If this condition of affairs was almost invariably single, the hypothesis of foreign body causation would be much more tenable. But there is some inherent underlying cause. Otherwise, these cases would not almost always be double. In his drawing Dr. Thompson gives the formation and position of the seeming deposits of lime salts, or whatever it is, in the most bulging portion of the lacrimal canal, the portion in which you would not naturally expect the formation of a lime salt deposit. If there was a foreign body in the canal it presumably would not lodge in the largest portion, but in the most closed and dependent portion, and then we would have formed around the foreign body a lime salt deposit.

I take it that his presumption that we have this sort of a formation is purely theoretical. He has not said, in his paper at least, that he has made any dissection of the canal, nor demonstrated the actual presence of a foreign body. Furthermore, as Dr. Green has remarked, it would be well to determine by microscopic analysis of these curettements whether or not anything came from the canal. Everything that we have done, up to the present time, in our endeavor to reestablish the patency of this canal, has been a failure, and if this thing will do it, I want to give it a trial.

DR. G. HENRY MUNDT, Chicago: I am rather surprised that some reference has not been made to the inadvisability of splitting the punctum. I have for a number of years watched the splitting up of the canaliculus, and various and sundry other procedures. It is my observation that any procedure on the lacrimal drainage apparatus, of which the splitting up of the canaliculus is part, is unsatisfactory. Dr. Thompson speaks about the importance of epiphora as preceding dacryocystitis. It may be so. I do not know. I never have followed that carefully. But I have done this in all patients who have epiphora: I make pressure over the lacrimal sac, and if there is no secretion in the sac I forget the lacrimal drainage apparatus. I believe that is the best thing to do. Unfortunately, I have not tried this procedure,

but the probability of my trying it is precluded by the necessity of splitting up the canaliculus. I think that I shall continue to do Dr. Gifford's procedure.

DR. W. R. THOMPSON, Fort Worth, Texas: I am enthusiastic over this method. I believe there is a good deal more to it than the majority are inclined to believe. I do not consider the splitting of the canaliculus a very serious matter. If that is the only pathologic condition remaining after the cure of a case of dacryocystitis, the patient will never complain. One patient on whom I operated a year and a half ago had a mucocele. There was no great amount of pus, but there was a decided mucus deposit in the sac which could be pressed out. I operated after this method, removing the constriction in the duct completely. I want to emphasize that that is the main part of the operation. In this case I did very little to the sac, almost nothing, but I did restore the bony canal to its normal size. That man had never been operated on before. That was the end of the treatment. He has had no trouble since. He has no overflow of tears. The instillation of cocaine into the nose passed readily through into his mouth. He had the bitter taste. I could discover no opening in the canaliculus. It apparently had closed up. I do not say that that would be the case in many instances, but it certainly was the case in that particular instance. I do not operate on infants; I do not operate in any case when ordinary means will give relief. But I do operate because of the epiphora after they have resisted the ordinary treatment for a great length of time, and I get good results. Refractive errors should be corrected, but you would not expect refraction to cut any figure in a case where you had epiphora on one side. Watering of the eye might be the result of eye-strain. The cause of epiphora, of course, is to be treated until you are thoroughly convinced that there is no way of relieving it; that it will not get well. In the cases where you have an excessive amount of pus in the sac, you will curet the sac thoroughly and you will make your operation as complete as possible. Curet the sac as well as the canal. Restore the normal caliber of the nasal duct. I do not believe that in any of these cases the bony wall of the duct is changed in the least. I think it is entirely possible to restore the normal caliber of the duct by removing it. After you have curetted it out, including the granulations, then make an application of tincture of iodine and you will get results.

POLIOMYELITIS: NEW DEVELOPMENTS IN THE AFTER-CARE AND TREATMENT

BETTER RESULTS IN RESPONSE TO THE DEMAND

CHARLES OGILVY, M.D.

NEW YORK

The care and treatment of poliomyelitic cases has within recent years fallen to the lot of the orthopedic surgeon. For the first time the opportunity of controlling and supervising the treatment of these patients has been given him.

If the responsibility of the final results rests on the shoulders of the orthopedic surgeon and he has the direction of the case throughout its whole course, better results are anticipated and obtained. By this one does not mean to infer that the cooperation of the neurologist, the internist and the general practitioner is not constantly sought and maintained. Their cooperation is necessary in obtaining the best final results, but the problems involved are essentially and specifically those for the orthopedic surgeon to assume and to solve.

A year ago¹ I reported on a group of 110 cases which has been closely followed for one year. A

1. Ogilvy, Charles: A Report of a Group of One Hundred and Ten Cases of Poliomyelitis from the Acute Onset to the Present Time, *THE JOURNAL A. M. A.*, Sept. 1, 1917, p. 691.

second year of after-care and treatment has since elapsed, and a survey of this year's work reveals a number of very interesting facts which have not been heretofore recorded. In this paper time will permit me to refer to only two essential points, (1) the return of lost function, and (2) the occurrence of deformity.

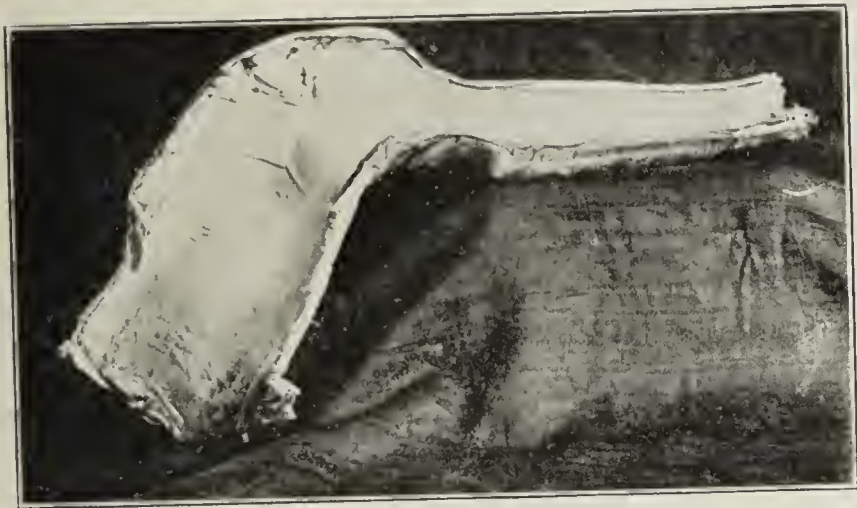


Fig. 1.—Horizontal arm splint for deltoid paralysis. This splint is made of plaster of Paris and trimmed with adhesive plaster.

In cases of complete flaccid paralysis affecting either a muscle or a group of muscles without any return of function after six months, further treatment is useless so far as the return of function is concerned. The paralysis is permanent in this flaccid type of case in which there is no reestablishment of the communication through the nerve centers of the cord. In my group of cases we have had nine cases in which such flaccid paralysis occurred.

REST AND REST SPLINTS

In the previous paper it was stated that the one greatest factor in obtaining a return of lost function was rest for the muscles affected. I then thought that six months should be the limit of time for such inactivity. I now believe that one year is not any too long for certain cases.

The simplest and most efficient means of obtaining rest is in the use of plaster-of-Paris shell splints. These are light, easily applied, comfortably fitting and the most economical braces we can use.

Of these I wish to call attention to three in particular, first, the arm rest for deltoid paralysis (Figs. 1, 2 and 3). This is a splint in which the arm can be placed in any position necessary. It is bandaged firmly to the body over the clothing and has proved one of the most efficient splints in use. The result has been that of six deltoids primarily involved we have been able to obtain a return of function in all but one case.

The second plaster-of-Paris shell that I wish to mention is one for the spine. The difficulty of preventing a lateral deviation of the spine is very great when there is an inequality of the power of the muscles on either side. Especially is this so after the twelfth month, when it is impracticable constantly to retain the patient in a recumbent position. Figure 4 demonstrates this special brace which I have used. It is a combination of a plaster back and a canvas corset.

Emphasis should be made on the necessity of night splints in all cases in which there is a tendency to foot drop or other foot deformity (Fig. 5). Deformities will invariably follow when no such provision is made. One often sees very beautifully applied braces being worn in the day time and the foot allowed to assume positions of deformity during the night. This will ultimately become so marked as to demand operative procedures.

BRACING

There is some controversy and much misunderstanding regarding the employment of braces, both in the profession and among the laity. Some have stated that they "do not believe in bracing." The natural result of such a statement has been that parents have allowed their children to attempt walking without the use of braces, with disastrous results in many instances.

The purpose of braces is to encourage function, not to discourage it, and to prevent deformity. Both of these results are successfully obtained, provided the brace is made sufficiently light. All bracing should be made with as much joint freedom as is consistent with prevention of deformity. It is entirely an erroneous impression that the wearing of a properly applied light brace predisposes to continued weakness of the muscles. This is not the case.

Overfatigue, more than anything else, prevents a



Fig. 2.—Deltoid paralytic splint applied.



Fig. 3.—Same case; recovery of deltoid.

return of function, and a proper brace is the best guard we have against overfatigue. It must, however, fit accurately and be as light as possible.

DEFORMITY

There are two deformities to which I particularly wish to draw attention. These have occurred, not during the first but during the second year. They

are those of lateral deviation of the spine and equinovarus of the foot. Either of these deformities may develop gradually as the patient's activities in the sitting and standing posture increase. They are easily

ing in all cases in which it was deemed advisable. My conclusions in this regard are:

1. The responsibility of muscle training cannot be left to the parents to be properly carried out.
2. Comparatively little value can be obtained by

muscle training until the child is over 6 years of age.

3. It should be continued for at least two years.

4. The results obtained are dependent as much on the patient as on the trainer.

5. A great deal depends on the disposition of the child.

6. Muscle training is indispensable in cases in which it is applicable.

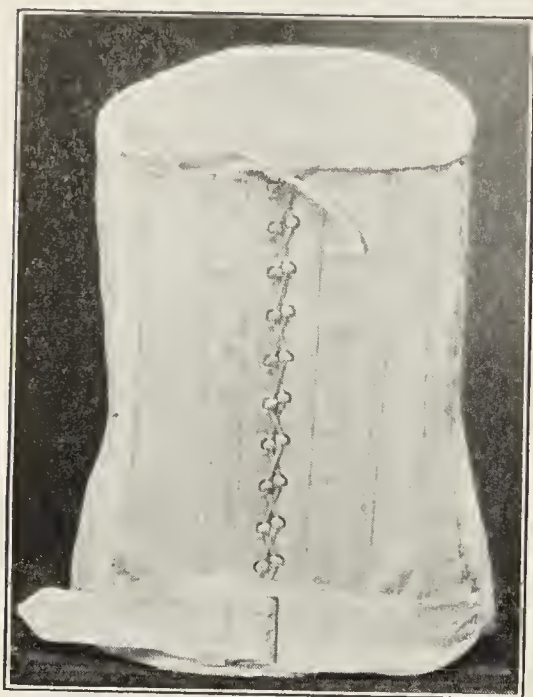


Fig. 4.—Author's plaster-of-Paris canvas corset.

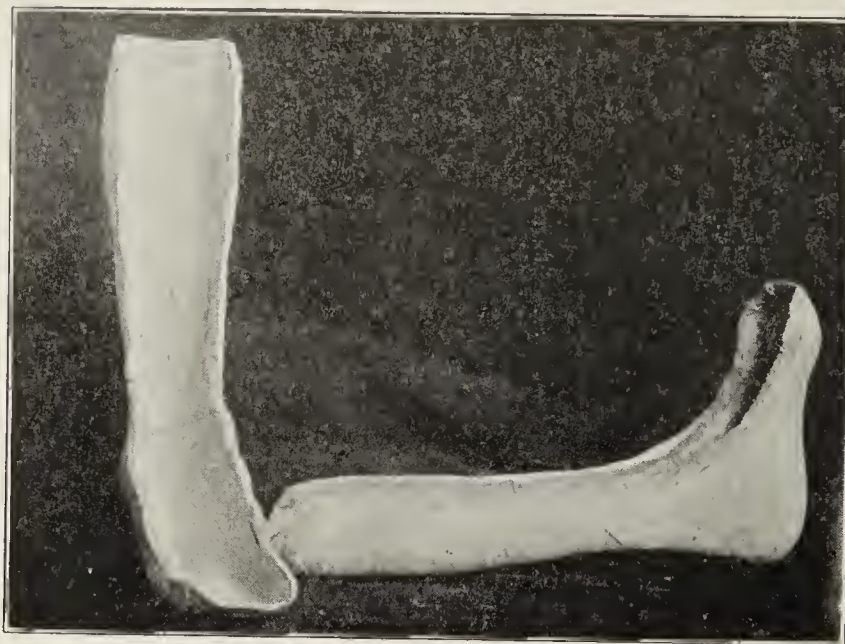


Fig. 5.—Night splints to prevent foot deformities.

accounted for but exceedingly difficult to check. If we could continuously keep these patients on their backs the question would be solved, but this is not practicable. For the milder cases a small light canvas steel corset (as seen in Figs. 6 and 7) with postural exercises has been sufficient to hold these cases in check.

The more severe cases have had a plaster-of-Paris posterior shell splint with a canvas front, as referred to above (Fig. 4). This I cannot too highly recommend, as it has many advantages over the complete plaster-of-Paris corset and at the same time has sufficient corrective force to prevent the development of deformities.

The second deformity referred to is that of equinovarus (Fig. 8). This has developed in two of my cases. In neither of these cases were any of the muscles of the leg completely paralyzed and in neither of them was any deformity whatsoever noted until the twelfth and fifteenth months, respectively, after the acute attack. Note the late date of the development of these deformities. This emphasizes the importance of continuous supervision for at least two years after the onset of the disease.

In cases in which round shoulder, malposture, develops, a shoulder brace should be applied. The lighter and simpler these are, the better. The most efficient is one in common use, which goes very much as a figure-of-eight bandage around each shoulder, being drawn firmly across the back.

MUSCLE TRAINING

I have employed a special muscle trainer whose sole duty it has been to establish systematic muscle train-

BATH EXERCISES, MASSAGE AND ELECTRICITY

Bath exercises are of the greatest importance and should never be omitted, especially at the stage when the return of muscle function is just sufficient to pro-



Fig. 6.—Canvas steel corset for mild cases of spinal deformity, front view.



Fig. 7.—Canvas steel corset for mild cases of spinal deformity, back view.

duce motion. Often such motion is encouraged without fatigue by bath exercises when the same exercises out of the bath would assuredly produce overfatigue. Furthermore, the encouragement obtained by seeing the muscle functionate in the bath is of the greatest

value in the development of power. Regular, systematic massage should not be begun before the fourth month. The value of massage is unquestionable. This should be carried on by a skilled masseuse.

Electricity for the purpose of obtaining a return of muscle function has not been used. I cannot see in any instance where it could possibly have resulted in a greater amount of muscle power than has otherwise been obtained.

CONCLUSION

I cannot too strongly recommend that these patients be continuously kept under the same care and supervision throughout. I hope that the work done by myself and others along this line will be of sufficient



Fig. 8.—Paralytic equinovarus.

value to establish a definite course of practical treatment which can be universally pursued in order that the best final results may be obtained in these cases.
40 East Forty-First Street.

The Necessity for Prenatal Care.—In an article on "The State and Prenatal Hygiene" (*British Medical Journal*, Oct. 5, 1918), E. McConnell, M.D., analyzes the death rate of infants under 1 year in the city of Glasgow with reference to the necessity of prenatal care in the interests of the mother, the child and the state. He shows that two thirds of the deaths under 3 months occur in the first month; that in the first week the deaths in both sexes are four times more numerous than in the second week, and about six times more numerous than in the fourth week after birth, while one third of the deaths during the first year occur before the fourth week of life is completed. Adding to these the stillbirths which amount to 4 per cent. of the total births, totalling about 1,200 for Glasgow and about 4,000 for Scotland, McConnell says we have an illustration on a considerable scale of the work to be done by an organized system of prenatal care. These deaths lead directly to the period antecedent to birth and away from the direct influence of environment, and have as their predominant cause what the health officer of Glasgow in a report to the Seventeenth International Congress of Medicine in London in 1913 termed "immaturity" to express the inability of the child to live apart from its mother, and would include infants coming under such designations of disease, etc., as premature, congenital defects, atelectasis, atrophy and debility or wasting diseases.

Military Medicine and Surgery

PHAGOCYtic EXPERIMENTS IN INFLUENZA

RUTH TUNNICLIFF, M.D.

Contract Surgeon, U. S. Army

CHICAGO

The following experiments were made in an attempt to determine the relation between influenza and the complicating pneumonia and the green-producing streptococcus isolated at Camp Meade, by the late Captain George Mathers.¹ This coccus was isolated from the sputum during life and from the heart's blood, lungs, pericardial and pleural exudates at necropsy.

A report of the bacteriology of the influenza epidemic at Camp Meade was being prepared by Captain Mathers at the time of his death. He isolated a green-producing streptococcus from the sputum in 87 per cent. of 110 cases of influenza and pneumonia examined. The cultures were made on the first or second day of the disease. The influenza bacillus was also isolated in 58 per cent. of the sputum cultures. The coccus appeared in the sputum smears as gram-positive diplococci, 2 microns in length, with slightly pointed ends and a capsule. In cultures they grew in pairs and long chains and showed a capsule. On human blood agar plates the colonies were large (from 0.25 to 0.5 cm. in diameter) green, flat, moist, with regular edges, and had a tendency to become confluent. The colonies often showed umbilication in forty-eight hours. Cultures of this organism were not soluble in bile. They grew as a flocculent growth in glucose and plain broth, the fluid generally not remaining clear. They fermented glucose, lactose and saccharose, but neither mannite nor inulin, except in one instance. Sputum injected intraperitoneally into mice was virulent, killing them within twenty-four hours. These cocci were not agglutinated by type pneumococcus serums.

It is generally recognized that opsonins are the only antibodies easily demonstrated in streptococcus infections. Agglutination tests with the serum of five influenza and two pneumonia patients examined during the attack and convalescence were negative with three strains of this streptococcus, even in so low a dilution as 1:2. Opsonic experiments were therefore made. Sputum strains were generally used, as those isolated at necropsy were usually not phagocytatable, presumably because too virulent. *Micrococcus catarrhalis* and *Streptococcus hemolyticus* were used as controls. The influenza bacillus frequently associated with the green-producing streptococcus was not tested at Camp Meade because this bacillus is usually spontaneously phagocytic.²

The opsonic power of the blood serum was estimated by the dilution method. The normal and immune serums were diluted with physiologic sodium chlorid solution to determine the point of opsonic extinction—the point at which induced phagocytosis recognizably exceeds phagocytosis with salt solution. Normal human washed leukocytes were used. The mixture of serum, leukocytes and bacterial suspension was incubated at 37 C. for fifteen minutes and the smears

1. Captain Mathers died October 5, from influenzal pneumonia, contracted while engaged in this work.
2. Tunncliff and Davis: *Jour. Infec. Dis.*, 1907, 4, 66.

then stained with Wright's stain. Fifty polymorphonuclear leukocytes were counted and the number taking part in phagocytosis noted.

The serum of four patients with acute influenza was examined daily for its opsonic power. On the first day of the disease the opsonic content in three was below normal. On the second or third day the opsonic power of all rose well above normal, remaining high a day or two and then returning to normal (Cases 1, 2, 3 and 4 in the accompanying chart).

Ten severe cases of pneumonia following influenza were also examined in the same way. The serum showed little or no opsonins for the coccus (Cases 5 and 6). In two instances the opsonic power increased slightly with improvement in the patients' conditions, decreasing again when the patient became worse. The opsonic power of two patients who recovered returned to normal.

These opsonic changes in influenza and the complicating pneumonia were specific for the green-producing streptococcus, no fluctuations in opsonins being observed with either *Micrococcus catarrhalis* or *Streptococcus hemolyticus*.

Later in Chicago, the serum of one patient with influenza and three with influenzal pneumonia were examined for their opsonic power both for the green-producing streptococcus and the influenza bacillus. Two strains of the influenza bacillus isolated from influenzal pneumonia lungs at necropsy were used; one showed practically no spontaneous phagocytosis, the other not sufficient to interfere with the experiments. All four patients showed during the acute stage no opsonins for the streptococcus, the point of opsonic extinction for the control being 1:60. One patient died. The serum of the three that recovered showed, as the symptoms subsided, a high opsonic content, the point of opsonic extinction being 1:480, 1:240 and 1:480. The negative phase in these influenzal pneumonias for the green-producing streptococcus is much more pronounced than is generally observed in other acute infectious diseases. None of these serums showed any changes in opsonins for the influenza bacillus.

On account of the leukopenia in this epidemic of influenza and in the complicating pneumonias, and the frequency of complications, the activity of the leukocytes was also studied. I² have previously recorded that the phagocytic activity of the leukocytes is decreased during the leukopenia of measles, and suggested that this might account in some degree for the frequency of secondary infections in this disease.

Suspensions of washed blood containing approximately the same number of polymorphonuclear neutrophils from normal persons and from ten influenzal pneumonia patients were studied. The phagocytic activity of the leukocytes was determined by comparing the number of bacteria ingested under the same conditions by the two sets of leukocytes under the influence of normal serum (cytophagic index). In

the case of all patients examined during the leukopenia, the polymorphonuclear cells were found to be less actively phagocytic than normal cells, the average being 0.1, as compared with the normal standard 1.00. In two patients who recovered, the leukocytes became actively phagocytic as their number returned to normal. This decreased leukocytic activity was not specific, the same change occurring with *Bacillus influenzae*, *Micrococcus catarrhalis* and *Streptococcus hemolyticus*.

CONCLUSIONS

1. Specific opsonins for the green-producing streptococcus isolated from influenza patients developed during the course of the disease.

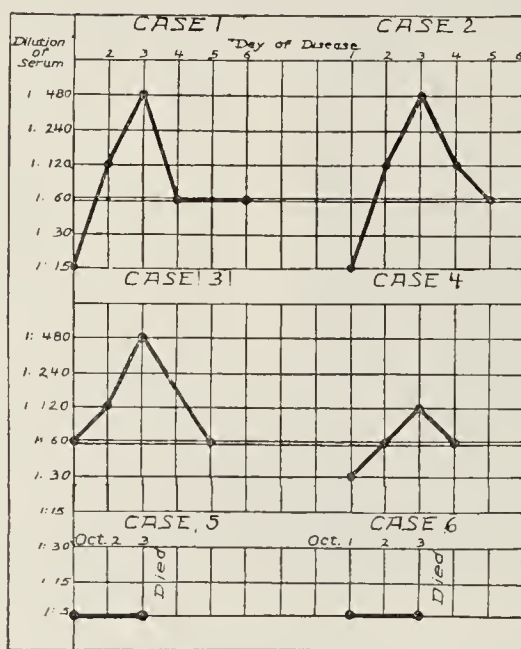
2. A specific decrease in opsonins for the organism occurs in the pneumonia following influenza. This lowered opsonic power persists unless the patient recovers, when it returns to or may rise considerably above normal.

The changes in opsonic power in influenza and influenzal pneumonia are specific for the green-producing streptococcus, no fluctuations being observed with *Bacillus influenzae*, *Micrococcus catarrhalis* or *Streptococcus hemolyticus*.

3. These experiments would indicate that the green-producing streptococcus is of some significance in influenza and the complicating pneumonia.

4. Accompanying the leukopenia of influenza occurs a nonspecific decrease in the phagocytic activity of the leukocytes. This decreased activity continues unless the patient recovers, in which case the leukocytes become normally active with the increase in number.

5. It is suggested that the leukopenia and the diminution of the phagocytic activity of the leukocytes in influenza may account in some degree for the severity and frequency of secondary infections in this disease. It is possible that convalescent serum or immune horse serum may be of value in promoting leukocytosis and also in increasing the antibody content of the serum.



Cases 1, 2, 3 and 4, opsonin curves for the green-producing streptococcus of the serum of influenza patients who recovered. Cases 5 and 6, great reduction from normal of opsonin for the green-producing streptococcus in fatal influenzal pneumonias. Point of opsonic extinction for normal person 1:60.

Vaccination Against Pneumonia.—The experiments of the Army Medical Corps with vaccination against pneumonia due to the pneumococcus, Types I, II and III, in two of the Army camps have had so much apparent success that a memorandum has been issued to officers, enlisted men, and employees of the War Department, announcing that this prophylactic vaccination is available to all who desire it. At Camp Upton during a period of ten weeks, no cases of pneumonia due to the types of pneumococcus mentioned, occurred among vaccinated troops, and pneumonia due to other organisms was only one tenth as high among vaccinated as among the unvaccinated although previous to vaccination the pneumonia had occurred equally in the two groups. The vaccine employed is a lipovaccine. It is given in a single injection, containing pneumococci, Types I, II and III. Reactions from injections, etc., are, as a rule, less pronounced than after the use of antityphoid vaccination. The vaccination is not intended to cure those who are ill with pneumonia, and it is not advised for persons who are suffering from acute colds or fever.

EPIDEMIC OF BRONCHOPNEUMONIA AT CAMP GRANT, ILL.

PRELIMINARY BACTERIOLOGIC REPORT *

EDWIN F. HIRSCH, M.D. (CHICAGO)

Captain, M. C., U. S. Army

AND

MARION McKINNEY

Chief Technician

CAMP GRANT, ROCKFORD, ILL.

Sept. 21, 1918, an epidemic disease characterized by a sore or dry throat, cough, fever, general prostration, and in a certain number of patients by a rapidly progressing pneumonia, broke out at Camp Grant. While the date September 21 is given as the day of onset during which fifty-six patients were admitted to the base hospital, there had been about fifteen or twenty patients admitted during the three or four days immediately preceding with symptoms identical, and had been considered to have "influenza."

The rapidity with which the disease spread can be appreciated best by reviewing the number of hospital admissions on the days succeeding the onset of the epidemic, indicated in Chart 1. The first death occurred on the third day, and the postmortem examination confirmed the clinical diagnosis of bronchopneumonia. The number of deaths on the subsequent days of the epidemic are indicated in Chart 2. Practically all deaths followed a clinical diagnosis of pneumonia, a diagnosis largely supported by postmortem examinations.

The arrival in the hospital of a large number of patients with symptoms referable to infection of the respiratory passages suggested at once that the possible or even highly probable portal of entry of the disease-producing organism or organisms was through the nasopharynx, and that a bacteriologic examination of these tissues would demonstrate the variety of bacteria as well as the predominating type of organism, if there be such. Following this as a reasonable basis for investigation, throat cultures were taken on Loeffler's medium from the posterior pharynx of the first 300 hospital admissions and examined after twenty-four hours' incubation. The predominating organisms growing on this medium were gram-positive, usually diplococci as such or in short chains. Following this, 159 throat cultures were taken on blood agar plates in order to differentiate the gram-positive organisms, as well as to favor the growth of the influenza bacillus whenever it would be present. Many of these plates were pure cultures of fine green colonies containing gram-positive diplococci as such or in short chains, frequently lancet shaped. In all throat cultures the occurrence of the influenza bacillus was only occa-

sional, never in pure culture, and, when found, always with a predominating number of diplococci with tinctorial, morphologic and cultural characteristics as mentioned above. A few colonies of hemolytic streptococci were noted in twenty of the 159 blood agar plates, nonhemolytic in not more than twelve.

Approximately 200 postmortem examinations were made during the epidemic, and there was found regularly an extensive irregular consolidation of the lungs. The gross appearance of these lungs was striking in that they appeared voluminous and dark red, with much blood and edema. On the pleural surfaces there was little fibrin. The bronchi contained a thin gray or brown fluid and were lined by a red mucous membrane. During the decline of the epidemic, gray nodular consolidations were found, and complications and sequelae of a pneumonia, such as huge serofibrinous pleuritis, empyema, acute serofibrinous and acute suppurative pericarditis, all of these contributing no small part in continuing the mortality.

Cultures on blood agar plates and direct smears on glass slides were made from the exudate of the consolidated lungs at all postmortem examinations. The surface streaks of the blood agar plates frequently were purely fine green colonies containing gram-positive, lancet-shaped diplococci. Organisms resembling the influenza bacillus were rarely found, and never in pure culture.

Heart's blood was taken at each necropsy and cultivated. In a large number the gram-positive organism described above was isolated in pure culture. Blood cultures were made on ninety patients in the hospital and forty-five of them were positive, a gram-positive diplococcus being isolated in pure strain without exception.

Spinal fluid removed at the postmortem examinations and from patients in the hospital has yielded this organism frequently, and it has been cultivated in pure strains from the exudate in the middle ears, from the frontal, maxillary and ethmoidal sinuses. In none of the sinus infections of the head has the influenza bacillus been observed either in direct smears of the exudate or in the blood agar plate cultures.

A large number of strains of this organism have been isolated from the lungs and the heart's blood at the postmortem examinations, and from the circulating blood stream of patients in the hospital. Table 1 contains certain cultural, morphologic and virulence properties for a few from the heart's blood, and Table 2 the same for those isolated from the blood stream of patients in the hospital, while Table 3 lists a few from the lungs. These tables indicate that the gram-positive diplococcus recovered from these fluids and tissues has all the morphologic and cultural characteristics of

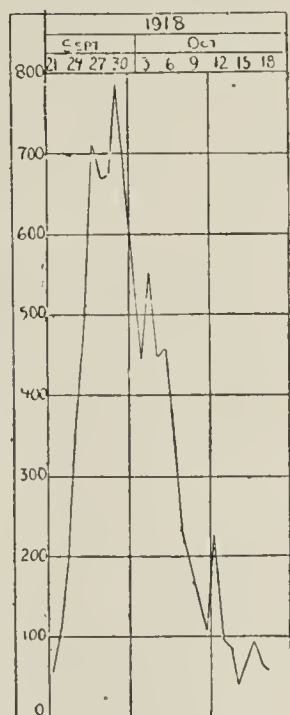


Chart 1.—Admission rate: September 21, 56; 22, 108; 23, 193; 24, 369; 25, 491; 26, 711; 27, 670; 28, 671; 29, 788; 30, 689; October 1, 567; 2, 440; 3, 566; 4, 445; 5, 459; 6, 375; 7, 235; 8, 197; 9, 155; 10, 118; 11, 229; 12, 98; 13, 87; 14, 40; 15, 64; 16, 95; 17, 67; 18, 54.

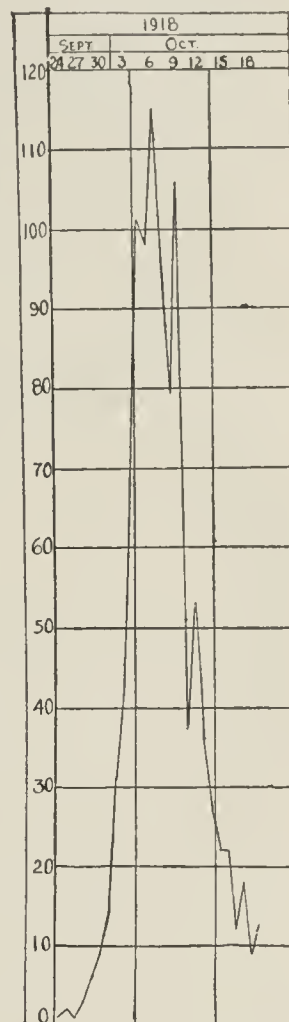


Chart 2.—Death rate: September 24, 1; 25, 2; 26, 1; 27, 3; 28, 6; 29, 9; 30, 14; October 1, 31; 2, 43; 3, 76; 4, 101; 5, 98; 6, 115; 7, 98; 8, 79; 9, 106; 10, 37; 11, 53; 12, 36; 13, 27; 14, 22; 15, 22; 16, 12; 17, 18; 18, 9; 19, 13.

*From the Laboratory of the Base Hospital.

a pneumococcus, at least so far as modern standards of identification permit. They further detail experiments demonstrating the exceedingly great virulence these strains possess for susceptible laboratory animals. A guinea-pig of 328 gm. weight was dead ten hours after an intraperitoneal injection of half the twenty-four-hour growth on a blood agar slant of one of the strains isolated from the heart's blood. The virulence of these strains exceeds by far that known for pneumococci usually associated with disease, and while the organisms meet all the morphologic and cultural require-

2. The virulence of this organism exceeds greatly that of strains usually identified in pneumonia.

TABLE 3.—LUNG CULTURES, POSTMORTEM

Cul- ture	Inulin Fer- menta- tion	Capsule		Bile Solu- bility	Amount of 1-24 Hr. Blood Agar Slant Injected into W. Mouse	Dose Fatal in Hours	Type	Organ- ism Re- covered Pure from Mouse Heart's Blood
		On Blood Agar	In h. b. of Mouse					
265	+	—	+	+	0.00555	30	IV	+
276	+	—	+	+	0.00555	24	IV	+
287	+	—	+	+	0.00555	18	IV	+
288	+	—	+	+	0.00555	24	II	+
291	+	—	+	+	0.00555	24	II	+
293	+	—	+	+	0.00555	18	II	+
294	+	—	+	+	0.00555	29	II	+
295	+	—	+	+	0.00555	32	II	+
343	+	—	+	+	0.00185	36	II	+
358	+	—	+	+	0.00185	30	IV	+
369	+	—	+	+	0.00185	36	II	+
384	+	—	+	+	0.00555	14	IV	+
398	+	—	+	+	0.00555	23	II	+

TABLE 1.—HEART'S BLOOD CULTURES, POSTMORTEM

Cul- ture	Inulin Fer- menta- tion	Capsule		Bile Solu- bility	Amount of 1-24 Hr. Blood Agar Slant Injected into W. Mouse	Dose Fatal in Hours	Type	Organ- ism Re- covered Pure from Mouse Heart's Blood
		On Blood Agar	In h. b. of Mouse					
1024	+	—	+	+	0.0231	38	II	+
1029	+	—	+	+	0.0231	26	II	+
1030	+	—	+	+	0.0231	31	II	+
1031	+	+	+	+	0.0231	25	II	+
1032	+	—	+	+	0.0231	25	IV	+
1033	—	—	+	+	0.0231	25	IV	+
1034	+	+	+	+	0.0231	25	IV	+
1035	+	+	+	+	0.0231	31	II	+
1037	—	—	+	+	0.0231	27	II	+
1038	+	+	+	+	0.0231	25	II	+
1039	+	—	+	+	0.0231	25	II	+
1040	+	—	+	+	0.0231	24	IV	+
1041	—	+	+	+	0.0231	30	IV	+
1050	+	—	+	+	0.0231	28	II	+
1053	+	—	+	+	0.0231	43	II	+
1056	+	—	+	+	0.0231	21	IV	+

ments of a pneumococcus, this difference in virulence makes them distinctive.

To control these investigations, throat cultures were taken from fifty of the German prisoners confined at Camp Grant. This group of men has escaped entirely the infection, although they have been in the camp since last spring. Colonies of pneumococci were found in twenty of these cultures and isolated in pure culture. White mice were inoculated with half the

3. This virulence is such as to explain the epidemic of bronchopneumonia.

4. *Bacillus influenzae* played no rôle in the epidemic at Camp Grant.

CLINICAL OBSERVATIONS ON
INFLUENZA

BERNARD FANTUS, M.S., M.D.

Associate Professor of Therapeutics, Rush Medical College
CHICAGO

The epidemic, or rather pandemic, of influenza through which Chicago has just passed has afforded me an opportunity of making observations that it might be of interest to record, as they were made in family practice, which is not so well represented in medical literature as is that of the hospital, even though the vast bulk of the work of the medical profession lies in the former field rather than in the latter.

One of the startling features of the pandemic was its sudden flaring up and its equally sudden decline, reminding one of a flame consuming highly combustible material, which died down as soon as the supply of the material was exhausted. There is every reason to believe that, within a few weeks of its onset, the infection was universally present in the nose and throat of the people, disseminated by mouth spray given off on talking by innumerable carriers and, in addition, by the coughing and sneezing of the sick. Susceptibility was very general, though it varied greatly in degree. Among those who escaped well marked sickness there are few who could not recall having had an occluded or running nose, or a raw feeling in the throat, or a cough, or aches and pains, at some time during the period of the prevalence of the disease, these probably representing the price such persons paid for their immunization. That blood relationship had something to do with susceptibility was shown by the fact that, in some families, every member developed the disease in well marked form, while in others there was not one definite case, though exposure to the infection had taken place. The very old and the very young showed themselves, on the whole, less susceptible.

In view of this universal prevalence of the infection, quarantine was necessarily useless. During this pandemic, wearing of face masks had no greater prophylactic effect than the liberal consumption of whisky

TABLE 2.—BLOOD CULTURES

Cul- ture	Inulin Fer- menta- tion	Capsule		Bile Solu- bility	Amount of 1-24 Hr. Blood Agar Slant Injected into W. Mouse	Dose Fatal in Hours	Type	Organ- ism Re- covered Pure from Mouse Heart's Blood
		On Blood Agar	In h. b. of Mouse					
604	+	—	—	+	0.0231	18	II	+
605	+	—	+	+	0.0231	22	II	+
606	+	—	+	+	0.0231	22	II	+
608	+	—	+	+	0.0231	24	IV	+
610	+	—	—	+	0.0231	18	IV	+
611	+	—	+	+	0.0231	30	IV	+
614	+	—	+	+	0.0231	12	II	+
615	+	—	+	+	0.0231	16	II	+
630	+	—	+	+	0.0231	32	II	+
636	—	+	+	+	0.0231	22	II	+
638	+	—	+	+	0.0231	16	II	+
640	+	—	+	+	0.0231	22	IV	+
646	+	—	+	+	0.0231	18	II	+
651	+	—	+	+	0.0231	68	I	+
654	+	—	+	+	0.0231	22	II	+
655	+	—	+	+	0.0231	14	II	+
660	+	—	+	+	0.0231	30	IV	+
663	+	—	+	+	0.0231	16	II	+
664	+	—	+	+	0.0231	22	IV	+
665	—	—	+	+	0.0231	16	II	+
666	—	—	+	+	0.0231	36	II	+

growth of these organisms on blood agar slants after twenty-four hours' incubation without the slightest effect on these animals.

CONCLUSIONS

1. The epidemic of bronchopneumonia at Camp Grant is due to infection by a virulent strain of pneumococcus.

that was indulged in by some for this purpose, or the traditional camphor bags that were found hanging about the necks of so many children sick with influenza. That face masks were useless in protecting one against the infection was shown by the fact that nurses, who of all people were especially given to wearing them, were notoriously prone to become victims of the infection. This is easily understood when we realize that the conjunctiva is continuous with the respiratory mucous membrane and that the eye, unless especially protected, is particularly exposed to bombardment by minute particles in the air. Of course, face masks are useful to protect others against infection by the mouth spray of the wearer.

The symptomatology of the disease was quite multifiform. Thus, there were cases that merely showed fever without aches and pains, and others in which there were aches and pains without fever, though generally both were present. Profuse sweating occurred in most cases, increased undoubtedly by the medication employed. The majority of patients coughed, some coughed and vomited, and some vomited and did not cough. The nose was not as frequently affected as were the bronchial tubes. When it was involved, there was a marked tendency to nosebleed. The throat was rarely complained of. Its examination merely revealed hyperemia, and only exceptionally follicular exudate. A few cases of dysenteriform disturbance were encountered. Prostration was generally out of proportion to the height and duration of the fever.

The average duration of the disease in uncomplicated cases was about three days. There was, however, quite a tendency to the occurrence of a relapse, increased, it seemed, by getting out of bed prematurely. The relapse was in some cases more severe than the primary attack, and in others less severe.

Bronchopneumonia was the most important and most serious complication. In every case of pneumonia that I observed in this epidemic, its occurrence was apparently due either to inability or unwillingness, on the part of the patient, to stay in bed long enough or thoroughly enough; or to physiologic handicaps, such as pregnancy, organic heart disease, chronic bronchitis, infancy or old age; or, most especially, to these two influences combined. Over and over again, this was the story: The patient had an ordinary attack of influenza, during which he did not stay in bed continuously. He then felt a little better, got up, and was taken sick again—this time with severe symptoms—and he soon displayed the phenomena of bronchopneumonia. On the other hand, patients who from the beginning of their sickness were kept in bed continuously, and who staid in bed until they had been perfectly well for two or three days, seemed to be quite immune from this complication. If thorough bed treatment of the attack of influenza actually prevents bronchopneumonia, as is my belief, then we must consider this treatment of life-saving importance. How bed treatment might prevent pneumonia, as well as lessen the tendency to relapse, can be understood when we think of an attack of influenza as a state during which the victim of the infection acquires immunity against the organisms that are attempting to invade his system. We have abundant evidence that warmth favors the development of immunity, and that chilling antagonizes it. A patient who is kept in bed at a uniform temperature is therefore in a favorable condition to triumph over the

enemy within him. Chilling, on the other hand, weakens the defenses and turns the tide of battle against the patient. Sweaty skins and wet garments predispose to chilling. Thus it is easy to see why the freely perspiring influenza patient must be particularly susceptible to chilling. Especially critical is the period when the patient's temperature is just falling to, or below, the normal. He is then commencing to feel fairly well, and sees no reason for staying in bed. With skin and garments wet with perspiration, he gets out of bed, but soon returns, chilly and miserable, having lost the immunity that was just becoming established. A relapse or an attack of bronchopneumonia is the result.

The time the patient should remain in bed might be placed, for mild cases, at from two to three days, counted from the time the patient has commenced to feel perfectly well for a whole day. For severe cases, and in handicapped patients, or when fine crepitant râles continue to be heard in the chest, the time taken for full establishment of convalescence should be considerably increased.

As it is important to protect the patient against chilling, use of the bed pan and of the urinal must be insisted on. This also prevents the fainting on going into the toilet room that occurred in quite a number of cases. It is no less important to keep the patient's garments and bedclothing dry. The danger of wet clothing is best appreciated when it is realized that a person wrapped in wet fabric loses heat faster than the same body would if it were naked. To keep these profusely perspiring patients dry is quite a task, which should, however, be faithfully carried out by the nurse, who, on removing the wet garments, should rub the patient dry with a warm towel and apply warm, dry clothing, all this being done under covers. The proposition of keeping the patient warm must not be carried out to the extent of keeping the patient hot. The temperature of the sick room should not exceed 70 F. Nor does this proposition militate against free ventilation, provided this is carried out so as to admit fresh air liberally into the room without exposing its occupants to the danger of chilling. For most of these cases, good nursing was more important, as well as more difficult to secure, than good doctoring. This pandemic occurring at a time when there was such great scarcity of trained nurses, on account of the war, brought home to us how necessary it is for every woman—and every man—to be at least somewhat skilled in nursing the sick.

In view of the absence of specific treatment, the therapy of this disease had to be symptomatic. This form of therapy—often disdainfully characterized as “merely symptomatic”—represents, in my view, the very acme of the medical art. Perhaps, if we would instead use the term “functional therapy,” as has been suggested, its significance and importance would be better appreciated. It is our duty and privilege to take care of the derangements of the patient's functions while his system is fighting the infection. Since these derangements were of most varied character and intensity, such a thing as a routine treatment of influenza is obviously an absurdity.

The symptom that perhaps attracted most therapeutic attention, and probably least deserved it, was the fever. This was rarely high enough to be of detriment to the patient. When it became too high—exceeded,

let us say, 104 F.—it was easy to reduce it by hydrotherapy or by antipyretic medication. On the other hand, a proper object of therapeutic attack were the pains and aches to which so many of these patients were subject. It was their analgesic, rather than their antipyretic action, that rendered various coal-tar derivatives so useful in this condition. It made very little difference whether acetylsalicylic acid or other salicylate, acetphenetidin, antipyrin or pyramidon were selected, provided the proper dose was chosen, namely, the smallest possible dose adequate to produce the desired result. I have seen as little as 0.12 gm. of acetphenetidin or of pyramidon, when given every hour, followed within a few hours by complete relief of the discomforts against which they were administered. The chief disadvantage of all these bodies is their great sudorific action. This at times made the patients more uncomfortable than the aches against which they were used. Hence, when great pain was complained of, and its antitussic action did not render it contraindicated, I have added an opiate—generally codein phosphate, 0.03 gm., to each dose of pyramidon—rather than to increase the dose of the coal-tar analgesic. It is a somewhat disagreeable thing to reflect on that this treatment might make the patient feel so comfortable that, considering himself well before he really is, he may interrupt his bed treatment prematurely and thus invite occurrence of relapse or even of pneumonia.

The proper management of the cough is probably of fundamental importance. If retention of secretion and clogging up of bronchioles favors the development of bronchopneumonia, as it is only reasonable to believe, then favoring expectoration may save life. It has been my good fortune to come across a number of patients in whom, from the rapid and distressed breathing, the almost nonproductive cough, and the innumerable fine râles in the chest, one feared the onset of pneumonia, that cleared up phenomenally, within a couple of days, under the influence of iodid coupled with the liberal ingestion of fluid. In milder cases, I have used, as expectorant, ammonium chlorid in doses of 0.3 gm. prescribed with a flavoring syrup vehicle and taken in half a tumblerful of water, every two hours. But, when the more serious nature of the case demanded a more drastic action, or when the patient obtained no relief from the ammonium chlorid, I have nearly always succeeded in securing a satisfactory result by the addition of 0.12 gm. of sodium iodid to each dose of ammonium chlorid, given in cases in which prompt action seemed urgent every hour, and later, every two to four hours. The interval between the doses is increased as expectoration or nasal discharge become freely established. Reasoning and clinical observation have led me to believe that any expectorant given for the purpose of loosening secretion is likely to be disappointing unless its administration is accompanied by the liberal ingestion of fluid. Hence I have urged the ingestion of a tumblerful of fluid every hour, while the patient is awake, having the patient take a tumblerful of milk or other nutritious fluid every two hours, and a glassful of lemonade, grape juice and water, seltzer water, or other drink every two hours, alternating with the milk. When the secretion has become profuse, an aromatic expectorant like creosote carbonate would seem to be indicated. However, in these cases I have found this agent

unsatisfactory. In a number of instances, discontinuance of the iodid and use of creosote carbonate in 0.3 gm. doses every four hours was followed by prompt aggravation of the cough and increase in the number of râles heard in the chest, as well as the reappearance of fever. I therefore now reduce the daily dosage of iodid very gradually instead of stopping it abruptly, and have not employed creosote carbonate of late, even when the expectoration has seemed excessive. I believe that the prescribing of an opiate, whether by itself or in complex cough syrups, is pernicious practice, a direct invitation to the onset of bronchopneumonia. An exceptional case may be found now and then, in which a patient with a chest free from physical findings is kept from sleep by a useless, absolutely nonproductive cough. In such a case, a sufficient dose of codein, 0.03 gm. every hour at bedtime for a few doses, secures a good night's rest; and the ingestion of a dose every four hours during the day maintains comfort. When, however, the cough is at all productive or there are râles in the chest, experience has made me afraid to prescribe opiates in any form or any dose. Even if the opiate is not followed by the development of bronchopneumonia, it will prolong the duration of the trouble, as the harassing cough returns as soon as the opiate is stopped. Should the cough be excessive and interfere with sleep, it is well to try to lessen the nervous excitability by means of bromid, which may be given combined with the iodid.

Insomnia should not be permitted in these patients for more than one night. Since sleep is as important as food for the maintenance of strength, and as we never know at the beginning how long the case may last or how serious it may become, it is, to say the least, prudent to procure sleep for the sufferer. The sleep must not be sufficiently profound or continuous, however, to abolish coughing for many hours. I have found it convenient to carry with me 0.3 gm. barbital tablets and to have the patient who has difficulty in going to sleep take one at bedtime, to be repeated in two hours if he is not yet asleep. As barbital has not proved uniformly successful, I have prescribed with more complete satisfaction in those cases in which barbital failed, 0.3 gm. of chloral hydrate to be repeated every hour until the patient is asleep. Of course, the chloral could not be used in patients with enfeebled circulation.

A tendency to vomiting on slight provocation was so generally present, especially in children and young women, that it was found wise to limit the patient to liquid diet. Eating crackers or an apple has precipitated an attack of emesis. Medicine was also likely to do this, especially the administration of ammonium chlorid. Hence it is well to start this medication cautiously in those predisposed to emesis, by giving at first one-fourth and later one-half the desired dose and not going up to the full dose until one feels confident that it is likely to be tolerated. With some patients, vomiting was a prominent and distressing symptom. In such cases, twenty-four hours of complete rest to the stomach, even to the extent of limiting the ingestion of water to teaspoonful doses every fifteen minutes and withholding all medicine, usually controlled the difficulty. To prevent dehydration of the system and the development of acidosis, as well as to favor expectoration, retention enemas of 250 c.c., or of as much as the patient could hold, of physiologic

sodium chlorid solution with sodium bicarbonate, two teaspoonfuls to the quart, were used from every four to eight hours, the shorter intervals being employed when the amount that could be retained was rather small.

It would consume too much space to describe in detail all the other measures that were found useful: such as prolonged irrigation of the auditory meatus with hot water followed by hot glycerin for earache, the use of menthol for the rhinitis, or of the potassium chlorate-ferric chlorid gargle for sore throat, when disturbance of these parts was prominent; strapping the lower border of the ribs with adhesive plaster for pain and soreness due to strain from coughing, and the application of the ice bag for excessive headache, or mustard poultices to especially sore areas elsewhere. The employment of cathartics was, of course, quite generally required. Solution of magnesium citrate was so popular for this purpose that druggists could hardly put it up fast enough during the pandemic to keep ahead of the demand.

I am fully aware of the fact that the great shortcoming of such reports as this one is its lack of numerical data and hence of definiteness, and the consequent difficulty of arriving at scientific conclusions. Even though the observations laid down were made in more than a thousand cases of influenza, many of these were seen only once. Hence it is impossible to be certain of the subsequent course in a considerable number of these cases. Some of these patients may subsequently have developed pneumonia and called another physician. Among those treated from the very beginning, whose subsequent course was known, bronchopneumonia occurred in four cases.

One patient was a pregnant woman who did not stay in bed during the first febrile period, because for a part of the time she had to take care of herself and of a sick baby. She recovered.

One patient, a young foreigner, came to my office with a temperature of 103 F. When he arrived home with instructions that he must go to bed and stay there, his wife turned him out of the house, saying that she had to look out for herself and her children. He stayed without care in a rooming house for three days, and when I saw him again he had a violent hemorrhagic bronchopneumonia from which he died.

A young man with valvular heart disease, who was taken care of by his mother and who refused to stay in bed for evacuation of urine and feces, developed pneumonia and died from it within five days of the beginning of the disease.

An old woman, who probably stayed in bed from the commencement of her illness, developed an extensive bronchopneumonia involvement from which she died after ten days.

In nearly every instance of about twenty-five cases of bronchopneumonia seen for the first time after the establishment of this complication, there was a history of incomplete bed treatment; and, in some, considerable evidence that the physician previously in charge had used an opiate.

SUMMARY

Bronchopneumonia, the great cause of death from influenza, is probably in a considerable proportion of cases a preventable complication.

The prevention of bronchopneumonia rests chiefly on the enforcement of sufficiently thorough and prolonged rest in bed, and the favoring of free expectoration by the copious ingestion of fluid and perhaps the use of iodid and the avoidance of opiates.

719 South Ashland Boulevard.

ACUTE VEGETATIVE ENDOCARDITIS WITH MULTIPLE SECONDARY FOCI OF INVOLVEMENT

DUE TO MICROCOCCUS PHARYNGITIDIS-SICCAE *

OSCAR T. SCHULTZ, M.D. (CHICAGO)

Captain, M. C., U. S. Army

CAMP JACKSON, COLUMBIA, S. C.

Medical work in the armies of this country and of European countries has brought to light, not only new diseases, like trench fever, but also manifestations of infectious agents previously infrequent in civil life. As examples of the latter may be mentioned the increasingly great importance of the hemolytic streptococcus as a cause of pneumonia and of empyema in this country during the past winter, and the causation of bacteremia and other conditions by *M. catarrhalis*, previously considered almost if not quite harmless, as reported by British army surgeons. Of a similar nature, that is, a fatal infection by an organism ordinarily a harmless parasite, is the case reported herewith. Terminal infection by *B. coli* and other normally nonpathogenic bacteria occurs frequently enough in individuals whose resistance has been weakened by other disease. In the case reported the organism concerned has probably never before caused an infection of the kind described, and the infection occurred in an individual who was doing full military duty and who was not weakened by any other disease condition.

REPORT OF CASE

Clinical Course.—A private, white, aged 25, a member of the Headquarters Company of the Military Police was admitted to the base hospital, Camp Jackson, July 25, 1918. The family history was negative. He had had pneumonia in 1913; otherwise the previous history was negative. Particularly is it to be noted that he had never had rheumatism. July 17, while in the city of Columbia, he complained of headache, fever, and pains all over the body. He remained in the barracks until July 22, when he reported for duty. July 24, he was drenched in a storm. He reported at sick call next morning, complaining of pains and aches all over the body, and was sent to the base hospital. On admission the lungs and abdomen were negative. Old herpes labialis was present. The heart was not enlarged, the sounds were of good quality, and a loud systolic murmur was present at the apex. On the four days following admission the clinical record makes no note of anything of importance except fever. July 30, petechial spots were noted on the abdomen. July 31, the following notes were made by Major W. W. Herrick, Chief of the Medical Service:

"Mentally alert. Does not look very toxic. Heart: Apex difficult to locate, apparently in nipple line; right border 1½ inches from midsternum; at apex a loud, rough, blowing systolic murmur, heard in the left axilla and also all over the precordium. Lungs clear. Spleen felt one-half inch below ribs. . . . Profuse petechial eruption over trunk and extremities. A few on the conjunctiva and one on the hard palate."

The diagnosis at this time was septic endocarditis, probably streptococcic. August 1, there was shortness of breath and cyanosis of the finger tips. August 2, the petechial rash was very general over the trunk, and the systolic murmur at the apex was harsher and louder than before. On this day he became irrational. August 3, the pulse was weak, rapid and thready, and the patient was irrational and unconscious. He died at 4:15 a. m., August 4.

Repeated examinations of the blood for malaria were negative. Blood cultures were made, July 30 and August 2. Each

* From the laboratory of the Base Hospital, Camp Jackson, Marshall A. Barber, Captain, S. C., U. S. Army, Chief of Laboratory.

of these gave a pure culture of a gram-negative diplococcus that was not agglutinated by polyvalent antimeningococcus serum. August 1, the urine contained a few pus cells and red blood corpuscles. Examination of spinal fluid removed, August 2 showed a trace of globulin, pus cells, but no organisms. The white blood count is given in Table 1.

TABLE 1.—WHITE BLOOD COUNT

Date	Total	Small Mono-nuclears Per Cent.	Large Mono-nuclears Per Cent.	Polymorpho-nuclears Per Cent.
July 26	18,000	7	3	90
July 27	16,000	10	2	88
July 29	20,600	14	..	86
Aug. 1	29,200	9	..	91

The course of the temperature is shown by the chart.

Necropsy.—The examination was made six hours after death.

External Examination: In the skin of the arms, chest, abdomen and neck were a number of sharply defined, bright red petechiae from 1 to 2 mm. in diameter. These were most numerous in the skin of the neck.

Internal Examination: The peritoneal, pleural and pericardial cavities were free of excess fluid. In the parietal peritoncum were a number of petechiae, of the size and appearance of those of the skin. A few similar lesions were present in both parietal pleurae, and they were more numerous in the parietal pericardium, especially that over the diaphragm, than in the pleurae or peritoneum.

Heart: On the anterior surface of the heart was an irregular milky spot. The right auricle and ventricle were distended. The apex extended to one finger's breadth beyond the left nipple line. The tricuspid and pulmonic valves were normal. On each segment of the mitral valve, where the segments come together anteriorly, was a mass of pale, wartlike or papillomatous vegetations, each mass measuring about 1 cm. in diameter. Some of the wartlike outgrowths making up these masses were attached by very slender peduncles. On the chordae of the posterior segment, beneath the free margin of the latter, was a third group of similar nodular vegetations. The vegetations were rather soft. The aortic valves and the root of the aorta were normal. Over the apex of the left ventricle, the tissue appeared congested through the epicardium. On section through this region, the heart wall contained two poorly defined, irregularly outlined areas, lying very close together and each about 1 cm. in greatest diameter, in which the heart muscle was pale and opaque. The opaque muscle was surrounded by a narrow zone of deeply congested tissue.

Spleen: This was about three times the normal size. The capsule was thin, smooth and glistening. Through the capsule the tissue of the convex surface near the upper pole had a mottled appearance. On section this region was poorly defined, occupied about one-fourth the long axis of the spleen, and the tissue was paler and cloudier than the rest of the tissue, which was grayish red. At the middle of the long axis of the spleen was a second small area similar to that described.

Liver: The size, consistency and external surface were normal. Scattered about on the cut surface after section were a number of opaque, yellowish spots, from 0.5 to 1 mm. in diameter.

Kidneys: These were slightly increased in size. The capsule of each was thin and was easily removed. After the capsule was removed the surface of each kidney showed numerous dark red areas from 0.5 to 2 mm. in diameter. At the anterior surface of the upper pole of the left kidney was an irregularly shaped area 5 cm. in greatest diameter, which was centrally pale and peripherally dark red. The middle of

the convex border of the left kidney showed a similar area 1.5 cm. in greatest diameter on the surface, and the upper pole of the right kidney contained a similar lesion. On section the small, deep red areas noted on the surface extended downward through the cortex as narrow, deep red wedges. The larger areas were centrally opaque, surrounded by intensely congested tissue, and extended entirely through the cortex. The cortical tissue between the lesions was opaque and cloudy. The pelves and ureters were normal.

Gastro-Intestinal Tract: The intestine, in situ, showed through the peritoneum a number of dark red, fairly sharply outlined, round areas from 0.5 to 1.5 cm. in diameter. In the intestine after removal were found large numbers of these areas, and they were present throughout the intestine from the duodenum to the sigmoid. They tended to be arranged in groups of from two to four or five. Some had shotlike, firm, slightly raised, opaque, grayish centers about 0.5 mm. in diameter. Except for these lesions the gastro-intestinal tract appeared normal.

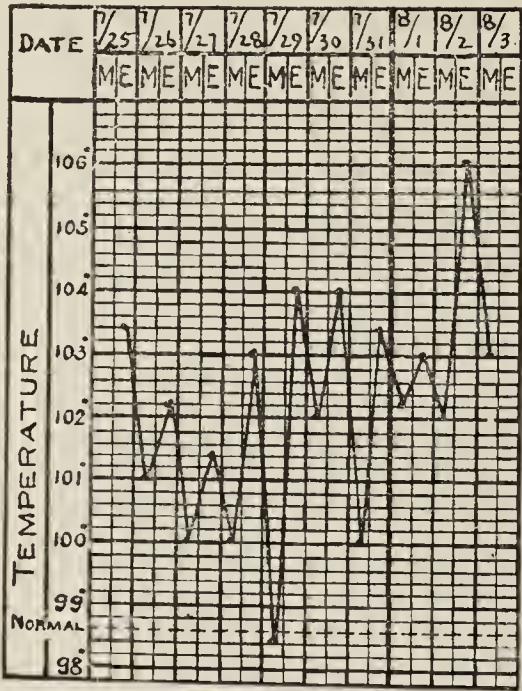
Microscopic Examination.—*Lung:* In areas which usually comprise several lobules the tissue was consolidated. At the center of such areas was a bronchus whose epithelium was partly desquamated and whose lumen was filled with pus cells. The alveoli surrounding the bronchus were filled with polymorphonuclear leukocytes, and the septal capillaries were distended with blood. Farther out, the air spaces were filled with red corpuscles. No fibrin was present. Between the consolidated areas the lung tissue was normal.

Heart: In sections from the margins of the infarcted areas of the left ventricle, the muscle cells nearest the lesion were granular and necrotic. Their nuclei were partly pyknotic and partly fragmented. Farther away from the infarct the muscle fibers were swollen and faintly stained. The stroma between the muscle tissue was edematous. One section contained a large vein, cut in cross-section, which was markedly involved. At one point the intima was replaced by a nodular area composed of necrotic connective tissue infiltrated by polymorphonuclear leukocytes. At another point the wall, in an area comprising about one-fourth the circumference of the vessel, was completely necrotic throughout its entire thickness. The tissue surrounding the vessel was

necrotic, and was densely infiltrated by polymorphonuclear leukocytes.

Mitral Valve: The tissue of the valve was edematous and contained young connective tissue nuclei, together with a few lymphocytes. Just beneath the vegetation the tissue was partly necrotic and was densely infiltrated by polymorphonuclear leukocytes, the involvement extending through the thickness of the valve into the muscle tissue. On the free surface of the valve the vegetation was attached by a broad base. It was composed almost wholly of irregularly shaped masses of bacteria, which gave to the vegetation under low magnification a cauliflower-like appearance. Between the masses there was structureless, granular, eosin stained material which did not take the Weigert fibrin stain and which contained a few polymorphonuclear leukocytes. On the free surface of the vegetation was a thin layer of similar material which contained red corpuscles. In sections stained by the Gram-Weigert method the bacteria were unstained, with the exception of a few coccus-like bodies in a few of the colonies at the upper part of the vegetation. In sections stained with methylene blue the bacteria were stained, and the masses were composed of cocci arranged in pairs.

Spleen: The infarcted tissue was hemorrhagic, many of its nuclei were fragmented, and it contained polymorphonuclear leukocytes. Numerous polymorphonuclear leukocytes were present in the pulp of an accessory spleen that was present and not infarcted.



Course of the temperature.

Liver: The liver cells were swollen and finely granular. A few contained bile pigment. In a few widely separated, small, sharply defined areas, the liver cells stained faintly, and their cytoplasm was finely vacuolated. A few lymphocytes were present in the interlobular stroma.

Kidney: In the convoluted tubules the epithelium was so swollen as almost to obliterate the lumina. These cells were granular, and a few had lost their nuclei. The glomeruli were swollen, and their capillary loops were indistinct. In an occasional glomerulus one or more loops were granular, necrotic and deeply eosin stained. In some glomeruli the capsule was distended, and the space contained granular material. Many of the tubules in the medulla contained free red corpuscles. The tissue of the larger infarcts was completely necrotic. Peripherally the necrotic tissue was richly infiltrated by polymorphonuclear leukocytes. In the uninfarcted tissue, small, sharply defined collections of pus cells were present. At the center of some of these abscesses a small blood vessel filled with polymorphonuclear leukocytes could be seen. Situated at the side of one vessel was a larger abscess, at the center of which was a colony of bacteria that had the same appearance and staining reaction as the colonies in the valve vegetation.

Suprarenal: The stroma of the cortex was edematous. In the medulla of one suprarenal was a small abscess.

Intestine: In a section through one of the lesions of the small intestine, a dense collection of polymorphonuclear leukocytes and lymphocytes was present in the submucosa. The veins of the surrounding tissue were markedly distended, and free blood was present in the submucosa.

Diagnosis.—The pathologic findings were: Acute vegetative mitral endocarditis. Septic infarction of myocardium. Recent infarction of spleen. Multiple hemorrhagic septic infarcts and multiple white infarcts of both kidneys. Multiple hemorrhagic septic infarcts of intestine. Multiple petechiae of the skin, pericardium, pleura and peritoneum. Cloudy swelling of the myocardium, liver and kidneys. Multiple focal necroses of the liver. Purulent bronchitis and bronchopneumonia. Abscess of the suprarenal medulla. Macula albida of the heart.

Bacteriology.—Blood culture on two occasions during life gave each time a pure culture of a gram-negative coccus which was not agglutinated by polyvalent antimeningococcus serum. At necropsy, cultures were taken from the heart's blood and spleen. Gram-negative diplococci were present in smears from both situations, but the cultures remained sterile, probably because of the use of old mediums. One of the mitral valve vegetations was removed, washed thoroughly in sterile salt solution, ground in a mortar with a small quantity of sterile saline, and a loopful spread on a blood agar plate. Numerous colonies, all of the same organisms, developed. These, at the end of twenty-four hours, were from 0.5 to 2 mm. in diameter; they were slightly irregular in outline but had smooth borders. They were raised, glistening and grayish, with a flattened surface. The colonies were dry and came off in scalelike masses. No pigment was formed, even after prolonged growth. The organism of these colonies was a gram-negative coccus, occurring singly and in pairs, which showed some variation in size. It was identical in morphology and in staining reactions with the coccus obtained in blood culture. A pure culture of the latter and a pure culture from one of the heart vegetation colonies were run through various mediums together, with the results given in Table 2.

TABLE 2.—RESULTS OF CULTURES

	Glucose	Saccharose	Maltose	Inulin	Mannite	Litmus Milk
Culture from blood during life....	Acid	Acid	Acid	0	0	0
Culture from heart valve vegetat'n.	Acid	Acid	Acid	0	0	0

On all solid mediums, the blood culture organism and that from the heart vegetation were characterized by their dry surface growth, which was luxuriant and came off in crust-like flakes. In broth, white, opaque, round masses developed at the surface and on the sides of the tube at the surface. Later the masses fell to the bottom, forming a heavy, cotton-

like sediment, the supernatant fluid remaining clear. The bacteriologic diagnosis was *M. pharyngitidis-sicca* from both blood culture and heart vegetation.

COMMENT

In its clinical and pathologic features this case reproduces the conditions usually caused by a virulent streptococcus. A streptococcus could not, however, be cultivated from the blood during life or from the vegetations after death, and no streptococci could be found in the tissues. The only organism cultivated during life and from the necropsy was the gram-negative coccus described, and the blood culture organism and that from the vegetations were identical in every respect. Furthermore, the vegetations were made up of gram-negative cocci. The conclusion which it would appear necessary to draw is that this organism was the causative agent of the infection. Morphologically and culturally the coccus had the characteristics of *M. pharyngitidis-sicca*. Meningococcus and gonococcus, which would be more apt to produce the lesions found, can certainly be excluded. It was at first thought that the organism might be *M. catarrhalis*, but the sugar reactions excluded this also.

The beginning of an infection by such a normal, harmless inhabitant of the throat is difficult to explain. That such an organism should enter the blood stream directly and cause an acute endocarditis and a fatal infection appears improbable. The lungs were the seat of an acute purulent bronchitis with bronchopneumonia. This lesion, from its bronchial and peribronchial distribution, was apparently not hematogenous in origin, as were the lesions of the kidney, intestine, skin and serous membranes. The bronchopneumonia escaped detection during the course of the disease, none of the progress notes of the case indicating the presence of this condition. Although the clinical record states that on admission the lungs were clear, it is possible that the lesion may have been present at this time, and may have escaped detection, since the islands of lung tissue involved were small. It would appear most probable, therefore, that the beginning of the infection was a bronchitis with bronchopneumonia, and that from the involved lung tissue the blood stream became invaded. With localization of the cocci on the mitral valves, the further course of the infection followed logically enough.

SUMMARY

A case of acute malignant vegetative mitral endocarditis in its clinical course and in its pathology simulated an endocarditis due to hemolytic streptococcus.

The causative organism was a gram-negative diplococcus, which culturally was *M. pharyngitidis-sicca*, ordinarily a nonpathogenic inhabitant of the throat.

The organism was obtained in pure culture from the blood on two occasions before death, and from the heart valve vegetations after death.

The inception of the infection was probably an acute purulent bronchitis with bronchopneumonia.

Low Blood Pressure and Oxygen Supply.—If hemorrhage complicates a low blood pressure, the critical level is higher than if no hemorrhage has occurred; thus, if an animal has lost 20 per cent. of its blood volume, the mean arterial pressure can not be lowered to 80 mm. without indications of an inadequate oxygen supply to the tissues.—*Review of War Surgery and Medicine.*

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SATURDAY, NOVEMBER 23, 1918

WAR GASES AND CHEMICAL WARFARE

The effective use of gases in warfare dates from the spring of 1915, when the Germans first used this hideous weapon on Canadian troops on the western front in France. The idea of the employment of poisonous gases against an enemy had been proposed to the British War Office many years ago, but the decision was reached, in accord with present-day considerations of humane procedure, that it should not be adopted.¹ The Teutonic return to barbaric methods compelled the Allies to adopt retaliatory measures; as a result, with hundreds of American as well as foreign chemists engaged in the chemical warfare service, the German plan of gas attack proved to be a veritable boomerang.

The first gas to be used against the forces of the Allied countries was the poisonous chlorin, which was released from cylinders in the front line of trenches. The gas cloud became a weapon by being rolled along the ground by the wind. For obvious reasons this uncertain mode of gas attack was soon replaced by the use of large shells filled with liquefied products. Several dozens of substances, not all of which are true gases, have already been employed in chemical warfare, so that few persons realize precisely what may be included in the expression "war gas." Lieut.-Col. Wilder D. Bancroft² has lately explained the import of this flexible term. The substance, he states, may be a liquid, a solid, a vapor or a true gas. It must, however, have some striking characteristics: it must be poisonous or produce tears (lacrimation); or it must give rise to nausea, sneezing or blisters, have a foul smell though otherwise harmless, or be a smoke with obscuring powers. Of course, it may have any or all of these properties combined.

Obviously a high degree of toxicity is a desideratum in those substances that are intended to damage the enemy by chemical rather than by mechanical means. Bancroft assures us that nowadays no one would consider as a toxic substance anything that did

not kill dogs in thirty minutes at a concentration of 1 mg. per liter. It is effective concentration, he adds, that is overlooked by persons who suggest new gases or methods of using old ones. Lacrimatory substances should be effective at concentrations as low as 0.01 mg. per liter. The best are much better than this.

Gas warfare created entirely new problems for us in America. Means of defense against the new menace were the first to be provided. Foremost here was the production of suitable gas masks to meet each new sort of emergency. Then remedial measures for those afflicted had to be sought in what was practically an unexplored terrain of therapy. Thus there were created divisions of the service to study the pharmacology, pathology and therapeutics of poisonous gases. And our forces were not idle in the search of new weapons in this field. Hence a toxicologic section was organized under the leadership of Professor Loevenhart to test the deadly efficiency of the new discoveries. Such activities as the search for raw materials to produce novel products in enormous quantities, perhaps hundreds of tons, the invention of workable modes of manufacture and devices for loading and shipping shells and other containers, and the provision of protection for the workmen in the industrial plants have engaged the best talent of trained men. Science, recognized at length as a potent force and awakened to a realization of its duty, became rampant for success in outwitting the Hun.

SOME FACTORS IN GASTRIC SECRETION

It is many years since the performance of gastric analysis, made possible by the successful introduction of the stomach tube into clinical diagnostic routine, has become an indispensable feature of medical practice. Strangely enough, the technic of this mode of examination has progressed far more rapidly during the intervening period than has the understanding of the fundamental physiologic functions on which the practice of gastric analysis is really based. Decade after decade has witnessed the collection of such facts as the varying acidities and enzymatic powers of collected specimens of gastric contents, while the problems of secretion, absorption and related factors have awaited more satisfactory solutions than those propounded by the usual textbooks of gastroenterology. The mechanism of the movements of the stomach have been elucidated to a far greater degree, thanks to the introduction of roentgenoscopic methods of investigation, than has the chemical physiology of the secretory phenomena.

The discovery of the existence of secretion-promoting hormones, or secretagogues, has paved the way to a clearer insight into long known facts. Thus it was appreciated even before the pioneer experiences of Pawlow that water is a gastric stimulant. Bergeim,

1. This statement is made on the authority of Prof. J. S. Ames: *The Trained Man of Science in War*, Science, Oct. 25, 1918, p. 401.

2. Bancroft, W. D.: *Chemical Warfare Research*, Jour. Indust. and Engin. Chem., 1918, 10, 785.

Rehfuss and Hawk,¹ who have devoted considerable attention to the response of the human stomach to water, report that in the average normal individual water produces fully as great stimulation as does the familiar Ewald test meal. In explanation of the underlying phenomenon, Pawlow had suggested that the stimulation is due to the prolonged and widespread contact of the water with the gastric mucosa. According to the more recent views of the University of Chicago school of physiologists, to whom, under the leadership of Carlson, so much of our present-day knowledge of the performances of the stomach is due, the older explanation is not tenable. Gastric secretion may occur even when water remains in contact with the mucosa for not more than one and one-half minutes. It seems more likely, therefore, that water washes traces of gastric secretagogues into the intestine, from which they are in turn absorbed so that they can act on the secretory glands by way of the blood; for the existence of a gastrin, or true chemical stimulant to secretion, can no longer be doubted.² Furthermore, that the dilution of the blood, as has been suggested, cannot be the controlling factor in promoting gastric secretion by water ingestion, is evident from the added demonstration that stimulation results even when practically no water is absorbed.³

The effectiveness of gastrin, preparations of which can be injected at will, in provoking gastric secretion, has made it possible to investigate the debated question of glandular fatigue. In the more careless conversations on clinical topics, one often hears of the importance of resting one or another of the secretory glands. The kidney cells and the cells of the gastric mucosa in particular are popularly supposed to require "rest," despite the undeniable fact that the secretion of urine is quite continuous or uninterrupted, as is the function of the heart or the respiratory center. The essential for their normally continued function is, of course, the orderly balance between destructive and constructive cellular processes, between anabolic and catabolic phases of metabolism, between reception of energy and oxygen and removal of chemical debris. Accordingly, it has been found impossible in the case of the gastric glands likewise to demonstrate a "fatigue" when they are stimulated by water or by gastrin for a period of from sixteen to twenty-six hours—surely a sufficient test. Hence, as to gastric glandular fatigue, says Ivy³ in speaking of his new experiments at the University of Chicago, it is only reasonable to believe that so long as the normal gastric glands are supplied by the blood with the normal quality and quantity of constituents that form the gastric juice, no fatigue will be observed; but as soon as the

blood fails to supply these necessary constituents, a change in the normal character of the gastric juice will occur. Even then, as Ivy adds, it cannot be said that the glands are fatigued; but rather they have only been deprived of the raw products necessary for their normal functioning. It is a somewhat unusual, yet unquestionably helpful point of view to interpret gastric secretory performance from the consideration of the blood supply rather than primarily the cells of the stomach or their innervation.

MEDICAL DEMOBILIZATION

From the present outlook it would appear that in the demobilization of the Army, officers can, if qualified, join the Regular Corps or the Medical Reserve Corps, or they may be honorably discharged. The medical officers of the Army and Navy constitute a splendid body of some 35,000 physicians, well trained and well equipped. It would be a mistake—in fact, almost a crime—to permit these men to be completely detached from the Army and Navy and to be absorbed in civilian life. Hence it is to be hoped that the third group—those requesting honorable discharge—will be comparatively small.

As is well known, the old Medical Reserve Corps was not really an active organization. It consisted of some 1,450 physicians affiliated with the Medical Department of the Army, but practically in name only. The National Defense Act of 1916, in creating the Officers' Reserve Corps, provided that the old Medical Reserve Corps should cease to exist and be replaced by the Medical Section of the newly created Officers' Reserve Corps. The Medical Corps thus created would have been more vital—actually a functioning body, since the act provided for instruction to be given to members of the Reserve Corps for periods of fifteen days each calendar year, and for pay and allowance during the period of instruction. Longer periods than fifteen days could be utilized with the officer's consent. But before the new law went into effect, our country had entered the world war.

Conditions are now radically different from what they were in 1916. We now have a large Medical Corps composed of men who have served in camps of instruction, in cantonments, in the field, in hospitals and on board ships. They do not require training of the character contemplated by the National Defense Act. Undoubtedly, therefore, this act will be modified to meet new conditions. In fact, it is announced that the Secretary of War will shortly present to Congress an outline for such modification. It is hoped that the new legislation will provide a method by which officers who desire to do so can continue an intimate contact with the Army. This is certainly desirable so far as the medical officers are concerned, the great mass of whom made large sacrifices in order to serve

1 Bergeim, O.; Rehfuss, M., and Hawk, P. B.: *Jour. Biol. Chem.*, 1914, **19**, 345.

2 Gastrin, editorial, *THE JOURNAL A. M. A.*, Aug. 21, 1915, p. 722.

3 Ivy, A. C.: *Contributions to the Physiology of the Stomach*, XLVIII, *Studies in Water Drinking*, *Am Jour. Physiol.*, 1918, **46**, 420.

their country. They have become interested in army life and methods; they will not be content to be honorably discharged and thereby shelved. Perhaps the feeling is partly sentimental, but largely it is patriotic. Further, the occasion may arise when their services will be useful.

Undoubtedly the Medical Reserve Corps will be continued. But if it is, it might be desirable so to modify its organization as to provide for two classes of members: In one class would be those men within active military age who are now in the service and who have had sufficient military experience to make further training unnecessary. This group, therefore, would not require active training in the camps each year. In the other class would be those who have not had sufficient training and those newly commissioned. This would mean that the Officers' Reserve Corps would be composed of a trained group and a training group. However, the point we desire to emphasize above all others is: In the demobilization an opportunity should be given every medical man now in the service who is trained and physically qualified to retain some connection with the Army.

WAR EMERGENCY AND MEDICAL EDUCATION

At the time the United States entered the world war and until a few months ago, there were grounds for the belief that the war might extend over an indefinite number of years. That, indeed, was the only safe assumption the government could take in its plans for carrying on the war. Following the extension of the selective service regulations to include practically all men of college age, units of the Students' Army Training Corps were established in the approved colleges of arts and sciences. Later the War Department decided to establish such units also in the well recognized medical schools. Medical students were already enrolled in the Medical Enlisted Reserve Corps and were exempted from the draft, but were now ordered to be inducted into active service in the Students' Army Training Corps. The medical schools began at once to carry out the orders and to provide barracks, mess, drill space, etc. The government was to provide the uniforms, board and tuition of students transferred, and, in addition, to give the students the pay of private soldiers. In only about half of the medical schools, however, had the majority of students been transferred when the armistice was signed and further inductions into the Students' Army Training Corps stopped.

The man-power law extending the requirements of the selective service law was not enacted until August. This made it necessary for the Committee on Education and Special Training to work out the necessarily elaborate plans and carry them into effect in an incred-

ibly short space of time. The medical schools had completed their teaching schedules, and many of them had begun their regular sessions before the program for the transfer of their classes to the Students' Army Training Corps was announced. The deans of the medical schools had, in fact, received no previous intimation regarding the radical nature of the changes finally ordered. The time-consuming routine of changing the students from a civilian to a military status—questionnaires, physical examinations, inductions, waiting in line, etc.—took up most of the students' time which otherwise would have been spent in study. The placing of six hours a week of military training into an already overcrowded schedule added to the confusion, which, in many instances, was further increased by a temporary conflict between the military officer who was supreme and educational officers. For example, drill hours were fixed at the time set for laboratory or clinical courses. Orders through military channels were finally sent to the commanding officers in medical schools where conflicts occurred to make the hours for military drill conform with the teaching schedules. Other difficulties, such as the assignment of students to guard duty, to raking leaves, to kitchen police duties and the like, were also settled by similar orders. Again, the giving up of quiet rooms at their homes or in other private dwellings and the living in barracks, where no provision had been made for study, took away from the students their opportunity for effective work. To cap the climax came the epidemic of influenza, which required the closing of many of the schools. As a consequence, during the time that has elapsed since the opening of the college session, little or no effective teaching has been done in many of the medical schools in which active military training had been established. The difficulty was not due so much to the military training as to the requirement that the students live in barracks and the failure to have the drill hours fit in with the class schedule.

The termination of the war takes away the necessity for further interfering with medical schools, and it is highly important that these institutions be restored to their prewar status at the earliest possible moment. The orders issued thus far by the War Department indicate a rapid demobilization, and it is probable that in both premedical and medical courses the Students' Army Training Corps will soon be discontinued. The medical colleges, therefore, should arrange to extend their sessions for a month or six weeks into next summer so as to make up most if not all of the time that has been lost. If this is not done, the students' ability to secure licenses after they have completed the medical course will be jeopardized. State boards generally have expressed their willingness to make liberal allowances to meet such educational measures as might be necessary in the national

emergency. Now that the emergency has disappeared, however, and there is still opportunity to make up the time lost, state boards should not be expected to relax the educational standards provided for in the practice acts. Efficient teaching in the medical schools should be at once restored.

Current Comment

FIRST AID TO OUR NAVAL FORCES

THE JOURNAL has received two copies of *The "T. B." (True Blue) Bulletin*, the "Official Publication of the United States Naval Hospital, Fort Lyon, Colo., Issued Every Saturday under the Direction of George H. Barber, Medical Director, U. S. N." It is a bright and cheery little eight-page paper, devoted to the local happenings at the Naval Hospital. Particularly interesting are some of the advertisements found in this paper. The first to attract attention is a picture of a blooming damsel with hair hanging down below her waist; our sailors are told: "Girls, try this. It doubles the beauty of your hair in a few moments." "This" was "Danderine." On the next page is a picture of an anxious mother looking at her little girl's tongue: "Look at the tongue, mother! If coated, it is a sure sign that your little one's stomach, liver and bowels need a gentle, thorough cleansing at once"—and "California Syrup of Figs" will do the trick. Those of our naval forces that feel the need of something in that line may infer that they can "Get New Kidneys" by taking "Gold Medal Haarlem Oil." A kindly faced woman, holding aloft a bottle of Lydia Pinkham's Vegetable Compound, tells the boys in blue that this wonderful preparation "restored my health after everything else had failed, when passing through change of life. There is nothing like it to overcome the trying symptoms." To the sailor who has worms, "Spohn's Compound" is recommended. Those who are suffering from "Acid-Stomach," or from "Indigestion, Gas, Up-set Stomach" can take their choice of "Eaton's" and "Pape's Diapepsin." Furthermore, the sailors are told that "Every woman wants Paxtine Antiseptic Powder for Personal Hygiene." It is "Recommended by Lydia E. Pinkham's Medicine Co." The interesting information is vouchsafed that "Women Sufferers May Need Swamp Root," and "If a woman is nervous or has dizzy spells, suffers from awful pains at regular or irregular intervals, she should turn to"—"Dr. Pierce's Favorite Prescription." Those in the Naval Hospital who fear the present epidemic are assured that "Spanish Influenza can be prevented easier than it can be cured. At the first sign of a shiver or sneeze take Hill's Cascara Bromid Quinin." Those who may be suffering from "Granulated Eyelids," Eczema, or "Baby Colds" should use "Murine," "Hunt's Salve," or "Piso's," as the case may be. A large advertisement, addressed presumably to the hospital authorities, gives instructions "How to Use Vick's Vaporub in Treating Spanish Influenza." Colorado, we believe, is dry, and in any case men in the service are subject to certain restrictions, but "For

coughs, colds, effects of the grip and influenza"—"Try Peruna first." Altogether, one feels that in the United States Naval Hospital at Fort Lyon, there is no excuse for sickness.

POSSIBLE DANGERS IN EUCALYPTUS OIL AND RELATED PRODUCTS

The idiosyncrasy of an occasional person to therapeutic doses of familiar drugs is an admitted possibility but not always a recognized occurrence. Various types of hypersensitiveness are encountered sufficiently often to be impressed on the minds of the clinician as experiences that need to be reckoned with. Iodid rash may be cited in illustration. The less well appreciated instances, however, deserve special notice, particularly when they are attributable to commonly used remedial agents. Barker and Rowntree¹ have called attention to evidences of intoxication obtained with myrtol, a little known drug administered in the treatment of catarrhal conditions of the respiratory mucous membrane. This terpene-containing substance is obtained by distillation of the leaves of *Myrtus communis*, as eucalyptol, the chief constituent of eucalyptus oil, is prepared from another genus *Eucalyptus* of the same natural order of plants. A review of recorded cases of intoxication, unexpected and unaccountable or otherwise, with derivatives of these myrtaceous plants reveals the occurrence of two somewhat distinct syndromes. In the one, designated myrtogenic neuropathy by Barker and Rowntree, the nervous system primarily is affected; in the other form of intoxication, the myrtogenic dermatopathy, the skin chiefly is affected, with lesions that may be erythematous or urticarial in character. The fact that eucalyptus oil has come into more extended use again in connection with chloramin therapy, and that oils from some of the myrtaceous species appear to be used in proprietary products, such as cough drops, makes a reference to the possible dangers from them timely.

A SHORT SIGHTED DRUGGIST

Those druggists who believe that pharmacy is a profession rather than a trade have for some time urged physicians to prescribe official products rather than proprietary preparations, at least, in all cases where proprietary and official products are essentially similar. A recent experience reported to THE JOURNAL from New Haven, Conn., is worth recording. Our correspondent, who, while not a physician, is especially interested in THE JOURNAL's propaganda, writes:

I went to a nearby drug store and asked for twenty-five cents' worth of Liquor Antisepticus Alkalinus; I got one ounce! The druggist charged me fifteen cents an ounce, and ten cents for the container. Next time I fear I shall be forced to get Glycothymoline!

To penalize a man who calls for an official product, so as to drive him to ask for a "patent medicine" of the same general character, is both poor pharmacy and bad business.

1. Barker, L. F., and Rowntree, L. G.: Myrtol Poisoning; with Comments upon the Toxicity of Eucalyptus Oil and Myrtol in Human Beings and in Animals, Bull. Johns Hopkins Hosp., 1918, 29, 215.

Medical Mobilization and the War

Commissioning of Physicians and All Promotions Stopped

The Surgeon-General's Office advises that since 10 o'clock of the morning of November 11, the War Department discontinued the commissioning of officers in the various corps of the Army, including physicians in the Medical Corps. This condition, it is stated, is in all probability permanent and favorable consideration will not be given to applications for commissions in the Medical Corps until further notice. At the same time favorable consideration on the recommendations for the promotion of officers was discontinued and no further promotions will be made until this embargo is modified.

Demobilization of the Army

In a press interview given by the Secretary of War, Nov. 15, 1918, it was stated that the first units to be demobilized will be the Development Battalions at the camps. These battalions are made up of men who are under physical requirements, or undergoing special drill or discipline to bring them into military value.

Every man who is discharged from the Army must have a complete physical examination for permanent record. This is the great task which now devolves on the Medical Department.

In an interview by Gen. Peyton March, November 16, it was stated that some 200,000 men will be mustered out within two weeks and then when the machine is in operation, some 30,000 men will be released daily. General March stated that under the present laws, every man who is discharged is entitled to wear his uniform for a period of three months.

Officers will be listed into various groups: those who wish to apply for commissions in the Regular Army; those who wish to put themselves into a class where they can be used for future military operations will be offered commissions in the Reserve Corps; all others will be given honorable discharges. General March stated that he had issued an order to all the staff corps stating that the discharge of officers and men must keep pace with cutting down of the work, and each department has been directed to submit a list of officers and men from time to time as they can be spared for discharge.

Medical Veterans of the World's War

There has been incorporated in the District of Columbia an organization to be known as the Medical Veterans of the World's War, and on Nov. 15, 1918, the following was recorded:

CERTIFICATE OF INCORPORATION

KNOW ALL MEN BY THESE PRESENTS, THAT WE, the undersigned, all of whom are citizens of the United States, and a majority of whom are residents of the District of Columbia, desiring to associate ourselves together to form an association under the provisions of the Code of Law for the District of Columbia, enacted by Congress and approved by the President of the United States, hereby certify that,

First: The name of the association shall be Medical Veterans of the World War.

Second: The term for which it is organized shall be perpetual.

Third: The particular business, objects and purpose of the association are: To perpetuate fellowship, prepare history, secure cooperation for the mutual benefit of the medical men who served in the War of Nations, 1914-1918, and for the mutual improvement and social intercourse of its members.

Fourth: The number of trustees who shall manage the affairs of the association for the first year of its existence, and until otherwise provided, shall be seven, who shall be the incorporators named below; and nothing herein contained shall prevent the association in increasing the number of trustees for any subsequent year of its existence.

IN WITNESS WHEREOF we, Frederick F. Russell, Edward R. Stitt, James C. Perry, James S. Easby-Smith, Victor C. Vaughan, William J. Mayo and Hubert Work, have here-

unto subscribed our names and affixed our seals this fifteenth of November, A. D., 1918.

FREDERICK F. RUSSELL
EDWARD R. STITT
JAMES C. PERRY
JAMES S. EASBY-SMITH

VICTOR C. VAUGHAN
WILLIAM J. MAYO
HUBERT WORK

District of Columbia, ss:

I, N. Curtis Lammond, a Notary Public in and for the district aforesaid, do hereby certify that Frederick F. Russell, Edward R. Stitt, James C. Perry, James S. Easby-Smith, Victor C. Vaughan, William J. Mayo and Hubert Work, parties to a certain certificate of incorporation bearing date on the 15th day of November A. D., 1918, and hereto annexed, personally appeared before me, in the district aforesaid, the said Frederick F. Russell, Edward R. Stitt, James C. Perry, James S. Easby-Smith, Victor C. Vaughan, William J. Mayo and Hubert Work, being personally well known to me to be the persons who executed the said certificate, and acknowledged the same to be their act and deed for the purposes therein named.

Given under my hand and notary seal this 15th day of November, A. D., 1918.

N. CURTIS LAMMOND, Notary Public.

The several federal departments and civilian organizations cooperating in the formation of this new association are as follows:

INCORPORATORS

Colonel Frederick F. Russell
Rear Admiral Edward R. Stitt
Asst. Surg.-Gen. James C. Perry
Colonel James S. Easby-Smith
Colonel Victor C. Vaughan
Colonel William J. Mayo
Lieut.-Col. Hubert Work

REPRESENTING

The Surgeon-General of the Army
The Surgeon-General of the Navy
The Surg.-Gen. of Pub. H. Service
The Provost Marshal General
The Assn. of Mil. Surgeons
The Am. College of Surgeons
The American Medical Association

It is proposed that the membership of the Medical Veterans of the World's War shall include (a) all medical officers who have served in the Medical Corps of the U. S. Army, the U. S. Navy, and the U. S. Public Health Service; (b) all physicians who have been officially appointed by the President, Provost Marshal-General, or the governors of states, and who have served as members of or medical examiners on Local, Medical Advisory and District Boards.

A temporary organization has been effected, and a committee appointed to draft a constitution and by-laws.

HUBERT WORK, President.

FREDERICK F. RUSSELL, Secretary.

Officers of the temporary organization.

Red Cross Mission to Siberia

We are informed by Dr. Rudis-Jicinsky that the American National Red Cross is sending a mission to Russia, Serbia and other Slavic lands. This mission, consisting of the following personnel, will sail about the first of December for Siberia:

Surgeons: Dr. J. Cepelka, 1900 Blue Island Ave., Chicago; Dr. Henry Otradovec, 455 W. 63d St., Chicago; Dr. Fred A. Sedlacek, 1270 S. 13th St., Omaha; Dr. Emil E. Tanner, 628 Chestnut St., Milwaukee.

Internists: Dr. Charles Neumann, 1328 W. 18th St., Chicago; Dr. V. Anyz, Blue Island Ave., Chicago.

Tuberculosis Specialists: Dr. A. J. Moravek, Rio, N. Y.; Dr. Karel B. Blahnik, 1901 W. 47th St., Chicago.

Roentgenologist: Dr. J. Rudis-Jicinsky, 1900 Blue Island Ave., Chicago.

Oculist: Dr. Georgia Dvorak Theobald, South Ashland Ave. and 18th St., Chicago.

Dentists: Dr. B. K. Simonek, 1669 Blue Island Ave., Chicago; Dr. Rudolph Klicka, 616 Chestnut St., Pittsburgh; Dr. Charles Stepanek, 3634 W. 26th St., Chicago; Dr. F. R. Vasko, 1270 S. 13th St., Omaha; Dr. J. A. Shambora, 907 G St., Washington, D. C.; Dr. A. Zadrazil, Second Ave. E., 107, Cedar Rapids, Iowa; Dr. Frank V. Nemecek, 342 E. 72d St., New York.

Laboratory technician and metabolist: J. Novak, 1867 Blue Island Ave., Chicago.

Pharmacist: O. J. Pelikan, 2601 S. Lawndale Ave., Chicago.

Influenza at the Camp Brooks Open Air Hospital

The State of Massachusetts has prepared for distribution in pamphlet form the report of Major Thomas F. Harrington, medical officer in charge, on the open air camp at Corey Hill, Brookline, for the treatment of influenza among the boys in training on the receiving ships *Meade*, *Cobb*, *Dingley* and *Austin* of the merchant marine service of the state. The

work at this camp has attracted attention on account of the adoption of the open air and sunshine method of caring for the patients and the employment of wire masks covered with gauze for every one coming in contact with the patients, for both of which features priority is claimed for this camp. A low incidence of pneumonia and other complications and a low death rate were among the results of this method of handling patients adopted in the hospital, as shown by the report.

The establishment of the hospital equipped to receive patients September 9, within seven hours after the work was started, and the actual receipt of thirty-eight patients at the end of that period is pointed to as an example of rapid and efficient work by the military authorities of the state and of the foresight of Governor McCall in providing equipment and supplies for such an emergency. The hospital, which was built of tents, except for portable buildings set up later for the staff and the nurses, was erected by companies of the state guard.

The medical staff consisted of the chief medical officer, commanding officer of the camp, eight physicians on night service and ten on day service, with two bacteriologists, chief nurse, head nurse for each ward, with one trained nurse, two nurse's aides and two orderlies for each. The wards consisted of thirteen tents, twelve to be occupied by one or two patients each, the thirteenth for the head ward nurse and for certain equipment to aid in carrying out prophylactic measures. All tents and the whole camp was properly drained, proper latrines and sewerage provided, water in sufficient supply, cooking facilities and an abundance of food and many luxuries arranged for from the start.

During the existence of the hospital, September 9 to October 12, there were 351 patients treated, representing the seriously ill among 1,200 men affected with influenza out of a group of more than 5,100 sailors, the deaths amounting to but thirty-six among the 351 patients.

The preventive measures may be summarized as follows: All persons coming in contact with patients to wear five layers of gauze on a wire mask over nose and mouth while near patients, gauze not to come in contact with nostrils or mouth and to be changed every two hours; hands of physicians, nurses and orderlies to be washed in bichlorid solution 1:1,000 after each contact with patients; separation of dishes and utensils used by patients and thorough boiling of same after each use; paper plates, drinking cups and napkins for pneumonia and meningitis patients; gloves and gowns, including head covering, for every one coming in contact with patients; prohibition of use of all common drinking cups, towels, etc.; thorough washing of hands of nurse before eating; gargle and mouth wash of Dobell's solution, etc.; application of argyrol ointment (10 per cent.) to nasal mucous membrane twice daily as a preventive against ear infection; use of paper bags with gauze, in place of sputum cups, to be pinned to pillow cases.

General measures were, outdoor treatment, with a maximum of sunshine and of fresh air day and night, with provision for warming the patient during the night by hot bricks, hot water bottles, extra blankets or paper sheets; four-hour feeding throughout the entire course of the fever; free catharsis by calomel, compound cathartic pill, sodium phosphate, magnesium sulphate, etc.

In the way of special medication were sponging for fever, coal tar preparations, acetylsalicylic acid, quinin, salicylates; for cough, brown mixture, Dover's powder, codein and expectorant mixture; for throat, mentholated throat tablets, Dobell's spray, red gum lozenges; for kidney irritation, hexamethylenamin, spirit of nitrous ether, milk; for nosebleed, plugging with cotton saturated with epinephrin solution; for heart, digipuratum, digifolin, camphor in oil, strychnin; for pneumonia, cotton or paper jackets, forced feeding, calcium iodid, codein, morphin, atropin, bromids, expectorant mixture and oxygen inhalation; for delirium, bromids, codein, ipecac; for meningitis, Flexner's serum; for arthritis, sodium salicylate; for convalescence, tonics of iron, arsenic and strychnin.

The preventive and medication measures as employed in the camp emphasize that the rigid enforcement of prevention guarantees protection to those brought in intimate contact with infected persons, and that drug treatment is secondary in value to forced feeding, warmth and an abundance of fresh air and sunshine.

On the subject of mask protection it is said that among a personnel of 15 physicians, 45 nurses and aids, 20 sanitary corps men and 74 sailors acting as orderlies, many of whom, especially among the latter, were changed frequently, only six nurses and two orderlies developed influenza, and it was

possible to trace exposure outside the camp in five of these cases.

The term influenza-pneumonia is suggested for the type of pneumonia associated with the epidemic. It is distinctly a septicemia, and few cases occurred in which there was a positive, frank pneumonia of a specific type. There were 122 cases diagnosed either clinically or bacteriologically as pneumonia, divided roughly into 56 lobar and 66 bronchial. The mortality was 29 out of 36 deaths; a percentage of 10.16 pneumonics among 1,200 cases of influenza, and a mortality of 8.26 per cent. from pneumonia among the 351 patients treated. The percentage of pneumonia among the patients received at the hospital was 34.7.

COMMISSIONS OFFERED AND ORDERS TO DUTY ON ACCEPTANCE

[NOTE.—As stated elsewhere the issuing of all commissions was stopped, November 11, at 10 a. m. Therefore many of the commissions here indicated as offered may not be issued for some time, if at all.—ED.]

Alabama

To Camp Beauregard, La., Lieut. E. H. COUCH, Union Grove.
To Camp McClellan, Ala., Lieut. R. C. PARTLOW, Tuscaloosa.
To Camp Meade, Md., for special instruction, Lieut. G. L. WOOD, Haleburg.
To Fort Oglethorpe for instruction, Lieuts. L. A. KILPATRICK, Altoona; C. W. JONES, Boothton; G. C. REYNOLDS, Brundidge; C. N. LACEY, Demopolis; H. S. MUSTARD, Florence; R. L. HILL, Lynn; E. W. GRAY, Sheffield.
To report to the commanding general, Southeastern Department, Lieut. M. T. C. SCOTT, Headland.

Alaska

To Camp Dix, N. J., base hospital, for instruction, Capt. C. W. WELCH, Candle.
To Fort Riley for instruction, Lieut. A. LOVAS, Anchorage.

Arizona

To Camp Cody, N. M., Lieut. S. B. NORRIS, Tucson. To examine the command for nervous and mental diseases, Capt. P. B. NEWCOMB, Phoenix.
To Fort Riley for instruction, Lieuts. K. M. GILBERT, Chandler; H. C. MOORE, Silverbell.
To report to the commanding general, Central Department, Capt. L. E. SCHUCH, Phoenix.

Arkansas

To Camp Joseph E. Johnston, Fla., Lieut. W. P. MOORE, Little Rock.
To Camp Pike, Ark., Lieut. E. A. PURDUM, Hot Springs.
To Fort Oglethorpe for instruction, Capt. W. L. KITCHENS, Stamps, Lieut. W. E. JONES, Paris.
To Fort Riley, Lieut. J. E. JOHNSON, Fort Smith. For instruction, Lieuts. M. S. CRAIG, Batesville; R. N. MANLEY, Clarksville; E. D. ERWIN, Monticello; H. A. MURPHY, Wesson.

California

To Arcadia, Calif., Lieut. E. G. MATTISON, Pasadena.
To Camp Dodge, Iowa, base hospital, for instruction, Major C. E. PHILLIPS, Los Angeles.
To Camp Fremont, Calif., Capt. A. C. MATHEWS, Napa. Base hospital, Capt. G. W. BROWN, Los Angeles. Base hospital, for instruction, Capt. F. CUTTLE, Hanford; Lieut. J. J. O'BRIEN, Los Angeles.
To Camp Kearney, Calif., Capt. R. W. BUCKNAM, E. E. SHERARD, Los Angeles; J. D. BALL, Oakland; M. W. HAWORTH, Sacramento; Lieuts. E. M. GRIMMER, Irvington; C. W. SHIREY, Lankershim; S. J. BECKA, J. F. HOLLERAN, O. I. TOWER, Los Angeles; R. E. MAXWELL, Randsburg; J. W. BROWNLIE, Vallejo. Base hospital, Lieut. E. E. PATERSON, Oakland. Base hospital, for instruction, Capt. C. T. ROSSON, Hanford; P. H. PYLES, Los Angeles; W. S. PORTER, Oakland; S. J. ONESTI, H. O. VON DER LIETH, San Francisco; D. A. BEATTIE, San Jose.
To Camp Lewis, Wash., Lieut. C. F. PAWLICKI, San Francisco.
To Camp Pike, Ark., Capt. H. PARTRIDGE, San Francisco.
To Denver, Colo., Lieut. H. C. BUSH, Colfax.
To Fort Oglethorpe for instruction, Capt. G. F. DOYLE, Bishop; A. SOILAND, Los Angeles; Lieuts. I. W. HIGGINS, Live Oak; H. B. MISCH, J. G. WARE, Los Angeles; H. A. ULVIN, San Francisco.
To Fort Riley for instruction, Lieuts. H. C. MAY, H. W. SPIERS, Los Angeles.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieuts. W. T. HARRISON, H. J. WRIGHT, San Francisco.
To report to the commanding general, Western Department, Capt. H. S. KERGAN, Oakland; Lieuts. H. DECKER, Beckwith; E. H. COLEMAN, Los Altos; D. A. THIEMS, Los Angeles; A. C. SMITH, G. E. P. WALTON, Oakland; P. G. YOUNG, Sacramento; F. E. FRATES, H. RIGHETTI, C. E. TAYLOR, San Francisco; H. LEVIN, San Pedro; C. B. LAUGHLIN, Sausalito.
To San Diego, Calif., Rockwell Field, Lieut. C. R. BLAKE, Richmond.
To San Francisco, Calif., Capt. W. C. FINCH, Los Angeles. Letterman General Hospital, Capt. F. M. MIKLES, Long Beach; A. M. LESEM, San Diego; H. C. McCLENAHAN, R. F. TOMLINSON, San Francisco; L. H. FULLER, Van Nuys.

Colorado

To Army Medical School, Lieut. R. M. BOWEN, Denver.
To Camp Bowie, Texas, base hospital, for instruction, Capt. W. T. H. BAKER, Pueblo.
To Denver, Colo., Lieut. M. I. MARSHAK, Edgewater.
To Fort Logan, Colo., Lieut. M. J. KROHN, Denver.

To Fort Oglethorpe for instruction, Capts. A. J. HETHERINGTON, Boulder; O. S. FOWLER, Lieut. H. N. KROHN, Denver.
To Fort Riley, Lieut. D. O. GROVES, Callan. For instruction, Capts. J. O. HARDY, Las Animas; J. G. McFADDEN, Loveland; Lieuts. P. M. LENNOX, Colorado Springs; F. P. N. VAN LANDEGHEM, Fleming.
To Fort Sill, Okla., Capt. A. S. TAUSSIG, Denver.

Connecticut

To Camp Dix, N. J., base hospital, for instruction, Capt. F. G. BECK, New Haven.
To Camp Meade, Md., Lieut. J. F. SHEA, Bridgeport.
To Camp Wadsworth, S. C., Lieut. H. S. SCHULZ, Bridgeport.
To Fort Oglethorpe for instruction, Capts. J. D. GOLD, Bridgeport; W. H. VAN STRANDER, Hartford; W. P. LANG, New Haven; Lieuts. R. L. DRESEL, D. W. TRACY, Hartford; F. F. BUDD, New Haven.
To Mineola, N. Y., Hazelhurst Field, for instruction, Lieut. T. H. GALLIVAN, Hartford.

Delaware

To Fort Oglethorpe for instruction, Lieut. G. L. DOUGHERTY, Wilmington.

District of Columbia

To Army Medical School, Lieut. N. P. NELSON, Washington.
To Camp Gordon, Ga., base hospital, Lieut. L. E. PAYNE, Washington.
To Fort Oglethorpe for instruction, Lieuts. W. E. FRANK, C. A. SIMPSON, Washington.
To Mineola, N. Y., Hazelhurst Field, for instruction, Lieut. E. J. KEMPF, Washington.
To Newport News, Va., Major W. C. RUCKER, Washington.

Florida

To Camp Joseph E. Johnston, Fla., base hospital, Capt. C. BRADY, Leesburg; Lieut. G. A. LASSMAN, Tampa.
To Camp Shelby, Miss., Lieut. G. H. BENTON, Miami.
To Fort Oglethorpe for instruction, Capt. C. L. HYATT, Kissimmee; Lieuts. C. J. BAUMGARTNER, Jacksonville; G. H. BRANTLEY, W. L. NUTTER, Lake Worth.
To report to the governor of Florida as medical aide, Capt. H. E. PALMER, Tallahassee.

Georgia

To Camp Jackson, S. C., Lieuts. B. M. CLINE, Milledgeville; A. H. DELLINGER, Silver Creek. Base hospital, Capt. W. C. PUMPELLE, Macon.
To Fort Oglethorpe for instruction, Lieuts. R. L. BLACKMON, G. W. FULLER, R. J. SPEIR, Atlanta; C. A. STEVENSON, Camilla; R. J. POWER, Roswell; J. M. SMITH, Sharps Spur.

Hawaii

To Hawaiian Department, Capt. W. OSMERS, Wailuku.

Idaho

To Camp Wadsworth, S. C., base hospital, Lieut. W. E. HUNTER, Pocatello.
To Fort Oglethorpe for instruction, Lieut. O. E. BLOOM, Hill City.
To Fort Riley, Capt. M. McKINNIN, Sandpoint. For instruction, Capt. V. R. KILLEN, Rupert; Lieuts. F. C. GIBSON, Bovill; F. E. BOUCHER, St. Anthony.
To report to the commanding general, Western Department, Lieut. C. D. WEAVER, Twin Falls.

Illinois

To Army Medical School, Lieut. W. H. CUNNINGHAM, Rockford.
To Camp Custer, Mich., base hospital, Capts. J. J. KILLEEN, Chicago; D. M. KEITH, Rockford. Base hospital, for instruction, Capts. J. L. BAER, Chicago; K. F. SNYDER, Freeport; C. W. POORMAN, Oak Park.
To Camp Gordon, Ga., base hospital, for instruction, Lieut. T. M. EGAN, F. A. ZIBELMAN, Chicago.
To Camp Grant, Ill., base hospital, Major G. E. SHAMBAUGH, Chicago.
To Camp Jackson, S. C., base hospital, Major A. R. EDWARDS, Capt. N. SCHOOLMAN, Chicago.
To Camp Joseph E. Johnston, Fla., Lieut. M. McKELLAR, Chicago.
To Camp McClellan, Ala., Capt. F. J. SULLIVAN, Kankakee.
To Camp Pike, Ark., Lieut. D. D. CAMPBELL, Chicago.
To Camp Shelby, Miss., Lieut. W. A. McROBERTS, Joliet.
To Camp Sherman, Ohio, base hospital, for instruction, Capt. J. J. MONAHAN, Chicago.
To Camp Zachary Taylor, Ky., base hospital, Capts. J. S. NAGEL, Chicago; L. E. SCHWARZ, Highland Park.
To Fort Oglethorpe for instruction, Capts. I. FRANK, M. JAMPOLIS, C. M. McKENNA, Chicago; Z. V. KIMBALL, Hillsboro; F. A. RYDEN, Plainfield; Lieuts. R. R. McLALLEN, Aurora; F. G. BUWATCHECK, Belleville; J. H. PITTMAN, Camp Point; M. H. WHITLOCK, Canton; J. H. APPLEMAN, R. A. ARENS, H. E. BRYANT, W. A. GROSS, D. H. HOWELL, M. I. KAPLAN, M. J. KELLY, Z. J. LITTLE, W. W. McCABE, A. L. MORRIS, J. M. MURPHY, E. K. NILES, M. V. H. PUCKEY, J. M. SHAW, A. E. SMITH, A. H. WADDINGTON, H. E. WALSH, B. WILKINSON, Chicago; E. H. LANE, East St. Louis; P. M. MILLER, German Valley; K. D. SANDERS, Jonesboro; J. W. KALES, Jr., Kirkland; G. J. DIESEL, Millstadt; R. H. STEWART, Victoria; J. W. WELLS, Waltonville; P. A. ISHERWOOD, West Chicago; N. L. SEELYE, Woodstock.
To Fort Riley, Lieut. A. V. CAPEL, Shawneetown. For instruction, Capts. A. G. BOSLER, C. F. SAWYER, Chicago; A. W. BRADFORD, Lacon; Lieuts. G. G. O'CONNELL, V. L. SHEETS, Chicago; H. F. KILLENE, W. C. SPANNAGEL, East St. Louis; R. OLDFIELD, Oak Park.
To Fort Sheridan, Ill., Lieut. E. T. MURPHY, Chicago.
To Lakewood, N. J., Lieut. C. M. BACON, Chicago. For instruction, Lieut. Y. N. LEVINSON, Chicago.
To New York City, Neurological Institute, for intensive training, Lieut. A. W. LA FORGE, Chicago.
To report to the commanding general, Central Department, Capts. W. N. SENN, O. M. STEFFENSON, M. A. WEISSKOPF, Chicago; W. C. ISOM, Renault; Lieuts. H. O. WILLIAMS, Centralia; J. L. O. TRUDEL, Chicago.

Indiana

To Army Medical School, Lieut. E. C. GARBÈR, Dunkirk.
To Camp Custer, Mich., Lieut. G. C. PRITCHETT, Muncie. Base hospital, for instruction, Capts. O. SMILEY, Indianapolis; F. H. JETT, Terre Haute.
To Camp Gordon, Ga., base hospital, for instruction, Lieut. D. T. MILLER, Terre Haute.
To Camp Grant, Ill., Lieut. J. W. CLUBB, Blanford.
To Camp Pike, Ark., Capt. J. R. CROWDER, Sullivan.
To Camp Shelby, Miss., base hospital, for instruction, Lieut. A. A. RANG, Washington.
To Camp Sherman, Ohio, base hospital, Capt. J. D. MILLER, Indianapolis. To examine the command for nervous and mental diseases, Capt. O. EVERMAN, Indianapolis.
To Camp Zachary Taylor, Ky., Lieut. H. L. BASS, Elberfield.
To Fort Benjamin Harrison, Lieut. J. H. WRORK, Shelburn.
To Fort Oglethorpe for instruction, Capts. M. T. McCARTY, Frankfort; J. M. BOYER, Indianapolis; J. H. COOK, K. F. WILLIEN, Terre Haute; Lieuts. W. A. SAMUELL, Butler; H. E. GLOCK, Fort Wayne; F. W. DUNN, Gaston; D. W. WEAVER, Greensburg; E. W. BURRIS, Indianapolis; W. C. MATHEWS, Kentland; C. H. PERRY, Lewis Creek; W. C. SHERWOOD, Mitchell; G. G. WIMMER, Mount Etna; J. A. TURNER, Nashville; W. A. JOHNSON, Perrysville; W. F. PAYNE, Prairie Creek; A. P. RAINIER, Remington; H. O. SEIPEL, Valparaiso; C. E. STEWART, Vincennes.
To Fort Riley for instruction, Lieut. C. S. BAKER, Evansville.
To New Haven, Conn., Capt. H. F. MITCHELL, South Bend.

Iowa

To Ann Arbor, Mich., State Psychopathic Hospital, for intensive training, Lieut. J. T. SLATTERY, Dunlap.
To Camp Dodge, Iowa, Lieut. J. W. LAIRD, Mount Pleasant. Base hospital, for instruction, Lieut. A. M. LOES, Dubuque.
To Camp Pike, Ark., Lieut. M. E. KEMP, Sigourney.
To Camp Travis, Texas, base hospital, for instruction, Capt. R. M. WATERS, Sioux City.
To Fort Oglethorpe, Lieut. J. MAXWELL, Gibson. For instruction, Capts. F. S. HUGH, Sibley; G. S. BROWNING, Sioux City; Lieuts. S. W. HUSTON, Crawfordsville; A. O. WIRSIG, Iowa City; C. D. MERCER, West Union.
To Fort Riley, Capt. F. E. V. SHORE, Des Moines. For instruction, Capts. W. A. STOECKS, Davenport; L. P. RICH, Fredericksburg; S. B. DEPREE, Sioux City; C. W. McLAUGHLIN, Washington; Lieuts. F. P. CAULEY, Anthra; J. H. VAN DYKE, Cedar Falls; H. J. PATCHIN, Denmark; H. D. WEST, Des Moines; R. L. FEIGHTNER, Fort Madison; A. W. LUNDVICK, Gowrie; R. W. STOBBER, Greene; F. R. CUTLER, Guttenberg; P. I. DAHL, Inwood.

Kansas

To Camp Custer, Mich., base hospital, for instruction, Capt. J. E. FOLTZ, Hutchinson.
To Fort Riley, base hospital, for instruction, Lieut. E. A. DAVIS, Chanute. For instruction, Capts. H. P. MERA, Jr., Abilene; G. C. McCORMICK, Coffeyville; R. L. FERGUSON, Marquette; C. E. SHAFFER, Moline; Lieuts. L. O. FORNEY, Byers; W. M. ASHBY, Delphos; W. A. SMILEY, Junction City; D. R. STERETT, Leavenworth; G. J. GOODSHEELER, Marion; H. M. MAYER, Peabody; L. A. SUTTER, Wichita.

Kentucky

To Camp Sherman, Ala., base hospital, Capt. C. W. DOWDEN, Louisville.
To Camp Zachary Taylor, Ky., Lieut. J. F. DUNN, Arlington.
To Fort Oglethorpe for instruction, Capts. L. T. MINISH, Frankfort; W. W. WILSON, Henderson; R. W. LONG, Madisonville; J. H. HENDREN, Pineville; B. C. BACH, Whitesburg; Lieuts. S. W. CROWE, Centertown; W. S. STUCKY, Lexington; C. S. GOODMAN, E. L. IRWIN, Louisville; P. A. HART, Murray; J. B. ACREE, Paducah; J. F. SMITH, Redbush.
To Fort Riley for instruction, Lieut. J. H. HOWE, Rocky Hill Station.
To Frankfort, Ky., Major T. R. WELCH, Nicholasville.
To New Haven, Conn., Capt. L. RYANS, Louisville; Lieut. E. L. STRADER, Waverley Hills.
To report to the commanding general, Central Department, Capt. W. A. BOLLING, Louisville.

Louisiana

To Camp Beauregard, La., Lieut. A. A. PRAY, New Orleans.
To Camp Shelby, Miss., base hospital, for instruction, Lieut. L. LEVY, New Orleans.
To Fort Oglethorpe for instruction, Capt. E. S. HATCH, New Orleans; Lieuts. L. M. BEUDREAUX, Abbeville; E. M. WILLIAMS, Franklin; E. C. SIMONTON, Jonesboro; C. P. GRAY, Monroe; M. H. PHELPS, Natchitoches; D. HYMAN, A. M. POWE, New Orleans.

Maine

To Camp Upton, N. Y., Lieut. J. F. COX, Bangor. Base hospital, for instruction, Capt. W. H. HAWKINS, Lewiston.
To Fort Oglethorpe for instruction, Lieut. B. B. FOSTER, Portland.
To Plattsburg Barracks, N. Y., Capt. P. H. S. VAUGHAN, Yarmouthville.

Maryland

To Camp Sherman, Ohio, Capt. H. M. FITZHUGH, Westminster.
To Fort Oglethorpe for instruction, Lieuts. M. A. VARZHABEDIAN, B. J. WESS, Baltimore; G. E. LANCASTER, Bowie.
To report to the commanding general, Eastern Department, Lieut. J. C. STANSBURY, Baltimore.

Massachusetts

To Army Medical School, Lieuts. G. W. HEASLIP, Lynn; J. F. COLLINS, Marlboro; A. J. PETER, Newburyport; F. P. BOYD, Springfield.
To Camp Devens, Mass., base hospital, Lieut. B. HOLBROOK, Waltham. Base hospital, for instruction, Lieuts. W. J. TAYLOR, East Dedham; J. H. KERRIGAN, Stoneham.
To Camp Gordon, Ga., base hospital, Capt. W. H. REGAN, Cambridge.
To Camp Jackson, S. C., base hospital, Major H. A. CHRISTIAN, Boston.
To Camp Meade, Md., for special instruction, Lieut. H. L. SHAPLEIGH, Boston.

To Camp Shelby, Miss., base hospital, Capt. C. B. FAUNCE, Boston.
To Camp Upton, N. Y., Lieut. E. G. BAUM Natick. Base hospital, for instruction, Capts. C. P. SYLVESTER, O. G. TINKHAM, Boston; Lieut. C. L. CURTIS, Salem.
To Camp Wadsworth, S. C., Capt. F. M. STILES, Waltham.
To East Norfolk, Mass., Major I. H. NEFF, East Norfolk.
To Fort Leavenworth, Kan., Capt. G. G. FORMALD, Concord Junction.

To Fort Oglethorpe for instruction, Capts. J. D. CLARK, T. J. SCANLAN, Boston; G. H. FOSS, Springfield; Lieuts. J. H. BLAIS-DELL, J. F. MAGUIRE, G. E. PERKINS, R. A. SADLER, H. E. SETTLE, H. L. WALLACE, Boston; F. L. JONES, Chatham; H. L. BOLEN, Fall River; M. A. STRANMER, Jamaica Plain; J. D. CHRISTIE, Littleton; E. S. O'KEEFE, Lynn; L. W. SALVIN, Roxbury; C. ARONSON, Salem; F. SHAW, Somerville; J. F. GAYLORD, W. E. MULCAHY, Springfield; G. C. PROCTOR, Wellesley Hills; J. E. PELLETIER, Worcester.
To New Haven, Conn., Lieut. W. B. HOWES, Framingham.
To Plattsbury, N. Y., Capt. A. F. RIGGS, Stockbridge.
To report to the commanding general, Northeastern Department, Major E. O. OTIS, Boston; Lieuts. C. A. BATES, Ashburnham; R. H. THOMPSON, Malden.

Michigan

To Camp Custer, Mich., base hospital, Lieut. F. J. ROBERTS, Detroit. Base hospital, for instruction, Capts. A. C. BUTTERFIELD, Grand Rapids; E. L. THIRLBY, Traverse City; Lieut. J. R. HANSEN, Greenville. For instruction, Major C. G. PARNALL, Jackson.
To Camp Grant, Ill., Lieut. J. COOPERSTEIN, Flint.
To Camp Pike, Ark., base hospital, for instruction, Capt. J. A. KIMZEY, Detroit.
To Camp Shelby, Miss., Lieut. A. G. KERSTEN, Detroit.
To Camp Zachary Taylor, Ky., base hospital, for instruction, Lieut. W. L. FINTON, Jackson.
To Fort Oglethorpe for instruction, Capts. E. K. HERDMAN, Ann Arbor; C. C. McCLELLAND, H. W. PLAGGEMEYER, Detroit; L. L. WILLOUGHBY, Flint; J. M. WRIGHT, Grand Rapids; Lieuts. V. H. DUMOND, Bay City; M. A. FECHHEIMER, N. A. MALLORY, F. L. MILLIGAN, C. T. ROOT, L. E. STEPHENSON, W. P. WOODWORTH, R. L. ZIMMERMAN, Detroit; D. S. JICKLING, Flint; R. H. SNOWDEN, Galien; R. R. EATON, Grand Rapids; H. B. WEAVER, Greenville; J. H. CHARTERS, Houghton; D. B. MARSH, W. R. SNOW, Jackson; F. H. SHORTS, Kent City; R. C. ALLEN, St. Joseph.
To Fort Riley, Lieut. W. F. KAHL, Detroit.
To Mincola, N. Y., Hazelhurst Field, for instruction, Lieut. W. A. DEFNET, Detroit.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. C. P. DRURY, Marquette.
To report to the commanding general, Central Department, Capt. T. C. IRWIN, Grand Rapids.

Minnesota

To Camp Custer, Mich., Lieut. C. A. BOREEN, Minneapolis.
To Camp Grant, Ill., base hospital, Lieut. J. A. WINTER, Duluth. Base hospital, for instruction, Lieuts. N. M. SMITH, Minneapolis; T. B. REEVES, Rochester.
To Camp Pike, Ark., Lieut. C. G. RICHARDS, Rochester.
To Camp Shelby, Miss., Capt. A. P. LOMMEN, Lansboro.
To Fort Oglethorpe for instruction, Capt. A. P. LOMMEN, Lanesboro; Lieuts. J. S. REYNOLDS, W. L. TAFT, Minneapolis; L. R. LIMA, Montevideo; C. A. McDONALD, Virginia.
To Fort Riley, Lieut. T. W. HOVORKA, St. Cloud. For instruction, Capt. Z. E. HOUSE, Cass Lake; Lieuts. O. DAIGNAULT, Benson; L. HARRIMAN, Howard Lake; S. H. OLSEN, Milaca; H. VAN DE ERVE, Minneapolis; A. G. BEYER, Red Wing; A. D. WHITING, St. Cloud.

Mississippi

To Camp Shelby, Miss., base hospital, for instruction, Lieut. S. L. STEPHENSON, Marks.
To Camp Travis, Texas, Lieut. S. W. PURIFOY, Yazoo City.
To Fort Oglethorpe for instruction, Lieuts. J. T. GOOGE, Booneville; R. N. WHITFIELD, Florence; E. D. KEMP, Highpoint; F. Z. GOSS, Kiln; M. BEEKMAN, Natchez.

Missouri

To Camp Beauregard, La., base hospital, for instruction, Capt. C. W. RUSSELL, Springfield.
To Camp Dodge, Iowa, base hospital, Lieut. J. C. LEYSER, Kansas City. Base hospital, for instruction, Capt. H. L. MONTAGUE, St. Louis.
To Camp Grant, Ill., Lieut. H. H. KRAMOLOWSKY, St. Louis.
To Camp Shelby, Miss., Lieut. C. SWITZER, Kansas City.
To Camp Sheridan, Ala., base hospital, Lieut. H. E. LIVINGSTONE, St. Louis.
To Camp Travis, Texas, base hospital, for instruction, Capt. E. T. URBAN, St. Louis.
To Camp Zachary Taylor, Ky., Lieut. H. S. MARSH, Kansas City.
To Fort Oglethorpe for instruction, Capts. E. HAFNER, Hermann; B. G. HAMILTON, Kansas City; M. S. GRAY, St. Joseph; L. H. BEHRONS, St. Louis; Lieuts. P. J. ROSS, Grant City; B. BELOVE, J. FRISCHER, Kansas City.
To Fort Riley for instruction, Major B. A. LIEBERMAN, Kansas City; Capt. H. L. WILBUR, Granby; Lieuts. W. A. ROBERTSON, Allendale; J. B. STEINMETZ, Blackwell; M. M. RUSSELL, Chillicothe; E. G. GROVE, Fairfield; S. M. PARRISH, Fayette; R. R. ROBINSON, Hallsville; A. R. WILSEY, Hurdland; H. B. HARDMAN, Joplin; M. M. MILLER, Kansas City; J. R. HAMLIN, N. O. OWENS, La Grange; G. M. RAGSDALE, Paris; A. R. REMLEY, Pattensburg; B. S. POWELL, Princeton; W. F. BOTTS, Santa Fe; G. W. REEVES, Steelville; S. S. COX, Wellsville; E. C. SNAVELY, Zora.
To Plattsbury Barracks, N. Y., Capt. G. B. LEMMON, Springfield.
To report to the commanding general, Central Department, Lieut. L. B. NORTHCUTT, Washburn.

Montana

To Camp Dodge, Iowa, base hospital, for instruction, Capt. W. P. SMITH, Columbus.
To Camp Meade, Md., Lieut. G. F. TIDYMAN, Valier.
To Fort Oglethorpe for instruction, Capt. J. A. LAMB, Kalispell.

To Fort Riley for instruction, Lieuts. C. F. COULTER, Great Falls; E. W. TRAINER, Butte; A. A. FUSON, Hingham; R. W. APPELMAN, Lavina; C. D. POWELL, Valier.

Nebraska

To Camp Dodge, Iowa, base hospital, Capt. L. B. VAN CAMP, Omaha.
To Fort Riley for instruction, Capts. J. B. HOSKINS, Allen; G. H. MORRIS, Oshkosh; R. S. MITCHELL, Red Cloud; G. A. HARRIS, Valley; F. B. PATTERSON, Dodge; J. M. PACKER, Memphis; E. P. MURDOCK, Ogallala; D. W. VANDERHOOF, Sutherland; R. H. MORSE, Wisner.
To report to the commanding general, Central Department, Lieut. W. A. STALEY, Holbrook.

Nevada

To Fort Riley for instruction, Lieut. H. M. McINTIRE, East Ely.

New Hampshire

To Army Medical School, Lieut. A. W. MOORE, Loudon.
To Fort Oglethorpe for instruction, Lieut. B. L. FREEMAN, Suncook.
To report to the governor of New Hampshire, Capt. S. S. DEARBORN, Nashua.

New Jersey

To Army Medical School, Lieut. H. G. McBRIDE, Newark.
To Camp Devens, Mass., base hospital, for instruction, Lieut. H. C. MUNRO, Pleasantville.
To Camp Dix, N. J., base hospital, Capt. J. A. WHEELER, Jersey City.
To Camp Meade, Md., Capt. W. U. KRUTS, Asbury Park; Lieut. D. D. REALS, Newark. Base hospital, for instruction, Capt. W. W. MACALISTER, Paterson.
To Fort Oglethorpe for instruction, Capts. I. KAUFMAN, S. M. RUBINOW, Newark; Lieuts. L. P. STEINHART, Atlantic City; S. MESSINGER, Chrome; J. P. INSLEE, Palisades; J. N. FUCHS, V. LAEHDERFAN, C. F. ROUPP, Trenton.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Capts. H. E. MATHEWS, D. W. POOR, Orange.

New Mexico

To Camp Cody, N. M., Lieut. F. R. HALSTEAD, Roswell. Base hospital, for instruction, Capt. H. A. MILLER, Clovis.
To Fort Riley for instruction, Lieut. J. M. WELLMAN, Des Moines.

New York

To Army Medical School, Lieuts. D. W. PARK, Brooklyn; W. F. GALLIVAN, Buffalo; A. M. HEALEY, New York.
To Camp A. A. Humphreys, Va., base hospital, for instruction, Lieut. R. J. PEARSON, Buffalo. To examine the command for nervous and mental diseases, Capt. W. C. DEAN, Brooklyn.
To Camp Devens, Mass., base hospital, Capt. G. H. ROCKWELL, Syracuse.
To Camp Dix, N. J., Lieut. D. WOLIN, Rochester. Base hospital, Capts. J. SAMENFELD, Brooklyn; T. BAILEY, M. D. LEDERMAN, Lieut. R. H. G. LAUB, New York. Base hospital, for instruction, Lieut. J. J. BURKE, Schenectady.
To Camp Greene, N. C., base hospital, Capt. H. W. COWPER, Buffalo.
To Camp Jackson, S. C., Capt. D. E. HOAG, New York.
To Camp Lee, Va., Lieuts. J. J. YORK, Schenectady. N. J. CONAN, Syracuse.
To Camp McClellan, Ala., to examine the command for nervous and mental diseases, Capt. J. L. ECKEL, Buffalo.
To Camp Meade, Md., Capts. R. KIMPTON, Binghamton; E. H. HUTTON, Corning; Lieuts. J. YAMPOLSKY, New York; I. V. O. DECKER, Troy. For instruction, Lieuts. F. V. VINSKI, Brooklyn; A. A. GERESOLA, Fort Slocum.
To Camp Sevier, S. C., base hospital, Lieut. J. J. MADDEN, New York.
To Camp Upton, N. Y., Lieut. B. F. SENFTENBERG, Cedarhurst. Base hospital, for instruction, Capt. J. W. HANNETT, Johnson City.
To Camp Wheeler, Ga., Lieut. C. MACCOY, Brooklyn.
To Fort Leavenworth, Texas, Capt. V. V. ANDERSON, Albany.
To Fort Oglethorpe for instruction, Capts. W. H. NEVILLE, Auburn; E. L. SWAN, Brooklyn; G. R. CUTTING, L. KAUFFMAN, Buffalo; F. L. FLYNN, J. A. ROBERTSON, J. C. STAMMERS, New York; R. M. MACRAE, Staten Island; Lieuts. A. F. DEGRAFFENRIED, Boyside; S. M. BRUSILOWSKY, L. L. COHEN, J. DOLIN, B. GOLDFARB, S. KNOPP, P. MININBERG, D. E. WELCH, Brooklyn; H. D. ANDREWS, H. C. GUESS, W. B. HARRISON, A. HORWITZ, R. A. PAXTON, J. SCHWEITZER, Buffalo; W. A. PALMER, Elmira; N. H. RYAN, Fort Slocum; H. M. PHIPPS, Hempstead; M. A. PLACE, Hornell; R. GORDNER, Middletown; S. W. BOORSTEIN, W. I. BUDINGTON, T. W. CAREY, B. EDELSACK, W. A. FLICK, H. GOLDMAN, R. B. HOOD, E. W. LAWRENCE, W. H. LIVINGSTON, C. F. LONGFELLOW, F. A. MANZELLA, R. L. MCGREARY, M. P. PODGUR, H. P. POSNER, R. RAPP, L. ROSEN, W. ROSENSON, J. S. SMITH, W. R. SPARKS, M. E. TRASK, J. J. UNGER, New York; J. C. PLAIN, Ransomville; H. M. GROGAN, W. F. RAFFERTY, Rensselaer; G. M. HEBER, Richmond Hill; W. H. CADMUS, T. T. HUNTINGTON, A. J. PRICE, J. K. QUIGLEY, Rochester; B. W. ROY, Schenectady; D. U. GOULD, Sherburne; C. D. REID, JR., Syracuse.

To Fort Ontario, N. Y., Capt. A. M. WOSE, Syracuse.
To Hoboken, N. J., Capt. L. REU, Buffalo; Lieuts. D. M. ALLISON, Camden; J. A. BURNS, Wilson.
To Long Island City, N. Y., Lieut. F. C. McDANIEL, New York.
To New Haven, Conn., Capt. E. P. KOLB, Holtsville.
To Newport News, Va., Lieut. E. R. SPRAGUE, Rochester.
To New York, Cornell Medical College, for instruction, Lieuts. A. J. P. PACINI, Neurological Institute, for intensive training, Lieuts. H. V. GIANCOTIERI, Brooklyn; H. J. SIEFFIELD, Frankfort; F. J. LABRIER, New York.
To Niagara Falls, N. Y., Lieut. W. L. WILSON, Niagara Falls.
To Plattsbury, N. Y., Capts. C. L. CARLISLE, Albany; L. BLUMGART, New York; W. H. KIDDER, Oswego; Lieut. W. J. BERNIS, Rochester.
To report to the commanding general, Eastern Department, Capts. A. W. JACKSON, Albion; F. J. DUFFEY, Brooklyn; W. K. O'CALLAGHAN, Buffalo; T. MACRAE, New York; G. GARUCCI, Rochester;

Lieuts. J. H. SMITH, Brooklyn; M. M. PESHKIN, Fort Slocum; C. J. MILLIS, New York.

To Syracuse, N. Y., Capt. T. F. LAURIE, Syracuse.

To Walter Reed General Hospital, D. C., Capt. C. OGILVY, New Rochelle.

To Washington, D. C., St. Elizabeth's Hospital, for intensive training, Lieut. W. H. LANE, Buffalo.

North Carolina

To Baltimore, Md., Lieut. J. R. ASHE, Charlotte.

To Fort Oglethorpe for instruction, Lieuts. J. S. HARRISON, Elm City; W. F. ELLIOTT, Lincolnton; J. B. WATSON, Raleigh.

To New Haven, Conn., Capt. J. E. ASHCRAFT, Monroe; S. P. BASS, Tarboro; Lieut. B. O. EDWARDS, Landis.

North Dakota

To Fort Riley for instruction, Lieuts. R. W. STOUGH, Beach; J. W. TOWEY, Langdon; M. G. FLATH, Stanley.

Ohio

To Camp Custer, Mich., Lieut. R. C. TARBELL, Columbus.

To Camp Grant, Ill., Lieut. E. L. SILBERSTEIN, Cincinnati.

To Camp Greene, N. C., Lieut. F. E. HART, Canton.

To Camp Meade, Md., Lieut. C. C. ROLLER, Akron.

To Camp Pike, Ark., base hospital, for instruction, Lieut. I. C. KISER, Piqua.

To Camp Sherman, Ohio, base hospital, Capt. A. F. SHEPHERD, Dayton. Base hospital, for instruction, Capt. J. G. BLOWER, Lieut. A. W. McCANDLESS, Akron. To examine the command for nervous and mental diseases, Lieut. E. A. BABER, Dayton.

To Camp Upton, N. Y., base hospital, Lieut. A. B. McCONAGHA, Worthington.

To Camp Zachary Taylor, Ky., base hospital, Lieuts. L. I. NELSON, Cincinnati; W. J. MANNING, Lakewood.

To Colonia, N. J., Capt. C. M. SHEPARD, Columbus.

To Fairfield, Ohio, Wilbur Wright Field, Capt. A. C. MESSENGER, Xenia.

To Fort Benjamin Harrison, Lieuts. E. W. GRUBB, Akron; C. C. TAYLOR, East Rochester.

To Fort Oglethorpe for instruction, Capt. N. E. FRIEDMAN, K. S. WEST, Cleveland; H. A. SLUSSER, Dayton; G. D. LOWRY, Delaware; B. O. KREILICK, Fremont; F. H. LEVER, Loveland; F. J. GEORGE, Okeana; Lieuts. J. B. WILKINSON, Alliance; F. F. AYRES, Brunswick; P. DECOURCY, O. L. GOLDBERG, Cincinnati; H. A. MAHRER, F. H. MOHRMAN, Cleveland; H. PRUSHING, Columbus; G. N. WENGER, Dalton; J. R. McDANIEL, East Fultonham; G. B. MAXWELL, Fredericksburg; J. G. McNAMARA, Green Camp; W. T. TRAVIS, Leetonia; E. E. CAMPBELL, Logan; F. E. ROSNAGLE, London; T. R. DICKSON, Norwood; J. V. TAYLOR, New Philadelphia; F. C. HARMAN, Ottoville; J. W. WENTZ, Pataskale; W. D. SCHAFER, Portsmouth; J. T. DUNCAN, W. L. RHONEHOUSE, E. F. VETTER, Toledo; L. W. NAUS, Upper Sandusky.

To Fort Riley, Lieuts. F. J. MELZER, Cleveland; J. A. PARK, Lima; W. D. PORTERFIELD, New Marshfield. For instruction, Capt. G. A. MACK, Gallipolis.

To New Haven, Conn., Lieut. W. C. BREIDENBACH, Dayton. Yale Army Laboratory School, for instruction, Capt. N. D. GOODHUE, Dayton; Lieut. R. L. BARNES, Columbus.

To report to the commanding general, Central Department, Capt. E. E. PETERS, Bradley; Lieut. E. S. CRANSTON, New London.

Oklahoma

To Camp Pike, Ark., base hospital, for instruction, Lieut. R. WALKER, Pawhuska.

To Fort Riley, Lieut. J. DONOHOO, Tulsa. For instruction, Capt. L. H. HUFFMAN, Hobart; Lieuts. J. L. HOLLAND, Madill; A. J. WILLIAMS, McLoud; J. H. BEATTY, J. C. DOVELL, Miami; E. W. MABRY, Tipton; E. A. SPITZ, Tulsa.

To Fort Sill, Okla., Capt. G. PINNELL, Miami.

To report to the commanding general, Southern Department; Lieut. S. P. STROTHER, Boldenville.

Oregon

To Camp Fremont, Calif., Capt. S. H. SHELDON, Portland.

To Camp Lewis, Wash., Lieuts. W. T. JOHNSON, Corvallis; T. M. GILMORE, Imbler; R. B. MILLER, Lebanon; C. L. WILLIAMS, McMinnville; E. BENNETT, Monroe; C. G. RATTNER, Portland. Base hospital, Lieut. J. H. KAVANAUGH, Pendleton; R. B. KARKEET, E. N. NEULEN, Portland. Base hospital, for instruction, Capt. W. F. AMOS, C. G. SABIN, F. J. ZIEGLER, Portland.

To Fort Oglethorpe for instruction, Lieuts. G. A. CATHEY, R. A. PAYNE, J. F. SMITH, Portland.

To Fort Riley for instruction, Lieuts. B. R. WALLACE, Albany; A. A. SOULE, Klamath Falls.

To report to the commanding general, Western Department, Capt. B. F. ROSEMAN, Elgin; C. SEAMANN, Portland; Lieuts. J. E. BRIDGEWATER, Albany; J. O. C. WILEY, Portland.

To San Francisco, Calif., Letterman General Hospital, Capt. W. T. PHY, Hot Lake.

To Washington, D. C., Major J. A. PETTIT, Portland.

Pennsylvania

To Army Medical School, Lieut. C. G. RENN, Lairdsville.

To Baltimore, Md., Capt. J. P. LAIRD, Devon.

To Camp Lee, Va., base hospital, for instruction, Lieut. A. F. HARDT, Williamsport.

To Camp Meade, Md., for instruction, Lieuts. B. LIPSHUTZ, Philadelphia; L. F. WAY, Reading.

To Camp Sherman, Ohio, base hospital, Lieut. H. P. LYNCH, Monongahela.

To Camp Zachary Taylor, Ky., base hospital, Capt. J. J. SULLIVAN, Jr., Scranton.

To Fort Oglethorpe for instruction, Capt. E. V. KYLE, Christiana; W. N. KAYLOR, Leacock; O. G. LEWIS, Washington; J. HEMPHILL, West Chester; Lieuts. J. B. PRICE, Allentown; R. E. MILLER, Bloomsburg; M. U. MCINTIRE, Boswell; C. E. HERMAN, Carnegie; H. M. ARMITAGE, Chester; G. T. LUKENS, Conshohocken; H. W. BELL, Crafton; H. E. McCORMICK, A. B. MUSA, E. W. RICHARDS, Easton; G. D. LUCE, Jenks; F. A. DONLAN, Lilly; J. M. GEMMILL,

Millville; M. M. TEPLITZ, Mont Alto; H. BLUMSWIEG, V7. G. BOEHRINGER, E. L. BRITTINGHAM, C. H. LYON, G. ROSENBAUM, H. W. SCARLETT, J. H. SCHAEFFER, Philadelphia; W. A. CAVEN, H. R. GOLDSTEIN, C. L. McCULLOUGH, G. H. McKINSTRY, E. W. STEVENSON, C. M. STRAESSLEY, O. H. SWARTZ, Pittsburgh; S. GROSE, Scranton; J. C. POFFENBERGER, Sunbury.

To Hoboken, N. J., Lieut. W. UDELL, Philadelphia.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. T. P. TREDWAY, Erie.

Philippine Islands

To Philippine Department, Lieuts. TIETZE, Baguio; J. W. LEWIS, Canlubang.

Porto Rico

To Camp Las Casas, P. R., Lieuts. M. J. BERRIOS, Yabucca; M. VELEZ, Yauco. Base hospital, Lieut. F. DE JUAN, Jr., San Juan.

Rhode Island

To Fort Oglethorpe for instruction, Lieuts. B. CHAPAS, Providence; T. J. McLAUGHLIN, Woonsocket.

South Carolina

To Camp Meade, Md., Lieut. S. FRIEDHEIM, Rock Hill.

To Fort Oglethorpe for instruction, Capt. S. A. WIDEMAN, Townville; Lieuts. C. D. BOETTE, Charleston; S. L. PARNELL, Lamar; R. H. FOLK, Lexington; B. C. TEAM, Ridgeway; F. A. LAWTON, Scotia; L. G. BROOKER, Swansea.

South Dakota

To Fort Riley for instruction, Lieuts. W. E. DICKINSON, Canistota; J. R. WESTABY, Clark; C. H. SWETT, Winner.

Tennessee

To Fort Oglethorpe for instruction, Lieuts. H. RENNER, G. F. RYAN, Chattanooga; R. W. KISSANE, Dyersburg; F. C. JAMES, Gadsden; J. L. DUNAVANT, Glimp; T. Z. ELINOR, Greenfield; T. A. CALDWELL, Jefferson City; J. D. CAPP, Livingston; A. L. BLECKER, Memphis; T. H. YOUNG, Nashville; L. S. LOVE, Silver Point.

To New Haven, Conn., for instruction, Lieut. H. SPITZ, Nashville.

Texas

To Camp Cody, N. M., Lieut. O. H. JUDKINS, Corpus Christi.

To Camp Jackson, S. C., Lieut. A. R. SUPER, Dallas. Base hospital, for instruction, Capt. G. W. ALLEN, Jr., Yorktown.

To Camp Logan, Texas, Lieut. O. J. COLWICK, Clifton. Base hospital, Lieut. H. S. GARLICK, Laredo. Base hospital, for instruction, Lieut. S. M. HILL, Dallas.

To Camp MacArthur, Texas, base hospital, Capt. S. S. BECKLEY, San Antonio.

To Camp Travis, Texas, Capt. S. T. HARRIS, El Paso; Lieut. T. E. DUNNAM, Spring. Base hospital, for instruction, Lieut. R. L. LEWIS, Paris.

To Fort Oglethorpe for instruction, Capt. W. E. CROW, Dallas; E. B. AULER, Elgin; W. S. HAMILTON, San Antonio; Lieuts. J. H. MASSIE, Floydada; J. B. JENKINS, Mooreville; G. C. SANDERS, Richards; H. C. WEAVER, Rule; R. H. CROCKETT, Thorndale.

To Fort Riley, Capt. W. C. KIMBROUGH, Denton; Lieut. W. M. WARREN, Center. For instruction, Lieuts. C. H. DAVIS, Arlington; G. A. LILLIE, Batson; W. P. FARRINGTON, Munday; H. H. TAYLOR, San Saba.

To Hampton, Va., Langley Field, Lieut. H. P. DEADY, El Paso.

To Houston, Texas, Capt. S. M. LISTER, Houston.

To report to the commanding general, Southern Department, Capt. B. L. JENKINS, Clarendon; Lieuts. E. H. SAUVIGNET, Laredo; W. H. DUNN, Rochester.

Utah

To Army Medical School, Lieut. T. J. HOWELLS, Salt Lake City.

To Camp Cody, N. M., base hospital, for instruction, Capt. W. A. COLTON, Salt Lake City.

To Camp Lewis, Wash., Lieut. M. J. SEIDNER, Ogden.

To Fort Oglethorpe for instruction, Lieut. W. SHEPHERD, Beaver.

To Fort Riley for instruction, Lieut. W. L. SUTHERLAND, Storrs.

Vermont

To Camp Devens, Mass., base hospital, Capt. W. R. NOYES, Brattleboro.

To Camp Meade, Md., Capt. W. T. SLAYTON, Morrisville.

To report to the commanding general, Northeastern Department, Lieut. J. L. WELSH, Proctor.

Virginia

To Army Medical School, Capt. I. L. CHAPMAN, Norfolk.

To Camp Meade, Md., Capt. E. T. HARGRAVE, Norfolk.

To Camp Sevier, S. C., Capt. M. L. REA, Charlottesville.

To Fort Oglethorpe for instruction, Capt. J. M. ROBINSON, Danville; Lieuts. G. E. FAULKNER, J. C. SLEET, Norfolk; J. L. KENT, Pulaski; B. C. MOOMAW, Roanoke; C. JONES, Staunton; G. T. DIVERS, Stuart.

To Richmond, Va., for instruction, Lieut. J. W. ABBITT, Port Norfolk.

To Walter Reed General Hospital, D. C., Capt. G. B. LAWSON, Roanoke.

Washington

To Camp Jackson, S. C., base hospital, Major E. E. HEG, Kent.

To Camp Lewis, Wash., Capt. E. M. ASHLEY, Spokane; Lieuts. W. M. MUNSELL, Grandview; F. P. C. DAVIS, Kelso; E. A. RICKARDS, C. H. TURPIN, Seattle; C. F. RIGG, Spokane; A. W. SCHULZ, Tacoma; C. R. DUNCAN, Wapato. Base hospital, Capt. H. V. WURDEMANN, Lake Forest Park; E. R. Northrop, Lieut. O. M. ROTT, Spokane. Base hospital, for instruction, Lieuts. T. TORLAND, Seattle; A. R. LUNDGREN, Spokane. For instruction, Lieut. A. R. McKEOWN, Leavenworth.

To Denver, Colo., Lieut. F. A. SLYFIELD, Seattle.

To Fort Oglethorpe for instruction, Capt. A. A. MATTHEWS, Spokane; Lieuts. R. J. JAMES, Seattle; R. S. VAN PELT, Tacoma.

To Fort Riley for instruction, Capt. J. GREEN, Tarawa; Lieuts. H. F. THIEL, Creston; A. G. TULLAR, Kennewick.

To report to the commanding general, Western Department, Lieut. J. A. LAGASA, Tacoma.

West Virginia

To Camp Hancock, Capt. C. A. WINGERTER, Wheeling.
To Camp Lee, Va., base hospital, Capt. H. E. OESTERLING, Wheeling.

To Fort Benjamin Harrison, Capt. J. M. HOUSTON, Elm Grove.
To Fort Oglethorpe for instruction, Capt. R. W. DUNHAM, Bernis; Lieuts. W. G. C. HILL, Cameron; A. D. S. LILLY, Crystal; E. D. MOYERS, Harrisville; R. G. STOTTS, Kenova; J. H. LUIKART, Moundsville; I. V. GRISSOM, Princeton; F. V. LANGFITT, Salem; H. E. DAVIS, Switzer; H. L. STRANDBERG, Terra Alta; G. C. BLAKE, Tunnelton.

To New Haven, Conn., Lieut. H. C. SLAUGHTER, Charleston.

Wisconsin

To Camp Grant, Ill., base hospital, for instruction, Lieut. B. C. TARNUTZER, Beaver Dam.

To Camp Pike, Ark., Lieut. H. C. STOLTZ, Milwaukee.

To Camp Sherman, Ohio, base hospital, Capt. A. G. HOUGH, Madison.

To Fort Oglethorpe for instruction, Lieut. A. J. WILLIAMS, Waukesha.

To Fort Riley for instruction, Capt. M. E. RIDEOUT, Hortonville; Lieuts. A. C. EDWARDS, Arcadia; M. P. ANDREWS, Beloit; F. BABCOCK, Cumberland; J. L. BENDER, Ithaca; O. H. ANDERSON, Plum City; C. M. ANDERSON, Wild Rose.

To report to the commanding general, Central Department, Lieut. J. W. TARTER, Iron River.

Wyoming

To Camp Dodge, Iowa, base hospital, Capt. J. H. HOLLAND, Evanston.

To Fort Riley for instruction, Lieut. H. P. HANSEN, Burns.

To report to the commanding general, Western Department, Capt. H. E. McCOLLUM, Laramie; Lieut. J. R. MARQUIS, Kemmerer.

ORDERS TO OFFICERS OF THE MEDICAL CORPS, U. S. ARMY

Alabama

To Camp Crauc, Pa., surgical group, from Fort Oglethorpe, Capt. R. C. JONES, Mobile.

To Camp Greene, N. C., from Fort Oglethorpe, Lieut. G. R. COLLIER, Tuskegee.

To Fort Oglethorpe, base hospital, from Camp Wheeler, Capt. A. C. CAMERON, Birmingham. Evacuation hospital, from Camp Bowie, Lieut. C. H. MOORE, Birmingham.

To Otisville, N. Y., from Fort Slocum, Lieut. A. D. McFADDEN, Ariton.

To San Antonio, Texas, Kelly Field, from Montgomery, Lieut. G. A. CRYER, Anniston.

Arizona

To Fort Niagara, N. Y., from Camp Grant, Capt. E. DARRAGH, Bisbee.

Arkansas

To Camp Crane, Pa., evacuation hospital, from Camp Devens, Lieut. S. C. ANDREWS, Waldo.

To Camp MacArthur, Texas, from Fort Des Moines, Major W. A. SNODGRASS, Little Rock.

To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Lieut. J. C. LAND, Walnut Ridge.

To Columbus, Ohio, from Fort Riley, Lieut. O. C. STRUTHERS, Siloam Springs.

To Fort Oglethorpe for instruction, Lieut. L. H. STOUT, Forrest City.

To San Antonio, Texas, Kelly Field, from West Point, Lieut. J. S. DAVIDSON, Marvill. As tuberculosis examiner from Camp Dodge, Major P. C. WILLIAMS, Texarkana; from Camp Travis, Lieut. H. M. STRACHAN, Hot Springs.

California

To Camp Beauregard, La., from Fort Sill, Lieuts. W. C. DUNCAN, Los Angeles; W. K. BIXBY, Sebastopol.

To Camp Cody, N. M., base hospital, for instruction, from Camp Kearney, Lieut. E. H. CRABTREE, San Diego.

To Camp Crauc, Pa., base hospital, from San Francisco, Major A. C. CARLTON, San Mateo.

To Camp Greene, N. C., from Lincoln, Neb., Capt. G. B. HAMILTON, Oakland.

To Camp Kearney, Calif., Capt. C. C. FALK, Eureka; from Camp McClellan, Major J. D. CONDIT, Pasadena.

To Camp McClellan, Ala., base hospital, from Camp Crane, Capt. W. P. MILLIKEN, Oakland.

To Fort Oglethorpe, from Camp Kearney, Lieuts. C. A. ROBINSON, Ione; W. F. PRIESTLEY, Stockton.

To Fort Stevens, Ore., as tuberculosis examiner from Camp Fremont, Major J. A. PARKS, San Diego.

To Fort Winfield Scott, Calif., as tuberculosis examiner, from Camp Fremont, Major W. R. P. CLARK, San Francisco; Capt. J. E. FAHY, Los Angeles.

To Fort Worden, Wash., as tuberculois examiner, from Camp Fremont, Capt. H. A. HOIT, Pasadena.

To San Francisco, Calif., Leland Stanford University, to give orthopedic instruction, Capt. L. W. ELY, San Francisco.

To Washington, D. C., for conference, and on completion to San Antonio, Texas, Kelly Field, as flight surgeon, from Mincola, Lieut. C. E. HOLGATE, Los Angeles.

Canal Zone

To Walter Reed General Hospital, D. C., from New Haven, Capt. L. B. BATES, Ancon.

Colorado

To Camp Beauregard, La., from Fort Sill, Lieut. C. C. BELL, Denver.

To Denver, Colo., Capt. G. W. HOLDEN, Denver.

To Fort H. G. Wright, N. Y., from Camp Grant, Capt. F. H. HARRISON, Fraser.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to his proper station, from Camp Dix, Capt. E. G. GRIFFIN, Denver.

Connecticut

To Camp Abraham Eustis, Va., from Fort Oglethorpe, Lieut. J. H. ROOT, Waterbury.

To Camp Gordon, Ga., base hospital, for instruction, from Camp Greene, Lieut. R. W. LOWE, Ridgefield.

To Camp MacArthur, Texas, to examine drafted men for cardiovascular diseases, from Camp Sheridan, Capt. R. S. STARR, Hartford.

To Fort Oglethorpe for instruction, from New York, Lieut. C. D. DEMING, Hartford.

To Hoboken, N. J., evacuation hospital, from Fort Oglethorpe, Capt. C. K. PETERSON, Lakeville.

To San Antonio, Texas, Kelly Field, to examine drafted men for cardiovascular diseases, from Jefferson Barracks, Lieut. F. M. SMITH, Willimantic.

Delaware

To Camp Lee, Va., from Fort Oglethorpe, Lieut. V. D. WASHBURN, Wilmington.

District of Columbia

To Camp Beauregard, La., Col. G. H. SCOTT.

To Camp Dodge, Iowa, Lieut.-Col. J. F. EDWARDS.

To Camp Fremont, Calif., as camp surgeon, from Washington, Lieut.-Col. H. H. SHARPE.

Florida

To Camp Devens, Mass., base hospital, from New York, Capt. L. A. PEEK, West Palm Beach.

To Camp Jackson, S. C., base hospital, for instruction, from Camp MacArthur, Capt. J. Y. PORTER, JR., Key West Barracks.

To Mount Pleasant, Mich., Central Michigan Normal School, and on completion to Columbus, Ohio, from Ann Arbor, Capt. B. E. VAUGHAN, Palmette.

To San Antonio, Texas, Kelly Field, from Arcadia, Lieut. R. E. GILBERT, Jacksonville.

To Washington, D. C., Surgeon-General's Office, from Camp A. A. Humphreys, Capt. R. C. HUBBARD, Bushnell.

Georgia

To Camp McClellan, Ala., base hospital, from Camp Crane, Capt. C. K. SHARPE, Arlington.

To Fort Oglethorpe, base hospital, from Camp Pike, Lieut. J. M. HARTLEY, Zebulon. Evacuation hospital, from Camp Jackson, Lieut. E. B. ANDERSON, Atlanta.

To New York, Bellevue Hospital, for instruction, and on completion to his proper station, from Camp Sherman, Lieut. S. T. R. REVELL, Louisville.

To San Antonio, Texas, Kelly Field, from Fort Wayne, Capt. J. M. SPENCE, Camilla.

The following order has been revoked: To Fort Oglethorpe, evacuation hospital, from Camp Gordon, Lieut. J. H. CAMPBELL, Jefferson.

Hawaii

To Camp Cody, N. M., from Hawaiian Department, Major A. V. HENNESSY, Honolulu.

Illinois

To Boston, Mass., Parker Hill, from Camp Grant, Capt. L. B. PHELPS, Chicago; from Camp Greene, Capt. W. A. CLARK, Chicago.

To Camp Crane, Pa., as tuberculosis examiner, from Syracuse, Lieut. J. SCHLESINGER, Oak Forest. Evacuation hospital, from Camp Lee, Capt. S. R. CATLIN, Rockford; from Camp Pike, Capt. C. W. COMPTON, Springfield. Surgical group, from Camp Sherman, Capt. E. WINDMUELLER, Woodstock.

To Camp Custer, Mich., base hospital, for instruction, Capt. A. N. CLAGETT, Oak Park.

To Camp Devens, Mass., base hospital, for instruction, from Fort Warren, Lieut. J. L. WEBB, Chicago.

To Camp Lee, Va., from Syracuse, Capt. E. A. OLIVER, Chicago.

To Camp MacArthur, Texas, as tuberculosis examiner, from Camp Grant, L. NEWMAN, Chicago.

To Camp Pike, Ark., from Camp Grant, Lieut. H. CULVER, Chicago.

To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Capt. G. H. MOORE, Alledo.

To Camp Shelby, Miss., as tuberculosis examiner, from Camp Zachary Taylor, Capt. W. H. CREDE, Lamoille.

To Camp Upton, N. Y., base hospital, from New York, Lieut. C. W. SEEVER, Sheldon.

To Camp Wadsworth, S. C., from Camp Kearney, Capt. S. M. MILLER, Peoria; from Camp Shelby, Lieut. A. PEARMAN, Rockford.

To Chicago, Ill., from Jefferson Barracks, Lieut. R. D. LUSTER, Granite Hill.

To Fort Dupont, Del., from Army Medical School, Lieut. H. L. LESAULNIER, Red Bud.

To Fort Oglethorpe, from Camp Hancock, Lieut. H. P. REUSS, Granite City. Evacuation hospital, from Camp Beauregard, Lieut. J. C. GARARD, Chicago. For instruction, Lieut. J. P. SIMPSON, Palmer.

To Lawrenceville, N. J., from Camp Beauregard, Capt. J. E. WALTON, Medora.

To Markleton, Pa., from New Haven, Capt. G. ELLISON, Chicago.

To Mincola, N. Y., Hazellhurst Field, for instruction, from Camp Joseph E. Johnston, Capt. F. I. BROWN, Chicago; from Camp Sevier, Lieut. J. N. BUCHANAN, Freepoint.

To New York, Bellevue Hospital, for instruction, and on completion to Camp Meade, Md., base hospital, for instruction, from Rockefeller Institute, Lieut. P. E. GREENLEAF, Bloomington. On completion to his proper station, from Camp Sherman, Lieut. J. W. KELLY, Chicago.

To San Antonio, Texas, Kelly Field, as tuberculosis examiner, from Camp Dodge, Lieuts. R. W. DUNHAM, Chicago; T. C. WEBER, West Salem.

To Walter Reed General Hospital, D. C., and on completion to Boston, Mass., from Hoboken, Major P. B. MAGNUSON, Chicago.

To Washington, D. C., for conference, and on completion to Mincola, N. Y., Hazellhurst Field, for instruction, from San Antonio, Capt. H. E. MIZE, Chicago.

To West Baden, Ind., from Azalea, N. C., Lieut. J. W. MORAN, Oak Forest.

Indiana

To Boston, Mass., from Walter Reed General Hospital, Capt. L. A. BOLLING, Attica.
To Camp A. A. Humphreys, Va., as tuberculosis examiner, from Camp Devens, Lieut. J. J. GROSVENOR, Richmond.
To Camp Alfred Vail, N. J., from Camp Grant, Capt. R. E. JONES, Clayton.
To Camp Dix, N. J., base hospital, from New York, Capt. B. W. CHIDLAW, Hammond.
To Camp Grant, Ill., from Camp McClellan, Lieut. S. F. TEAFORD, Paoli.
To Camp Greene, N. C., from Fort Oglethorpe, Lieut. N. L. MEDCALF, Lamar.
To Camp McClellan, Ala., as assistant sanitary inspector, from Fort Oglethorpe, Capt. F. HODGES, Indianapolis. Base hospital, from Fort Benjamin Harrison, Capt. S. R. CLARK, Petersburg; J. L. McBRIDE, Zanesville; Lieut. O. M. JOHNSON, Kokomo.
To Camp Wadsworth, S. C., from Fort Oglethorpe, Lieut. F. J. McMICHAEL, Gary.
To Houston, Texas, Ellington Field, from Mincola, Lieut. B. J. PETERS, Kokomo.
To Madison Barracks, N. Y., from Camp Grant, Capt. S. A. CLARK, South Bend.
To Saltillo, Ga., from Fort Oglethorpe, Lieut. R. E. SWOPE, Rockville.

Iowa

To Camp Cody, N. M., from Hawaiian Department, Major A. V. HENNESSY, Council Bluffs.
To Camp Wheeler, Ga., as orthopedic surgeon, and on completion to Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieut. W. J. FENTON, Mystic.
To Fort Dupont, Del., from Fort Riley, Lieut. F. E. SIMERAL, Brooklyn.
To Fort H. C. Wright, N. Y., from Camp Grant, Capt. N. W. JOHNSON, Cedar Rapids.
To Mineola, N. Y., Hazelhurst Field, for instruction, from Rockefeller Institute, Capt. T. S. GITTENS, Iowa City.
To Newport News, Va., from Camp Morrison, Lieut. F. L. SECOY, Sioux City.
To Rochester, Minn., Mayo Clinic, for instruction, and on completion to Camp Zachary Taylor, Ky., base hospital, for instruction, from Fort Riley, Capt. W. RUMML, Cedar Rapids.
To San Antonio, Texas, Kelly Field, as tuberculosis examiner, from Camp Custer, Capt. L. L. CRAVEN, East Peru.
To Sewanee, Tenn., University of the South, from Fort Oglethorpe, Capt. C. F. SMITH, Des Moines.
To Washington, D. C., from Camp Dodge, Lieut.-Col. E. W. RICH.

Kansas

To Camp Crane, Pa., evacuation hospital, from Fort Riley, Lieut. W. L. BUTLER, Stafford.
To Fort Hunt, Va., from Camp Grant, Capt. J. C. CALDWELL, Wellington.
To Fort Oglethorpe, Ga., evacuation hospital, from Camp McClellan, Lieut. E. J. BRIBACH, Atchison.
To San Antonio, Texas, Kelly Field, from Garden City, Lieut. W. H. ROBINSON, Eudora.
To Walter Reed General Hospital, D. C., from New Haven, Capt. H. R. MAJOR, Rosedale.

Kentucky

To Camp A. A. Humphreys, Va., as tuberculosis examiner, from Camp Devens, Lieut. W. T. LITTLE, Calvert City.
To Camp Abraham Eustis, Va., from Fort Oglethorpe, Lieut. T. E. CRAIG, Colesburg.
To Camp Alfred Vail, N. J., from Fort Oglethorpe, Lieut. J. C. CLEM, Louisville.
To Camp Bragg, N. C., as camp sanitary inspector, from Fort Oglethorpe, Capt. J. D. MAGUIRE, Lexington.
To Camp Devens, Mass., from Camp Upton, Capt. R. W. OGILVIE, Princeton.
To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Capt. R. L. WOODWARD, Hopkinsville.
To Camp Wadsworth, S. C., from Camp Gordon, Lieut. G. BELOTE, Mayfield.
To New Haven, Conn., Yale Army Laboratory School, for instruction, from Fort Omaha, Lieut. S. T. SMOCK, Glasgow.
To Newport News, Va., from Camp Pike, Major G. H. DAY, Louisville.

Louisiana

To Camp McClellan, Ala., as orthopedic surgeon, from Newport News, Lieut. R. C. VOSS, New Orleans.
To Camp Shelby, Miss., base hospital, Capt. E. KIBLINGER, Marks-ville. Base hospital, for instruction, from Fort Oglethorpe, Lieut. M. J. GELPI, New Orleans.
To Camp Upton, N. Y., base hospital, from New York, Capt. L. O. CLARK, Lafayette.
To New Haven, Conn., Yale Army Laboratory School, for instruction, from Rockefeller Institute, Lieut. J. R. STAMPER, Caspiana.
To Rochester, Minn., Mayo Clinic, for instruction, and on completion to his proper station, from Camp MacArthur, Lieut. W. N. HANKINS, Derry.
To Washington, D. C., from Camp Beauregard, Lieut.-Col. H. P. CARTER.

Maine

To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Lieut. S. N. VOSE, Madison.
To Camp Wadsworth, S. C., from Camp Gordon, Major W. L. COUSINS, Portland.
To Fort Oglethorpe, base hospital, from Camp Crane, Major T. O. VANAMEE, Portland.
To San Antonio, Texas, Kelly Field, from Garden City, Lieut. R. D. WALTON, Frankfort.
To Washington, D. C., Surgeon-General's Office, from Walter Reed General Hospital, Capt. H. K. RICHARDSON, Bradford.
The following order has been revoked: To Fort Oglethorpe for instruction, Lieut. H. W. STANWOOD, Rumford.

Maryland

To Camp Crane, Pa., base hospital, from Fort Des Moines, Lieut. E. NOVAK, Baltimore.

To Camp McClellan, Ala., base hospital, from Camp Crane, Capt. T. J. COONAN, Westminster.
To Camp Meade, Md., base hospital, from Fargo, Lieut. C. L. CALLANDER, Baltimore.
To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Lieut. J. A. SKLADOWSKY, Baltimore.
To Cape May, N. J., from Colonia, Major R. FAYERWEATHER, Baltimore.
To Fort Oglethorpe, as instructor, from New York, Lieut. S. COBB, Baltimore. For instruction, from Camp Sherman, Lieut. F. G. COWHERD, Cumberland.
To San Antonio, Texas, Kelly Field, as tuberculosis examiner, from Camp Custer, Lieut. L. J. JACOBS, Baltimore.
The following order has been revoked: To Fort Oglethorpe for instruction, Lieut. H. H. STANSBURY, Baltimore.

Massachusetts

To Boston, Mass., from duty as a contract surgeon, Lieut. G. H. POIRIER, Boston.
To Camp Crane, Pa., base hospital, from Camp Devens, Major E. A. DARLING, Cambridge. Evacuation hospital, from Camp Upton, Lieut. C. W. STANSFIELD, Fall River.
To Camp Custer, Mich., to examine the troops for cardiovascular diseases, from Lakewood, Capt. G. M. ALBEE, Worcester.
To Camp Gordon, Ga., base hospital, from New Haven, Capt. H. W. NOWELL, Boston.
To Camp Grant, Ill., from Camp Sherman, Lieut. M. M. HAMBURG, Waltham.
To Camp Jackson, S. C., as orthopedic surgeon, from Walter Reed General Hospital, Lieut. E. P. RUGGLES, Boston.
To Camp MacArthur, Texas, base hospital, from Brockton, Capt. J. F. CALLAHAN, Brockton.
To Camp McClellan, Ala., as division psychiatrist, from Camp Gordon, Major G. E. McPHERSON, Harding. As orthopedic surgeon, from Syracuse, Lieut. K. JOHNSON, Pittsfield.
To Camp Wadsworth, S. C., from Camp Gordon, Capt. F. J. McKECHNIE, Springfield.
To Fort McPherson, Ga., from Fort Oglethorpe, Capt. H. J. FITZSIMMONS, Boston.
To Fort Oglethorpe, evacuation hospital, from Camp Shelby, Lieut. H. S. POMEROY, Peabody. For instruction, Lieut. H. F. DEARBORN, Lawrence.
To Hoboken, N. J., from New York, Capt. C. WHELAN, Hingham. Evacuation hospital, from Camp Devens, Lieut. W. K. TURNER, New Bedford.
To Otisville, N. Y., from Syracuse, Lieut. E. H. GANLEY, Methuen.
To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to his proper station, from Camp Devens, Lieut. S. E. RYAN, Springfield.
To San Antonio, Texas, to examine drafted men for cardiovascular diseases, from Lakewood, Lieut. D. H. NISBET, Boston.
To Walter Reed General Hospital, D. C., from Baltimore, Capt. R. D. BELL, Somerville; from Camp Lee, Lieut. F. A. STEVENS, Boston.
The following orders have been revoked: To Fort Oglethorpe for instruction, Major F. H. VERHOEFF, Boston. To Mays Landing, N. J., from Northeastern Department, Lieut. V. S. MERRITT, Springfield.

Michigan

To Camp A. A. Humphreys, Va., from Camp Crane, continued on active duty for restricted service, Lieut. C. F. DU BOIS, Detroit.
To Camp Abraham Eustis, Va., camp hospital, from Fort Oglethorpe, Capt. F. A. BOET, Comstock Park.
To Camp McClellan, Ala., base hospital, from Iowa City, Capt. W. S. BROWNELL, Detroit.
To Camp Sevier, S. C., from Camp Jackson, Lieut. R. N. RUEDE-MANN, Ann Arbor. Base hospital, from Fort Oglethorpe, Capt. C. E. SIMPSON, Detroit.
To Camp Travis, Texas, from Fort Oglethorpe, Lieut. F. DWYER, Detroit.
To Detroit, Mich., from Camp Custer, Capt. R. T. URQUHART, Grand Rapids.
To Fort Oglethorpe for instruction, Major H. A. HUME, Owosso.
To San Antonio, Texas, Kelly Field, from Fort Wayne, Lieut. W. F. COURIE, Detroit; E. D. HUNDERMAN, Grand Rapids.

Minnesota

To Camp Jackson, S. C., base hospital, for instruction, from Fort Oglethorpe, Capt. C. F. McNEVIN, St. Paul.
To Camp Meade, Md., base hospital, for instruction, from Camp Travis, Capt. J. A. GATES, Kenyon.
To Fort Totten, N. Y., from Camp Grant, Capt. J. P. FREEMAN, Glenville.
To San Antonio, Texas, Kelly Field, from Garden City, Lieut. F. L. POWERS, Pipestone. As tuberculosis examiner, from Camp Travis, Lieut. M. LEVY, Granite Falls.
To West Baden, Ind., from Camp Dodge, Capt. W. W. LEWIS, St. Paul.

Mississippi

To Camp Abraham Eustis, Va., from Fort Oglethorpe, Lieut. J. C. WHITE, JR., Hazelhurst.
To Camp Greene, N. C., from Fort Oglethorpe, Lieut. W. M. BERRY, Jackson.
To San Antonio, Texas, Kelly Field, from Fort Wayne, Lieut. M. L. HOLLAND, Schlater.
To Walter Reed General Hospital, D. C., for instruction, from Camp Sevier, Lieut. K. T. KLEIN, Meridian.

Missouri

To Baltimore, Md., from Fort Riley, Lieut. G. W. HORROM, Rolla.
To Camp Beauregard, La., from Fort Sam Houston, Lieut. N. ZOGLIN, Kansas City.
To Camp Crane, Pa., evacuation hospital, from Camp Pike, Capt. J. H. GROSS, St. Louis; Lieut. A. J. CAMPBELL, Sedalia.
To Camp Gordon, Ga., as camp psychiatrist, from Camp McClellan, Lieut. C. H. BURDICK, St. Louis.
To Camp Hancock, Ga., base hospital, from Camp Sheridan, Lieut. A. R. COHN, Kansas City.
To Camp Jackson, S. C., base hospital, for instruction, from Fort Oglethorpe, Capt. R. S. TILLES, Lieut. R. F. HYLAND, St. Louis.

To Camp McClellan, Ala., base hospital, from Fort Benjamin Harrison, Lieut. A. J. DECKER, Gray Ridge.
To Camp Shelby, Miss., base hospital, from Camp Jackson, Capt. F. L. BIGSBY, Kirsksville.
To Camp Sherman, Ohio, base hospital, from New York, Capt. F. J. MOENNIGHOFF, Odessa.
To Camp Wadsworth, S. C., from Camp Kearney, Capt. L. A. KEMPF, St. Louis.
To Fort Oglethorpe, from Camp MacArthur, Lieut. L. E. DEAN, Maryville; from Camp Pike, Capt. A. S. HEITHAUS, St. Louis.
To Fort Riley for instruction, from Manhattan, Kan., Capt. F. M. O'KELLY, Cartersville.
To Fort Snelling, Minn., from Azalca, N. C., Capt. P. G. PAUGH, St. Louis.
To Fort Warren, Mass., from Camp Devens, Lieut. C. S. STRATTON, Roscoe.
To Garden City, N. Y., as tuberculosis examiner, from Syracuse, Lieut. J. L. MARDER, St. Louis.
To Lakewood, N. J., from Walter Reed General Hospital, Lieut. C. M. SAMPSON, St. Joseph.
To New York, Bellevue Hospital, for instruction, and on completion to his proper station, from Camp Jackson, Lieut. S. W. FAIR, Belton.
To San Antonio, Texas, Kelly Field, from Fort Wayne, Capt. D. H. BOKHOFF, West Line; from Wichita Falls, Lieut. C. C. COATS, Winston.
To West Baden, Ind., from Azalea, N. C., Lieut. A. W. KOESSEL, St. Louis.

Montana

To Camp Beauregard, La., from Fort Sill, Lieut. W. A. HULBUSH, Geraldine.
To Camp Crane, Pa., base hospital, from Camp Grant, Capt. E. W. THUERER, Billings.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. A. B. ECKERDT, Great Falls.
To Rolling Prairie, Ind., Interlake School, to make physical examinations, and on completion to Camp Custer, Mich., from Camp Dodge, Lieut. M. T. VORNHOLT, Antelope.

Nebraska

To Camp MacArthur, Texas, as tuberculosis examiner, from Camp Sherman, Capt. L. S. ROBINSON, Kearney.
To Camp McClellan, Ala., from Fort Riley, Lieut. H. H. THOMPSON, Talmage.
To Fort Benjamin Harrison, from Central Department, Lieut. L. C. HILSABEAK, Gretna.
To San Antonio, Texas, Kelly Field, from Austin, Texas, Lieut. C. L. HOUSEL, Ansley.

New Hampshire

To Camp Crane, Pa., evacuation hospital, from Camp Meade, Lieut. C. E. HIGHT, Groveton. Mobile hospital, from Camp Zachary Taylor, Capt. F. A. SPRAGUE, Concord.
To New York, Bellevue Hospital, for instruction, and on completion to his proper station, from Camp Devens, Lieut. E. L. CHAPMAN, Dover.
To West Baden, Ind., from Camp Wheeler, Major A. F. WHEAT, Manchester.

New Jersey

To Camp A. A. Humphreys, Va., as tuberculosis examiner, from Camp Devens, Lieut. S. R. FAIRCHILD, Penns Grove.
To Camp Crane, Pa., base hospital, from Hot Springs, Major E. B. ROGERS, Collingswood. Mobile hospital, from Fort Andrews, Capt. R. D. SCHIMMELPFENNIG, Montclair. Mobile Surgical Unit, from Fort Oglethorpe, Lieut. H. H. BOWLES, Summit.
To Camp Custer, Mich., from Fort Oglethorpe, Lieut. J. H. LOWREY, Newark.
To Camp Dodge, Iowa, base hospital, from Fort Oglethorpe, Lieut. B. M. HANCE, Boonton.
To Camp MacArthur, Texas, as tuberculosis examiner, from Camp Grant, Lieut. L. V. ROSENTHAL, Trenton.
To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Lieut. C. B. RUSSELL, Paterson.
To Camp Shelby, Miss., as tuberculosis examiner, from Camp Gordon, Lieut. S. BLAUGRUND, Trenton.
To Camp Travis, Texas, to examine the troops for cardiovascular diseases, from Lakewood, Capt. T. ALSOP, Atlantic City.
To Camp Wheeler, Ga., from New York, Capt. F. A. FINN, Jersey City.

To Camp Zachary Taylor, Ky., base hospital, from New York, Capt. N. W. CURRIE, Plainfield.
To New York, Bellevue Hospital, for instruction, and on completion to his proper station, from Camp Devens, Capt. W. J. DUCKETT, Jersey City.
To San Antonio, Texas, Kelly Field, from West Point, Miss., Capt. R. J. BEEBY, West Branch. As tuberculosis examiner, from Camp Custer, Lieut. W. H. HAINES, Audubon.

New Mexico

To Camp Crane, Pa., base hospital, from Camp Fremont, Lieut. H. D. SEWELL, Parkview.
To San Antonio, Texas, Kelly Field, from Middletown, Lieut. H. K. RIDDLE, Reserve.

New York

To Camp A. A. Humphreys, Va., from Fort Sill, Lieut. H. SHARP, New York.
To Camp Alfred Vail, N. J., from Camp Devens, Lieut. T. F. JUDGE, Troy.
To Camp Beauregard, La., base hospital, from Fort Oglethorpe, Capt. W. G. BOWERMAN, New York.
To Camp Crane, Pa., base hospital, from Camp Meade, Capt. J. J. COTTER, New York. Evacuation hospital, from Newport News, Lieut. R. COLP, New York. Surgical group, from Camp Meade, Lieut. J. F. BEIERMEISTER, Rochester.
To Camp Dick, Texas, from Houston, Capt. J. D. GULICK, Schenectady.
To Camp Dix, N. J., base hospital, from Lakewood, Lieut. A. M. MORGENLANDER, New York.
To Camp Gordon, Ga., base hospital, from Camp Wheeler, Capt. C. H. SANFORD, New York.

To Camp Greene, N. C., from Fort Oglethorpe, Lieut. C. E. CURTISS, Manlius; from Fort Porter, Capt. C. H. MACKEY, Lancaster. *To examine the troops* for cardiovascular diseases, from Fort Oglethorpe, Lieut. W. B. HUNTLEY, New York.

To Camp Jackson, S. C., base hospital, for instruction, from Fort Oglethorpe, Major F. T. ROBESON, New York; Lieut. M. R. BOOKMAN, New York.

To Camp MacArthur, Texas, as tuberculosis examiner, from Camp Sherman, Lieut. E. F. SAMPSON, New York. *To examine drafted men* for cardiovascular diseases, from Lakewood, Lieuts. L. A. BINGAMAN, R. WEST, New York.

To Camp McClellan, Ala., base hospital, from Fort Oglethorpe, Capt. H. E. MEEKER, New York; from Plattsburg Barracks, Capt. V. B. HAMLIN, Clinton; Lieut. M. E. FISHER, Delevan.

To Camp Pike, Ark., as orthopedic surgeon, from Fort Oglethorpe, Lieut. L. P. HOOLE, Eastport.

To Camp Sevier, S. C., from Camp Jackson, Lieut. W. W. TRACEY, New York. Base hospital, from Fort Oglethorpe, Capt. C. A. LUBRECHT, Brooklyn; Lieut. S. L. SCIBETTA, Buffalo.

To Camp Shelby, Miss., as assistant sanitary inspector, from Fort Oglethorpe, Lieut. L. M. ROHR, Brooklyn. As tuberculosis examiner, from Camp Gordon, Lieut. L. B. BOYLAN, Woodhaven.

To Camp Upton, N. Y., base hospital, Lieut. W. F. C. STEINBUGLAR, Brooklyn.

To Camp Wadsworth, S. C., to examine the troops for cardiovascular diseases, from Lakewood, Lieut. A. T. MAYS, Brooklyn.

To Camp Zachary Taylor, Ky., base hospital, from New York, Lieut. A. S. UNGER, New York.

To Fort Hancock, N. J., from Army Medical School, Lieut. F. F. MCGAULEY, Schenectady.

To Fort Oglethorpe, as instructor, from the Surgeon-General's Office, Major A. H. BUSBY, New York. For instruction, from duty as a private, Lieut. W. E. CAMPBELL, Jr., New York.

To Fort Sill, Okla., Post Field, as flight surgeon, from Lonoke, Capt. D. H. WEBSTER, New Rochelle.

To Garden City, N. Y., as tuberculosis examiner, from Syracuse, Lieuts. J. J. RANDALL, Albany; F. C. BALDERREY, Ithaca.

To Hoboken, N. J., from Camp Upton, Major H. FOX, New York.

To Lakewood, N. J., for instruction, Lieut. S. E. MANDEVILLE, New York.

To Mineola, N. Y., Hazelhurst Field, for instruction, from Rockefeller Institute, Capt. A. L. MEYER, New York.

To New Haven, Conn., Yale Army Laboratory School, from Rockefeller Institute, Major C. G. BULL, New York.

To Newport News, Va., from Fort Oglethorpe, Capt. J. G. HOWARD, South Ozone Park.

To New York, Bellevue Hospital, for instruction, and on completion to his proper station, from Camp Dix, Lieut. J. M. SCHIAFFER, New York; from Camp Upton, and on completion to his proper station, Lieut. S. HIRSCH, New York.

To Otisville, N. Y., from New Haven, Capt. H. JUDKOWITZ, Brooklyn; from Syracuse, Capt. C. B. BAKER, Kingston.

To Panama Canal Zone, from New Haven, Capt. E. C. GOW, Schuylerville.

To Rochester, N. Y., to examine enlisted men, Lieut. W. B. JONES, Rochester.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to their proper stations, from Camp Devens, Capt. C. R. MARSH, Oneonta; Lieut. W. G. HALLSTEAD, Flushing; from Camp Upton, Capt. S. T. BARTON, Canastota.

To San Antonio, Texas, Kelly Field, from Garden City, Lieut. M. GROLLMAN, Brooklyn; from Middletown, Capt. W. L. LAING, Brooklyn.

To Walter Reed General Hospital, D. C., from Baltimore, Major R. A. KINSELLA, New York.

To Washington, D. C., from Rockefeller Institute, Lieut. F. L. GATES, New York. For conference and on completion to Hicks, Texas, Taliaferro Field, as flight surgeon, from Mineola, Capt. G. M. CLOWE, Schenectady. Surgeon-General's Office Major J. H. TELFAIR, New York.

The following order has been revoked: *To Camp Wadsworth, S. C.,* from Washington, Major H. R. GAYLORD, Buffalo.

North Carolina

The following order has been revoked: *To Camp Hancock, Ga.,* base hospital, from Fort Oglethorpe, Capt. R. F. YARBOROUGH, Louisburg.

North Dakota

To Camp Devens, Mass., base hospital, from New York, Lieut. J. B. TYRELL, Underwood.

To West Baden, Ind., for instruction, from Camp Grant, Lieut. A. J. KAESS, Fargo.

Ohio

To Camp Abraham Eustis, Va., from Fort Oglethorpe, Lieut. A. N. VANDEMAN, Bellbrook.

To Camp Crane, Pa., as tuberculosis examiner, from Syracuse, Capt. A. FALLER, Cincinnati. Evacuation hospital, from New York, Capt. M. E. BLAHD, Cleveland.

To Camp Jackson, S. C., base hospital, for instruction, from Fort Oglethorpe, Capt. D. W. PALMER, Cincinnati.

To Camp McClellan, Ala., base hospital, from Fort Benjamin Harrison, Lieut. J. S. HUNTER, Jackson.

To Camp Wadsworth, S. C., for instruction, Lieut. H. D. FOWLER, Cleveland.

To Camp Zachary Taylor, Ky., from West Point, Ky., Major H. J. WARE, Cincinnati.

To Cape May, N. Y., from New York, Capt. B. B. NEWBAUBER, Cleveland.

To Fort Oglethorpe for instruction, Capt. C. LOUY, Toledo.

To Fort Ontario, N. Y., from Fort Oglethorpe, Lieut. W. A. KOCH, Bucyrus.

To New Haven, Conn., from Walter Reed General Hospital, Capt. J. T. MERWIN, Athens.

To New York, Bellevue Hospital, for instruction, and on completion to their proper stations, from Camp Sherman, Capt. J. K. TRESSEL, Alliance; Lieut. C. G. McPIERSON, Xenia; from Camp Upton, Lieut. J. B. SAMPSELL, Van Wert; from Camp Zachary Taylor, Capt. P. F. KING, Alliance.

To San Antonio, Texas, Kelly Field, from Fort Wayne, Lieuts. H. L. MECKSTROTH, Dayton; W. H. BENNER, Tiffin; F. A. COBB, Toledo; from Garden City, Lieuts. C. H. VEROVITZ, Cleveland; F. E. HALL, Springfield; from West Point, Miss., Lieut. J. M. PUMPHREY, Mount Vernon.

To Walter Reed General Hospital, D. C., from Fort Oglethorpe, Lieut. W. I. JENKINS, Cincinnati.

Oklahoma

To Camp Upton, N. Y., base hospital, from New York, Lieut. R. I. ALLEN, Nowata.

To Hoboken, N. J., evacuation hospital, from Camp Meade, Capt. J. H. WHITE, Muskogee.

Oregon

To Fort Oglethorpe for instruction, from New York, Lieut. G. N. PEASE, Portland.

Pennsylvania

To Camp Abraham Eustis, Va., from Fort Oglethorpe, Lieuts. M. A. BARBOUHR, Johnstown; W. C. DIESS, Sharpsburg.

To Camp Crane, Pa., evacuation hospital, from Camp Greene, Lieut. J. H. HARTWELL, Philadelphia; from Camp Meade, Lieut. F. C. CARR, Swarthmore. Mobile surgical unit, from Fort Oglethorpe, Capt. C. A. HILL, Pittsburgh.

To Camp McClellan, Ala., base hospital, from Camp Crane, Lieut. H. I. NEWCOMET, Reading.

To Camp Sherman, Ohio, base hospital, from New York, Capt. T. A. STEELE, McKeesport.

To Camp Wheeler, Ga., base hospital, Lieut. H. B. ANDERSON, Philadelphia.

To Camp May, N. J., from Fort Oglethorpe, Lieut. W. S. REESE, Scranton.

To Fort Benjamin Harrison, from Camp Crane, Lieut. R. Z. COPE, Telford; from Camp Grant, Lieut. A. H. MOORE, Philadelphia.

To Fort McHenry, Md., from New York, Lieut. A. B. HAMILTON, Freeland.

To Fort Niagara, N. Y., Capt. J. H. W. ANDERSON, Pittsburgh.

To Fort Oglethorpe, from Camp Pike, Lieut. G. D. SCHOONMAKER, Philadelphia. As instructor, from Lakewood, Major J. McFARLAND, Philadelphia. For instruction, from Washington, Lieut. R. NEBINGER, Danville.

To Garden City, N. Y., as tuberculosis examiners, from Syracuse, Capt. J. S. CRAWFORD, Pittsburgh; C. M. MALONE, Shamokin.

To Lakewood, N. J., from the Surgeon-General's Office, Major R. PEMBERTON, Philadelphia.

To Lawrenceville, N. J., from Camp Dix, Capt. O. A. JONES, Sharon.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. H. F. BAKER, Philadelphia.

To New York, from Camp Upton, Capt. A. W. SHERRILL, Pittsburgh.

To Richmond, Va., from Fort Oglethorpe, Major D. H. BERGEY, Philadelphia.

To San Antonio, Texas, Kelly Field, from Camp Dick, Capt. W. S. SHIMER, Philadelphia; from Garden City, Capt. W. L. SCOTT, Joffre; from Middletown, Pa., Lieut. P. G. ATKINSON, Pittsburgh.

To San Diego, Calif., Rockwell Field, as flight surgeon, from Fort Sill, Major J. H. McKEE, Philadelphia.

To Schenectady, N. Y., from Lakewood, Lieut. W. N. JOHNSON, Philadelphia.

To Walter Reed General Hospital, D. C., for instruction, and on completion to Fort Des Moines, Iowa, from Fort Oglethorpe, Lieut. F. L. MORROW, Braddock.

To Washington, D. C., for conference, and on completion to Hicks, Texas, Taliaferro Field, for conference, and on completion to Houston, Texas, Ellington Field, as flight surgeon, from Mineola, Capt. C. WILLIAMS, Philadelphia. On completion to San Antonio, Texas, Brooks Field, as flight surgeon, from Mineola, Lieut. J. FLEITAS, Philadelphia.

To West Point, Ky., from Camp Zachary Taylor, Lieut. H. A. D. BAER, Abington.

Philippine Islands

To Washington, D. C., for instruction, from Philippine Department, Major C. L. BEAVEN.

Rhode Island

To West Baden, Ind., from Camp Hancock, Lieut. J. F. KENNEY, Pawtucket.

South Carolina

To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Lieut. G. H. WALTER, Orangeburg.

To Fort Benjamin Harrison, from Camp Crane, Lieut. A. S. BEHLING, St. George.

To Fort Howard, Md., from Fort Riley, Lieut. L. F. ROBINSON, Pickens.

To Fort Oglethorpe, evacuation hospital, from Camp Wadsworth, Major C. B. EARLE, Greenville.

To Newport News, Va., from Camp Morrison, Lieut. R. M. FULLER, McCormick.

The following order has been revoked: To Madison Barracks, N. Y., from Fort Oglethorpe, Capt. M. CROOK, Spartanburg.

South Dakota

To Mineola, N. Y., Hazelhurst Field, for instruction, from Camp Shelby, Lieut. F. I. PUTMAN, Sioux Falls.

To Newport News, Va., from Camp Morrison, Capt. W. F. BUSHNELL, Elk Point.

Tennessee

To Camp Alfred Vail, N. J., from Indianapolis, Lieut. W. T. BUCK, Henderson.

To Camp Jackson, S. C., base hospital, for instruction, from Fort Oglethorpe, Capt. E. D. MITCHELL, Memphis.

To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Lieut. E. E. MILLER, Nashville.

To Camp Shelby, Miss., from Fort Oglethorpe, Capt. J. H. McCALL, Huntington.

To Camp Wadsworth, S. C., from Camp Shelby, Lieut. H. D. MILLER, Johnson City.

To New Haven, Conn., Yale Army Laboratory School, for instruction, from Camp Joseph E. Johnston, Lieut. G. T. WILHELM, Decatur.

To San Antonio, Texas, Kelly Field, as tuberculosis examiner, from Camp Custer, Lieut. E. C. SEALE, Nashville.

To Washington, D. C., from Camp Leach, Capt. L. A. STONE, Memphis.

Texas

To Camp Bowie, Texas, from Fort Oglethorpe, Lieut. G. C. FOX, Tell.

To Camp Colt, Pa., as camp sanitary inspector, from Fort Oglethorpe, Lieut. O. H. TALLEY, El Paso.

To Camp Dix, N. J., base hospital, from New York, Lieut. H. E. HOKE, Waco.

To Camp Hancock, Ga., as tuberculosis examiner, from New Haven, Major I. S. KAHN, San Antonio.

To Camp Jackson, S. C., base hospital, for instruction, from Fort Oglethorpe, Capt. F. P. HERFF, San Antonio.

To Camp MacArthur, Texas, base hospital, from Fort Oglethorpe, Capt. C. E. DURHAM, Hico.

To Camp Sherman, Ohio, as assistant sanitary inspector, from Fort Oglethorpe, Lieut. J. E. KING, Throckmorton. Base hospital, from New York, Lieut. E. D. RICE, Tyler.

To Corpus Christi, Texas, from Camp Cody, Capt. E. M. IRVIN, El Paso.

To Fargo, N. D., North Dakota Agricultural College, from Fort Riley, Lieut. A. L. JONES, Weatherford.

To Fort Sam Houston, base hospital, for observation and treatment, from Corpus Christi, Lieut. F. A. ALLIN, San Antonio.

To San Antonio, Texas, Kelly Field, from Dallas, Texas, Lieut. J. A. McCONNELL, Poolville; from Dayton, Ohio, Lieut. F. B. KING, Durango; from Hicks, Texas, Capt. H. CALDWELL, Corpus Christi.

To Washington, D. C., from Camp Logan, Lieut.-Col. C. M. WALSON.

Utah

To Camp Shelby, Miss., from St. Louis, Capt. A. A. BIRD, Magna.

Vermont

To Camp A. A. Humphreys, Va., to examine the command for nervous and mental diseases, from Plattsburg Barracks, Capt. S. L. GOODRICH, Waterbury.

To Camp Jackson, S. C., as orthopedic surgeon, from Walter Reed General Hospital, Lieut. B. E. WHITE, Brattleboro.

To Camp Knox, Ky., from Camp Sherman, Lieut. R. D. WORDEN, Montgomery Center.

To Mays Landing, N. J., from Northeastern Department, Lieut. H. L. TILLOTSON, Groton.

To San Antonio, Texas, Kelly Field, from Garden City, Lieut. R. H. BURKE, St. Johnsbury.

Virginia

To Camp Dodge, Iowa, as orthopedic surgeon, from Camp A. A. Humphreys, Lieut. R. M. BAKER, Edgehill.

To Camp Jackson, S. C., base hospital, for instruction, from Newport News, Capt. J. T. BUXTON, Newport News.

To Camp Shelby, Miss., as tuberculosis examiner, from Camp Zachary Taylor, Lieut. W. B. McILWAINE, III, Petersburg.

To San Antonio, Texas, Kelly Field, from Arcadia, Fla., Capt. B. BARROW, Barrow's Store.

The following order has been revoked: To Camp Hancock, Ga., base hospital, from Fort Oglethorpe, Capt. C. T. PIERCE, Litwalton.

Washington

To Camp Crane, Pa., evacuation hospital, from Fort Riley, Lieut. H. H. SKINNER, North Yakima. Mobile hospital, from Army Medical School, Lieut. L. S. DEWEY, Okanogan.

West Virginia

To Camp Greene, N. C., from Fort Oglethorpe, Lieut. L. J. LANICH, Coketon.

To Camp Sheridan, Ala., to examine drafted men for cardiovascular diseases, from Lakewood, Lieut. L. E. STUBBS, Gloucester.

To Camp Wadsworth, S. C., from Camp Sevier, Lieut. C. E. PEERY, War.

To Detroit, Mich., from Camp Greene, Major H. D. HATFIELD, Huntington.

To Fort Oglethorpe, evacuation hospital, from Camp McClellan, Capt. E. B. WRIGHT, Richmond. For instruction, Lieut. R. H. WALKER, Charleston.

To Hamilton, N. Y., Colgate University, from Columbus, Lieut. I. R. LESAGE, Huntington.

To Mineola, N. Y., Hazelhurst Field, for instruction, from Camp Wheeler, Lieut. W. A. NOBLE, Welch.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Camp Devens, Mass., base hospital, Capt. H. H. CARR, Fairmont.

Wisconsin

To Camp Crane, Pa., evacuation hospital, from Camp Grant, Capt. P. A. FOX, Milwaukee.

To Camp Jackson, S. C., base hospital, from New Haven, Lieut. U. J. DURNER, Milwaukee.

To Camp Zachary Taylor, Ky., base hospital, from New York, Lieut. W. C. DARLING, Milwaukee.

To Carlisle, Pa., from Camp Crane, Capt. W. HECKER, Beloit.

To Detroit, Mich., from Camp Custer, Lieut. S. J. SEEGER, Milwaukee.

To New York, Bellevue Hospital, for instruction, and on completion to his proper station, from Camp Sherman, Lieut. W. J. WINNEMANN, Athens.

To San Antonio, Texas, as tuberculosis examiner, from Camp Dodge, Capt. C. H. MEYST, Burlington.

To Washington, D. C., from Camp Meade, Major J. R. McDILL, Milwaukee.

To Willoughby, Ohio, from Fort Oglethorpe, Lieut. R. M. CAMPBELL, Milwaukee.

The following order has been revoked: To Camp Gordon, Ga., base hospital, from Army Medical School, Capt. F. A. McJUNKIN, Milwaukee.

Wyoming

To San Antonio, Texas, Kelly Field, from Wichita Falls, Texas, Lieut. J. T. McBRIDE, Dayton.

ORDERS TO OFFICERS OF THE UNITED
STATES PUBLIC HEALTH SERVICE

Sen. Surg. J. H. WHITE, relieved from duty at the Marine Hospital, Memphis, Tenn. Directed to proceed to Washington, D. C., for duty with the U. S. Army.

Surg. W. C. BILLINGS, proceed to San Diego, Calif., to investigate the public health value of contemplated improvement.

Surg. E. A. SWEET, proceed to Cheyenne, Wyo., to assist in administration in influenza control measures.

Surg. W. H. FROST, directed to undertake epidemiological studies in regard to the recent epidemic of influenza, with headquarters at Washington, D. C.

Passed Asst. Surg. EMIL KRULISH, proceed to Alaska for duty in the suppression of influenza.

Asst. Surg. R. R. SAYERS, proceed to Brunswick, Ga., to investigate sanitary conditions at the Government Picric Acid plant at that place.

Asst. Surg. R. I. DESAUSSURE, proceed to Charleston, W. Va., for inspection of methods employed in combating influenza. Relieved from duty in connection with the suppression of influenza. Proceed to Columbia, S. C., for duty in extracantonment sanitation.

Asst. Surg. C. P. ESKEY, proceed to Montgomery, Ala., for duty in extracantonment sanitation.

Asst. Surg. CHARLES ARMSTRONG, report to the director, hygienic laboratory, for duty in investigations in regard to the prevention, etiology and treatment of influenza.

Asst. Surg. THOMAS FARRAN, JR., proceed to Washington, D. C., and New York City for conference in regard to medical and sanitary work at Muscle Shoals, Ala.

Prof. E. B. PHELPS, proceed to Penniman, Va., to supervise investigations of T. N. T. poisoning.

Prof. CARL VOEGTLIN, proceed to Penniman, Va., to supervise investigations of T. N. T. poisoning.

Phar. G. I. VAN NESS, JR., relieved at Honolulu, Hawaii. Proceed to Boston Quarantine Station, Gallops Island, Mass.

Acting Asst. Surg. H. N. COLE, address the annual state conference on venereal disease control at Chillicothe, Ohio, Nov. 24-26.

Acting Asst. Surg. G. J. LONGSTREET, proceed to the Boston Quarantine Station for duty in investigations of influenza.

Acting Asst. Surg. A. H. PILLSBURY, proceed to necessary points in the states of Maine, New Hampshire, Vermont, Rhode Island and Connecticut in connection with instructions to drafted men to be carried out under Service supervision.

Acting Asst. Surg. J. E. YOUNG, relieved from duty in the suppression of influenza and the control of trachoma, proceed to Florence, Ala., for duty in the Muscle Shoals sanitary district.

Consulting Engr. C. N. SAVILLE, proceed to Newport, R. I., via Providence to investigate and advise in regard to the increase of the public water supply of that city.

Regional Field Director LESTER FEISTEL, proceed to necessary points in the states of Arizona, Utah, Nevada and California in connection with instructions to drafted men, to be carried out under Service supervision.

Regional Field Director H. G. SPAULDING, proceed to necessary points in the states of Nebraska, Kansas, Oklahoma, Texas and Arkansas in connection with instructions to drafted men, to be carried out under Service supervision.

Physiological Chemist J. M. JOHNSON, proceed to Penniman, Va., for duty in investigations of T. N. T. poisoning.

Asst. Chemist, E. J. CASSELMAN, proceed to Penniman, Va., for duty in investigations of T. N. T. poisoning.

Scientific Asst. M. A. CONNELL, proceed to Penniman, Va., for duty in investigations of T. N. T. poisoning.

Scientific Asst. M. M. CRANE, proceed to Penniman, Va., for duty in investigations of T. N. T. poisoning.

Statistician E. L. SYDENSTRICKER, proceed to Baltimore, Md., and other places to collect data relative to the epidemiology of influenza.

Bact. G. J. PFAU, proceed to Brunswick, Ga., for duty in laboratory investigations of malaria and other diseases at the Government Picric Acid Plant.

Scientific Asst. ELLA C. BOYER, proceed to necessary points in the field for investigations of industrial fatigue.

San. Inspector R. C. SIMPSON, relieved at Newport News, Va., proceed to Petersburg, Va., for duty in extracantonment sanitation.

Microscopist MARY RAYMOND, proceed to Brunswick, Ga., for duty in laboratory investigations of malaria and other diseases at the Government Picric Acid Plant.

Microscopist MILDRED STINGLEY, proceed to Brunswick, Ga., for duty in laboratory investigations of malaria and other diseases at the Government Picric Acid Plant.

Resignation of Assistant Surgeon LYNNE A. FULLERTON accepted by the President, to be effective Oct. 31, 1918.

Occupational Disease as Distinguished from Industrial Accident.—The Ohio Supreme Court in a recent decision made the following distinction between an occupational disease and an industrial accident, which, as the *Ohio State Medical Journal* for April says, will be of interest to those engaged in the industrial side of public health work. The court says: "A disease contracted in the natural and ordinary course of employment, by a person engaged in a particular calling or occupation, which disease from common experience is known to be a usual and customary incident to such calling or occupation, is an 'occupational disease,' and not within the contemplation of the workmen's compensation law." It is also said with reference to a particular case: "The accidental and unforeseen inhaling by an employec, in the course of his employment, of a specific volatile poison or gas, resulting in injury or death, is not an occupational disease."

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Upholds Ordinance Regarding Closing.—The supreme court of the state has upheld the validity of an ordinance of the city of Los Angeles prohibiting public gatherings during the epidemic of influenza. The court denied a writ of habeas corpus in the case of five citizens of Los Angeles who, in defiance of the prohibiting ordinance, were arrested for holding a service in the Christian science church. The constitutionality of the health ordinance was attacked.

ILLINOIS

Restrained from Halting Hospital Work.—In the superior court, November 9, Judge Focll issued a temporary injunction restraining the village of Broadview from interfering with the construction of a hospital which is being erected at Speedway Park.

Illegal Practitioners Arrested.—Milton Chaiken of Joliet, who was recently arrested by the Department of Registration and Education of the State of Illinois and fined \$75 and costs for violating the Medical Practice Act, was again arraigned in court and fined \$50 and costs on each of six counts. Chaiken was employed in the office of a so-called advertising physician in Joliet. When the physician was out of the office Chaiken would diagnose cases and write prescriptions, signing the name of the physician to them.—Julia Badurak, also of Joliet, was arrested by the department and fined \$100 and costs for practicing medicine without a license.

Campaign in Illinois for Tuberculosis Sanatoriums Successful.—In the election held November 5, thirty-three of the 102 counties in Illinois voted affirmatively on the levy of a county tax of 3 mills or less for the construction of tuberculosis hospitals and the establishment of nursing, clinic and dispensary service in each county. The campaign plan prepared by the Illinois Tuberculosis Association provided for widespread publicity and personal contact by local workers with the families of the various counties. The general direction of the campaign was in the hands of Walter B. Thurber, executive secretary of the Illinois Tuberculosis Association, and a staff of three field workers and the chairman of each county committee made up the board directing the campaign. This election gives Illinois a total of forty such institutions as compared to none two years ago.

Chicago

Influenza and Pneumonia Deaths.—The combined reports of influenza and pneumonia in Chicago for the months of September and October, covering the wave of influenza, show that there were 7,930 deaths.

Personal.—Dr. Truman W. Brophy has returned after three months spent in the treatment of facial and head wounds in France.—Dr. Gerhardt E. Wyneken resigned from the faculty of Loyola University, October 4.—Dr. Willis O. Nance, who has been a member of the city council for eight years and for seven years has been chairman of the council committee on public health, was elected trustee of the Sanitary District of Chicago, at the recent election.—Dr. Franklin A. Weatherford, while making a professional call, October 24, suffered a cerebral hemorrhage and is seriously ill at the Englewood Hospital.

INDIANA

Provision for Returned Tuberculous Soldiers.—According to a statement by M. E. Foley, chairman of the state council of defense, only 370 beds have been provided in the entire state for returned tuberculous soldiers, and more than 90 per cent. of the counties of the state have made no provision for the care of such men.

Personal.—Dr. J. Clifford Wallace has been appointed deputy health officer of Fort Wayne.—Dr. Eric A. Crull, city health commissioner of Fort Wayne, has resigned to enter the military service.—Dr. Lindley H. Eshleman, Marion, is reported to be seriously ill with an infection of the leg.—Dr. Henry W. Geist, Monticello, has been

appointed health commissioner of White County, to succeed Dr. Alfred C. Williams, Reynolds, who has resigned to enter the military service.—Dr. Charles P. Cook, New Albany, is said to be critically ill with pneumonia.

Camp Faces Crisis.—Boehne Camp, the tuberculosis sanatorium of Vanderburg County, is facing a critical financial situation. Unless \$25,000 is raised for the support of the camp, the institution will be forced to close. The cost of maintaining the hospital until January 1 will be \$13,000, including the payment of back debts and general running expenses. The barracks, now nearly completed, which will accommodate from fifty to sixty soldiers cannot be opened until a mess hall and kitchen have been erected to care for the needs of these men. The influenza epidemic is believed to have increased the predisposition toward tuberculosis. These three factors unite in making the situation urgent.

Reappearance of Influenza.—On November 18 the Indianapolis Board of Health issued an order providing for the universal wearing of cloth masks in all public places in the city and the closing of the public schools. This action was taken on account of the very serious recrudescence of epidemic influenza in the city, and on account of its apparent reappearance in various communities throughout the state. The situation in Indianapolis is described as being as serious as at any time during the epidemic, and in addition to the closing of the schools and the order requiring masks, which was to be in full force by November 20, the matter of again closing theaters and other places of public gathering, including the churches, was under advisement. City Health Officer Dr. H. G. Morgan attributes the new accession of the disease to carelessness of the people during the recent war celebrations. Reports received at the office of the state board of health show that the disease is also spreading throughout the state. Thirty-eight counties reported 1,439 new cases for the week end. Green County reported 135 new cases, Vigo 158, Cass 77, Decatur 60, Grant 63, Jasper 70, Laport 65, Clay 66 and Switzerland 54. Among the places reporting a more serious condition with regard to influenza are Frankfort, with 46 new cases, November 18; Columbus with 30; Rockville, where it is said there were more cases than at any time during the epidemic, and Alexandria, Brazil, Shelbyville, Seymour and Huntington.

MARYLAND

Board Meeting to Be Omitted.—Owing to general conditions and the limited number of inquiries concerning the December examination for licensure, the Board of Medical Examiners of Maryland announces that it has determined to omit the usual December meeting.

Government to Study Influenza Here.—Dr. Wade H. Frost and a staff of assistants from the United States Public Health Service visited Baltimore during the past week for the purpose of studying the recent epidemic of Spanish influenza in the city and state. They were given access to the records of the state department of health and the city health department.

Personal.—Dr. Daniel Z. Dunott, Baltimore, has been named chairman of the Committee on Health and Medical Relief of the United States Railroad Administration, which work includes all railroads in this country.—Dr. Ralph B. Seem, acting superintendent of Johns Hopkins Hospital, Baltimore, sustained a severe wrench of the shoulder, and Dr. Benjamin R. Benson, Cockeysville, suffered contusions in a collision between automobiles near Cockeysville, October 28.

MASSACHUSETTS

Hospital Items.—It is announced in the Boston papers that papers are about to be signed under which the Parker Hill Hospital property, controlled by the Women's Charity Club and the Massachusetts Women's Hospital Corporation, will be transferred to the government. This building with seventy-five beds will be used for headquarters for nurses, especially those who work in the Robert Bent Brigham and Elks hospitals.—Edward S. Searles, Methuen, has offered to build a hospital near Lawrence for the treatment of patients residing in Lawrence, Methuen and Andover.

NEW YORK

Planning Venereal Disease Hospital for Syracuse.—At the suggestion of Dr. David M. Totman, health officer of Syracuse, the mayor of that city, after a conference with a number of prominent citizens, has appointed a committee to choose a building that can be converted into an isolation hospital for cases of venereal disease.

Personal.—Dr. John W. LeSeur has been appointed acting health officer of Batavia in the place of Dr. Victor M. Rice, who has accepted a captain's commission in the United States Army.—Dr. John A. Wyeth is confined to his bed in the Polyclinic Hospital with a broken ankle, caused by slipping and falling on a polished floor.

New York City

Hospital Transferred.—The trustees of the New York Polyclinic Hospital have proposed to transfer the property of that institution to the Columbia University to be maintained for the public, and for advanced instruction and research in medicine and surgery. The hospital was built in 1912, and has a capacity for 300 patients.

Lecture on Pasteur.—Dr. Etienne Burnet of the Pasteur Institute, Paris, surgeon in the French army and member of the Mission of French Scholars to the United States, delivered a lecture at the New York Academy of Medicine in cooperation with Columbia University, November 15, on "Pasteur as a Representative of the French Scientific Spirit."

Red Cross Gifts.—The Atlantic Division of the Red Cross will receive \$1,000,000 from the estate of James A. Schrymser. This is said to be the largest single bequest the organization has ever received.—The employees of the supply department of the Brooklyn Navy Yard have raised money for a fully equipped ambulance for overseas service, which they have turned over to the American Red Cross.

The Influenza Toll in New York.—An announcement from the health department, November 16, states that although new cases of influenza continue to be reported the epidemic is practically over in this city. From the beginning of the outbreak until November 16, 128,558 cases have been reported and 19,091 cases of pneumonia, with 20,086 deaths from the two causes. It is estimated that in the Bronx there were 40,000 cases, while only 18,000 were reported.

Dinner to Bastianelli.—The Italian Medical Society of New York City recently gave a dinner to Lieut.-Col. Bastianelli of the Italian army. Dr. Carmelo Atonna, president of the society, in his introductory remarks, suggested that Colonel Bastianelli should do all in his power in Rome to bring about an interchange of medical professors between the United States and Italy, and in his reply Dr. Bastianelli agreed to this and urged the Italian medical fraternity of New York to unite in an effort to form a real Italian medical center.

Plan Great Chemical Institute.—At a recent meeting of the New York branch of the American Chemical Society held at the Chemists' Club, resolutions were passed proposing the organization of an American Chemical Institute under the auspices of the American Chemical Society, whose special function shall be to promote research with a view to the introduction of new or improved medicinal products, so as to make the United States free of any future effort to control this field by German manufacturers. In the discussion of the resolution Dr. Phoebus A. Levene of the Rockefeller Institute gave the project his earnest support.

Harvey Society Meeting.—At the annual meeting of the Harvey Society held in September, the following officers were elected: president, Dr. Graham Lusk; vice president, Dr. Rufus J. Cole; secretary, Dr. Karl M. Vogel, and treasurer, Dr. F. H. Pike. It was decided that the lectures to be given this winter should not exceed six, and that the lectures of last winter and this winter be given in one course, the members to be charged with dues for one year only to cover the dues of activity. The two lectures which had been arranged to be held, one by Dr. Stewart Paton, Princeton, N. J., on "The Psychology of the Aviator," and the other by Dr. Alonzo E. Taylor, Philadelphia, on "The World's Food Situation," have been postponed on account of the departure of the lecturers for Europe. The following lectures have, however, been provisionally arranged:

Jan. 11—Col. Eugene R. Whitmore, Infectious Diseases in the Army.
Jan. 25—Dr. R. N. Yerkes, Psychological Examination of the Soldier.
Feb. 8—Dr. Yandell Henderson, Physiology of the Aviator.
March 1—Dr. Frederic S. Lee, Industrial Fatigue.
March 15—Col. F. P. Underhill, War Gases.

OHIO

Personal.—Dr. Fletcher Langdon, Cincinnati, has been appointed bacteriologist of the Cincinnati Board of Health, to succeed Dr. Philip H. Dorger, who has been ordered to report to Yale University for training in the Medical Reserve Corps.

Follow-Up Work on Tuberculosis.—Up to November 1, discharges of soldiers for tuberculosis reported to the state authorities amounted to 865. Of these, there were only 125 recorded to the state department of health as not found. The others have been referred to local public health nurses, reached by letters or visited by nurses from the state department of health. Of the Ohio soldiers discharged on account of tuberculosis, thirty-one have been placed in hospitals.

Reorganization of Local Health Machinery.—The state board of health is formulating plans for the reorganization of the local health administrative system. The chief defects are the lack of trained men in the local health administrative work and the absence of control over local health officials by the state department of health. The proposed plans call for the grouping of the 2,200 health districts of the state into larger units, able to support efficient local health organizations. The coming of peace will aid by releasing for public health work many men who have received training in sanitary work of the Army.

Recrudescence of Influenza.—A bulletin of the state department of health, November 16, says that in some communities of the state, following the permission of the state board to local health officers to determine when the influenza ban should be lifted, premature action resulted in a recrudescence of the disease. In some districts the ban was lifted in cities and towns when the disease was still prevalent in rural surrounding territory, with the result that the country people came to town to attend movies and other public places, again scattering the infection. The general situation with regard to influenza, however, was much improved, and United States Public Health Service physicians sent into the state to help out are being rapidly released.

PENNSYLVANIA

Personal.—Dr. Glenn M. Pierce, McKeesport, who has been confined to his bed for four weeks with influenza and pneumonia, is reported to be convalescent.

Quarantine Lifted.—The quarantine for epidemic influenza was almost entirely lifted from the state, November 9, the only exceptions being a few counties in which conditions have not improved. Among the exceptions are Blossburg, Scottsdale, Jeannette, Monessen and Vandegrift, Carnegie, Oakdale, Calamity, Unity Mills, Forest County, Newport, Perry County, Muncy, Renovo, Bitumen, Snowshoe, Sandy Ridge, Hyndman, Broad Top, Liberty, Osceola Mills, Three Springs, Robertsdale, Forest City, Dunmore and Arnot counties.

Bucks County Medical Society.—The Bucks County Medical Society held its annual session, November 13, at Monument House, Doylestown. Dr. B. Franklin Royer, acting commissioner of health, was a guest of honor. The following officers were elected: president, Dr. Isaac S. Plymire, Doylestown; vice presidents, Dr. William F. Weisel, Quakertown, and Dr. James Collins, Bristol; secretary-treasurer, Dr. Anthony F. Meyers, Blooming Glen; censors, Dr. George M. Grim, Ottsville; Dr. William R. Cooper, Point Pleasant, and Dr. Howard Pursell, Bristol.

Philadelphia

Influenza Declining.—During the week ending November 8, there were 375 deaths from influenza and pneumonia, 218 from the former and 157 from the latter. The total fatalities for the week were 802, as compared with 1,771 the previous week and more than 5,000 at the height of the epidemic.

Hospital Bequests.—The Episcopal Hospital eventually will receive \$5,000 from the estate of Mrs. E. C. Swartz, to endow two beds, one for men and the other for women "engaged in or connected with the publishing, printing or writing for newspapers in Philadelphia, as a memorial to my late husband, Edward J. Swartz," former editor-in-chief of the *Evening Telegraph*.

Hospital Taken by United States.—Hahnemann Hospital, having been taken over by the government, has been made central receiving and examining station for medical student applicants who desire to go to the officers' training camps. Col. John A. Lockwood is in charge of the work at the hospital, which is to be devoted entirely to obtaining officers for the Medical Corps, although those selecting infantry, machine gun or artillery will be examined and, if qualified, sent to camps devoted to those branches.

Epidemic Orphans to Be Cared For.—A preliminary conference of representatives of various aid organizations met in the office of Director Krusen to plan for the care of children made orphans by the death of their parents during the recent

epidemic of influenza. The organizations represented were the Emergency Aid Committee, the National Congress of Mothers, the Division of Child Hygiene, Department of Public Works, the Social Service Department, Philadelphia General Hospital and the Children's Aid Society. It was decided to make an appeal to the public for subscriptions for a fund of \$50,000 for their care and maintenance.

Campaign for Pennsylvania Hospital.—The Pennsylvania Hospital's drive to raise \$1,000,000 to enlarge its equipment began the first week in November. Nearly 30,000 letters have been sent out, stating the needs of the hospital and telling of its accomplishments since its establishment, 167 years ago. According to the report of the board of managers, there was a deficit of \$116,000 last year and this year it threatens to be greater. In the last year more than 50,000 patients were treated at the Pine Street department, the majority of whom paid nothing. Since the branch for nervous and mental diseases was opened in West Philadelphia, more than 19,000 cases have been treated, 7,000 being restored to normal. The expense of the charity department last year reached \$174,000 and of the mental department, \$142,000.

Personal.—Dr. J. H. Mason Knox, Baltimore, assistant director, children's bureau, American Red Cross in France, addressed the Philadelphia County Medical Society and Babies' Welfare Association, November 13, on "What the American Red Cross is Doing for French Children, and Its Application at Home."—Major Raymond G. Hussey delivered the Gross Lecture before the Pathological Society of Philadelphia, November 14, his subject being "Army Medical Laboratory Work in France."—Dr. Mary E. M. Loog has been appointed assistant school medical inspector.—Dr. Alonzo E. Taylor, former professor at the University of Pennsylvania, sailed for Europe, November 16, to be Mr. Herbert Hoover's assistant in the task of rationing Germany. Dr. Taylor will represent both the food administration and the war trade and it is expected that he will go to the Balkans and take charge of the situation there.—Major John W. H. Pollard, U. S. M. C., has been appointed attending surgeon of the Army for the city of Philadelphia.

TENNESSEE

Personal.—Dr. Matthew C. McGannon, Nashville, has been appointed chairman of the British Recruiting Mission for the Nashville District.—Dr. Ben H. Brown, former food inspector of Chattanooga, has been appointed director of health of the city.—Dr. Owen K. Womack has been appointed local surgeon for the Louisville and Nashville system at McKinnon.—Dr. Eugene L. Bishop, Columbia, has been appointed state director of rural sanitation and state epidemiologist.

Hospital News.—Accommodation for ninety-two nurses has been provided at the Knoxville General Hospital, in a nurses' home which is now almost completed. This home takes in the buildings formerly used by the Tennessee Medical College and the laboratory.—Two tent-houses are to be erected at the United States Marine Hospital, Memphis. They will have wooden floors and will be weatherboarded for about 4 feet from the floor, and will be used as quarters for sufferers from tuberculosis.—A health resort is to be erected in the Lookout Mountain Hospital on the top of Lookout Mountain by Dr. Clair C. Patch, Graysville.—The board of directors of the East Tennessee Sanatorium for Tuberculosis has submitted to the government plans for a building and has requested permission to build. The plans provide to accommodate fifty patients, and the cost will be about \$40,000.

TEXAS

New Hospital.—Formal approval of plans for a modern military hospital on the grounds of the State Agriculture College, College Station, is reported by the president. The hospital will be a frame construction, and will cost about \$56,000.

Personal.—Dr. William W. Samuell, Dallas, who has been seriously ill with influenza, is reported to be convalescent.—Dr. H. Reid Robinson, Galveston, who has been seriously ill at St. Paul's Sanitarium, Dallas, is reported to be improving slowly.—Dr. Oscar H. Mengel, Frackville, is ill at his home with pneumonia following influenza.

WISCONSIN

Fees Held by County.—Hundreds of dollars, fees for making out birth certificates, are awaiting Milwaukee physicians and midwives in the office of the county clerk.

Emergency Hospital Opened.—An emergency hospital has been opened by the local Red Cross chapter in the Garfield School building, Washburn, for the care of cases of influenza.

Personal.—Dr. Arthur G. Benson, Viroqua, who has been seriously ill with pneumonia following influenza, is now believed to be out of danger.—Dr. Wilbur G. Melaas, Beloit, is reported to be seriously ill with rheumatic arthritis.

Sanatorium News.—Work will begin within a few days on the excavation for the tricity tuberculosis sanatorium to be built by Bayfield, Madison and Iron counties, at Salmo, about 5 miles north of Washburn. The name adopted for the sanatorium is the Pureair Sanatorium and the buildings will be erected at a cost of about \$68,000.—A sanatorium has been offered to the Madison Anti-Tuberculosis Association by Dr. Charles H. Vilas. The sanatorium consists of five buildings on a site in Blooming Grove. It is equipped with heating furnaces and grates, an electric light and power system, artesian water, intercommunicating telephones and furnishings. This is offered to the association by Dr. Vilas in memory of his mother, Esther Smilie Vilas. The gift of Dr. Vilas was accepted by W. S. Heddles, at the meeting of the association, October 8. Dr. Louis R. Head, Madison, president of the association, is to be director of the hospital.

WYOMING

Personal.—Dr. Horace P. Holmes, for many years a practitioner of Sheridan, is reported to have been adjudged insane, October 15, and to have been committed to the State Hospital, Evanston.—Dr. J. Hoyt Huckins has been appointed superintendent of the Wyoming School for Defectives, Lander, to succeed Dr. Thomas G. Maghee.—Dr. John H. Young, San Diego, surgeon of the Union Pacific Gold Company at Rock Springs for the last eighteen years, was presented with a gold watch and fob by the officials and employees of the company, recently, in recognition of his services as company physician.

CANADA

Personal.—Col. George E. Armstrong, C. M. G., Montreal, will read a paper before the Academy of Medicine, Toronto, December 3, on "The Effect of the War on Surgery, Civil and Military."—Capt. Charles F. Atkinson, C. A. M. C., Edmonton, Alta., has been awarded the military cross.—Col. Gilbert Royce, M. D., has returned to Toronto from overseas.

Total of Canadian Casualties.—Ottawa issued, November 15, statistics as to the Canadian casualties up to that date. More than 55,000 Canadian soldiers have given up their lives in the war, all the casualties totalling 213,268, but these will be increased after the returns for Mons are in. To date the casualties are: killed in action, 35,128; died of wounds, 12,048; died of disease, 3,409; presumed dead, 4,620; missing, 842; wounded, 154,361; prisoners of war, 2,860.

Influenza Statistics for Toronto.—Dr. Charles J. C. O. Hastings, Toronto, medical officer of health, has compiled the following figures relative to the deaths from influenza and pneumonia: under 1 year of age, 44; from 2 to 9, 146; under 10 years of age, 190; from 10 to 19, inclusive, 126; from 20 to 29, 455; from 30 to 39, 376; from 40 to 49, 94; from 50 to 59, 63; from 60 to 69, 31; from 70 to 79, 24; 80 years and over, 4, and ages not known, 15. With a population of 490,000, there were 1,614 deaths.

GENERAL

Æsculapians Meet.—The second annual meeting of the Æsculapian Society of the Wabash Valley was held at Terre Haute, Ind., this month. Dr. Joseph Hall, Westfield, Ill., was elected president.

Cancellation of Appeal for Collection of Scrap Platinum.—The chief of the section of medical industry and the chief of the platinum section announce to the doctors and dentists of the country their appreciation of the hearty response made to the call for scrap platinum, and request that no further scrap platinum be turned to the government through the channels indicated in their previous communication.

Bequests and Donations.—The following bequests and donations have recently been announced:

Malden, Mass., Hospital, \$5,000 by the will of Mary Benson, Brooklyn. United Charities, Chicago, \$25,000; Chicago Home for Incurables, Home for the Friendless and Visiting Nurses' Association, each \$10,000 by the will of George R. Thorne, Chicago.

Russell Sage Institute of Pathology, New York City, an endowment fund of \$300,000, Adirondack Cottage Sanatorium, \$25,000 by the will of Mrs. Russell Sage, New York City.

Twelve thousand dollars for the construction of a hospital for the white race, and a similar amount for provisions for negroes of the community by the will of R. J. Reynolds, Winston-Salem, N. C.

Report of Medical Commission to Ecuador.—During the summer a commission of which Dean Arthur I. Kendall, Prof. Charles A. Elliott and Prof. H. E. Redenbaugh of the Northwestern University Medical School, Chicago, were members, was sent by the Rockefeller Foundation to Ecuador to make a study of disease prevention on the west coast of South America, having in view a greater trade with that region after the war. The commission returned in October after having been well received and given every facility for the study of the questions involved, the chief of which is the prevention of yellow fever. The report will be issued soon.

Cooperative Tuberculosis Campaign.—As previously announced, the Red Cross will not conduct a Red Cross Seal campaign this year. To take the place of funds raised by this means in fighting tuberculosis the Red Cross will appropriate to the National Tuberculosis Association, \$2,500,000. This will be distributed by the national association to the various state anti-tuberculosis associations and not to any local organizations, except in a few instances where independent seal campaigns have been conducted, as in New York City, Brooklyn and Pittsburgh. The appropriations will be made quarterly to the various state organizations, beginning about January 1. The state organizations will have full power to distribute the funds throughout the respective states. It is expected that each state will receive an amount equal to that heretofore raised by the sale of seals, but the exact amount cannot be stated at this time. The Red Cross will secure the money appropriated for the tuberculosis campaign by its campaign for members which will be conducted this fall. Complete arrangements with reference to the membership campaign will be announced soon.

FOREIGN

Italian Scholarship in Great Britain.—The *Riforma Medica* states that the Italian government has presented 300 pounds sterling to the Ramsay Fund, instituted in London to encourage the study of the chemical sciences. A scholarship will be assigned in Great Britain to some Italian chemist.

New Degree at Birmingham University.—As announced, May 23, 1918, by Sir Oliver Lodge, principal of Birmingham University, a degree corresponding to the Ph.D. degree will be granted at Birmingham to foreign students who enter the university for higher study. This is one of the outcomes of the war, and is intended to provide for graduate students who will not now want to go to Germany as many students formerly did.

Medical Students of Switzerland.—In the five universities of Switzerland, 1,725 students were enrolled during the summer semester. These were distributed as follows: at Basle, 220, including 174 Swiss, of whom 15 were women, and 46 foreign, of whom 4 were women; Berne, 385, including 242 Swiss, of whom 27 were women and 143 foreign, of whom 16 were women; Geneva, 381, including 163 Swiss, of whom 16 were women and 218 foreign, of whom 58 were women; Lausanne, 225, including 159 Swiss, of whom 13 were women, and 66 foreign, of whom 16 were women, and Zurich, 504, including 350 Swiss, of whom 56 were women, and 154 foreign, of whom 16 were women.

Deaths in the Profession Abroad.—Marchese E. Laureati of Pisa, for two years assistant in Maragliano's medical clinic at Genoa and later assistant at the surgical clinic at Pisa after having served for two years with an Italian expeditionary force in Africa.—Dr. E. Pena, director at one time of the Assistenza Publica of Buenos Aires and long member of the city council. He had returned recently from an official trip to Europe to study sanitary methods.—Dr. H. Hoessli, director of the Balgrist Orthopedic Institute at Zurich.—Lieut.-Col. E. F. H. Dobson of the Indian Medical Service, retired, lost when the *Hirano Maru* was torpedoed off the coast of Ireland.—Dr. J. Ubeda y Correal, inspector in chief of the medical department of the Spanish army and a leading figure in the profession in Spain.

Novaro's Retirement.—Prof. G. F. Novaro retires this year from the chair of clinical surgery at the University of Genoa, having reached the age of 75. He is a senator of the realm, and was one of the pioneers in surgery in Italy. He is said to have been the first in any land to apply gastro-enterostomy in treatment of ptosis; he also did typhlostomy for colitis, and a number of operations on the esophagus, common bile duct, etc., which at that time, as the *Riforma Medica* remarks, had not received the sanction of a foreign name. As early as 1890 his publications on the surgery of the stomach were

based on extensive experience. He has presented his large library to the city of Genoa, and a special hall has been set apart for it. Funds have been appropriated or are being collected to maintain this Novaro hall permanently as an up-to-date medical library in the public library building.

CORRECTION

Incorrect Report of Death of Capt. Warren Walker.—In the October 26 issue of THE JOURNAL it was noted that Capt. Warren Walker, M. C., U. S. Army, was burned to death, October 9, at Colonia, N. J. THE JOURNAL was advised that there was a Captain Walker burned to death at this time but not the Captain Walker referred to in the item, that one having been promoted to a majority and is in active service in the office of the Surgeon-General, Washington, D. C.

LONDON LETTER

LONDON, Oct. 31, 1918.

The Influenza Epidemic

Influenza is still widely prevalent and is imposing a great strain on physicians, who are exhausted in having to visit so many patients. Some are unable to complete the round of all the patients on their lists. In the ninety-six great towns of England and Wales, with an aggregate population estimated at 16,500,000, the number of deaths attributed to influenza last week was 4,482, of which 1,256 were in London. These figures refer only to the civil population. The deaths in London attributed to influenza amounted to nearly half the deaths from all causes. At this time of year the normal number of deaths from influenza would be only 5. The figures in the preceding three weeks were 17, 80 and 371. The effect of influenza is further shown in the rise of the general death rate. In the first week of October this corresponded to an annual rate of 12.6 per thousand, in the second week to 15.1, in the third to 20.7, and in the fourth to 30.9. Numerous conferences have taken place between representatives of the Local Government Board, the Board of Trade, and naval and military authorities, and bacteriologic investigations have been continuously made since the beginning of the summer outbreak. These show that bacteriologically this outbreak does not differ from other outbreaks of influenza, fatalities being due to secondary infections, chiefly by pneumococci and streptococci. The suggestion has been made that its severity is due to lowered nutrition consequent on food restriction; but of this there is no proof. Sir A. Geddes, minister of national service, replying to a question in Parliament as to what steps he had taken to provide an adequate medical service for the civil population in view of the present serious epidemic of influenza, said that all arrangements made in connection with the employment of physicians under the ministry of national service and all withdrawals of physicians from civil life for service with the armed forces of the crown during the past year have been made with full regard to the contingency of a widespread epidemic disease affecting the population. Influenza has been more or less prevalent in epidemic form for some months, and the calls on the civil medical profession have consequently been heavy. Simultaneously, severe fighting on a great scale in all theaters of war has imposed an additional heavy strain on our medical resources. In April, Parliament conferred powers on the minister of national service that enabled him medically to examine men of military age at any time. In view of possible emergencies this power was largely used, approximately 7,000 physicians being employed and very large numbers of men being examined. Concurrently, with the increase of influenza, the number of physicians employed on medical board work has been reduced, thereby rendering an increasingly large body of physicians available for exclusively civil practice. The number of medical board sessions has been reduced from approximately 3,500 to 1,000 a week. This has not affected recruiting, as the pool formed by examining men in advance has been sufficient to maintain the flow of men to the forces. In order further to reinforce the physicians available to attend the civil population, all medical examinations in advance are to be suspended for the present.

A conference of bacteriologists to discuss preventive vaccination for influenza has been held at the War Office under the chairmanship of Col. Sir William Leishman. The majority of those present agreed that there was considerable doubt as to the primary etiologic significance of *Bacillus influenzae* of Pfeiffer, and considered that the existence of some as yet undiscovered virus must be regarded as possible. They had, however, no doubts as to the frequent presence of Pfeiffer's organism in this epidemic, or as to the great importance of the part it played in the production of the symptoms and com-

plications of the disease. The organisms most frequently associated with *B. influenzae* and chiefly responsible for the gravity of the secondary pulmonary complications were pneumococci and streptococci. It was unanimously agreed that a vaccine might prove valuable produced from *B. influenzae*, the pneumococcus and the streptococcus. A number of strains and types of each organism recently isolated from cases of the epidemic should be used. The first dose should consist of 30 millions of *B. influenzae*, 100 millions of pneumococcus and 40 millions of streptococcus. A second dose of twice these numbers should be given after ten days. While it would be preferable to vaccinate before exposure to infection, the vaccine need not be withheld from a body of men among whom influenza had already appeared, excepting those who have fever or are obviously ill.

Prevention of Anthrax

The departmental committee appointed in 1913 to inquire into precautions for preventing danger of infection from anthrax in the manipulation of wool, goat hair and camel hair has issued its report. Among the most important recommendations is the abandonment of the attempt to control anthrax by regulations as being totally inadequate. The committee states that the simplest, cheapest and most effective method of preventing anthrax in the various branches of the wool trade is by disinfection of wool and hair abroad. It is recommended that the British government should establish the disinfection authority and should then take steps to obtain the cooperation of the governments of other countries.

The Standardization of Clinical Thermometers

Under the Defense of the Realm regulations, the Ministry of Munitions has ordered that no clinical thermometer shall be sold which has not been tested and approved by the director of the National Physical Laboratory. For one month after the date of the order, no thermometer showing at any point in its registration of temperature an error of more than 0.4 F. will be approved. On the expiration of this period, no thermometer shall show an error exceeding 0.2 F. over the range up to 106 F. Above this temperature, the error shall not exceed 0.3 F. For thermometers graduated in degrees other than Fahrenheit, corresponding tolerances will be allowed. A thermometer will not be approved if it is not self-registering with a constriction, which must be such as to retain the index column and also allow of the mercury being reset. Approved thermometers will be marked with the National Physical Laboratory trade mark and the year of test. The charge for testing a thermometer will be 6 cents, including carriage to sender.

PARIS LETTER

PARIS, Oct. 24, 1918.

Treatment of War Wounds of Nerves

This subject was discussed at the recent Twenty-seventh French Congress of Surgery, especially from the standpoint of remote results of treatment. So far as indication for operation is concerned, the majority of the surgeons who spoke were in favor of such intervention, in spite of the teachings of the neuropathologists of Bordeaux, who claim that surgical intervention in wounds of nerves is not only useless but harmful because it interferes with the regeneration of the nerve. Dr. Walther of Paris stated that operation is not performed often enough in these cases, hence too many of these men are incapacitated two and three years after the injury of the nerve because they had not been subjected to operation. This is due to the fact that for a long time physicians, and also some surgeons, have been opposed to radical resection, followed by suture or grafting, of injured nerves presenting evidence of a complete lesion and which were not responding quickly to medical treatment.

REMOTE RESULTS

Dr. Delagenière of Mans presented some interesting statistics on 338 cases of wounded nerves in which surgical treatment was employed: resection and suture, 236 cases; resection and nerve grafting, 9 cases; neurolysis or nerve liberation, 113 cases. Resection and suture was followed by 88 per cent. of successes; the 9 grafting cases yielded 3 good results and 6 failures; neurolysis has given good results only in cases of simple compression of the nerve. Dr. P. Wiart of Paris has full data on the remote results in 86 cases of projectile injury of the radial nerve in which he operated. There were 25 sutures and 61 liberations. Of the suture cases, a cure was obtained in 20 per cent. with improvement in as many more; among the neurolysis cases,

33 per cent. of cures were obtained and in 25 per cent. the patients were improved. These were all old cases, many of them being cases of long standing suppuration, with fractures. Operation done in recent cases, as early as possible, will yield far better results. Dr. L. Sencert of Nancy spoke on the subject of dead heteroplastic nerve grafts, applying to the human the experimental work done on animals by Dr. Nageotte. From a still-born calf the sciatic nerve is removed, placed in alcohol, and when sterilization is sufficient the graft is placed between the ends of the divided nerve and sutured in place. This method has given good results experimentally on animals, and Sencert has used it in the human for a loss of substance of 10, 12 or 13 cm. of the nerve. Sencert recommends the use of this method, in preference to other graft methods, in all cases in which there is a considerable gap in a nerve.

Treatment of Tuberculosis with Injections of Saccharose

For some time one of the daily papers has made a strong propaganda in favor of the treatment of tuberculosis according to the method of Dr. Lo Monaco of the University of Rome. Inasmuch as the readers of THE JOURNAL have been interested in this method, it will be interesting to refer to some experiments that have been made in France.

At the last meeting of the Société de thérapeutique, Dr. Louis Rénon and Dr. Mignot reported the results of their researches on the treatment of human and experimental tuberculosis by means of injections of saccharose. Guinea-pigs were inoculated with tubercle bacilli and then injected with saccharose. The disease was not modified in any way. In fact, these guinea-pigs died sooner than others similarly inoculated but not injected with saccharose. Among the humans the results were also negative, not only in the pulmonary cases but also in the bone and peritoneal cases of tuberculosis. Therefore, the authors conclude that these injections are ineffective in both experimental and human tuberculosis. Dr. Sergent of Paris, who has also investigated Lo Monaco's method, stated that while there was a slight, but inconstant, improvement in the general condition of the patient, manifested merely as a state of *bien-être* (well-being), the evolution of the disease was not modified. Dr. Robin of Paris has arrived at the same conclusion as the previous speakers. These clinical and experimental observations show that Lo Monaco's method does not possess the marvelous efficacy with which it is endowed by the lay press.

Less Stringent Regulations on Flour Consumption

M. Victor Boret, minister of agriculture and food commissioner, has submitted to the president of the Republic a decree authorizing for use as food the flour of all cereals, such as corn, rye, méteil (a mixture of wheat and rye) and buckwheat, the use of which was prohibited during the war except for baking bread. But the use of these cereals will be permitted only for purposes already authorized and within very narrow limits. However, the decree amplifies the bread and flour tickets. Henceforth, a 100 gram ticket entitles the holder to 80 grams of regulation bread (in lieu of 50 grams) and 75 grams of flour (in lieu of 50 grams), as heretofore.

Death of Dr. Brailion

Dr. Brailion, professor of clinical medicine in the Ecole de médecine et de pharmacie at Amiens, died from an infection contracted from our wounded soldiers to whom he was ministering.

Marriages

LIEUT. LUCIUS LAMAR TERRY, M. C., U. S. Army, Bessemer, Ala., on duty with the Thirty-First Division, Camp Wheeler, Ga., and now overseas, to Miss Bess Gilder of Carbon Hill, Ala., recently.

PRENTISS EDWARD PARKER, Bourg, La., to Miss Annie Mainer Williams of Livingston, Texas., at New Orleans, October 11.

ASST. SURG. RICHARD PARKER BELL, Lieut. (j. g.) U. S. Navy, assigned to duty on U. S. S. *Charleston*, to Miss Dunham of Lakewood, Cleveland, October 26.

LIEUT. PIERRE NUMA CHARBONNET, M. C., U. S. Army, New Orleans, to Miss Blanche Joan Rogers of Winfield, Kan., at Waynesville, N. C., October 22.

JOHN ALLAN WYETH, New York City, to Miss Marguerite Chalifoux of Boston, November 15.

Deaths

Lieut.-Col. Alexander Watson Williams, M. C., U. S. Army ⊕ Johns Hopkins University, Baltimore, 1912; aged 34; honor graduate and medalist Army Medical School, 1914; who entered the Army in September, 1913; and after duty at Texas City, Texas, was ordered to Manila, where he served from March, 1916, to November, 1917, as captain and major Medical Corps; and on his return to the United States organized and equipped for overseas duty Hospital Train No. 29, at Fort Benjamin Harrison, Ind.; was on duty at Camp Sherman, Chillicothe, Ohio, in March, 1918; and was ordered to Camp Lee, Va., in April, 1918, to organize, equip and command Base Hospital No. 45, American Red Cross, Richmond, Va., and went overseas with his command, July, 1918, died in France, October 5, from illness.

John Errington Ker, Kingston, Jamaica, M.R.C.S., England, 1887; L.R.C.P., London, 1888; aged 58; chairman of the quarantine board and central board of health, Kingston, Jamaica; civil surgeon attached to General Hospitals, Nos. 2 and 3, South African Field Forces during the Boer War; who had come to New York, three weeks before, to study sanitation, died from meningitis in the Post-Graduate Hospital, New York City, October 25.

Frank E. Bissel, Minneapolis; University of Wooster, Cleveland, 1869; aged 73; a veteran of the Civil War; for several terms mayor of Litchfield, Minn., and a member of the legislature from Meeker County in 1875; from 1901 to 1903 surgeon to the Soldiers' Home; and for one term surgeon of the Department of Minnesota, G. A. R.; died at his home, November 5.

Carl Lawrence Souder ⊕ Columbia City, Ind.; Northwestern University Medical School, Chicago, 1898; aged 44; who served one year in the Medical Reserve Corps, U. S. Army, and was honorably discharged, April 12, 1918, on account of physical



Died in the Service
IN FRANCE

LIEUT.-COL. A. W. WILLIAMS, M. C.,
U. S. ARMY, 1884-1918

disability; died in the Lutheran Hospital, Fort Wayne, Ind., October 25, from meningitis following an operation for sinusitis.

Asst. Surg. William Henry Buffum, Lieutenant, U. S. Navy ⊕ Providence, R. I., Harvard Medical School, 1902; aged 41; a specialist in pediatrics; one of the officers of the Rhode Island Naval Hospital Unit, which started overseas a few weeks ago; died in a hospital in Liverpool, England, October 13, from pneumonia following influenza.

Edward A. Whitmore ⊕ Leadville, Colo.; Gross Medical College, Denver, 1896; aged 65; for several years secretary and once president of the Lake County, Colo., Medical Society in 1915; local surgeon of the Denver and Rio Grande Railroad; city physician from 1900 to 1902; died at his home, November 8, from influenza.

Vishwas Ramual Karmarkar, Pittsburgh; University of Pennsylvania, Philadelphia, 1918; aged 27; a native of India, who was preparing for medical missionary work in his native country; an intern in the Allegheny General Hospital, Pittsburgh, died in that institution, October 10, from pneumonia following influenza.

Walter Scott Mountain, Confluence, Pa.; Philadelphia University of Medicine and Surgery, 1870; aged 80; a member of the Medical Society of the State of Pennsylvania; surgeon

of U. S. Volunteers during the Civil War and thereafter a druggist of Confluence; died at his home, about October 29, from influenza.

Roy Francis Rogers, Springfield, Ill.; Rush Medical College, 1901; aged 42; a member of the Illinois State Medical Society; a member of the Aesculapian Society of the Wabash Valley, and of the staff of St. John's Hospital, Springfield; died at his home, October 21, from pneumonia following influenza.

Capt. Alfred Glascock, M. C., U. S. Army + Washington, D. C.; George Washington University, Washington, D. C., 1902; aged 37; formerly a member of the staff of St. Elizabeth's Hospital, Washington; while serving as psychiatrist at a base hospital in the interior of France, died from pneumonia, October 10.



Howard Kerns + Granite Falls, Minn.; University of Maryland, Baltimore, 1909; aged 42; a specialist in tuberculosis; secretary of the Yellow Medicine County Medical Society, and Camp Release District Medical Society; died at his home, October 17, from bronchopneumonia following influenza.

Died in the Service
IN FRANCE
CAPT. ALFRED GLASCOCK, M. C.,
U. S. ARMY, 1881-1918

Newton Phineas Smith, Montville, Conn.; College of Physicians and Surgeons in the City of New York, 1882; aged 66; a member of the Connecticut State Medical Society; also a pharmacist; for thirty-five years a practitioner of Norwich; died at his home, October 3, from cerebral hemorrhage.

Elizabeth Cowan Sleight + Mount Vernon, N. Y.; Woman's Medical College of the New York Infirmary for Women and Children, 1893; aged 60; resident physician of the Auxiliary Hospital, Mount Vernon; died at her home, November 5, from pneumonia following influenza.

George Oswell Griffin, Greenville, S. C.; Medical College of Georgia, Augusta, 1901; aged 41; who entered the ministry soon after his graduation, and was pastor of the Third Presbyterian Church of Greenville; died at his home, October 9, from pneumonia following influenza.

George Cerny, St. Louis; St. Louis College of Physicians and Surgeons, 1913; aged 44; a member of the Missouri State Medical Association; and a member of the eye, nose and throat staff of Barnes Hospital, St. Louis; died at his home, September 13, from pneumonia.

George Guyer Gill + Fairview, Pa.; Jefferson Medical College, 1910; aged 35; first assistant physician at the State Hospital for the Criminal Insane, Fairview, Pa., a specialist in psychiatry; died at his home, November 4, from pneumonia following influenza.

Paul Rimer Doron, Phoenix, Ariz.; Washington University, St. Louis, 1905; aged 35; who went as a volunteer from Phoenix, to assist in the fight against influenza at Bisbee, Ariz., died about October 31, at his home, from pneumonia following influenza.

Wilhelm Rudolph Fisher + Wichita, Kan.; Northwestern University Medical School, Chicago, 1909; aged 33; a member of the staff of St. Francis' Hospital, Wichita; died in a hospital in that city, November 6, from bronchial pneumonia following influenza.

Albert Beilstein, Jr., Northampton, Pa.; University of Louisville, Ky., 1908; aged 32; a member of the Medical Society of the State of Pennsylvania; assistant physician of Dr. Haff's Hospital, Northampton; died at his home, October 27.

Lieut. Thomas Purley Johnston, M. C., U. S. Army + Mount Gilead, Ohio; Ohio State University, Columbus, 1910; aged 36; who sailed for France, September 27, died in an American Base Hospital in France, October 7, from pneumonia.

Capt. Claude Melville Campbell, M. C., U. S. Army + Decorah, Iowa; Northwestern University Medical School, Chicago, 1910; aged 33; on duty at Fort Riley, Kan.; died at Glencoe, Minn., October 23, from pneumonia following influenza.

Lewis Hasbrouck Kemble, Aspen, Colo.; University of Michigan, Ann Arbor, 1889; aged 51; surgeon of U. S. Volunteers during the Spanish-American War; died in Glenwood Springs, Colo., October 15, from heart disease.

Gardner Holway Osgood, Boston; Boston University, 1909; aged 39; roentgenologist of the Massachusetts General Hospital; died in the Evans Memorial Building of that institution, October 18, from pneumonia following influenza.

Calvin Fuller Kyte + Jersey City, N. J.; New York University, New York City, 1881; aged 68; visiting physician to X-Street Hospital, Jersey City, attending physician to Christ Hospital, Jersey City; died at his home, November 8.

John Edwin Sclanker, San Francisco; College of Physicians and Surgeons, Los Angeles; 1918; aged 34; an intern in the Southern Pacific General Hospital, San Francisco; died, October 15, from pneumonia following influenza.

Louis W. Salvin, Boston; Boston University, 1914; aged 31; a member of the Massachusetts Medical Society; died in the Massachusetts Homeopathic Hospital, Boston, September 25, from pneumonia following influenza.

Harlow Comstock McLeod, Mexico City, Mexico; College of Physicians and Surgeons in the City of New York, 1898; formerly of Batavia; was shot and killed in Mexico City, October 17, in an argument over the war.

Frederick Wheaton Baylies, Burlington, Vt.; University of Vermont, Burlington, 1897; aged 47; instructor and adjunct professor of chemistry in his alma mater for two years; died at his home, October 23, from influenza.

Lieut. Grover Carter, M. C., U. S. Army + Memphis, Tenn.; University of Tennessee, Nashville, 1917; aged 26; who had been overseas since October, 1917, serving first in England, in a base hospital, and later assigned to duty with the British Army in Flanders, and attached to the One Hundred and Twenty-First Brigade, Royal Flanders Artillery; was killed by a shell, October 16, while attending a wounded officer.

Richard Daingerfield Bagnall, Hampton, Va.; University of Pennsylvania, Philadelphia, 1860; aged 80; surgeon in the Confederate Service during the Civil War; died at the Dixie Hospital, Hampton, Va., November 1.

Sigurd Anton Berg, Granite Falls, Minn.; Rush Medical College, 1905; aged 38; a member of the Minnesota State Medical Association; died at his home, October 11, from pneumonia following influenza.

William Rupert Bebout, Browning, Mont.; Starling Medical College, Columbus, Ohio, 1905; aged 39; an officer of the United States Indian Service; died at his home, October 30, from pneumonia following influenza.

William I. Newberry, Smithfield, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1896; aged 47; died at his home, October 30, from pneumonia following influenza.



Died in the Service
IN FRANCE
LIEUT. GROVER CARTER, M. C.,
U. S. ARMY, 1892-1918

Warren H. Loomis, Lockport, N. Y.; Long Island College Hospital, Brooklyn, 1878; aged 63; a member of the Medical Society of the State of New York; died in the City Hospital, Lockport, October 30, from influenza.

Lieut. Frank Leonard Hammerstrand, M. C., U. S. Army ⊕ Sacred Heart, Minn.; University of Illinois, Chicago, 1909; aged 37; died in a hospital in New York City, October 26, from pneumonia following influenza.



Died in the Service
IN FRANCE

LIEUT. WINFIELD S. FAULDS, M. C.,
U. S. ARMY, 1873-1918

Lieut. Winfield Scott Faulds, M. C., U. S. Army ⊕ Roy, Mont.; Dearborn Medical College, Chicago, 1906; aged 45; commanding Camp Hospital No. 7, Thirty-Third Division, in France; died recently from pneumonia.

B. Bywaters, Van Ormy, Texas; Cincinnati Medical College, 1858; aged 80; postmaster and justice of the peace of Van Ormy for thirty-five years; died at his home, August 18, from inflammation of the bladder.

Thomas Hudson Weirich, Wellsburg, W. Va.; University of Michigan, Ann Arbor, 1873; aged 70; a member of the West Virginia State Medical Association; died at his home, November 5, from pneumonia.

Edward Elliott Morgan ⊕ North Henderson, Ill.; Keokuk Medical College, College of Physicians and Surgeons, 1905; aged 36; died at his home, November 1, from pneumonia following influenza.

Lieut. Burton Robert Carpenter, M. C., U. S. Army ⊕ Clifton, Texas; Fort Worth, Texas, School of Medicine, 1912; aged 29; ordered for duty at Fort Riley, Kan.; died at Clifton, October 25.

Guy Henry Just ⊕ Pukwana, S. D.; University of Illinois, Chicago, 1900; aged 44; chairman of the Brule County Board of Health; died at his home, November 9, from pneumonia following influenza.

Hezekiah W. Brant, Geyser, Mont.; Hahnemann Medical College, Chicago, 1888; aged 62; at one time a member of the Medical Association of Montana; died at his home, October 31, from influenza.

James Edward Culbert, Buffalo, N. Y.; Niagara University, Buffalo, 1892; aged 52; a member of the Medical Society of the State of New York; died at his home, October 26, from pneumonia.

Nimrod Terrell Underwood, Russellville, Ala.; University of Alabama, Mobile, 1888; aged 57; a member of the Medical Association of the State of Alabama, died at his home, October 27.

Christian Zbenden, Toledo, Ohio; Homeopathic Hospital College, Cleveland, 1882; aged 72; a member of the staff of Toledo Hospital; died in that institution, October 31, from pneumonia.

Stephen Joseph Metzger ⊕ Akron, Ohio; Western Reserve University, Cleveland, 1910; aged 38; coroner of Summit County, Ohio; died at his home, November 9, from pneumonia.

Robert Coleman Kenner, Louisville, Ky.; University of Louisville, Ky., 1879; aged 59; formerly editor of the *Therapeutic Record*, died at his home, October 28, from heart disease.

Russell Tomlinson Bishop, Savannah, Ga.; Bellevue Hospital, Medical College, 1893; aged 63; for many years a practitioner of Bridgeport, Conn.; died in Savannah, October 18.

Milton C. Vest, Greensburg, Ind. (license, Indiana, 1897); aged 68; for one term coroner of Decatur County; for forty-three years a practitioner; died at his home, November 5.

Lawrence T. Carr ⊕ Martinsburg, Mo.; Keokuk, Iowa, Medical College, College of Physicians and Surgeons, 1908; aged 29; died at his home, October 24, from pneumonia.

William Joseph Fretwell, San Jose, Calif.; Missouri Medical College, St. Louis, 1888; aged 50; died at his home, November 1, from pneumonia following influenza.

Herbert Holden Thomas ⊕ Huntsville, Ala.; University of Tennessee, Nashville, 1908; aged 36; died at his home, October 7, from pneumonia following influenza.

John Homer Eudy ⊕ Deport, Texas; Memphis, Tenn., Hospital Medical College, 1913; aged 32; died at his home, October 5, from pneumonia following influenza.

Zygmund Anthony Oborski, Wilkes-Barre, Pa.; George Washington University, Washington, D. C., 1917; aged 24; died at his home, November 1, from pneumonia.

Clark S. Wood ⊕ Fort Smith, Ark.; Jefferson Medical College, 1908; aged 41; died in Sparks Hospital, Fort Smith, October 21, from pneumonia following influenza.

Lieut. Louis Robert Kratze, M. C., U. S. Army ⊕ Chicago; University of Illinois, Chicago, 1912; aged 35; died recently at Camp Crane, Allentown, Pa., from influenza.

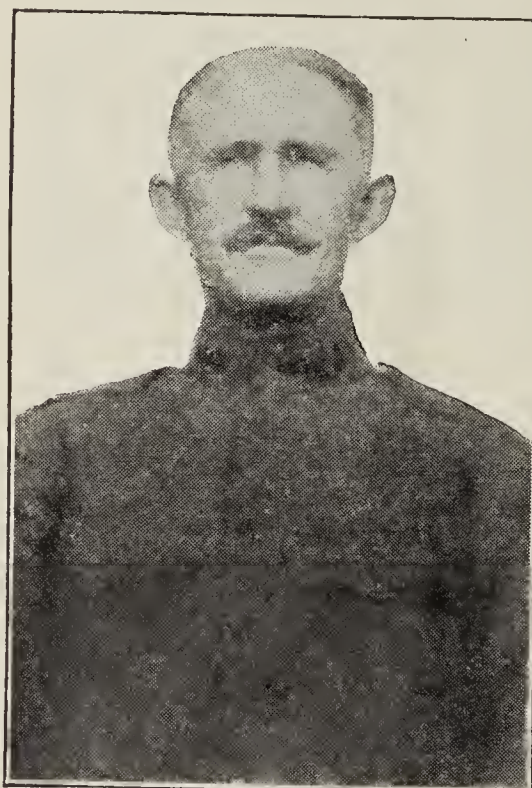
Dr. Antonio Onato, for six years surgeon on an Italian passenger steamer between America and Italy; aged 39; died at Gibraltar, in October, from influenza.

Francis M. Hyatt, Auburn, N. Y.; Hahnemann Medical College, Philadelphia, 1873; aged 71; physician to the Auburn City Hospital, died at his home, October 31.

Lafayette Reese, Afton, Wyo.; Rush Medical College, 1910; aged 38; at one time a member of the Utah State Medical Association; died at his home, October 15.

Carey Val Billingsley, Santa Ana, Calif.; California Eclectic Medical College, Los Angeles, 1914; aged 30; died at his home, about November 3, from influenza.

Robert E. Steele ⊕ Salt Lake City, Utah; University of Illinois, Chicago, 1895; aged 48; died at his home, November 4, from pneumonia following influenza.



Died in the Service
IN FRANCE

LIEUT. FRANKLIN M. HAWLEY, M. C.,
U. S. ARMY, 1863-1918

Lieut. Franklin Marshall Hawley, M. C., U. S. Army ⊕ Bayfield, Wis.; Drake University, Des Moines, Iowa, 1883; aged 55; on duty in a hospital in France; died, October 24, from spinal meningitis.

John Henry MacDonald, New York City; New York University, New York City, 1886; aged 60; died at his home, November 9, from heart disease.

John Frederick Brott ⊕ Doon, Iowa; Drake University, Des Moines, Iowa, 1897; aged 41; was found dead in bed from heart disease, October 30.

Jesse Judson Dearborn, Milford, N. H.; University of Kentucky, Louisville, 1905; aged 43; died at his home, October 16, from pneumonia.

Melchi Bonebrake, Taylorville, Ill.; University of Pennsylvania, Philadelphia, 1867; aged 75; died at his home, October 23, from heart disease.

Jule Conrad, Suring, Wis.; Milwaukee Medical College, 1900; aged 52; died at a hospital in Green Bay, Wis., October 27, from influenza.

H. Taylor Campbell, Nashville, Tenn.; University of Nashville, Tenn., 1875; aged 70; died at his home, November 5.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

THE KENNEDY'S TONIC PORT CASE Booze Is Booze in Saskatchewan

When the sale of alcoholics is prohibited in a given territory, it is a notorious fact that the exploiters of those

ground that, as they had been registered under the "Patent Medicine Act" of the Dominion government, they were thereby relieved of the necessity of complying with any provincial law, relative to the sale of "patent medicines." The judge, before whom the appeal was heard, decided against the drug concern, dismissed the appeal and amended the conviction by penalizing the drug store \$500 instead of the original \$100.

The opinion handed down by Judge Taylor of the King's Bench, before whom the appeal was tried, is an interesting document in "patent medicine" litigation, as the excerpts about to be given will show. After briefly stating the facts regarding the original conviction, and showing that the evidence established not only that a bottle of Kennedy's Tonic Port had been sold as charged but that the drug store was in the active business of selling this preparation, having, in

The collage consists of several overlapping advertisements for various patent medicines and health products. The ads are arranged in a way that some are partially obscured by others, creating a sense of a crowded marketplace of remedies.

- How to Prevent infection from SPANISH INFLUENZA**: A small ad at the top left, featuring the Sozodont logo and text about using a half glass of water to form a foaming, bubbling mouth wash.
- Making a Kolynos Gas Mask To Fight Spanish Influenza When Exposed to Infection**: An ad in the top middle, suggesting the use of absorbent cotton and Kolynos liquid.
- Help Your Health Board Conquer Spanish Influenza by Disinfecting Your Home**: An ad in the middle left, featuring the Lysol logo and text about using Lysol disinfectant.
- Grip**: An ad in the middle right, featuring a hand holding a bottle and text about being safe when you take Grip.
- Influenza Warning! STOP THAT PAIN**: An ad in the bottom middle, featuring a hand holding a bottle and text about stopping pain.
- CRIMSON HEAT**: A small ad at the bottom right, featuring a hand holding a bottle.
- Other ads**: Various other small ads for products like BACARDI RON, INFLUENZA LA GRIPPE, MENTH-ALBA, and Lysol are also visible.

Of course the "patent medicine" manufacturers lost no opportunity of capitalizing the fear of the public in the present epidemic. Here are a few—just a few—advertisements reproduced in miniature. "Fortify yourself" against the Spanish Influenza by "Taking Famous Taulac"—alcohol 16 per cent.! Make a "Gas Mask to Fight Spanish Influenza" by moistening two pieces of absorbent cotton with "Kolynos." Put a "few drops of Liquid Sozodont in a half glass of water," rinse out the mouth with the mixture, and "render pernicious germs harmless." Do you need "a powerful bulwark in preventing and treating" Spanish Influenza? Use "Benetol"! "No germ, no matter how great its strength, can live for an instant" in the presence of "Lysol"; hence, "Help Your Health Board Conquer Spanish Influenza," by the use of this preparation. "Influ-Balm Prevents Spanish Flu"; so, we are told, does "Laxative Bromo Quinine", but, in case you get the disease, you can get "relief in twenty minutes" by the use of "Men-Tho-Eze."

"patent medicines" whose chief and most active ingredient is alcohol, are not slow to avail themselves of the opportunity that presents itself of selling their wares to those who would use them for other than medicinal purposes. Nor is it strange that men who have previously been engaged in the liquor business, but whose business has been destroyed by prohibitory legislation, should seek to cater to their erstwhile customers by marketing liquor camouflaged as "patent medicines." Before the Dominion of Canada went "dry" some of the Canadian provinces had already enacted legislation of that type. Saskatchewan was one of them. Out of that provincial act and its aftermath, came the interesting Kennedy's Tonic Port Case.

Kennedy's Tonic Port was booze, sold as "patent medicine." Its conflict with the law came when a bottle of the preparation was sold at a Regina drug store in November, 1917. The Saskatchewan authorities proceeded against this concern and the drug store proprietors were convicted in March, 1918, and fined \$100; they thereupon appealed the case on the

fact, disposed of almost 700 bottles in a few months, Judge Taylor continued:

"The tonic port is a product or invention of one Joseph Kennedy. He claims to be a graduate of the British Society of Chemical Industry, and to be an expert in alcoholic chemistry. As he put it, he has spent most of a lifetime using alcohol as a solvent. For a period of 18 months, whilst the system of the licensing and sale of intoxicating liquor prevailed in Saskatchewan he was a hotel proprietor and licensee. The formula for the tonic port was, he says, conceived by him about 20 years ago, and was then put on the market by his then employers, whom he stated were a prominent manufacturing firm in the United States, under the name of 'Vitalito,' and it would appear that after the abolition of license in Saskatchewan he conceived the idea of placing this so-called tonic port on the market in Western Canada."

Of the composition of Kennedy's Tonic Port, it was admitted that the base of the preparation was ordinary port wine, to which Kennedy added a mixture which Judge

Taylor said "might best be termed a medical salad." Hyssop, dittany, Peruvian bark, orange peel, anise, coriander seed, genitan, yarrow, nutmeg, thyme, rose leaves—these were but some of the ingredients that were alleged to have been added, in quantities not disclosed, to the port wine. The amount of alcohol, however, was not unknown; it comprised about 16 per cent. by volume. The dose was a wineglassful, "equally efficacious before or after meals." The judge continued:

"As a medical salad this combination might be in great demand. The manufacturer says that it is a palatable mixture. No doubt every taste and palate should be tickled by the many different flavors. If it abhor the thyme for instance, it may find solace in the yarrow. Coriander seed would be delightfully reminiscent of home cooking, the esthetic will recognize the rose leaves. These and the six or more other ingredients in the above list added for their distinctive flavoring virtues and delightful aroma must indeed be designed to satisfy every demand. From cinchona and Peruvian bark, quinin is extracted and the manufacturer suggests that this and the gentian are valuable ingredients as cures for alcohol-

that he had prescribed Kennedy's mixture as a "tonic." Said the judge, further:

"There is some dispute on the evidence as to whether or not there is so much quinin in the mixture that the use of it in doses beyond that prescribed on the label would be or would not be dangerous. A number of reputable witnesses swore that they consumed from half to almost a whole bottle without feeling any effects of quinin, and with the result obtainable ordinarily from drinking port wine. It is to be noted that on the label it is suggested that the use of this tonic port wine produces 'a feeling of buoyancy only attributable to perfect health.' I cannot conceive that any sober-minded person suffering from any known ailment and knowing the contents of the mixture and that it contained the list of drugs which I have enumerated, would take it. It may be that the manufacturer has in some way neutralized in the mixture the effect of the different drugs contained in it. To me it seems that it is simply port wine, plus an obnoxious mixture, and I cannot overlook the fact that the secret of its manufacture lay dormant in Kennedy's mind until the abolition of the license system, and that the time was

then most opportune for its manufacture, and I have no hesitation in holding that the purpose in the manufacture is simply to have put on the market port wine available for purchase without a medical prescription and to circumvent the different provincial enactments preventing the sale of intoxicating liquor. The claim that it cannot be used as a beverage is absolutely refuted in the testimony, and in the quantity sold. . . ."

"On the facts I cannot find that it contains sufficient medication or any treatment to prevent its use as an alcoholic beverage. In fact, my view is that it would have little or no sale except as an alcoholic beverage."

THE JACKSON SENTINEL, MAQUOKETA, IOWA

What "2" Do---You want to know when there is no specific for Influenza

A man is ill. The chilly blasts of fall appear. A sudden drop of temperature—and he still has summer underwear, summer clothes. He chills, he "catches cold," his nose runs and his lungs come acclimated and he has adapted winter inner and outer clothing.

Business has been dull of late—among physicians. It should be otherwise. With thousands going to Europe, business should be rushing for the few with the many who remain—but it isn't. Somehow people are seeing that the army and navy can exist on three drugs, why can't we do the same at home? And they do. The difference is they take the three then selves without parasite, physician or prescription. This puts the doctor business on the gaby-glide.

If it doesn't naturally exist, the doctors artificially make it exist. A new fad, fancy and frill—the Spanish Influenza. Congress has appropriated \$7,000,000 to combat it. Half of the nation are going to be affected, so say physicians. Some darn fool brought back something that was of one male and one female, some weeks ago when it got chilly and he has spread the multi-multiplication of these two orphans all over the United States within three weeks. Some traveler!

Note carefully! Comprehend well! For this is the final and last word—

"EVERY CASE OF INFLUENZA SHOULD GO TO BED AT ONCE UNDER THE CARE OF A PHYSICIAN"

And, say you, dumb and ignorant worm of the earth, what do they do?

Note carefully! Comprehend well! For this is the final and last word—

"THERE IS NO SPECIFIC FOR THE DISEASE"

They tell you to go to bed. They tell you to call a physician. When HE arrives—THERE IS NOTHING HE CAN DO. Yet he asks for pay and insists upon his services being taken. It's a wonderful profession—that of PRACTICING MEDICINE.

The Chiropractic Way to Avoid "Spanish Influenza"—Be Sure Your Backbone is Normal. Refuse to Be Panic Stricken. See Your Chiropractor at Once. Get a Spinal Analysis—and Keep Smiling!

Chiropractor James F. McGinnis.

"Be Sure Your Backbone is Normal"—"Get a Spinal Analysis—and Keep Smiling!" This is "The Chiropractic Way to Avoid Spanish Influenza"—Chiropractor McGinnis says so! Not, of course, that there is any such thing as influenza; it is merely "a new fad, fancy and frill." "If it doesn't naturally exist, the doctors artificially make it exist." Above all—and this is important—"See Your Chiropractor at Once." And this is the sort of stuff that the *Jackson Sentinel* of Maquoketa, Iowa, is willing, for a consideration, to spread the full width of its page, at advertising rates. It's a wonderful "profession"—Chiropractic.

ism. Thus there is a touch of philanthropy, though well concealed, in the salad. . . ."

"The method of manufacture, so far as the manufacturer cares to disclose the valuable secret, would not appear to interfere with the medicinal properties at least of the port wine, into which the combination is added by a method of solution into the alcohol constituent of the wine. It is still port wine, plus something indefinable. The color is that of port wine. One expert on the use of intoxicating liquors said that it tasted to him like ordinary port wine to which had been added a dash of a famous brand of 'bitters.' A number of witnesses who, in the interest of science for the most part, consumed on different occasions from a half to a whole quart bottle at what counsel termed 'a sitting,' deposed that it had a distinctly pleasing taste and produced that feeling of exhilaration which prior to the temperance legislation was recognized as intoxication. As to the aroma, the scientific tests made by counsel in the court room in his efforts to convince the provincial analyst that certain of the exhibits were not in a state of perfect preservation, convince the court that at least in that stage the aroma was strongly reminiscent of a busy bar-room."

Of course the manufacturer claimed that his "tonic port" had valuable medicinal properties and was incapable of being used as a beverage. He admitted that in 1917, the year in which Saskatchewan went "dry," the sales aggregated between \$40,000 and \$60,000, at the wholesale price of 75 cents a bottle. Moreover, like most "patent medicine" makers, he was able to produce at least one doctor who testified in his behalf

Correspondence

IS INFLUENZA TRANSMISSIBLE DURING THE PERIOD OF INCUBATION?

To the Editor:—Sherman Institute is a United States government school for Indian boys and girls under the United States Indian Service, at Riverside, Calif. It is a boarding school, drawing pupils from the western United States, between the ages of 8 and 20, the average being about 15. The entire expense is borne by the United States Indian Service. All of the pupils and about sixty employees are housed in dormitories on the campus, an eighth of a mile square, in an orange-growing district in the city of Riverside, 6 miles from the business center.

September 28, there arrived at the school, in care of a matron, seven Navajo boys and five girls from the San Juan Reservation at Ship Rock, N. M. En route, coming through Arizona, they encountered a woman manifestly ill with influenza. They traveled for several hours in the same sleeper with her.

Monday, September 30, C. D., one of these boys, was taken ill and sent to the school hospital on the grounds. Some intuition suggested to Mrs. Neff, the nurse in charge, that something new had come to the campus and he was immediately isolated for a possible contagion. It was evident later that he had influenza.

The following Wednesday, October 2, influenza burst on us as a storm. On that day, five boys of the party from Ship Rock came to the hospital ill with influenza and with them six other boys and three girls, making fourteen cases the first day. The second day, October 3, twenty-seven were added; October 4, forty-four; October 5, seventy. By the 8th, Tuesday, our total count was 387 cases of typical influenza

INCIDENCE OF INFLUENZA AT SHERMAN INSTITUTE,
RIVERSIDE, CALIF.

	Boys	Girls	Total New Cases	Total to Date
Sept. 30 Immediately isolated	1	...	1	1
Oct. 2	11	3	14	15
Oct. 3	25	2	27	42
Oct. 4	33	11	44	86
Oct. 5	44	26	70	156
Oct. 6	36	41	77	233
Oct. 7	41	44	85	318
Oct. 8	26	43	69	387
Oct. 9	9	30	39	426
Oct. 10	6	17	23	449
Oct. 11-22	33	36	69	518
Totals	265	253	518	
Total pupils present Oct. 1, 1918.....	257*	313	517	
Total pneumonias to October 25.....				52
Total deaths to October 25, all from pneumonia.....				8
Total number of employees and members of families on the grounds.				85
Influenza among employees and families (no pneumonias, no deaths).				34
Total influenza patients on campus.....				552

*Several boys came in early in October. Almost no boys escaped entirely.

of the so-called "Spanish" type. The accompanying chart gives the picture of the incidence of the disease. The last column shows how our fifty-bed hospital was filled to overflowing and four dormitory buildings became emergency hospitals in four days.

CORNELIUS VAN ZWALENBURG, M.D., Riverside, Calif.

AN APPEAL FOR BELGIAN AND FRENCH
PHYSICIANS

To the Editor:—I am writing on the birthday of that splendid patriot and monarch, King Albert of Belgium. I beg to remind my colleagues of the profession that now we shall be able to assist our Belgian and French colleagues who will be going back to their homes—in fact, are now going back to their homes in the territory evacuated by the barbarous Hun.

Money is especially needed now. The large number of instruments that I have acknowledged in THE JOURNAL from time to time have gone forward and more will be welcome; but, after all, the needs of these utterly destitute men can best be met by contributions in money. This money ought also to be forwarded as quickly as possible. I shall hope to send a large Christmas gift to Dr. Depage at LaPanne and the committee in Paris for the Belgian and French physicians, respectively. *Bis dat qui cito dat.*

W. W. KEEN, M.D., Philadelphia.

DEMOBILIZATION OF MEDICAL OFFICERS

To the Editor:—With the big war over—for all are agreed that the signing of the armistice ended the war—although theoretically we are in a state of war until the peace conference concludes its work, a goodly portion, if not a large majority, of the more than thirty thousand physicians in service are anxious to resume their civil status. While it is recognized that there is an immense work ahead of our military establishment and while the army of occupation will require a considerable number of medical officers, it is to be hoped that the War Department will adopt a policy of at least consulting the wishes of medical officers over 40 years of age, with dependents, and dependent on their professional incomes, before continuing them on the active list. Physicians of this age may resume their civil status after an absence of a year or eighteen months practically picking up their business where they left it, whereas if they are to become a part of the army of occupation or are kept on duty in camps throughout this country for the next year or two, they will practically have to reestablish themselves; no

easy matter for the physician beyond 40 years of age. The writer, always an ardent supporter of organized medicine, and appreciating the efforts of the American Medical Association to secure justice on all occasions for its members, urges THE JOURNAL to forcibly bring this matter to the attention of the Surgeon-Generals of the Army and of the Navy. While all due honor and praise should be accorded the younger members of the profession who answered their country's call, it is believed that the greater sacrifice was made by those older men who, in a time of stress, although established in practice and surrounded with young families gave up all that made life dear to them by coming into the military service. These physicians should be returned to a civilian status as rapidly as possible.

(Signed) CADUCEUS.

PROTECTING THE EYES IN INFLUENZA
EPIDEMICS

To the Editor:—The use of an efficient mask to cover nose and mouth has been thoroughly well exploited. Notes are beginning to come in now of nurses and others contracting influenza despite the use of masks and washing of hands. The fact that the eyes are exposed to mouth spray has been generally overlooked, and little reference, if any, has been made to the necessity of wearing some protection for the eyes. It is obvious that the eyes may be directly infected, or that the organisms falling on the eyes may be carried by the tear ducts to the nose, and therefore to the throat and mouth.

I have seen an instance in which diphtheria was contracted by a most careful physician who wore a mask and washed his hands, the fact being that the patient from whom he was taking a culture coughed directly into his eyes. He did not contract diphtheria of the eye, but of the throat. His exposure was limited to one evening when he relieved the regular man in charge of a diphtheria ward. It is well known that in the pneumonic form of the bubonic plague the necessity of precautions to cover the eyes as well as the nose and mouth is thoroughly well established.

H. W. HILL, M.D., St. Paul

Executive Secretary, Minnesota Public Health Association.

DISCONTINUANCE OF COMPATIBILITY TEST
IN SERUM TREATMENT

To the Editor:—Numerous inquiries concerning compatibility tests, etc., have led us to offer the following suggestions for informal publication:

After consultation with reputable laboratory workers in Boston and New York, it was decided to discontinue the compatibility test of the donor's serum with the recipient's corpuscles. It would seem reasonable to believe that in all probability the donor's serum is so rapidly diffused and diluted in the blood stream that hemolysis and agglutination of a dangerous nature will not follow, whereas untoward reactions might result from introducing cells into a concentrated serum as in transfusion. Moreover, we have repeatedly given so-called "incompatible serums" to patients without the slightest untoward symptoms.

Further experience has led us to pool the serum from our donors. This simplifies the preparation and the administration of serum, and apparently gives more uniform results.

One of us, in a recent visit to New York, found physicians using 25 c.c. amounts of serum. Needless to say, in view of the serum therapy of "type" pneumonias, such dosage would hardly be expected to produce results. Our experience in the treatment of eighty cases points to at least 100 c.c. and as high as 200 c.c. of serum every eight hours, till results are obtained.

May we also suggest that the clinician must always be on the alert for a lobar pneumonia, due to a type pneumococcus, for which type serum might be useful.

L. W. MCGUIRE, M.D., and

W. R. REDDEN, M.D., Chelsea, Mass.

Lieutenant-Commander and Lieutenant, Junior Grade, respectively, U. S. Navy.

CONTROL OF THE COUGH IN INFLUENZA

To the Editor:—For the past month I have been on epidemic duty with the United States Public Health Service. Most of the cases that I have seen that have developed pneumonia have been complicated with a most rebellious cough. This has been so common in my own experience and with those with whom I have discussed this epidemic that it has occurred to me that this cough might be one of the causative factors of the pneumonia, either by producing trauma in some part of the respiratory mechanism which acts as an infection atrium, or by so lessening the resistance of the patient through loss of sleep, pain and exertion that he readily picks up the pulmonary infection.

The cough at first seems to be only irritative, for the patient expectorates but little; usually, however, after coughing almost incessantly for two or three days, he begins to spit up fresh blood; in another twenty-four or forty-eight hours this has changed to a typical "prune juice" sputum, with a fever of from 103 to 104 and the physical findings of bronchopneumonia.

In all my cases the cough was controlled completely with diacetylmorphin, from $\frac{1}{12}$ to $\frac{1}{6}$ grain, as circumstances may require. I am sure that a cough that is causing a patient great pain or interfering with sleep should certainly be controlled.

This may be regarded as quite commonplace, but I have seen so many cases in which the cough had not been controlled that perhaps a reminder of a commonplace might prove a decided benefit to the patient.

In this connection let me add that I see many physicians using heavy cough syrups with but little effect on the cough and usually producing nausea and gastric irritation, thereby making proper feeding impossible. Diacetylmorphin in tablet triturate form produces no such side-effects and is always most effective in the control of the cough.

HARRY H. MYERS, M.D., Shelby, Ohio.

"ATTITUDE OF CHRISTIAN SCIENTISTS IN THE PRESENT EPIDEMIC OF INFLUENZA"

To the Editor:—"The churches in Boston were not ordered closed by health authorities—merely requested," writes Walter H. Van Zwoll to THE JOURNAL, November 9. What were the Eddyites waiting for? A club? Mr. Hoover's early requests for food conservation were accepted at once by a large proportion of the American people. The more definite regulations and prohibitions did not appear until some time later. This cheerful compliance was a source of marvel to the New York correspondent of *L'Illustration*, Paris, who thereupon made the flattering comment, "I have said not once but twenty times that this is the best disciplined nation on the face of the earth—a request from the top is all that is necessary."

According to Carl Ackerman, the Eddyites in Berlin also believed in food conservation, but for an altogether different purpose. Immediately after the outbreak of war they laid by in store provisions in such quantities as to cause comment. Evidently "The Lord will provide" was construed as implying that He helps those who help themselves. Even that cheapest form of altruism which expresses itself liberally in assurances that all is well was for the moment possibly adjourned in the hurry to respond to the motivation of the main chance.

C. B. BURR, M.D., Flint, Mich.

A SIMPLE BLOOD STAIN

To the Editor:—Being dependent on a rather uncertain source for distilled water suitable for use with Wright's or Jenner's blood stains, I have finally found a method with which both "power house" distilled water and tap water may be used with success. Neither waters are filtered before use.

Webster's "Diagnostic Methods," Edition 5, and Simon's "Clinical Diagnosis," Edition 9, give different methods of preparing and using Pappenheim's panoptic stain, and by

combining parts of each formula and method I have hit on a stain that is quick, clean and reliable (so far) for blood.

From Simon I make up Giemsa stain thus:

Azur II-eosin	3.0 gm.
Azur II	0.8 gm.
Glycerin, U. S. P. IX	125.0 c.c.
Methyl alcohol, acetone free	375.0 c.c.

Dyes are ground up in the alcohol and added to the glycerin.

To 150 c.c. of the foregoing solution I add 100 c.c. of Jenner's stain (1.5:1) and use thus:

I fix blood smears by immersion in this stain in a Coplin staining jar for one minute, and transfer directly, without shaking or washing, to a Coplin jar containing water, and after from two to five minutes' immersion wash briskly for a few seconds and stand the slide on its end to dry. Blotting is admissible.

Specimens are clear of precipitates, and when distilled water is used a characteristic panoptic picture is shown. Both single and double solutions seem to be stable, the Jenner stain that I use having been compounded seven months ago.

No originality is claimed; but if this method helps some one on a hurry-up job of staining, I shall rest contented.

FRANK W. LACY, Fort Lyon, Colo.

DIPLOCOCCI AS A FURTHER STAGE OF INFLUENZA BACILLI

To the Editor:—I wish to address an inquiry to clinicians and laboratory workers in reference to a conclusion based on studies of influenza. Has it occurred to any worker to associate the gram-positive diplococcus usually found intracellularly and extracellularly with Peiffer's bacilli as a further stage of the bacillus? My investigations have led me to a tentative conclusion that such is the case, analogous to the relationship of the fusiform bacilli and spirochetes in Vincent's angina.

JOHN LEAR, M.D., Allentown, Pa.
Pathologist, Allentown Hospital Association.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

FOLLICULAR OPENING IN EXTERNAL EAR A REMNANT OF BRANCHIAL CLEFT

To the Editor:—A few times I have noted, in adults and in children, a structure that I have never seen named nor described. It is a crypt or follicle or glandular opening in front of the upper portion of the external ear. It has the appearance that a pin prick would have in an inelastic material. In some cases a thick secretion issues from it. It is sometimes bilateral, sometimes unilateral. I presume it is a vestigial organ, but would like to know more about it.

JAMES W. WALKER, M.D., Chicago.

ANSWER.—The condition which is referred to is spoken of in the literature as fistula auris congenita, and is a remnant of the first or second branchial cleft. The fistula is due to an incomplete closure of one of these clefts. There is no connection between the fistula and the middle ear nor with the development of the external meatus. Politzer says it is "a short blind sac lined with epithelium, secreting a milky fluid." The external orifice is situated about one centimeter above the tragus, and one to two centimeters before the helix. If the opening of the fistula becomes occluded the secretion of the sac is retained and it gives rise to a cystic swelling (branchial cyst). The contained fluid may become infected and form pus. Politzer has never observed a bilateral case. The fistula may be accompanied by other anomalies of the ear such as congenital deformities of the external ear.

As a rule, fistula auris congenita does not call for any treatment. If there is a retention cyst or an abscess due to a collection of degenerate epithelial matter, or if there is a foreign body which has gained entrance to the external orifice, the fistulous tract may be laid open and the lining epithelium curetted away.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARIZONA: Phoenix, Jan. 7. Sec., Dr. Allen H. Williams, 219 Goodrich Bldg., Phoenix.
COLORADO: Denver, Jan. 7. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.
DELAWARE: Wilmington, Dec. 10-12. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.
FLORIDA (E): Jacksonville, Dec. 16-17. Sec., Dr. G. A. Munch, 1806 Franklin St., Tampa.
FLORIDA (R.): Miami, Dec. 2-3. Sec., Dr. W. M. Rowlett, Citizens Bank Bldg., Tampa.
HAWAII: Honolulu, Jan. 6. Sec., Dr. J. R. Judd, Honolulu.
ILLINOIS: Chicago, Dec. 9-11. Mr. F. C. Dodds, Supt. of Registration, Springfield.
IOWA: Des Moines, Dec. 10-12. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.
LOUISIANA: New Orleans, Dec. 2-4. Sec., Dr. E. W. Mahler, 730 Audubon Bldg., New Orleans.
MARYLAND: Baltimore, Dec. 10. Sec., Dr. J. McP. Scott, 137 W. Washington St., Hagerstown.
MINNESOTA: Minneapolis, Jan. 7-10. Sec., Dr. Thomas McDavitt, 741 Lowry Bldg., St. Paul.
NORTH DAKOTA: Jan. 7. Sec., Dr. G. M. Williamson, 860 Belmont Ave., Grand Forks.
OHIO: Columbus, Dec. 3-5. Sec., Dr. H. M. Platter, State House, Columbus.
OKLAHOMA: Oklahoma City, Jan. 7-8. Sec., Dr. J. J. Williams, Weatherford.
PENNSYLVANIA: Philadelphia, Jan. 7-9. Sec., Mr. Nathan C. Schaeffer, State Capitol, Harrisburg.
RHODE ISLAND: Providence, Jan. 2-3. Sec., Dr. B. U. Richards, State House, Providence.
SOUTH DAKOTA: Pierre, Jan. 14. Sec., Dr. P. B. Jenkins, Waubay.
UTAH: Salt Lake City, Jan. 6. Corres. Sec., Dr. G. F. Harding, 405 Templeton Bldg., Salt Lake City.
VIRGINIA: Richmond, Dec. 10-13. Sec., Dr. J. W. Preston, 215 S. Jefferson St., Roanoke.
WASHINGTON: Spokane, Jan. 7. Sec., Dr. C. N. Suttner, 415 Old Nat'l Bk. Bldg., Spokane.

Maryland Homeopathic Report

Dr. O. N. Duvall, secretary of the Maryland Homeopathic Board of Medical Examiners, reports that on Jan. 3, 1918, a graduate of the Hahnemann Medical College and Hospital of Philadelphia in 1917 was examined and passed, on July 6, 1918, two 1918 graduates from the same school were examined and passed, and on March 18, 1918, a graduate of the Detroit Homeopathic College in 1901 was licensed through reciprocity with Michigan.

Rhode Island October Examination

Dr. B. U. Richards, secretary of the Rhode Island State Board of Health, reports the practical and written examination held at Providence, Oct. 3-4, 1918. The examination covered 7 subjects and included 70 questions. An average of 80 per cent. was required to pass. Of the 5 candidates examined, 4 passed and 1 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery.....	(1916)		87.5
Harvard University	(1915)		83.6
Tufts College Medical School	(1917)		85.8
University of Vermont	(1918)		93.5
	FAILED		
College of Physicians and Surgeons, Boston.....	(1910)		78.4

Texas Reciprocity Report

Dr. M. F. Bettencourt, secretary of the Texas State Board of Medical Examiners, reports that 43 candidates, including 6 osteopaths, were licensed through reciprocity since Jan. 1, 1918. Fourteen candidates, including 2 osteopaths, were granted verification licenses. The following colleges were represented:

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
University of Arkansas	(1915)		Arkansas
George Washington University	(1913)		Dist. Columbia
Atlanta College of Physicians and Surgeons.....	(1902)		Oklahoma
Chicago College of Medicine and Surgery (1916, 2)	(1917)		Illinois
College of Physicians and Surgeons, Chicago	(1893)		Oklahoma
.....	(1907)		Illinois
Hospital College of Medicine	(1907)		Kentucky
Tulane University	(1908)		Arkansas
University of Maryland	(1893)		Kansas
University of Minnesota College of Phys. and Surg..	(1912)		Minnesota
American Medical College	(1912)		Missouri

Beaumont Hospital Medical College	(1901)	Oklahoma
Kansas City College of Medicine and Surgery.....	(1917)	Connecticut
Kansas City Hahnemann Medical College.....	(1908)	Oklahoma
Kansas City Medical College	(1899)	Missouri
Missouri Medical College	(1898)	Oklahoma
National University of Arts and Sciences.....	(1917)	Missouri
University Medical College of Kansas City	(1898)	Kansas
Eclectic Medical Institute	(1869)	Kansas
Mcharry Medical College	(1914)	Tennessee
Memphis Hospital Medical College	(1898)	Mississippi
.....	(1901)	Arkansas
Sewanee Medical College	(1907)	Oklahoma
Vanderbilt University	(1913)	Tennessee
University of Tennessee	(1889)	Arkansas
.....	(1914)	Mississippi
University of West Tennessee	(1917)	Tennessee
Baylor University	(1916)	Oklahoma

Book Notices

SURGICAL AND WAR NURSING. By A. H. Barkley, M.D., M.C., F.A.C.S., Lecturer at Good Samaritan Hospital Training School for Nurses. Cloth. Price, \$1.75. Pp. 208, with 79 illustrations. St. Louis: C. V. Mosby Company, 1918.

A TEXTBOOK OF PHYSIOLOGY FOR NURSES. By William Gay Christian, M.D., Professor of Anatomy, Medical College of Virginia, and Charles C. Haskell, M.A., M.D., Professor of Physiology and Pharmacology, Medical College of Virginia. Cloth. Price, \$1.75. Pp. 168, with illustrations. St. Louis: C. V. Mosby Company, 1918.

NURSING IN DISEASES OF CHILDREN. By Carl G. Leo-Wolf, M.D., Chief of Clinic for Sick Babies and Children for the Health Department of the City of Buffalo, N. Y. Cloth. Price, \$2.50. Pp. 314, with 72 illustrations. St. Louis: C. V. Mosby Company, 1918.

HYGIENE FOR NURSES. By Nolie Mumey, M.D., Lecturer in Hygiene, Chemistry, and Bacteriology, Logan H. Roots Memorial (City Hospital) Training School. Cloth. Price, \$1.25. Pp. 160, with 75 illustrations. St. Louis: C. V. Mosby Company, 1918.

ESSENTIALS OF DIETETICS. A Textbook for Nurses. By Maude A. Perry, B.S. Cloth. Price, \$1.25. Pp. 159. St. Louis: C. V. Mosby Company, 1918.

These books for nurses have been issued by the publisher in a uniform size and binding.

Dr. Barkley's experience in war nursing is based on service in the Spanish-American War and intimate acquaintance with eminent surgeons recently returned from the European battlefields. All of the illustrations of instruments were lent by a manufacturing house in Cincinnati. This book cannot be said to be an exceptional work.

Christian-Haskell's book on physiology is exceedingly brief, and at that probably not so brief as most nurses would have it. The chapter on the nervous system is quite technical. The others are good.

Leo-Wolf's book is very practical, quite complete and written in simple, direct language. After each chapter is a series of questions for review.

Mumey's book gives the merest outline of hygiene for nurses, and is extremely superficial.

Perry's is a solid work, giving the essentials of dietetics for nurses and following in many respects the book by Strouse and Perry on food for the sick. This book will be of distinct help to nurses.

DISEASES OF THE MALE URETHRA, INCLUDING IMPOTENCE AND STERILITY. By Irvin S. Koll, B.S., M.D., F.A.C.S., Professor of Genito-Urinary Diseases, Post-Graduate Medical School and Hospital. Cloth. Price, \$3 net. Pp. 151, with 123 illustrations. Philadelphia: W. B. Saunders Company, 1918.

After a short recapitulation of the anatomy of the male urethra and its appendages, the author gives a brief abstract of the history of gonorrhea. This is followed by a summary of the modern views on the bacteriology and pathology of gonorrheal urethritis. These chapters while a trifle too concise, contain all the leading points. In his presentation of the treatment of gonorrhea the author forestalls the opposition that most of his confrères probably will offer to some of his therapeutic suggestions by emphasizing that they represent his personal views derived from his individual experience. The notes on the endoscopic findings are the result of careful work, and are accompanied by excellent colored pictures. This cannot be said about the description and illustrations concerning the operations undertaken for the relief of the complications and pathologic sequelae of gonorrheal urethritis. The closing chapters deal along the usual lines with sexual impotence and sterility in the male.

Medicolegal

Jurisdiction Over Recruits Afflicted with Disease

(*In re Traina* (U. S.), 248 Fed. R. 1004)

The United States District Court, Eastern District of New York, in denying an application for a writ of habeas corpus, says that relator Traina applied for the writ, directed to the commanding officer at Camp Upton, who, it was said, held the relator without authority, in that the relator claimed to be afflicted with a disease which he alleged made necessary his discharge from further Army service. He based the application for habeas corpus, in the first place, on the provisions of the selective service act and the rules promulgated thereunder, which direct rejection and discharge from military service of men with diseases and organic troubles which he claimed were less severe than those from which he suffered. But it must be held that this court has no jurisdiction either to consider the physical or medical standards by which persons otherwise eligible are to be judged either for admission to or discharge from the National Army. Such matters are clearly within the jurisdiction of the local and district boards or the Army authorities themselves.

The relator also claimed that the general provisions of Section 1116 of the Revised Statutes of the United States, requiring recruits to be "effective and able-bodied," made it illegal to retain a man suffering from such physical disability in the military forces of the United States, and that this court had power, on a writ of habeas corpus, to enforce the discharge of any one so afflicted. But no authority was cited from which it could be inferred that the court had such general power over the military forces of the United States. Any determination that a person should no longer be retained in the Army must be sought at the hands of the Army itself, even if it be evident that refusal to discharge would be illegal (Section 1342, as amended by Act of Aug. 29, 1916).

More than this, if the decision by the military authorities is adverse to the applicant, the court has no jurisdiction, if that decision is within the jurisdiction of the military authorities to determine. It has always been held, and is believed to be the law, that all such jurisdiction is vested in the military authorities, and that they have complete control and discipline over a man until they see fit to discharge him, if he has been lawfully brought into the service, and if the military authorities have not gone outside of the jurisdiction given them by statute, in administering the affairs of their own commands.

Requiring Drafted Person to Submit to Operation

(*De Genaro v. Johnson* (U. S.), 249 Fed. R. 504)

The United States District Court, Eastern District of New York, says that relator De Genaro, who applied for a writ of habeas corpus, was in the National Army at Camp Upton. He claimed to be suffering from hernia, and raised the contention that both the local board and the examining officers of the Army at Camp Upton were aware of this physical disability, even though the examination by the medical examiners of the local board, and the further examination at Camp Upton, did not result in his rejection for physical disability. In general, the case was like that of Traina, 248 Fed. R. 1004, in which it was held that the selective service law and sections 1116 and 1342 of the Revised Statutes of the United States make the decision of the examining board final so far as an application to the court by way of habeas corpus is concerned. But relator De Genaro raised a further point, as to which no decision seems to have been rendered. He alleged that the physical examination at Camp Upton resulted in his being ordered to undergo an operation to relieve him from the hernia complained of. He refused, and still refused, to submit to this operation, and in consequence of this refusal applied to this court for release through a writ of habeas corpus, alleging that the Army had no authority to hold him, inasmuch as they could not compel him to submit to the operation, and as he was therefore within

the class of persons who are entitled, on physical examination, to be discharged from further military service.

It is evident that the unwillingness of the relator to submit to an operation could be used by a person so disposed as an excuse for further escaping military service, even though he might be willing and anxious to have the operation performed under ordinary circumstances. In any such case the court should not act directly in contravention of the provisions of the selective draft law, by which the findings of the boards and their examiners are final on such questions. The ordinary provisions of the military law then apply, and must be construed in connection with the laws under which the National Army has been created; but if a person were admittedly found to be physically disabled, by an examining board of the Army, and if the Army authorities should refuse to discharge him, for purely arbitrary or disciplinary reasons, the courts have no authority to take testimony, examine into the man's physical condition, on a hearing, and discharge him as held without authority of law, even if the facts appeared as he alleged. The writ must be dismissed, and the relator remanded.

Unconstitutional Laws Providing for Sterilization

(*In re Thomson et al.* (N. Y.), 169 N. Y. Supp. 638. *Haynes v. Lapeer* Circuit Judge (Mich.), 166 N. W. R. 938)

The Supreme Court of New York, Special Term, Albany County, in *re Thomson and others*, composing the board of examiners of feeble-minded criminals and other defectives, reverses the board on its determination to perform vasectomy on one Frank Osborn, an inmate of the Rome Custodial Asylum, 22 years of age, strong physically, who had been an inmate of that institution for several years, and who was in the class known as feeble-minded, and the court grants him an injunction restraining the carrying out of the determination of the board, because the court holds that Chapter 445 of the Laws of New York of 1912, amending the Public Health Law by adding Article 19 thereto, in relation to operations for the prevention of procreation, is unconstitutional. The court says, among other things, Can it be said that the law can direct the physical mutilation of the bodies of those who are in the state's care, and not be concerned with the same class of persons who are in the world at large? It seems clear that Frank Osborn is not given the equal protection of the laws, having in mind many others situated as he is who are not within the walls of a public institution, to which equal protection he is entitled with them. There is afforded to the young man similarly situated as to his physical and mental make-up, who is cared for by his parents in his own home, whose sexual tendencies and capacity may be the same as Osborn's, the protection of the law, which makes it a misdemeanor for any person to assist or take part in the operation of vasectomy on such a subject, while Frank Osborn, because he is an inmate of a state hospital, is not only not protected, but he is subject to such operation without his consent when determination is reached by the board created under this statute. The state has power, many times sustained by the courts, to protect the health, morals and welfare of the people, but such protection cannot be afforded unless it applies to all alike.

The Supreme Court of Michigan, in the case of *Haynes, Superintendent of Michigan Home and Training School, v. Lapeer Circuit Judge*, denies the plaintiff a writ of mandamus to review and reverse an order of the circuit court sustaining an order of the probate judge, refusing to entertain jurisdiction on the plaintiff's petition for a hearing to determine the question of the sanity of an alleged incompetent named Nora Reynolds, confined in the Michigan Home and Training School at Lapeer, and the necessity of performing on her the operation of salpingectomy, under the provisions of Act. 34 of the Public Acts of 1913, on the ground that the act is unconstitutional. The court says that the only question argued or raised in this proceeding against the validity of the law being that it was capricious and discriminating class legislation, there was no occasion to dwell or pass on any suggested underlying medicolegal questions to which the indicated purpose of the law points and which within con-

stitutional limits are for legislative rather than judicial consideration. The court is constrained to concur in the opinion of the circuit judge that this law as framed does not afford, in its scope, those affected by it that equal protection under the laws guaranteed by the constitution, and so limits the class of defectives covered by its provisions as to be clearly class legislation without substantial distinction within constitutional inhibition. What logical connection with the object sought by this enactment has a classification which carves a class out of a class and applies the proposed curative treatment, which it is found the public weal demands and justifies, only to those of the type requiring such exclusive legislation who, by reason of their sequestration under public control, are presumably helpless to work on those now in being or posterity the mischief which the law is framed to eliminate? In this enactment the legislature selected out of what might be termed a natural class of defective and incompetent persons only those already under public restraint, leaving immune from its operation all others of like kind to whom the reason for the legislative remedy is normally and equally, at least, applicable, extending immunities and privileges to the latter which are denied to the former.

Period Employer Must Furnish Medical Services

(*In re McKenna (Maine)*, 103 Atl. R. 69)

The Supreme Judicial Court of Maine holds that in a case in which a claimant under the workmen's compensation act received her injury on September 11, and the industrial accident commission found that "disability" began on September 18, the commission erred in holding that the date of the accident would be considered as of September 18, and ordering that medical bills, not exceeding \$30, covering the fourteen days following September 18, be paid by the employer. The court says that the plain language of the statute restricts the period during which the employer must furnish medical services, etc., to the first two weeks "after the injury," and, while the act is remedial and to be broadly construed, the court finds no authority for the substitution for the word used in the statute of another term used in the same statute with a clearly different meaning. If it is desirable to change the period during which medical services shall be furnished, or to extend the powers of the commission in that regard, legislative action should be had, as was done in Massachusetts. Nor does the court consider that such a rule as that adopted by the commission is necessary to carry out the legislative intent. Its evident purpose was to allow no compensation in the nature of wages for the first two weeks after the injury, at least when the incapacity is partial, and during those two weeks to allow as compensation to the injured employee his medical expenses, to the end that the latter might not for reason of economy delay seeking medical advice, even though the injury might be slight and not immediately incapacitating.

Competent to Give Opinion on Mental Condition

(*Monahan et al. v. Roderick et al. (Iowa)*, 166 N. W. R. 625)

The Supreme Court of Iowa holds that the fact that it appeared in a contest over a will that the physician who had attended the testatrix was not a specialist in mental diseases would not necessarily destroy his expert character, and did not disqualify him from expressing his opinion on the mental condition of the testatrix. The court says that the boundaries of the field of expert knowledge are somewhat indefinite. There are varying degrees also of expert knowledge on any subject. A regular practicing physician is usually regarded as expert, at least to some extent and for some purposes. The court sees no reason to say that he is not qualified as such to give an opinion as to the feeble-minded condition of the patient under his care. It was unimportant that the question in this case asked the opinion of the witness whether the mind of the testatrix was sound, and did not ask whether it was unsound, although the trial court seemed to think that the first form of question was proper while it would not have been proper to ask the witness for an opinion whether the mind of the testatrix was unsound.

Society Proceedings

COMING MEETINGS

American Assn. for S. & P. of Inf. Mort., Chicago, Dec. 5-7.
American Physiological Society, Baltimore, Dec. 30-Jan. 1.
American Public Health Association, Chicago, Dec. 9-12.
Medical Association of Porto Rico, Ponce, Dec. 14-15.
Society of American Bacteriologists, Boston, Dec. 30-Jan. 1.
Southern Medical Association, Asheville, N. C., Nov. 11-14, 1918.

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA

Sixty-Eighth Annual Session, held at Philadelphia, Sept. 23-26, 1918

(Continued from page 1691)

Absence of Clinical Symptoms During Preperforated Stage of Duodenal Ulcers

DR. LEVI J. HAMMOND, Philadelphia: Of fourteen patients operated on during the past two years at the Methodist Episcopal Hospital for perforated duodenal ulcers, not even the frequent complaint of digestive disorder is noted in the histories as occurring during their latent period. In none of them was complaint made of such symptoms as paroxysmal pain, localized tenderness, vomiting, hematemesis, or hyperacidity of the gastric juices. None of the patients were chlorotic or anemic and there was no history of burns or scalds or other serious accidents that could have been a factor in etiology. In most instances the perforations occurred while the patients were at their usual occupations. In one, perforation occurred during the middle of the night while the man was asleep in his bed.

DISCUSSION

DR. M. BEHREND, Philadelphia: It is my experience that many cases of perforation give no symptoms. These cases usually occur in men. They are working and are suddenly seized with terrific pain that overcomes them and the perforation has occurred. On close questioning of these patients a history of gastric disturbance, commonly called "indigestion," is usually received.

DR. JOHN J. GILBRIDE, Philadelphia: It is not uncommon to have cases of perforation without any preperforative symptoms. Vomiting and hemoptysis are rare in duodenal ulcer. About the only symptom one could tie to would be pain. Hyperacidity is not at all diagnostic. Finding occult blood in the stool may be of value.

DR. DONALD GUTHRIE, Sayre, Pa.: I have endeavored to find out whether there is any change in the symptoms during which the perforation occurred and the symptoms that all the patients complain of, but even by asking the most direct leading questions it is impossible to elicit any early ulcer history.

Postoperative Sequelae of Acute Appendicitis

DR. JOHN B. DEEVER, Philadelphia: In 1,700 operations for acute appendicitis there were sixty-six deaths, a mortality of 3.7 per cent. The series included all cases of acute appendicitis with and without preoperative complications directly due to the condition of the appendix or to the involvement of other viscera. Of the complications, fecal fistula occurred in forty-two cases, secondary abscess in thirty and intestinal obstruction in twenty-seven cases. An analysis of the cases of obstruction shows that fully 70 per cent. required drainage at the original operation. There is no doubt that in every case of acute appendicitis requiring drainage operation was delayed beyond the most favorable moment. In the prevention of surgical complications there is nothing more important than to forestall the formation of pus within the peritoneal cavity. A large number of these cases would not have developed adhesions and consequent obstruction if the original appendicular disease had been treated early and no drainage had been required.

DISCUSSION

DR. H. J. DONALDSON, Williamsport: To the post operative sequelae mentioned I wish to add acute renal insuf-

iciency, acute gastric dilatation, and hemorrhage from erosion of drainage tubes. Of the fecal fistula group my experience leads me to believe that the causes are gangrene of the base of the appendix involving some area of the cecum, failure to remove the appendix, erosion of the intestines by the drain and ulcer of cecum due to thrombosis of the blood supply, or extension of gangrenous process. To overcome this occurrence, it has been my habit always to remove the appendix, to free the adhesions to admit of invagination of the cecal wall if gangrenous, and to effect an early change in the position of my drainage to prevent pressure on the bowel or large blood vessels and other important structures. One of the greatest lessons I ever had in drainage tube accidents was the sudden death of a man rapidly recovering from a general peritonitis, who on the seventh day developed a hemorrhage from his iliac artery and died in a few minutes.

Wounds of the Joints, with Especial Reference to Splintage

LIEUT.-COL. ROBERT B. OSGOOD, M. C., U. S. Army, Boston: In any serious engagement, we may expect nearly one half of the severe injuries to involve the bones and joints and among these, the phenomenon of shock is very common. Shock is of first concern and infection is a close second. Perhaps the most common cause of shock is trauma. Infection feeds first on traumatized tissue. Transport must always add trauma to trauma already existing. It becomes the first duty of the surgeon to lessen this trauma by every possible means. Proper splinting materially lessens it. Therefore, proper splinting becomes of first concern. The first essential in good splinting for transport is the comfort of the wounded man. If the splint gives him ease from his wound pain and does not add another discomfort, the first requisite is met. The splints must also fulfil the mechanical purposes for which they are applied. The design of the splints must be simple and their weight light, in order that they may be manufactured in large quantities and be transported easily far up the line to the battalion aid posts. For fractures of the long bones and certain joint injuries it is extremely desirable that they embody the two principles of fixation and traction: Fixation, to protect the injured structures and to retain proper alinement after the alinement has been secured; traction, to bring about muscular relaxation with the object of diminishing pain by inhibiting involuntary contraction, which also results in malposition.

DISCUSSION

CAPT. ROADES FAYERWEATHER, M. C., U. S. Army, Washington, D. C.: The importance of splinting cannot be emphasized too much. It is the first form of specialized treatment that the soldier with a bad fracture receives, and frequently very soon, if not immediately, after his injury. This treatment must frequently be applied by men who have had no experience in medical or surgical work, that is by the corps men, therefore, these methods should be simple and capable of routine application. Every surgeon in the expeditionary force must be his own orthopedic surgeon. It is impossible for the orthopedic surgeon to be in attendance on all these cases; hence the surgeon handling these cases must look on them with an orthopedic eye. He must look to the functional result; he must learn to use these splints and he can do so very easily because of their simplicity.

LIEUT.-COL. ROBERT B. OSGOOD, Boston: In the aftermath of cases coming through England, 30 to 50 per cent. of the cases of deformity filling the military hospitals represents the preventable deformities.

Combating Septicemia with Arsphenamin

DR. SAMUEL R. HAYTHORN, Pittsburgh: Arsphenamin was administered in twenty-nine cases of proved septicemia with seventeen recoveries and twelve deaths. The treatment proved beneficial when used early in septicemias if they were associated with primary foci which were easily accessible to surgical interference. In endocarditis and other conditions in which secondary localizations had become firmly established, arsphenamin was disappointing because it did not affect the localized lesions on the heart valve but appeared to be effective only in the blood stream.

DISCUSSION

DR. HAROLD A. MILLER, Pittsburgh: We have used arsphenamin in fourteen cases. In none did we get any untoward symptoms which we could attribute to the arsphenamin. We have found no contraindications in puerperal sepsis for the use of arsphenamin that are not also contraindications in syphilis or other diseases. In every instance but one in which we gave the arsphenamin we were able to demonstrate a negative blood culture. The patient was a woman with a vegetative endocarditis. In every instance in which the remedy was given before there was a localized area of infection there was a temperature drop in the way of crisis within twenty-four hours. A daily leukocyte count was taken to determine the indication for repeating the dose. In the very virulent cases the leukocyte count was very low in comparison with the illness of the patient. Following the administration, the leukocyte count would increase to 32,000 within from twenty-four to forty-eight hours. In our series one patient died of streptococcic pneumonia, one of multiple abscess of the kidney and one of peritonitis. In our ultimate results we found no untoward effects.

DR. GROVER C. WEIL, Pittsburgh: In a case of staphylococcic septicemia resulting from a compound fracture following considerable traumatism of the wounded surface with fluctuation of temperature between normal and 101 F. for five weeks, the temperature was normal in five days following the administration of arsphenamin and five days later the staphylococci had disappeared from the blood. The man subsequently regained his weight, and in three weeks following the first administration of the arsphenamin there was almost complete union of bone.

DR. S. R. HAYTHORN, Pittsburgh: Following the administration of arsphenamin, an increase in the number of leukocytes was a constant finding. The importance of repeated blood cultures should be emphasized, particularly in the presence of persistent fluctuating temperature. The results in the treatment of endocarditis were discouraging, but Zinsser observes that endocarditis is a secondary infection of the heart valves, and that the vegetations on them act as localizations, from which bacteria may be poured into the blood stream continually. While not arguing that arsphenamin is an ideal drug for the treatment of septicemia, we hope by its careful use to reduce the mortality in blood stream infections.

Physical Examination in the Diagnosis of Early Pulmonary Tuberculosis

DR. LOUIS V. HAMMAN, Baltimore: When 100 men come before us for examination, we know that at least seventy have pulmonary tuberculosis. Of the seventy with signs of pulmonary change, only four or five will develop the disease. Nothing can be more important than to distinguish between tuberculous infection and tuberculous disease. It is impossible to put an absolute value on the physical examination in the diagnosis of pulmonary tuberculosis. It really takes its value from the relations of all the other associated clinical facts. One exception to this statement is in favor of râles. When definite moist râles are limited to an apex this is an almost absolute indication of pulmonary tuberculosis, provided the general evidence points to the presence of the disease. This conclusion may be drawn safely even though at the time of examination the usual symptoms of tuberculous disease are absent. In this important emphasis I mean definite unmistakable fine moist sounds heard at an apex, and not the many adventitious sounds which so frequently puzzle the adept and mislead the novice. So far as tuberculosis is concerned in the war problem, not only the obviously tuberculous should be excluded from active service, but those likely to develop the disease from exposure incident to camp life.

DISCUSSION

DR. ELMER H. FUNK, Philadelphia: Physical signs are valuable only as emphasized by the consideration of history and symptoms. Far more important is the determination whether the disease is clinically active or clinically inactive. We must learn what from the roentgen ray point of view constitutes a normal chest.

DR. CHARLES H. MINER, Wilkes-Barre: The most important question is the relation between the extent of the pul-

monary changes not due to active disease and the probability of developing active disease under conditions of unusual exposure. Nearly 3 per cent. of 5,945 measles patients have developed tuberculosis. There are many occupations with less exposure and in which the risks to a tuberculous individual are much less than in the trenches.

DR. THOMAS McCRAE, Philadelphia: The view expressed by some that the man in the Army is not much exposed to infection is of doubtful accuracy. Regarding pensions, if the Army accepts a man who later is found to have tuberculosis, it seems reasonable that he should be pensioned by the government. I would put as the first consideration of useful points in diagnosis the fact that suspicion is aroused. It is then our business to exclude the possibility, rather than to take the view, for example, that the condition is nothing but bronchitis.

Essential Hypertension

DR. HERMAN O. MOSENTHAL, Baltimore: It is important to recognize this disease, which thus far is characterized by the presence of only one symptom, namely, hypertension. There is no pathologic physiology of the organism of which we are aware that brings about hypertension. It exists in a great number of individuals and usually results in severe lesions of the heart, brain or kidney which cause death. The diagnosis can be made with certainty only when the tests for renal function are available. Treatment involves some of the most intricate questions in metabolism. The effective treatment is prophylaxis. Mental and physical rest seem to constitute the main element in the successful treatment. A diet regulating quantity rather than quality that the heart efficiency may not be interfered with by the distended stomach and that obesity may be forestalled or diminished, accomplishes as great results as are possible through food control. Attention to hygienic instructions may often prolong life to a considerable degree.

DISCUSSION

DR. JAMES M. ANDERS, Philadelphia: Essential hypertension is of great importance because these cases usually terminate in serious cerebral, arterial, cardiac and renal developments. That very fact should make us reserved in classifying the condition as a separate disease entity. The condition, in my experience, is by no means as frequent as certain writers would have us believe. Clinicians have failed to exclude cases in which some cause of hypertension could have been found with sufficiently thorough investigation. We are not justified in making a diagnosis without resort to the tests for renal function. Such tests have revealed insidious developments in the kidney structure, showing that cases of apparent essential hypertension could not be regarded as such. Many of the cases of persistent hypertension in middle aged men in active business given to the pleasures of the table and to excesses in alcohol and tobacco, in my experience, yield to treatment, prolonged rest and correction of the habits of the patient, and should not be classified as belonging to this clinical group of true essential hypertension.

DR. ROSS V. PATTERSON, Philadelphia: An important group of cases of hypertension must be distinguished from the much more common forms due to renal sclerosis, a condition in which the hypertension is the primary change, and in which the changes in arteries and slight changes in kidneys are secondary but with decrease of hypertrophy of the heart. The difference in clinical course is important; also the difference in management, prognosis and treatment. When sclerosis of the kidney is a primary factor renal functional tests are essential to diagnosis of hypertension.

DR. FRANCIS ASHLEY FAUGHT, Philadelphia: It is my firm opinion that the renal function test has very little value; it does not differentiate between a temporary congestion of the kidney and chronic kidney disease, and is, therefore, absolutely useless in the study of a condition of this kind which is the borderline between health and disease. Cases of essential arteriohypertension exist and probably have a cause, which is toxic. If such cases do not exist too long as temporary conditions, they are amenable to relief and cure.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Public Health

October, 1918, 8, No. 10

- 1 *Convalescent Human Serum Treatment of Influenza Pneumonia. L. W. McGuire and W. R. Redden.—p. 741.
- 2 Centralized Health and Relief Agencies in Influenza Epidemic. E. R. Kelley and B. W. Carey, Boston.—p. 744.
- 3 *Open Air Treatment of Influenza. W. A. Brooks.—p. 746.
- 4 Epidemiology and Bacteriology of Influenza. C. A. Darling, Meadville, Pa.—p. 751.
- 5 *Use of Influenza Vaccine in Present Epidemic. T. Leary, Boston.—p. 754.
- 6 Modern Advertising and Nostrum Evil. A. J. Cramp, Chicago.—p. 756.
- 7 Effect of Putrefactive Odors on Growth and on Resistance to Disease. C. E. A. Winslow and D. Greenberg, New Haven.—p. 759.
- 8 Suggested Modifications of Standard Method for Study of Dust Content of Air. H. F. Smyth, Philadelphia.—p. 769.
- 9 Chlorination of Chicago's Water Supply. J. Ericson, Chicago.—p. 772.
- 10 Birth Registration in Connecticut. J. P. Balfe, Hartford.—p. 776.

1. **Convalescent Human Serum Treatment of Influenzal Pneumonia.**—The observation and treatment by McGuire and Redden of over 400 cases of influenzal pneumonia in the Chelsea Naval Hospital has afforded opportunity to compare various methods of treatment with a fair degree of accuracy. The use of serum from convalescent influenzal pneumonia patients was first tried on two patients with a very severe and extensive bronchopneumonia. The result was very encouraging and led to its further use. Thirty-seven patients have been treated with serum. Thirty are convalescent; six are under treatment; one dead. Of the six under treatment, two are much improved; two have received only one injection of serum; two not improved, one of whom is critically ill. Of the thirty convalescents, eight received treatment on the second day of the pneumonia; fifteen on the third day; four on the fourth day; three on the sixth day. Of the six under treatment, three received serum on the second day; two on the third day, and one on the fourth day. The patient who died received the first serum on the fifth day. Convalescent patients were bled as soon as convalescence was well established, the majority within a week or ten days of a drop to normal temperature. The serum was given as early as the diagnosis of the pneumonia complication could be made, so there has been no doubt about the lung involvement.

The dose of serum has varied from 75 to 125 c.c. intravenously and the interval between doses has varied from eight to sixteen hours. Treatment was continued until there was no doubt about the recovery of the patient. The majority of patients received about 300 c.c. Three received only 100 c.c. and two received from 600 to 700 c.c. It was found that there was a marked difference in the potency of the convalescent serum. At least ten out of seventy serums had no effect on patients. Under these conditions the succeeding doses of serum were from other patients. Results from this serum are usually obtained in the first twenty-four hours after its use. If no results are obtained in this time, the serum from another donor should be used. An attempt was made to judge the potency of the serum by the amount of lung involvement.

Wassermann tests were made on all donors as soon as possible in order not to waste time on bleeding those who showed a positive reaction. Compatibility tests of donors' serum, with recipients' corpuscles, was made as soon as new cases appeared on the ward. Then usually ten to fifteen serums were tested against the corpuscles of each recipient in order to have plenty of available serum for complete treatment. Blood to the amount of about 800 c.c. was taken from each donor, under sterile precautions; 400 c.c. at a time on two successive days. Thus each donor yielded about 300 c.c. of serum. The blood was allowed to clot at room temperature for about an hour, then plate cultures were made, and the containers placed on ice over night. The separated serum was cleared by centrifugalizing at high speed; then bottled.

and in most cases given the same day. Tricresol (0.30 per cent.) was used only in serum kept over twenty-four hours. Only four patients had chills after the serum injections. All of these received serum containing tricresol, while three others receiving tricresolized serum gave no such reaction. At no time has a donor been inconvenienced by the withdrawal of the above amount of blood. Experience shows that the most beneficial results will be obtained by giving the proper serum within the first forty-eight hours of the pneumonia complication. The authors are convinced that the serum from convalescent influenza pneumonia patients has a decided influence in shortening the course of the disease and in lowering the mortality.

3. Open Air Treatment of Influenza.—Brooks calls attention to the fact that there is apparently great opposition to open air treatment among many of the medical fraternity. Many seem inclined to think that if the windows of a room are open the same object is attained. Many think that the ordinary sun parlor of a hospital is "just as good." The facts are, however, that the patients do not thrive as well in any ordinary hospital, no matter how well it is ventilated, as they do when they are put right out into the open. The objection to the sun parlor is that one gets direct sunlight only during part of the day, whereas the patient who is out in the open gets the direct sunlight all day long. Brooks reports his experience in the treatment of influenza in tents. The efficacy of open air treatment has been proved, Brooks says, and one has only to try it to discover its value. His paper represents the result of study by twelve or fourteen men, who, for a month, practically devoted their entire time to the treatment of influenza and its complications.

5. Use of Influenza Vaccine in Present Epidemic.—Three strains of influenza bacilli obtained from cases during the present epidemic have been used by Leary in the manufacture of vaccine. The prophylactic dose has been 0.5 c.c., 1 c.c. and 1.5 c.c. in three doses at twenty-four hour intervals. The therapeutic dosage has been 0.5 c.c. every twelve hours. Leary suggests that it is probable that all of these doses are too small, notably the therapeutic dose. The percentage of complete protection appears to be high, and there is marked amelioration of symptoms in those who become ill, and pneumonias appear in very few cases. The therapeutic use of vaccines was followed by the best results when large doses were exhibited early in the disease. Leary thinks it should be possible to abort a large percentage of the cases, and prevent the development of pneumonia. After pneumonia has developed, large doses of vaccine have produced excellent results.

Boston Medical and Surgical Journal

Oct. 31, 1918, 179, No. 18

- 11 *Fatigue as Contributory Cause of Pneumonia. W. N. Cowles, Boston.—p. 555.
- 12 Two Infections Caused by Single Carrier. D. M. Lewis, New Haven, Conn.—p. 556.
- 13 Radium Therapy in Hyperthyroidism with Observations on Endocrinous System. W. H. B. Aikins, Toronto.—p. 558.

11. Fatigue as Contributory Cause of Pneumonia.—This investigation was made at the Groton School for Boys at Groton, Mass. The kind of fatigue observed as a cause of pneumonia at this school, Cowles says, is an acute fatigue, due to violent exercise like rowing or running in competitive sports and not mere weariness from everyday activities. The observed instances in which acute fatigue was followed by pneumonia were in boys already subject to, or convalescent from, mild respiratory infections and presumably easily tired. That acute fatigue was a contributing cause of pneumonia at Groton, seems more than suggested. Pneumonia was confined to boys given to athletic tasks and sports. Between 4 and 5 per cent. of them had it each year for three years. It came to an end when boys ailing or convalescent were shielded from fatigue. The persons associated with the boys in the school and the high school pupils, near by, limiting themselves to everyday activities, did not have pneumonia. Cowles points out that this investigation suggests the operation of the same contributing cause of pneumonia in army camps and elsewhere, and that the disease may be lessened by similar measures against fatigue in persons out of condition.

Georgia Medical Association Journal, Atlanta

September, 1918, 8, No. 5

- 14 Plastic and Cosmetic Surgery. E. D. Highsmith, Atlanta.—p. 91.
- 15 Recent Developments in Laboratory Diagnosis. E. C. Thrash, Atlanta.—p. 94.
- 16 Prostatectomy in Two Stages. W. L. Champion, Atlanta.—p. 95.
- 17 Earache and Deafness. A. B. Mason, Waycross.—p. 99.
- 18 Cholecystitis Papillomatosa Malignum. T. P. Waring, Savannah.—p. 105.

Indiana State Medical Association Journal, Fort Wayne

October, 1918, 11, No. 10

- 19 Indiana Physicians and the War. J. R. Eastman, Indianapolis.—p. 359.
- 20 Medical Profession in the War. F. Martin, Washington, D. C.—p. 361.
- 21 Surgeons of Civil War. G. W. H. Kemper, Muncie.—p. 367.
- 22 Indiana in the War. M. F. Foley, Indianapolis.—p. 369.

Journal of Experimental Medicine, Baltimore

November, 1918, 28, No. 5

- 23 Acid Production Graphically Registered as Indicator of Vital Processes in Cultivation of Bacteria. A. Fischer, Copenhagen, Denmark.—p. 529.
- 24 *Experimental Chemical Pneumonia. M. Wollstein and S. J. Meltzer, New York.—p. 547.
- 25 Effect of Intrabronchial Insufflation of Solutions of Some Inorganic Salts. M. Wollstein and S. J. Meltzer, New York.—p. 551.
- 26 *Spirochetal Flora of Normal Female Genitalia. H. Noguchi and D. J. Kaliski, New York.—p. 559.
- 27 Comparative Study of Experimental Prophylactic Inoculation against *Leptospira Icterohemorrhagiae*. H. Noguchi, New York.—p. 561.
- 28 *Specific Poison in Liver Extracts of Rabbits Inoculated with Typhoid and Prodigiosus Bacilli Intravenously. J. T. Parker, New York.—p. 571.
- 29 Improvement in Method of Isolating and Recovering Bacillus of Cattle Abortion Through Guinea-Pigs. E. W. Smillie, Princeton, N. J.—p. 585.
- 30 *New Thoracic Murmurs Heard with Two New Instruments, Refractoscope and Partial Stethoscope. F. D. Parker.—p. 607.
- 31 New Type of Syringe, Especially Adapted for Intravenous Injections or Aspiration of Blood. J. H. Brown, Princeton, N. J.—p. 623.
- 32 *Experimental Hemochromatosis. P. Rous and J. Oliver, New York.—p. 629.
- 33 *Urinary Siderosis. Hemosiderin Granules in Urine as Aid in Diagnosis of Pernicious Anemia, Hemochromatosis, Other Diseases Causing Siderosis of Kidney. P. Rous, New York.—p. 645.
- 34 Rapid Differential Method for Isolation of Bacillus Influenzae. J. H. Brown and M. L. Orcutt, Princeton, N. J.—p. 659.

24. Experimental Chemical Pneumonia.—Wollstein and Meltzer produced lobar pneumonia in dogs by means of intrabronchial insufflation of a broth culture of a highly virulent pneumococcus Type I, invariably leading to a fatal termination. The pneumococcus insufflated was recovered in pure culture from the solid lung area and the blood of the heart. The next step was to apply chloramin-T solution to the inoculated lung. The plan was to introduce 5 c.c. per kilo of body weight of a 1:10,000 solution intrabronchially two hours after the culture was given, and if the animal survived until the next day or longer, to repeat the injection. Six animals with the experimentally induced pneumonia were given the chloramin-T solution; they were controlled by three untreated dogs. One animal received four, another three, and two others two treatments, while two died after the first dose. Instead of a therapeutic action, the effects of the treatment were rather to intensify the pathologic process. Moreover, death resulted, as a rule, more quickly in the treated than in the control animals.

26. Spirochetal Flora of Normal Female Genitalia.—The results of examinations of the smegma, films, and washings of the genital mucous membranes of normal adult females demonstrated that the number of spirochetes of the female is much greater than that of the adult male, although the varieties present appear to be identical in both. As in the male smegma, *Treponema calligyrum* is encountered here also as the predominating variety in the majority of specimens, while *T. minutum* is present almost constantly but in fewer numbers. The coarse *Spirocheta refringens* has been found less frequently here than in male smegma.

28. Specific Poison in Liver Extracts of Rabbits Inoculated with Typhoid and Prodigiosus Bacilli.—The experiments described by Parker make it probable that part, at least, of the intoxication produced in rabbits by injections of *B.*

typhosus or *B. prodigiosus* is due to liver poisons of the nature of those dealt with here and which appear to be yielded to the blood by the liver, and then absorbed by the various tissues. Rabbits actively immune to *B. typhosus* or *B. prodigiosus* exhibit a condition of resistance apparently because of having acquired in the process of immunization a tolerance to the liver poison. For it is possible that even if several lethal doses of the bacteria are injected into the immune animal, not more than one lethal dose of the liver poison is produced in a unit of time, an amount which the immune animal can tolerate readily. Whether a similar poison is generated in typhoid in man is a question. Parker says, that cannot now be answered. It seems not impossible that it may play a part in causing the symptoms of toxemia in that disease.

30. **New Thoracic Murmurs Heard with Refractoscope and Partial Stethoscope.**—With these instruments the following facts have been determined by F. D. Parker. The sounds heard through the refractoscope and through the partial stethoscope are different in many respects from those heard in ordinary auscultation. There exist "sound shadows," and of these there are two varieties, respiratory sound shadows and cardiac sound shadows. Heart sounds appear to take on the characteristics of chamber sounds in a degree greater than has been realized; and dilated hearts with poor muscle respond to more harmonics than does muscle with better tonus. The so-called third heart sound, noted by many observers and discussed by both Barie and Thayer, does exist as a true heart sound. It is the sound produced during auricular systole and is heard best at the apex.

There is a cardiac sound which Parker calls the "outflow" sound. The heart is a tube with resonant walls. These walls are set in vibration: (1) while the heart is filling; (2) when the auricle contracts; (3) when the ventricle contracts, thus causing the valves to vibrate; (4) while the ventricle is being emptied; (5) when the semilunar valves close. The flow of blood into the heart is too gentle to cause vibrations sufficient to give rise to audible sound. The second or auricular vibration causes the sound of Barie and Thayer. The third sound is that now termed clinically the first sound. The fourth is Parker's outflow sound. The fifth is the so-called second sound. The outflow sound is heard between the first and second valve sounds of the heart. During this period the outflow sound does not appreciably vary in intensity, but it noticeably rises in pitch. When the ventricle shoots its considerable mass of blood into the great arteries, it is probable that the rushing flood would set the elastic walls in vibration. The outflow sound cannot be a continuation of the so-called first sound, because the intensity of the outflow sound does not perceptibly diminish. In all sounds emanating from the thorax the pleurae are in a state of vibration. Some sounds produced in the more remote parts of the chest are brought to a focus in the apex of the lungs.

32. **Experimental Hemochromatosis.**—In rabbits destroying transfused blood constantly during a period of many months a pronounced and widespread siderosis ensues, practically identical with that characterizing human hemochromatosis. The findings do not indicate the ultimate cause of this disease, but they throw light on its various features and its course, and suggest a means for its diagnosis.

33. **Hemosiderin Granules in Urine as Aid in Diagnosis of Diseases Causing Siderosis of Kidney.**—In diseases which bring about a siderosis of the kidney, there are ordinarily present in the urinary sediment cells containing granules of hemosiderin, and often many free granules as well. The finding has proved useful in the diagnosis of hemochromatosis and Rous suggests that it will probably be of service in the recognition of pernicious anemia, and possibly some other diseases. The fact should be emphasized that urinary siderosis is the indication of a renal condition, not of a disease.

Journal of Infectious Diseases, Chicago

November, 1918, 23. No. 5

- 35 Normal Agglutinins for Different Kinds of Pathogenic Bacteria in Serum of Cold Blooded Animals. M. Takenouchi, Chicago.—p. 393.
- 36 Cytolytic Action of Normal and Immune Serum on Infusoria. M. Takenouchi, Chicago.—p. 396.

- 37 Lysis and Agglutination of Red Corpuscles of Warm Blooded Animals by Normal Serum of Cold Blooded Animals. M. Takenouchi, Chicago.—p. 415.
- 38 *Use of Gold Salts in Treatment of Experimental Tuberculosis in Guinea-Pigs. L. M. DeWitt, Chicago.—p. 426.
- 39 Focal Degeneration of Lumbar Cord in Case of Infantile Scurvy. A. F. Hess, New York.—p. 438.
- 40 *Relationship of Leukocyte Count and Bone Marrow Changes in Acute Lobar Pneumonia. S. S. Samuels and R. A. Lambert, New York.—p. 443.
- 41 *Case of Spirillosis. C. C. Hartman and G. R. Lacy, Pittsburgh.—p. 449.
- 42 *Liberation of Antibodies on Injection of Foreign Proteins. S. F. Herrmann, Minneapolis.—p. 457.
- 43 *Presence of Meningococcus in Blood. K. F. Maxey.—p. 470.
- 44 *Acute Respiratory Diseases Among Troops with Especial Reference to Empyema. L. S. Beals, B. F. Zimmerman and S. B. Marlow, Camp Custer, Mich.—p. 475.

38. **Gold Salts in Treatment of Experimental Tuberculosis.**—From DeWitt's experiments the conclusion is drawn that the treatment of experimental tuberculosis in guinea-pigs with gold salts is not efficacious. No attempt has been made to use these salts in human patients. The tendency to hemorrhage and hyperemia in the gold treated animals and the marked shortening of life on account of the treatment suggest that the treatment of human tuberculous patients with gold is not without danger. Furthermore, the chemical analyses of the organs demonstrate that there is no specific affinity of gold for tuberculous tissues and that the gold in the tissues is probably fixed in the tissue cells in such a form that it cannot inhibit the growth of the tubercle bacillus nor the development of the tubercle even when its concentration in the tissues is much more than sufficient to cause complete inhibition in the test tubes.

40. **Leukocytes and Marrow in Pneumonia.**—Samuels and Lambert made their observations on seventeen cases of acute lobar pneumonia which came to necropsy. Only adults were included in the series, since in the earlier periods of life the bone marrow in the long bones is normally so active that degrees of hyperplasia cannot be easily recognized. A close parallelism in the leukocyte count and the degree of hyperplasia of the marrow was found in less than half of these cases. A few showed relatively inactive or aplastic marrows, with a leukocyte count well above normal. On the other hand, in several cases leukocyte count was persistently low during life, but a markedly hyperplastic marrow was found at necropsy. To explain an aplastic femur marrow associated with a leukocytosis during life there may exist either a hyperplasia of the marrow of the flat bones only—a very improbable condition—or a formation of leukocytes outside the marrow, most probably in the spleen. The presence of large numbers of cells of the myeloid series in the splenic pulp would favor the latter explanation. The cases of marked hyperplasia of the marrow with low leukocyte count are not easily interpreted. The authors could not find evidence in these cases of such rapid spread of the lesion as would account for a low leukocyte count through the draining of these cells out of the circulation.

41. **Case of Spirillosis.**—The occurrence, in a young Italian, of a recurrent fever characterized by acute exacerbations, accompanied by severe secondary anemia, general lymph node involvement, splenomegaly and varying lung symptoms, and the isolation from the blood both during life and at necropsy of a motile curved organism are the salient features of the case cited by Hartman and Lacy. The resemblance to typhoid during the earlier course of the disease was striking save that all of the laboratory tests were consistently negative. The diagnosis of a generalized tuberculosis was not corroborated. The most unusual feature was the sudden enlargement of the lymph nodes with subsidence within a few days to a more nearly normal size. A study of the sections suggests that enlargement was due to a severe inflammation of the intranodal sinuses which healed by granulomatous changes leading to extensive connective tissue development. The progressive secondary anemia was extreme, and there were no evidences of blood regeneration found either in the blood examinations or in the sections of the marrow. The marrow was red but the sections showed the color to be due to necrosis and hemorrhage and not to hyperplasia. The hemosiderin in the liver and spleen as well as

the extreme phagocytosis of red cells in the latter showed that the anemia was due not only to the failure in production of red cells, but also to actual blood destruction in the tissues. The splenomegaly was probably secondary to the anemia. A few small foci of nodular connective tissue, slight edema and the pleural hemorrhages were all that were present at necropsy to explain the lung symptoms. Anatomic changes associated with the diarrhea and general toxic condition were seen in the stomach ulcers, the membrane in the colon and in the necroses of the liver. The main point of interest is, of course, the isolation both before and after death of an actively motile, spirally curved organism from the blood. The spirillum grew equally well aerobically and anaerobically.

42. Liberation of Antibodies by Foreign Protein.—In rabbits sensitized with streptococci Herrman found that a definite liberation of specific opsonins and agglutinins follows the injection of foreign protein. A similar rise in specific opsonins also occurs in rabbits sensitized with meningococci. Foreign protein injections have no effect on antibodies in typhoid immune rabbits. In suitable rabbits, which do not readily produce lysins against sheep corpuscles, the injection of foreign protein within ten days after the injection of antigen is followed by a marked liberation of specific lysins. A variety of foreign proteins can be used. Human serum, typhoid vaccine, human ascitic fluid, and guinea-pig serum proved equally efficacious.

43. Meningococcus in the Blood.—During the epidemic at Camp Beauregard in February, 1918, twenty-seven blood cultures done by Maxcy on patients suspected of being cases of abortive meningococcus infection were negative. A case of meningococcus infection is reported in which the blood stream invasion was transient and the organism quickly localized in the meninges where it yielded to the intraspinal injection of serum. A case of meningococcus septicemia with transient meningeal involvement is reported with recovery only after the injection of large amounts of antimeningococcus serum intravenously.

44. Acute Respiratory Diseases and Empyema.—In a group of 115 consecutive cases of pneumonia and empyema occurring at Camp Custer a definite history of an acute antecedent bronchitis, pharyngitis or tonsillitis was obtained in over 80 per cent. of the cases. In the majority of cases of empyema, a hemolytic streptococcus was the causative organism. During the period of prevalence of empyema, streptococci were demonstrable in the majority of the throats of healthy soldiers (including fresh recruits) as well as of patients entering the hospital with respiratory infections. The mortality was highest (61.5 per cent.) in the cases of empyema following measles, and lowest (22.7 per cent.) in the cases in which empyema was the primary condition. In empyema complicating pneumonia, the mortality was 38.2 per cent.; the mortality of all cases of empyema was 40.5 per cent. At necropsy the outstanding features have been the finding of widespread lesions with a tendency to involve serous membranes, the occurrence of a severe bronchitis in the majority of cases, and a type of bronchopneumonia so distributed as often to resemble closely a lobar process.

The relative incidence of empyema complicating pneumonia was high, one month 50 per cent. of pneumonia cases developing empyema. Of 830 cases of measles (including rubella), 4.4 per cent. developed pneumonia or empyema; of this group, empyema was the primary condition clinically in 70 per cent. of the cases.

Laryngoscope, St. Louis

October, 1918, 28, No. 10

- 45 Conditions Developing in Chronic Suppurative Otitis Media which Should Constitute Basis for Exemption from Military Service. E. B. Dench, New York.—p. 717.
- 46 Method of Analysis of Bárány Tests in Pathologic Cases. L. Fisher, Philadelphia.—p. 724.
- 47 Phonetics in Relation to Speech Defects. M. K. Scripture, New York.—p. 735.
- 48 Suspension Laryngoscopy—An Aid in Removing Foreign Bodies from the Larynx and Esophagus; Report of Cases. W. B. Chamberlin, Cleveland.—p. 744.
- 49 Submucous Resection of Nasal Septum. F. M. Shook, Oakland, Calif.—p. 750.
- 50 Adenocarcinoma of Nose; Four Cases. L. M. Hurd, New York.—p. 757.

- 51 Simplification of Surgical Treatment of Peritonsillar Abscess. T. H. Cates, Little Rock, Ark.—p. 764.

Medical Record, New York

Oct. 26, 1918, 94, No. 17

- 52 Social Responsibilities in Rehabilitation of Disabled Soldiers and Sailors. D. C. McMurtrie, New York.—p. 705.
- 53 Blinded Soldiers as Masseurs in Hospitals and Sanatoria for Reconstruction and Rehabilitation of Disabled Soldiers. S. A. Knopf, New York.—p. 709.
- 54 Medical Explorers and Adventurers. W. Browning, Brooklyn.—p. 712.
- 55 Ipecacuanha and Emetin in Therapeutics. E. W. Koch, Buffalo.—p. 718.
- 56 Colloidal Silver and Gold Treatment of Lobar and Bronchial Pneumonia, Also of Influenza and Its Complicating Pneumonias. W. B. Holden, New York.—p. 720.
- 57 Method of Health Conservation. G. F. Boehme, Jr., New York.—p. 722.

Nov. 2, 1918, 94, No. 18

- 58 Surgical Treatment of Empyema. W. W. Babcock.—p. 751.
- 59 Prevention, Diagnosis, Treatment, Immunity and Cure of Tuberculosis. O. Paget, Fremantle, W. Australia.—p. 754.
- 60 Types of Influenza in Infants and Children Seen in Current Epidemic. L. Fischer, New York.—p. 763.
- 61 Radium Treatment of Psoriasis. D. W. Montgomery, San Francisco.—p. 765.
- 62 Intramuscular Injections of Colloidal Sulphur in Treatment of Rheumatic Conditions. W. L. Secor, Kerrville-on-the-Guadalupe, Texas.—p. 765.
- 63 *Case of Aspirin Habit. D. I. Macht, Baltimore.—p. 767.

63. Case of Aspirin Habit.—Macht cites the case of a man who had a chronic periostitis and osteitis of one tibia, who about two and a half years previously found that a tablet of acetylsalicylic acid (aspirin), 5 grains, gave him distinct relief, and therefore he continued to take the drug for the relief of his symptoms. At the beginning one or two 5-grain tablets were sufficient to keep him comfortable the whole day, but very soon habituation was noted and the patient had to increase the dose. For the past two years he has been taking from five to twelve tablets of the drug daily; in other words, from 25 to 60 grains of the drug have been consumed by the patient every day for nearly two years. In spite of the enormous quantity of the drug consumed, very few toxic symptoms have been noted by the patient himself or found on physical examination. The only features of a slightly abnormal character found were obstinate constipation, slight digestive disturbances, and a rather low blood pressure.

Michigan State Medical Journal, Grand Rapids

October, 1918, 27, No. 10

- 64 Two Cases of Kidney Calculi. J. E. Davis, Detroit.—p. 387.
- 65 Early Diagnosis of Phthisis Pulmonum. J. L. Chester, Detroit.—p. 389.
- 66 Surgical Treatment of Procidencia Uteri. H. Hagerty, Detroit.—p. 391.
- 67 Hemangioma of the Tonsil. C. A. Campbell, Cleveland.—p. 392.
- 68 Outline of the Present Scope of the Public Health Administration in Cities. C. G. Parnall, Ann Arbor.—p. 393.
- 69 Diagnosis and Early Recognition of Typhoid. E. W. Haass, Detroit.—p. 397.
- 70 Aqueous Solution of Liquor Formaldehyd and 2 per cent. Glycerin in the Treatment of Wounds. A. S. Kitchen, Escanaba.—p. 404.

November, 1918, 17, No. 11

- 71 Blood Transfusion in Small Town Hospital—Plea for Its More Frequent Use. W. L. Finton, Jackson.—p. 423.
- 72 Treatment of Bright's Disease. J. H. Dempster, Detroit.—p. 425.
- 73 Extravasation of Urine. W. E. Keane, Detroit.—p. 429.
- 74 Test of Labor. G. Kamperman, Detroit.—p. 434.
- 75 Country Surgery in Country Hospital. W. J. Herrington, Bad Axe.—p. 438.
- 76 *Simplified Method of Aspirating Gastric Contents in Hypersensitive Patients. C. D. Aaron, Detroit.—p. 440.

76. Simplified Method of Aspirating Gastric Contents in Hypersensitive Patients.—Aaron believes that it is possible to strip this procedure of its terrors and inconveniences by not allowing the tube to enter the stomach at all, and yet obtaining a quantity of gastric contents sufficient for chemical and microscopic analysis. In devising this process, he has been guided by a consideration of the anatomic fact that the lower third of the esophagus is normally distended, forming a continuous open lumen. As soon as the stomach tube reaches that part, the cardia, following the law of contrary innervation, becomes relaxed, and as a result the gagging and retching of the patient induces a regurgitation of some of the gastric contents into the esophagus, where

the fenestrated end of the stomach tube is ready to receive it, and whence it is promptly aspirated by the atmospheric vacuum action of the terminal rubber bulb. Thus it is quite unnecessary for the tube to enter the stomach, and the greater the gagging and retching of the patient the easier it is to obtain a sample of the gastric contents. This arrangement also overcomes what has long been considered another difficulty, namely, an abnormally low position of the stomach, where the tube cannot reach the surface of the gastric contents. The reflex effect of the irritation of introducing the tube beyond the tracheal bifurcation causes the contents of the stomach, however low, to regurgitate into the esophagus through the relaxed cardia and thus obligingly meet the receptive stomach tube half way.

Neurological Bulletin

August, 1918, 1, No. 8

- 77 *Cerebral Gliomata, Two Cases. I. J. Sands, New York City.—p. 307.
78 Metastatic Carcinoma of the Skull. Its Roentgenological Diagnosis and Its Frequency. T. Scholz, New York City.—p. 319.
79 Aneurysm of the Internal Carotid Involving the Abducens Nerve. C. A. McKendree, New York City.—p. 322.
80 Osteitis Deformans: Report of Two Cases. S. R. Leahy, New York City.—p. 325.
81 Case of Tumor of the Hypophysis. I. S. Wechsler, New York City.—p. 331.

77. **Cerebral Glioma.**—Sands cites the case of a man suffering from hemiplegia with loss of sphincteric control for about one year prior to his death. He showed general arteriosclerosis, blood pressure, 170 systolic, sluggishly reacting pupils; positive globulin and twelve cells, but negative Wassermann, in the spinal fluid. Mentally, he was somewhat incoherent and rambling; he exhibited patchy amnesia with preservation of personality. Postmortem examination showed a glioma in the right parietal region, cerebral and visceral arteriosclerosis, and bronchopneumonia.

New York Medical Journal

Oct. 26, 1918, 108, No. 17

- 82 Spanish Influenza in Army. C. L. Mix, Camp Mills.—p. 709.
83 General Survey of Influenza Epidemic. R. S. Copeland, New York.—p. 715.
84 Epidemiology and Administrative Control of Influenza. L. I. Harris, New York.—p. 718.
85 Symptomatology of Prevailing Epidemic Influenza. M. Manges, New York.—p. 722.
86 Nervous and Mental Disturbances of Influenza. S. E. Jelliffe, New York.—p. 725. To be continued.
87 Treatment of Influenza. I. W. Voorhees, New York.—p. 728.
88 Complications of Influenza. A. Kahn, New York.—p. 729.
89 Prophylactic Treatment of Influenza for Prevention of Pneumonia. C. M. Bellows, Brooklyn.—p. 730.

Nov. 2, 1918, 108, No. 18

- 90 New York State's Problem of Care of Feeble-minded. W. B. James, New York.—p. 753.
91 Nervous and Mental Disturbances of Influenza. S. E. Jelliffe, New York.—p. 755. To be concluded.
92 *Psychopathic Control of Prostitution. J. O. Cobb, Chicago.—p. 758.
93 Diseased Tonsils and Focal Infection; Report of Cases. H. Rodman, New York.—p. 761.
94 Allen-Joslin Treatment of Diabetes Mellitus. A. Woldert, Tyler, Texas.—p. 764.
95 Few Avoidable Errors. R. H. MacNair, Springfield, Mass.—p. 767.
96 Reflex Convulsions During Dentition. C. Rosenheck, New York.—p. 769.

92. **Psychopathic Control of Prostitution.**—Cobb recommends: 1. The employment of psychopathic investigators for all venereal clinics for the purpose of carefully surveying the mental capacity of all arrested prostitutes, with the end in view of securing legislation in all the states for the custodial care of all chronic prostitutes that can be convicted of any of the mental defects under present statutes. 2. A state wide movement for custodial and probationary control of all convicted prostitutes. 3. A state wide movement to buy farms, and to build reformatories, for custodial and probationary control of all feeble-minded and certain other types of psychic inferiority.

New York State Journal of Medicine

October, 1918, 18, No. 10

- 97 Is Cesarean Section Justifiable in Eclampsia and Placenta Praevia? G. L. Brodhead, New York.—p. 389.

- 98 Two and One-Half Years' Experience with Conservative Treatment of Eclampsia. R. McPherson, New York.—p. 395.
99 Fibroid Tumors of Uterus. E. J. Ill, Newark, N. J.—p. 399.
100 Some Causes of Stillbirth. J. C. Edgar, New York.—p. 406.
101 Establishment and Maintenance of Breast Feeding. J. P. C. Griffith, Philadelphia.—p. 411.
102 Classification and Serum Treatment of Pneumonia at Camp Upton. R. L. Cecil.—p. 414.
103 Physician and Public. H. L. Winter, Cornwall.—p. 418.

Philippine Journal of Science, Manila

September, 1918, 13, Sec. B, No. 5

- 104 *Tissue Invasive Powers of Flagellated and Ciliated Protozoa with Especial Reference to Trichomonas Intestinalis. F. G. Haughwout, Manila.—p. 217.
105 *Various Methods of Serum Application in Bacillary Dysentery. P. T. Lantin, Manila.—p. 261.
106 Portal of Entry in Experimental Chronic Pulmonary (Systemic) Blastomycosis. H. W. Wade.—p. 271.
107 Preservation of Cholera Stool Specimens for Delayed Bacteriologic Examination. C. S. Panganiban and O. Schöbl.—p. 275.

104. **Flagellated and Ciliated Protozoa.**—In the past the attention of parasitologists and physicians has been focused largely on the effects of the parasite on its host—a most natural point of view. But in reviewing the subject, especially in the light of recent evidence, Haughwout says, it is hard to escape the impression that the host, on occasion, may transform an apparently harmless parasite into one that is pathogenic or even lethal to its host. This is entirely apart from conditions of lowered vitality and resistance, which proverbially favor the development of infections of all kinds. He suggests that the term "harmless commensal" has been very much overworked. The case of the intestinal nematode *Ascaris lumbricoides* is in point, and apparently the day is not far distant when the terms "harmless commensal" and "symbiont" will be used in the literature with much greater caution than has been shown in the past. It has long been Haughwout's belief that time would show that all animal parasites that have been regarded as commensals and symbionts in the alimentary tract, if not actually giving rise to lesions, would yet be shown to affect unfavorably the physiologic balance of the host in some way. This paper deals with that thought.

105. **Serum Treatment of Bacillary Dysentery.**—According to Lantin the use of specific treatment seems to be an effective means of checking the progress of the disease in cases of true bacillary dysentery. Of twenty patients whom he has so treated only one patient died. Different methods of administering the serum, namely, intramuscularly, intravenously and by rectum (serum enema), have been employed. Out of seventeen cases in which cultures were made from the feces, six were negative. Of the eleven cases that were found to be positive, two were of the Shiga and one of the Flexner type. Of these twenty cases, five patients were treated medicinally, combined with intramuscular injection of serum, with one death; six patients intramuscularly with no deaths; three patients treated both with intramuscular injections and antidyenteric serum by rectum with no mortality; three patients treated solely with serum by rectum with no deaths; and finally, three patients treated intravenously, with no deaths.

The serum by rectum was given in the following way: The patient was put in the knee chest position. The injection of the serum was preceded by a cleansing enema of 1.5 per cent. solution of sodium bicarbonate; this was followed by another enema of starch solution with a few drops of tincture of opium (60 c.c. with 10 drops of tincture of opium) to diminish the irritability of the intestine; a half hour later the serum was given by rectum. The amount of serum used was from 30 to 50 c.c. daily, depending on the severity of the case, although the serum can frequently be given without any danger and in larger doses. The intramuscular administration of serum was done with the usual aseptic precautions. Twenty c.c. of the serum were given twice a day, usually injected into the buttock. Larger doses may be given, depending, of course, on the severity of the case. Intravenous injection was done by the closed method, and under rigid asepsis into the median basilic vein. To avoid anaphylactic symptoms, 1 c.c. of the serum may be injected intra-

venously about six hours before the full dose is given. Lant's dosage was 10 c.c. every other day.

Public Health Journal, Toronto

October, 1918, 9, No. 10

- 108 Child Welfare in Democracy. J. H. Mullin, Hamilton.—p. 445.
- 109 Tuberculosis; A Public Health Problem. H. W. Hill, London, Ont.—p. 457.
- 110 Public Health Act—Its Scope and Application. F. G. Forbes, Liverpool, N. S.—p. 461.
- 111 Eighteenth Annual Report of Executive Council of Canadian Association for Prevention of Tuberculosis. G. D. Porter.—p. 466.
- 112 Canadian War Experience. P. J. Bench, Toronto.—p. 473.

South Carolina Medical Association Journal, Greenville

October, 1918, 14, No. 10

- 113 Diagnosis of Appendicitis Complicating Pregnancy. G. H. Bunch, Columbia.—p. 250.
- 114 Urinary Calculi; Diagnosis and Treatment. E. C. Baynard, Charleston.—p. 253.

Texas State Journal of Medicine, Fort Worth

October, 1918, 14, No. 6

- 115 Congenital Malformations of Rectum and Anus. F. Paschal, San Antonio.—p. 220.
- 116 Constipation. E. V. Depew, San Antonio.—p. 222.
- 117 Pelvic Infection and Application of Drainage. S. P. Cunningham, San Antonio.—p. 224.
- 118 Indications for Surgical Interference in Cases of Acute Suppurative Conditions of Middle Ear and Mastoid Cells. E. M. Sykes, San Antonio.—p. 226.
- 119 Trachoma; Its Importance as Public Health Problem. A. B. Crain, Belton.—p. 229.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

July-September, 1918, 15, No. 175-177

- 1 *Paratyphoid in Children. E. Stolkind and A. Lorey.—p. 161.
- 2 Tuberculosis as Seen in Public Elementary Schools. J. Priestley and B. Richardson.—p. 183.
- 3 External Eye Diseases of Elementary Schoolchildren. B. Richardson.—p. 201.
- 4 Laceration and Infection of Joints in Children. A. Mitchell.—p. 214.
- 5 Partial Sclerema Neonatorum. G. Pernet.—p. 218.
- 6 Multiple Papillomata of Larynx Removed by Operation (Suspension Method) After Tracheotomy; Death Five Weeks Later from Acute Membranous Tracheitis and Bronchitis. H. Tod.—p. 220.

1. **Paratyphoid in Children.**—Stolkind and Lorey state that a study of the results of postmortem examinations of paratyphoid cases in children and adults, including those reported in the literature and their own cases, shows that the morbid changes have been observed resembling (1) typhoid; (2) acute enteritis, acute gastro-intestinal catarrh, or acute gastritis, etc.; (3) dysentery; (4) those of a transitional form, that is, inflammation of the intestinal lymphatic apparatus (swollen follicles and Peyer's patches, etc.); (5) septicemia. In some cases no changes in the gastro-intestinal canal were found. Stolkind and Lorey have not been able to find a single recorded case of proved paratyphoid in a child in which the lesions, at the necropsy, resembled those typical of typhoid. They also record a case of intra-uterine infection with *B. paratyphosus* B in the blood of a newborn child. The blood culture and positive agglutination showed *B. paratyphosus* B. The mother had had acute gastro-enteritis with fever some time before. Cases are also recorded of the I. typhoid form of paratyphoid; II. gastro-intestinal form of paratyphoid; III. the choleraic form, and IV. influenzal or respiratory form. The clinical history of the disease is described in detail.

In the treatment of a case of paratyphoid the authors point out that the nursing, general hygiene, diet, and in severe cases drugs are of great importance. Generally the authors give liquid food. In mild cases of the typhoid and respiratory forms they allow the older children biscuits, cooked minced meat, etc. Alcohol should not be given in any case. If stimulants are needed, use tea, coffee, caffeine, digitalis, camphorated oil, etc. In many cases of profuse diarrhea, collapse, etc., repeated subcutaneous injections of normal salt solution

(one-half to 1½ liters) were of value. For abdominal distension proper diet is required. Turpentine proved absolutely useless in all cases. For toxic meteorism as well as for bacteriotoxic paralysis of the vessels (with frequent filiform and irregular pulse, dyspnea, general weakness, perspiration, pale or cyanotic skin, and sometimes collapse with fall of the temperature), subcutaneous injections of epinephrin with normal salt solution (six to ten times in twenty-four hours), caffeine and camphorated oil were sometimes of use. Fever should be treated by hydrotherapy (baths not below 85). Intestinal antiseptics have no value. Vaccines may be employed in severe cases.

British Journal of Tuberculosis, London

October, 1918, 12, No. 4

- 7 Early Diagnosis of Tuberculosis in Children. J. C. Macgown.—p. 145.
- 8 *Comparison of Physical Signs in Early or Suspected Pulmonary Tuberculosis in Children, with Results Found on Examination by Fluorescent Screen. A. A. R. Green.—p. 153.
- 9 Misconceptions as to Methods Used in Combating Tuberculosis. E. E. Prest.—p. 157.
- 10 Continuous Inhalation in Treatment of Pulmonary Tuberculosis. C. Muthu.—p. 160.
- 11 Invisible Wound: Plea for Tuberculous Pensioners. H. B. Collins.—p. 162.

8. **Diagnosis of Tuberculosis in Children.**—In twenty-eight of forty cases examined the physical signs and fluoroscopic findings were in accordance; in twelve cases they were at variance.

Edinburgh Medical Journal

October, 1918, 21, No. 4

- 12 Province of Medical Ethics. G. Parker.—p. 191.
- 13 Training of Student of Medicine. Teaching of Neurology. J. J. G. Brown.—p. 207.
- 14 Neurology and Medical Curriculum. E. Bramwell.—p. 209.
- 15 Psychology and Medical Curriculum. B. Hart.—p. 213.
- 16 Teaching of Mental Diseases in Edinburgh. G. M. Robertson.—p. 225.
- 17 Teaching of Psychology to Medical Students. T. A. Ross.—p. 231.
- 18 Teaching of Psychology to Medical Undergraduates. R. D. Clarkson.—p. 240.

Journal of Laryngology, Rhinology and Otology, London

October, 1918, 33, No. 10

- 19 *Serologic Investigation of Vincent's Angina. F. E. Taylor and W. H. McKinstry.—p. 289.
- 20 Intrinsic Cancer of Larynx and Operation of Laryngofissure. I. Moore.—p. 294.
- 21 Rapid Lateral Version of Patient in Tonsil and Adenoid Operations. B. S. Jones.—p. 308.
- 22 Sarcoma of Tonsil. D. Guthrie.—p. 310.

19. **Serologic Investigation of Vincent's Angina.**—In only two cases out of a total of fifty-five cases of Vincent's angina which were examined by the Wassermann test was the reaction positive, the remaining fifty-three cases being negative. The positive character of the reaction in these two cases was not due to the fusospirillary infection of Vincent. In both cases the condition was one of Vincent's angina in a subject of latent syphilis. As a result of this investigation and of a careful and critical consideration of cases recorded in the literature, Taylor and McKinstry have come to the conclusion that the prevailing belief in the occurrence of a positive Wassermann reaction in Vincent's angina has no foundation in fact, and that the two conditions can be differentiated with absolute certainty by the application of bacteriologic and serologic methods; and that when the complement fixation test of Wassermann is positive in cases of Vincent's angina, then a double infection exists, either as a coincident syphilitic and Vincent's infection, or as the occurrence of Vincent's angina in the subject of latent syphilis.

Lancet, London

Oct. 12, 1918, 2, No. 4963

- 23 *Gunshot Wounds of Joints. J. Campbell.—p. 477. To be continued.
- 24 Some Aspects of Infant Feeding. J. C. Drummond.—p. 482.
- 25 *Prophylactic Vaccinations against Catarrhal Affections of Respiratory Tract. J. W. H. Eyre and C. E. Lowe.—p. 484.
- 26 Diagnosis of Early Phthisis. A. Foster.—p. 487.
- 27 Trench Fever: Critical Analysis of Report of American Commission. W. Osler.—p. 496.
- 28 Some Considerations of Tuberculosis Problem. R. C. Wingfield.—p. 500.

23. Gunshot Wounds of Joints.—Gunshot wounds involving joints form something like 4 per cent. of the total number of wounds met with in the present war. Campbell's paper is founded on an experience of over 800 cases and on operative and postoperative treatment carried out in casualty clearing stations and general hospitals. Campbell says that absolute rest and fixation are the essential principles underlying the successful treatment of all joint wounds in their early stages, and their value cannot be overestimated. The best method for securing them, whether for transport or treatment, is by fixed axial extension of the limb in one of Thomas' or Jones' splints, the limbs being supported in it by bands of perforated zinc, the ends of which are turned round the lateral bars; finally, the limb is well padded, covered with Gooch's splinting, and secured in the splint by a firm bandage. To insure an absence of movement during dressings it is essential for as few as possible of the metal supports to be removed, and then only with the greatest care. No movement, however slight, should be permitted. The use of strips of flannel or cotton bandage to support the limb is strongly condemned by Campbell. They are not rigid, and so permit of an appreciable amount of movement in bed and during transport—sufficient to vitiate the result in many of the more serious cases.

The need for rest and fixation by no means begins in the casualty clearing stations; it is essential for them to be secured at the time the patient is wounded or at the next earliest moment possible. Plaster of Paris is sometimes used instead of splints to secure fixation—in late stages of convalescence it is useful to allow of the patient's getting about. But in early septic cases its use is attended with many disadvantages. Chief of all is the impossibility of preventing the plaster from becoming soiled with the septic discharge from the wound; this then forms a center from which the wound is constantly reinfected. Another important disadvantage is that it does not allow of access to the adjacent parts of the limb, thereby preventing all possibility of massage and obscuring any changes in the neighborhood of the joint.

Asepsis should be secured at the time of operation. Dressings should be changed as infrequently as possible for two reasons, (1) the risk of movement, and (2) the risk of fresh infection from without. To insure a good range of movement it is advisable for massage and movement to be begun as early as possible in cases that have run an aseptic course, that is, about the tenth lesion. Cases that have been septic even to only a moderate degree should have been free from all clinical signs of infection for at least three weeks or even longer, according to the degree of sepsis, before movement is resorted to. The appearance of effusion in the joint or of general or local reaction after movement is an indication for a pause in its application.

The resumption of movement in joints where foreign bodies are retained is liable to be attended by trouble that may quite easily cost the patient his limb. Unless the foreign body is removed by operation, movement is best postponed for at least several months. The application of a tourniquet to the limb prior to operation is essential if a uniformly high standard of results is to be obtained. Washing out of the joint cavity, as a routine measure at a primary operation where the joint is laid open, appears useful.

Every attempt should be made when dealing with early wounds to prevent blood accumulations by obliterating all "dead space" and yet allow of drainage of any exudate that may take place. If primary suture is performed, this may be accomplished by careful hemostasis, followed by the application of a very firm bandage. Should, however, the wound be unsuitable for primary suture or, with suture, still show a dead space, these objects can be gained by using as a pack gauze soaked in sterilized liquid paraffin; this is carefully and firmly pushed into every recess and the limb firmly bandaged. The pack exerts pressure, and so helps in hemostasis, and the paraffin hinders coagulation of blood and serum, and so allows of their drainage along the gauze into the more superficial parts of the dressing. Such a pack may be left in situ for two to four days or longer, the superficial parts of the dressing being changed on the first or second day

only if the "dressing has come through." When the pack is removed it may be replaced by paraffinized or dry gauze as required, unless the wound can be entirely closed. The cases in which this treatment yields excellent results are those showing large loss of bone substance involving articular cartilage, and in which the synovial cavity cannot be closed for anatomic reasons.

Unless the wound has been excised en masse, Campbell says, the use of fat grafts to obliterate dead space would seem to be not unattended by risk. Where, however, asepsis can be reasonably guaranteed they yield excellent results. Should any gap be left in an articular surface, one way of obliterating it that yields useful results is to fill it up with a 2 per cent. paste of dichloramin-T in neutral sodium oleate or neutral sodium stearate before closing the joint. A mass of bismuth iodoform petrolatum paste should not be used owing to the risk of bismuth poisoning arising shortly afterward or from the danger of its acting as a foreign body and being extruded later on. Secondary operations in a base hospital are not infrequently required. It is essential to carry them out without removing the splint. To attempt otherwise courts disaster from a recrudescence of septic arthritis with its attendant consequences.

Aspiration is useful in doubtfully infected cases for the purpose of making bacteriologic and cytologic examinations of the joint fluid, but if carelessly performed the damage done to the articular cartilage and synovial lining may immeasurably outweigh the advantages gained. It is advisable to use it as rarely as possible in those cases that are but mildly septic; indeed, here it is scarcely necessary, since the ordinary clinical signs yield information of more practical value for treatment. It is necessary, however, when the intra-articular tension becomes high, otherwise the infection may burst outside the synovial cavity and perhaps track widely along the fascial planes. Exploration and washing out of the joint cavity followed by suture appears to have but a limited application. Such cases as seem suitable for the treatment almost invariably settle down if carefully immobilized in the extended position and left severely alone, aided, perhaps, by aspiration; in those cases in which it is used further operative procedures have nearly always to be resorted to. Should this procedure be adopted, free exit for the fluid should be permitted for fear lest any recesses in the joint cavity that are already locked off by adhesions should be opened up and have sepsis driven into them. All flakes of blood clot, fibrin, and pus should be sought out and removed; finally, the limb is bandaged tightly to prevent exudation and allow of the rapid formation of adhesions.

Morison's bismuth iodoform petrolatum paste seems to have two valuable fields of use: (a) In cases in which a portion of the bone inside the joint has been chiseled away it is advisable to smear a small quantity over the freshly cut surface prior to closing the joint. (b) In cases, for instance, the knee, where, after operation, a large gap that cannot be repaired is left in the joint coverings, accompanied by a more or less extensive loss of subjacent bone involving the articular surface, bismuth iodoform petrolatum paste may be smeared over the entire wound surface after excision and the wound closed so far as possible in layers either at once or by delayed suture, after having carefully obliterated dead space with a paraffinized gauze pack. In the treatment of septic arthritis bismuth iodoform petrolatum paste has been largely advocated and not infrequently adopted. Bismuth iodoform petrolatum paste used in this way inside a joint has a serious drawback; it may be ejected later on as a foreign body and so cause considerable trouble on resumption of movement.

In early cases, after efficient excision of the wound, the Carrel-Dakin method need be adopted only. There is no doubt that simple primary suture or delayed primary suture after using bismuth iodoform petrolatum paste yields the better results. On the other hand, when sepsis develops, in the large majority of cases the Carrel-Dakin method yields the better results. Excision of the joint can be used for either early or late cases, and may be either partial or complete.

Amputation is reserved for: (a) Patients who are too ill to allow of conservative measures being adopted. (b) Cases

in which the comminution of bone is so extensive as to preclude the possibility of successful end-result. (c) Wounds accompanied by severe lesions of the main nerves and muscles. (d) Wounds in the lower limb accompanied by serious damage to the main vessel and in which there is considerable risk of gangrene. (e) Septic cases, in which an extensive osteomyelitis of a large bone, for instance, femur or tibia, is also present.

25. Prophylactic Vaccinations Against Catarrhal Affections of Respiratory Tract.—The vaccine used in this work was prepared in two different strengths, the weaker initial dose being followed ten days later by the second stronger dose; in each instance the volume of vaccine administered amounted to 0.5 c.c. This vaccine was prepared from organisms contained in the secretions of purulent bronchitis and in the sputums of other catarrhal cases among the troops in England. It contained:

Organism	Organisms per 0.5 c.c.	
	First Dose	Second Dose
<i>Pneumococcus</i>	50	100 million
<i>Streptococcus</i>	10	50 million
<i>B. influenzae</i>	10	30 million
<i>Staphylococcus aureus</i>	200	500 million
<i>M. catarrhalis</i>	25	75 million
<i>B. pneumoniae</i>	50	100 million
<i>B. septus</i>	50	100 million

This vaccine was designed to produce an artificial immunity, not only against the first three virulent organisms, which are frequently found present in fatal purulent bronchitis, but also to immunize against the other organisms most frequently found in catarrhal sputums and nasal discharges. There may be no reaction, but in such cases the immunity conferred may be as efficient as in those who react. There may be slight reaction. This is the most likely sequela, and will probably occur during the twenty-four hours following inoculation and, apart from a possible tenderness at site of injection, may produce a mild general malaise, tiredness, stiffness, and slight headache. In cases with existing catarrhal discharges these may be temporarily aggravated. There may be severe reaction. This is not expected except in a small percentage of cases. There will develop during the following twenty-four hours an aggravated condition of the above symptoms, and also probably a rise of temperature and pulse rate. In these cases at least fourteen days should be allowed to elapse before the second dose is given. Severe reactions may possibly occur if the occasion of inoculation happens to coincide with the onset of measles, etc. The immunity conferred will probably not last longer than twelve months, and it should not be forgotten that there is always a certain percentage of persons in whom it appears impossible to produce any immunity.

Results: (a) 2,081 men inoculated with the initial dose. No reaction, 2,033, 97.7 per cent.; slight reaction, 42, 2.0 per cent.; severe reaction, 6, 0.3 per cent.; (b) 1,627 men inoculated ten days later with the second dose. No reaction, 1,607, 98.8 per cent.; slight reaction, 3, 0.7 per cent.; severe reaction, 7, 0.4 per cent. Slight reaction: headache in twenty-four cases; temperature from 99 to 101 in fourteen; sore throat in five; neck stiffness, nausea and fainting in five. Severe reaction: above symptoms more marked and accompanied by temperatures between 101 and 104. In spite of their being so small evidence of immediate reactions there was an increased susceptibility to the prevalent catarrhs of the area. These data show that the extensive use of catarrhal vaccine will not incapacitate troops in training to any appreciable extent. In order to determine whether these inoculated men had gained any appreciable immunity to respiratory catarrhal complaints, the first 1,000 men inoculated, and another selected 1,000 men none of whom had been inoculated with this or any other catarrhal vaccine were watched. It was found that the incidence of the influenza epidemic was appreciably less among the inoculated men than that affecting the average 1,000 of the uninoculated (2 per 1,000, as against 28.4 per average 1,000), a result which amply justifies the prophylactic use of M. C. V. The experimental work on which prophylactic, and still more therapeutic, vaccination was originally based showed clearly that, quite apart from the immediate local and general reactions,

there supervened a period of lowered resistance or increased susceptibility toward infection by micro-organisms of the same species as those constituting the antigen, and that this so-called "negative phase" varied in extent from a few hours to two or three weeks, in accordance with the size of the dose of antigen, the general physical condition of the inoculated subject, and other factors. Fifteen admissions were reported between the administration of the first and second doses of M. C. V., and during the ten days following the injection of the second—much larger—dose of vaccine no less than eighty-two patients were admitted. Of course, most of these were quite trivial, and in the ordinary course of events, and among uninoculated men, would never have been admitted, but, nevertheless, even when heavily discounted, these figures emphasize the reality of the "negative phase," and prompt the suggestion that the initial dose might, with advantage, have been somewhat larger, or preferably that the interval between the two inoculations should have been a few days longer.

Sei-I-Kwai Medical Journal, Tokyo

August, 1918, 37, No. 8

- 29 Granulitis Mycotica. K. Moteki.—p. 29.
30 Bacteriologic Examination of Secretion and Foreign Bodies of Wounds Caused in War. K. Moteki.—p. 31.

Archives Mensuelles d'Obstétrique et de Gynécologie, Paris

April-June, 1918, 7, No. 4-6

- 31 *Possible Mishaps with Radiotherapy. S. Recasens (Madrid) and V. Conill (Barcelona).—p. 81.
32 *Trephining the Newly Born. A. Brindeau.—p. 103.
33 *Puerperal Infection with Diphtheria Bacilli. P. Balard.—p. 135.

31. Mishaps from Radiotherapy.—Recasens and Conill discuss the action of the roentgen and radium rays on the blood, the blood-producing organs, digestive, urinary and nervous systems, the sensory and the endocrine apparatus, on the pregnant, and on toxemia, metastases and dermatitis. They warn of the danger of gangrene when the skin is incised in a region that has been exposed to the roentgen ray. In one of their cases the apparently completely healed laparotomy wound sloughed open three weeks later and it did not heal again for five months. Since then they refrain on principle from roentgen exposure of the exact median zone of the abdomen for fear that a laparotomy might be necessary at some time. The vagina seems to be less susceptible than the skin. There is always a drop in the numbers of leukocytes after roentgen exposures, and they do not return to and somewhat surpass their former figure until after about two weeks. This leukopeny implies lessened powers of resistance, while the leukocytes that have been destroyed release leukotoxins into the blood stream. Toxins are also poured into the circulation when degenerated myomas and cancers are exposed to the rays unless they are well opened and drained. In much debilitated patients this toxemia may prove disastrous.

They warn further that as the primal effect of small doses of the roentgen and radium rays is stimulating, it is important to beware of beginning with small doses which might whip up the malignant disease. They are inclined to accept as an important factor in malignant disease a reduction in the numbers of leukocytes and of connective tissue cells; this suggested the advantage of combining local action of radium with means to stimulate leukocyte action. This they accomplished with diathermy applied to the spleen, and have had surprisingly favorable results with this in cases with such debility that a cure seemed hopeless. The removal of a cancer does not signify a cure so long as the numbers of leukocytes and of connective tissue cells keep low. Sometimes moderate radiotherapy may do great good by increasing these figures although, directly, little influence on the cancer itself is apparent. On the other hand, extremely high doses injure the leukocytes and the connective tissue cells, so that after a phase of transient benefit the cancer progresses more than if nothing had been done.

Rectovaginal fistulas originating from a cancer are permanent, but a fistula of the kind developing from dystrophy under radium treatment of a cancer may heal spontaneously.

They have had this occur in two cases. The bladder tolerates better than the rectum the action of the radium. Good filtering and prudent doses ward off fistulas; they use a brass filter, 1.5 mm. thick, covered with a rubber cot to absorb the secondary rays when the radium is to be used in contact with the sound wall of the vagina. They begin with 70 mg. for twenty-four hours, repeated with 40 mg. with intervals of eight or ten days, up to six or seven applications. Then after a two months' rest the initial dose is repeated. Four months later, if there is still any hard lump, one more application of 60 mg. is made for twenty-four hours. This dosage does not have the inconveniences of strong doses. Too big doses, besides fistulas into the rectum or bladder, are liable to induce necrotic processes, and fuse together the uterus, ovaries, tubes and bladder by an aseptic suppuration with multiple adhesions. Rapid metastasis, occurring with proper dosage, must be regarded as a casual coincidence. They advocate removal of most of the vegetating masses preliminary to the radium exposures to keep down to the minimum the toxemia from absorption. This toxic reaction grows much less with succeeding exposures.

32. Trephining the Newly Born.—Brindeau has done this in four cases; twice for fracture with removal of a sequester, and complete recovery. In the other cases with meningeal hemorrhage of several days' standing, the trephining came too late or necropsy showed already irreparable lesions. The procedure is not so serious as might be supposed; a very narrow opening is enough to correct a depression of the bone. For hemorrhage, he found the operation simple and the drainage perfect, cutting an inverted U shaped flap, the apex just below the parietal protuberance. The groove cut in the bone parallels the radii starting in the parietal protuberance. The dura is incised in this groove. In fifteen hemorrhage cases on record, four of the children were saved. The conditions were exceptionally grave in all. The literature on the subject is reviewed, and four diagrams show the course of the blood vessels to be avoided, especially the anterior region of the dura mater close to the frontoparietal suture. The middle meningeal artery in the newborn slants upward and forward, instead of backward as in adults. There can be no question as to the necessity for immediate correction of any depression in the skull. The depression may occur spontaneously, the contraction of the uterus forcing the head of the fetus against the promontory.

33. Puerperal Infection Due to Diphtheria Bacilli.—Balard reports a small epidemic of eight cases of diphtheritic inflammation and false membranes in the vulva in the Bordeaux maternity. The women's infants were given them only to nurse, and none contracted diphtheria, and no throat cases developed from them, and the infectious process was mild. The epidemic was traced to one parturient with a mild sore throat, the true nature of which was not suspected at the time. There was no fever in any case, and antitoxin was not injected. The false membranes did not yield to any of the usual local measures, but they yielded to one or two local applications of diphtheria antitoxin. In two other cases, at the same time, false membranes developed in the vulva thicker, more confluent and tenacious, and not affected by antitoxin. No diphtheria bacilli were found in them, and they subsided under repeated cauterization with tincture of iodine. The ten women were in the common ward, but were tended by a separate nurse. In the fifty-one cases of vulvo-vaginal diphtheria which he has found on record, only 6 per cent. of the infants contracted diphtheria, and none in the milder cases. By the time the diphtheria is recognized in the mother, the child must have been contaminated, but newborn infants are quite resistant to most infections. In the cases in which an injection of antitoxin was given the infant, its harmlessness was corroborated.

Bulletin de l'Académie de Médecine, Paris

Sept. 17, 1918, 80. No. 37

- 34 *Pseudotuberculosis. F. Barbary.—p. 243.
35 *Popliteal Paralysis. Poujoula and Messropian.—p. 252.
36 *Evolution of Free Grafts. L. Imbert.—p. 257.
37 System for Detection and Care for Repatriated Tuberculous Civilians. L. Bernard and P. Armand-Delille.—p. 259.
38 *Epidemic of Jaundice in Roumania. J. Cantacuzène.—p. 261.

34. Hemorrhagic Spirochete Bronchial and Pulmonary Infection.—Barbary reports two cases which deceptively simulated pulmonary tuberculosis. The sputum was blood stained and extremely fetid, and the microscope revealed the presence of spirochetes. The acute form subsides in a few days and the chronic form does not affect the general health much, and usually yields to arsphenamin. The disease seems to have been brought to France by troops from Indo-China. It is contagious, and requires isolation of the patient and disinfection of the sputum. Differentiation by microscopic examination of the sputum is particularly important as otherwise the cases are labeled tuberculosis.

35. Prosthesis for Popliteal Paralysis.—The light but strong spring device illustrated holds the foot in the axis of the leg, and flexion and extension proceed normally on the contact of the heel with the ground. It is worn inside the ordinary shoe and trouser leg.

36. Free Grafts.—Imbert has never seen unpedunculated grafts of any tissue (except skin) grow in size, but they often become adherent, and newly formed vessels may grow into the interstices, but this does not indicate actual vitality. Only the microscopic determination of living cells, with stainable nuclei, testifies to the persisting vitality of the graft. Even at the best, this vitality is of a low degree, and bone grafts, in his experience, all tended to disintegrate and finally disappeared in the course of a few months.

38. Epidemic Jaundice in Roumania.—An extensive epidemic is described among troops and civilians which presented the characteristics of spirochete jaundice but no spirochetes were found at any time, and bacteria resembling the paratyphoid B bacilli seemed to be the causal agent. There were no deaths except that pregnant women invariably succumbed. Fatty degeneration of the liver and lesions in the suprarenals were the chief findings. Cantacuzène suggests that the paratyphoid B bacilli, in adapting themselves to the organism after anti-typhoid vaccination, may develop into an autonomous jaundice-inducing race which, in its turn, may generate an aberrant clinical type.

Bulletins de la Société Médicale des Hôpitaux, Paris

July 5, 1918, 42. No. 24

- 39 *Elimination of Quinin. J. Baur, Réveillet, Bocca and Tulasne.—p. 706.
40 *Glycosuria after Gastro-Enterostomy. P. Le Noir.—p. 707.
41 *Duodenal Dyspepsia. R. Gaultier.—p. 709.
42 *Research in Duodenal Chemistry. R. Gaultier.—p. 712.
43 *Addison's Disease. Laignel-Lavastine and R. Porak.—p. 715.
44 *Bacteriotherapy of Meningitis. Florand and Fiessinger.—p. 724.
45 Two Cases of Typhus at Paris. Florand and Fiessinger.—p. 730.
46 Smallpox. A. Florand and N. Fiessinger.—p. 734.
47 Three Cases of Spirochete Jaundice at Paris. L. Martin and A. Pettit.—p. 736.
48 Nervous Influenza in Bretagne. P. Merklen.—p. 738.
49 Committee Report on Hospital Medical Courses for Foreign Students. P. Sainton.—p. 739.

39. Elimination of Quinin.—The research done on dogs showed that quinin injected subcutaneously or by the vein diffuses through the organism. The blood soon gets rid of it, and it is eliminated by the kidneys and digestive tract. Part is fastened temporarily by the brain, spleen and liver, but later this is taken up by the blood and eliminated with the rest.

40. Glycosuria After Gastro-Enterostomy.—Le Noir found alimentary glycosuria in a certain proportion of persons who had had gastro-enterostomy done for ulcer at the pylorus. It seems to testify to some insufficiency of the pancreas and duodenum.

41. Duodenal Dyspepsia.—Gaultier reports cases in which chemical tests of the duodenum functioning revealed marked reduction in the amylolytic, trypsinic and steapsin power while the stools showed profuse steatorrhea and deficient bile production. A gastro-enterostomy for ulcer at the pylorus had been done not long before, and the laboratory findings confirmed the clinical impression of duodenal dyspepsia with involvement of the pancreas or of the biliary apparatus or both. The clinical picture included abnormally large or loss of appetite, pains around and above the umbilicus, some-

times most prominent in the liver region, sometimes over the pancreas. With the former they spread to the right shoulder, with the latter to the lumbar region. They came on two or three hours after eating, a sensation of oppression or violent colics with passage of large amounts of gases. Nausea was frequent but vomiting was rare; diarrhea may alternate with constipation. Tympanites two or three hours after eating is a prominent symptom, and deep palpation may reveal tenderness in the duodenal zone. There is a tendency to a muddy complexion, malaise, somnolence, muscular atrophy and weakness, possibly also alimentary glycosuria, and the urea content is reduced as also the proportions between the total sulphur and the incompletely oxidized sulphur. We thus have it in our power now to detect duodenal dyspepsia with a precision hitherto unknown, and thus apply suitable treatment.

42. **Technic for Study of Duodenal Functioning.**—Gaultier uses Fouchet's sensitive test for bile pigments, and pancreatin for testing the pancreatic power. He describes the technic, believing that it has a future, being more exact than Einhorn's method.

43. **Addison's Disease.**—The typical case reported was distinguished by the lesions of the solar plexus and the fact that the suprarenals were free from tuberculosis.

44. **Bacteriotherapy Plus Serotherapy in Meningitis.**—Florand and Fiessinger report a case in which serotherapy for two strains of meningococci failed to benefit as a third strain was involved. An iodized autogenous vaccine was then used, and prompt recovery followed as also in two other cases described, in which the vaccine and serotherapy were used together. In the discussion that followed, Netter related that intramuscular injections often prove useful to supplement the intraspinal in case of meningococcus septicemia. He has also had encouraging results with vaccine therapy in cases rebellious to serotherapy.

Paris Medical

Aug. 24, 1918, 8, No. 34

50 *Treatment of Hemoptysis. Dumarest.—p. 149.

51 *Psychic Contractures. P. Chavigny.—p. 157.

52 Occult Spina Bifida in Adult. Babonneix and Debeyre.—p. 158.

53 Tardy Fulminating Gas Gangrene. L. Courty.—p. 161.

50. **Hemoptysis in Tuberculosis.**—Dumarest reviews the different factors in hemoptysis, ulceration, congestion, high blood pressure and stagnation, emphasizing the different measures required to combat each. The only measures to control hemoptysis are the mechanical, and among these temporary artificial pneumothorax should be included. This insures direct compression and is especially valuable with hemorrhage from an ulceration. The other types of hemoptysis, from congestion, high blood pressure and hypostasis, are comparatively harmless and stop of themselves in the immense majority of cases, or this can be hastened by repose and ipecac, or amyl nitrite to reduce cardiovascular functioning in the cases with congestion, the *type fluxionnaire*. In the cases for which high blood pressure is responsible, dieting, venesection and moderate exercise are indicated. In the hypostatic and dyscrasic type of hemoptysis, tonics to stimulate the cardiovascular system are called for, keeping erect and exercising. As a general thing, aside from emetics, drugs are of dubious efficacy. Unless applied strictly according to the exact indications, they may do more harm than good. In conclusion, Dumarest remarks that in many cases the chief danger from the loss of blood is the risk of retention and infection. Accidents of this kind may be effectually combated by continuous inhalation of oxygen in treatment, or in prophylaxis in all cases of brief hemoptysis.

51. **Contractures After War Wounds.**—Chavigny refers to the hands twisted back on the wrists and other forms of contracture rendering the limb useless after a war wound, which yet did not involve the region directly. He was astonished to find in palpating these cases that the muscles, instead of being contracted, were completely relaxed. But they are in a condition of imminent contracture, and at the slightest attempt to straighten the limb, the muscles tighten and become like iron to retain the contracture. It subsides anew as soon

as the attempts at extension are abandoned. The normal interplay of the muscles has been arrested. This special type of imminent defensive contraction differs entirely from the contracture from a wound of the spinal cord or brain. He says it might be called a *contraction de contradiction*. It seems to be exclusively psychic, which explains the cures realized by Boisseau and D'Oelsnitz, recently mentioned in THE JOURNAL, Feb. 23, 1918, p. 576.

Revue Médicale de la Suisse Romande, Geneva

May, 1918, 38, No. 5

54 *General Physiology of Sense of Gyration. L. Bard.—p. 293.

55 *Prophylaxis of Goiter. C. Roux.—p. 317.

56 *Extension Pincers. F. Forel.—p. 321.

57 *Diverticulitis of the Sigmoid. H. C. Krafft.—p. 325.

54. **Sense of Gyration.**—Bard suggests that we can speak of the sense of gyration as a sixth sense. He shows that it has capacities for adaptation and accommodation like those of the eye and ear. The mechanism of auditory accommodation to distant sounds has a parallel in the differential tension of the two parts of the labyrinth, according to the length of the radius of the gyration. In conclusion he expatiates on the sensations of an emotional order which complete the gyration images. These explain the close connection with the rhythm of sounds, the solidarity of music and dancing. There may yet be developed, he adds, a *musique de la gyration* which will take its place beside the *musique de l'audition*. The perceptions from the sense of gyration have a wide range, from the soothing cradle-rocking to the malaise of seasickness. Like the centers for vision and for audition, the centers for gyration are sensory-motor, and those located in the cortex are closely connected with others in the cerebellum. This connection explains the nature of nystagmus, which is a double reflex action, both cerebral and cerebellar.

55. **Prophylaxis of Goiter.**—Roux insists that goiter can never be cured; when the goiter is recognized it is already too late. Hunziker's idea that goiter is the result of iodine deficit has much to sustain it. An open bottle of tincture of iodine beside the bed at night might yield enough iodine to supply this deficit. Or the schools might have some arrangement to iodize the air in the rooms. Infinitesimal amounts are all that is necessary, and these amounts are the only ones that are harmless. Other measures, addressed to the individual, come too late, Roux reiterates; they are badly managed and often they are dangerous. Goiter must be prevented before any one discovers that the child is a candidate for goiter. Iodine treatment in any form causes loss of flesh, and the still sound parts of the thyroid shrink with the goiterous portion. The immediate symptoms are relieved, and physician and patient are content; no one thinks of connecting disturbances later with the over-zealous treatment.

56. **Extension Forceps.**—A weight is suspended from a chain fastened to the handles of the padded forceps made like ice tongs. The forceps grasp the heel. It is proving a great help in applying a plaster bandage.

57. **Sigmoid Diverticulitis.**—Krafft describes several cases of what seemed to be appendicitis on the left side in elderly persons. Roentgenoscopy explained the disturbances as resulting from an inflammatory process in a diverticulum on the left side. A bismuth or barium suspension has to be injected per rectum as well as taken by the mouth for instructive roentgenoscopy. The chronic course, obstruction and hemorrhages may suggest cancer, and there may be perforation into the bladder. A liquid diet and local application of heat may suffice in some cases, watching over the patient for signs of malignant transformation. Stenosis or acute peritonitis may demand an exploratory laparotomy or artificial anus.

Correspondenz-Blatt für Schweizer Aerzte, Basel

Sept. 14, 1918, 48, No. 37

58 The Declining Birth Rate. H. Guggisberg.—p. 1233.

59 *Mumps Pancreatitis. K. Zimmerli.—p. 1245.

Sept. 21, 1918, 48, No. 38

60 *Influenza; E. Lenz.—p. 1265; P. Demiéville.—p. 1270.

61 Sarcomatous Leiomyoma of Stomach. R. Fritzsche.—p. 1273.

62 *The Suprarenals in the Severely Burned. T. Nakata.—p. 1283.

59. **Mumps Pancreatitis.**—Zimmerli relates that about 25 per cent. of seventy soldiers in a recent epidemic of mumps presented nausea, loss of appetite and tenderness in the epigastrium. These symptoms were so intense by the sixth day in one case that they led to the discovery of pancreatitis as part of the clinical picture. The enlarged and tender pancreas showed vigorous pulsation from the aorta, but in a second case this phenomenon was not observed. It is probable that participation of the pancreas is responsible for the epigastrium symptoms in mumps. There seems to be a tendency to bradycardia in mumps, but none of the men showed any signs of nephritis. A child of 7 developed suddenly acute hemorrhagic nephritis during convalescence from mumps, but it subsided completely in a few days.

60. **Influenza.**—Lenz relates that he tried to have cotton and gauze masks used in his service at Davos during an epidemic in the winter of 1914-1915. They were made on the principle of an ether mask, and proved successful in preventing infection, but the personnel did not take kindly to the innovation. These masks were later used in some Swiss military hospitals. He suggests the possibility that the influenza virus may enter through the conjunctiva.

Demiéville remarks that the war is undoubtedly responsible for the virulence of influenza this year, on account of the repeated passage of the virus through different members of the hosts of men crowded into camps, etc., flocks of refugees, and crowds of industrial and other workers. He warns of the danger from giving drugs with a depressing action, including alcohol, and remarks that the out-of-bed management of pneumonia, strange to say, has always been extolled more by surgeons than by internists. He advocates emphatically, especially when the heart is irregular, to keep the patient sitting up in bed, or in an arm chair, for four or six hours a day—always, of course, having him lifted, without active cooperation on his part.

62. **The Suprarenals with Severe Burns.**—Nakata found the suprarenals evidently suffering from severe toxic action in cases of severe burns in human beings and in guinea-pigs and rabbits. There is evidently severe functional disturbance, sufficient possibly to explain the fatal outcome in some cases.

Gazzetta degli Ospedali e delle Cliniche, Milan

July 11, 1918, 39, No. 55

63 *Suture of Wounds of Face. A. S. D'Emidio.—p. 534.

64 *Plastic Operation on Lower Lip. D. De-Francesco.—p. 538.

July 14, 1918, 39, No. 56

65 Citelli Cell in Mastoiditis. P. Caliceti.—p. 544.

63. **Primary Suture of Lacerated Wounds of the Face.**—D'Emidio recalls that with fracture of the bones in the face, the natural cavities offer exceptionally favorable conditions for drainage at a low point. Hence the skin can be sutured at once in case of a war wound of the face, and the esthetic outcome compensates for the risk. He makes an opening into the adjoining natural cavity, if such does not already exist, and reports two cases which emphasize the advantages of immediate primary suture in these conditions. In both his cases the wound had been incurred the day before.

64. **Plastic Operation on Lower Lip.**—Illustrations are given of a case in which removal of a cancerous nodule just below the lower lip left an almost square hole, the angles at side and top. One of the tongue-shaped pieces of skin above, including the lip, was drawn to slant downward, to fit into the gap below the opposite corresponding flap. This left merely a linear gap shaped something like a Z. The skin was easily drawn up to close this gap, and the detached mucosa of the lip flap utilized to reconstruct the lip. The angular linear scar is now scarcely perceptible, a year later.

Policlinico, Rome

Sept. 15, 1918, 25, No. 37

66 *Plastic Motor Surgery. (Sulle plastiche cinematiche.) G. Egidi.—p. 869.

67 *Treatment of Chronic Urethritis. G. B. Fazzari.—p. 874.

Sept. 22, 1918, 25, No. 38

68 *Silver Nitrate Neutralizes Mustard Gas. G. Amantea.—p. 893.

69 *Modified Technic to Induce Pneumothorax. E. Curti.—p. 895.

70 Skeletal Anomalies and Traumatic Lesions. E. Bussa-Lay.—p. 897.

66. **Plastic Motor Surgery.**—Egidi describes three cases which demonstrate conclusively the ease and simplicity of plastic operations to supply a tunnel lined with sound skin in a position to utilize the muscular energy left in the stump. Two illustrations show the methods.

67. **Treatment of Chronic Urethritis.**—Fazzari applies a cylinder, cut out of a sponge, to the metal catheter, just below the rounding tip. This applies the medication exactly where it is needed and holds it there. The sponge does not show on the catheter as it is covered by a shell. This is removed in two parts when the catheter is in place, as is shown in the illustration. The elastic sponge dilates the urethra and scrapes it clean as the sponge is withdrawn at last. This exerts also a kind of massage, and the *irrigatore porta-spugna* has proved very useful in several years' experience with it.

68. **Silver Nitrate Neutralizes Mustard Gas.**—Amantea is assistant director of the Physiology Institute at Rome, and with many others he has been testing various means to combat the effects of the poisonous gases used in warfare. He has found that a 3 or 5 per cent. solution of silver nitrate seems to modify yperite or mustard gas—dichlorodiethylsulphid—to the point of annulling its toxic action. It does this even when the yperite has been some time in contact with the skin, following the yperite down into the depths of the tissues. He states that even with eye lesions from the yperite, the nitrate solution has proved effectual, but should be used for this in a weaker, 1 per cent. solution for instillation in the eye, or a 0.25 per cent. solution to rinse the eye with and to rinse out small wounds after thorough rinsing with water. With large wounds, a 1 per thousand solution can be used with proper caution. His research was done on animals and on himself. The mustard gas or fluid fastens to the superficial tissues at first and only very gradually works its way inward. The silver nitrate has a similar penetrating action, and in his tests neutralized the poison of the yperite when applied for ten or twenty minutes from one to nine hours later. He warns that the yperite should not be washed off with ether, chloroform or alcohol, as these promote its diffusion in the tissues.

69. **Induced Pneumothorax.**—Curti gives an illustrated description of his modification of the ordinary apparatus for artificial pneumothorax. With it the oxygen of the air is absorbed, leaving the nitrogen for injection.

Riforma Medica, Naples

Sept. 7, 1918, 34, No. 36

71 Dilatation of Pulmonary Artery Revealed by Roentgen Rays. L. Coleschi.—p. 706.

72 *Serotherapy for Surgical Infections. R. Mosti.—p. 709.

73 *The Prevailing Epidemic. G. Sofre.—p. 712.

74 Pyogenic Dermatitis. V. Chirivino.—p. 714.

75 Status of Treatment of Cholelithiasis. E. Aievoli.—p. 715.

76 Status of Epidemic Poliomyelitis. G. Molinari.—p. 717.

72. **Serotherapy in Surgical Infections.**—Mosti relates that he long ago abandoned hypochlorite solutions and all other antiseptics as he obtained far better results with the polyvalent serum made by Lanfranchi and Finzi with many strains of microbes, not excluding anaerobes. He applies the serum locally by the Carrel technic in recent wounds without phenomena indicating sepsis. When there is sepsis, he administers it also by the subcutaneous or intravenous route. The surgical clearing out of the wound must be minutely thorough to begin with. Then the polyvalent serum displays a preventive and curative action against pyogenic bacteria, while it seems to exert a pronounced histoplastic action besides, stimulating tissue repair and permitting early secondary suture. He urges that the advanced posts should be supplied freely with this serum to use it copiously from the very first. He has had no mishaps with it, and all his experience points to its superior efficacy over antiseptics or any other method of treating wounds. The serum is made like the French Leclainche-Vallée serum, originally designed for veterinary use, but more strains of bacteria are used in its preparation. The effect is better in the recent, acute cases. Conditions in the knee are less favorable for this or any treatment than in other joints.

73. Influenza.—Sofre relates that in the epidemic in his region there was active nephritis in all the fatal cases. A tendency to hemorrhages was also noticeable, and repeated epistaxis seemed to induce such a turn for the better that he systematically resorted to venesection in treatment of the severer cases. Considerable albuminuria was constant in the grave cases. Children frequently presented a dysenteriform enteritis.

Rivista Critica di Clinica Medica, Florence

Sept. 7, 1918, **19**, No. 36

77 *Idiosyncrasies to Drugs. I. Civalleri.—p. 421. Commenced in No. 35, p. 409.

Sept. 14, 1918, **19**, No. 37

78 *Influenza. C. Cantieri.—p. 433.

77. Idiosyncrasies to Drugs.—Civalleri remarks that the term medicinal anaphylaxis is coming to be used in place of the old term idiosyncrasy. He discusses the literature on the subject, especially as quinin is involved. Among other instances he cites Pereira's case in which a second injection of quinin, fifteen years after the first injection, induced a train of grave symptoms that could be explained only as anaphylactoid phenomena in a previously sensitized individual. Civalleri has found this assumption confirmed by experiments on guinea-pigs. Serious and sometimes fatal phenomena were induced almost constantly by parenteral injection of quinin in previously sensitized animals in doses which normal guinea-pigs tolerated perfectly. The effects were most pronounced with intervals of from three to twenty days. The minimal sensitizing dose, by the peritoneum, was 0.04 gm. As quinin is not an antigen, and as there is no production of antibodies with it, the reaction is not true anaphylaxis although closely analogous. It may be described as an allergy to a nonantigenic substance; it may be acquired or congenital or inherited.

78. Influenza.—Cantieri describes some cases of postinfluenzal protracted sinusitis, pleural and pulmonary pains, and influenzal apical lesions or diffuse bronchiolitis. In a number of cases he has seen the influenza return during convalescence and run through its course again, suggesting the undulating course of Malta fever.

Archivos Españoles de Enf. del Ap. Digestivo, Madrid

September, 1918, **1**, No. 9

79 *Study of Gastric Juice. L. Usobiaga.—p. 385. Conc'n.

80 *The Gastrocolic Ligament. T. Pujol.—p. 399.

79. Chemistry of Gastric Juice.—Usobiaga compares the various methods in vogue for qualitative and quantitative determination of various elements of the stomach contents after a test meal, explaining the scientific basis for each.

80. Gastrocolic Ligament.—Pujol found the mesocolon and the gastrocolic ligament adherent over a longer or shorter extent in 56.6 per cent. of thirty cadavers. A cavity thus formed between the mesocolon and the ligament may present an actual diverticulum. The latter may be single or multiple, or it may branch, as he shows in several illustrations.

Archivos Españoles de Pediatría, Madrid

June, 1918, **2**, No. 8

81 *Kala-Azar on Mediterranean Coast of Spain. A. Frias.—p. 321.

82 *Operative Treatment of Meningomyelocele. D. F. Iruegas.—p. 350.

81. Kala-Azar in Spain.—Frias relates that in his district he encountered between 1904 and 1907 eight cases in children, from 13 to 18 months, 2, 5 and 6 years old, of a fatal disease which he reported as cases of leukemia or pseudoleukemia. Since then the finding of Leishman bodies in nine similar cases has retrospectively corrected the diagnosis to kala-azar. The disease is not confined to the coast or to malarial regions, and it can easily be mistaken for visceral tuberculosis, syphilis, Malta fever, or malarial cachexia, etc. Puncture of the spleen is the only certain means for microscopic differentiation of this infantile leishmaniasis. In his first series all the children succumbed, but in the others, under iron, arsenic and quinin, the disease was favorably influenced and some of

the children threw it off completely and are in good health three or four years later. He does not specify the doses given. In his experience and in that of others who have been making a study of kala-azar in Spain, the prognosis under proper treatment is thus not so grave as hitherto assumed. He adds that rabbits seem to be susceptible to inoculation of blood from kala-azar children.

82. Meningomyelocele.—Iruegas operated in a case of this kind eight hours after birth, with complete success. At this age no anesthesia is needed; the child did not cry or wince during the operation and it tried to suck when a finger was put in its mouth. The head was kept lower than the pelvis to prevent loss of fluid, and this position was maintained for the first few days afterward. All the nerve elements have to be pushed back into their normal place, when this is possible. In some of his other thirteen cases of the kind, however, he was obliged to leave part of the nerve content of the myelocele outside of the spinal canal. To close the gap, he sutures together the inner lips of the sac around the orifice of communication, then sutures the external lips above this, and thirdly, sutures the meninges at the point where they were opened on a level with the skin. Plastic procedures complicate the technic unnecessarily. The wound should be protected against soiling with some impermeable covering, and the diet should be supervised with special care. His mortality was 40 per cent. at first but has been growing lower since these technical points have been enforced. One child developed hydrocephalus afterward, but this subsided under treatment for syphilis.

Archivos Latino-Americanos de Pediatría, Buenos Aires

March-April, 1918, **12**, No. 2

83 *Bacteriologic Examination of Market Milk. P. Brocca.—p. 89.

84 *Meningitis in Nurslings. C. Pelfort.—p. 106.

85 Typhoid in Child with Hemoglobinuria. A. A. Ugon.—p. 120.

86 *Cephalic Tetanus in Child. A. A. Ugon.—p. 125.

87 Purpura in Paratyphoid. J. Bonaba.—p. 128.

88 Welfare Work for Infants. S. Oliva.—p. 142.

83. Milk at Buenos Aires.—The experimental research described demonstrated that over 11 per cent. of the specimens of market milk were contaminated with tubercle bacilli, and that pasteurization effectually killed them. None of the fifty-six guinea-pigs in one series of tests or of fifty-two in another series developed tuberculosis after being inoculated with milk pasteurized at 85 C.

84. Meningitis in Infants.—Pelfort reports one death in nine cases of cerebrospinal meningitis in infants last year, but three deaths occurred in five more recent cases. Fully 50 per cent. died of the infants only 1 year old or less, while all the other infants recovered. In one of the fatal cases the child had been given 375 c.c. of the antiserum, all but 20 c.c. intraspinally. An induced fixation abscess was followed by transient improvement, but the meningococci seemed exceptionally virulent.

86. Cephalic Tetanus.—Complete facial paralysis developed thirteen days after the boy of 12 had been cut in the malar region by a stone. The paralysis was on the same side and there were intense contractures, opisthotonos and fever. This is the second case of cephalic tetanus in Morquio's service. The boy recovered under 150 c.c. of antiserum with cauterization and iodine sterilization of the already almost healed wound. In the other case the symptoms were very mild but progressed to a fatal termination. Children seem to bear antitetanus serum perfectly, even in large doses.

Gaceta Medica de Mexico

July-December, 1916, **11**, No. 7-12. Pub'd Sept., 1918

89 *Prostatectomy. J. V. Uriarte.—p. 203.

90 *History of Medicine in Mexico. N. Leon.—p. 210.

91 Aphasia. A. A. Loaeza.—p. 286.

92 *Bacteriology of Typhus. O. G. Fabela.—p. 289.

93 *Gonorrhea in Children. I. Prieto.—p. 295.

94 Obstetric Abortion. E. F. Montañón.—p. 300.

95 The Cycle of the Proteins. F. Ocaranza.—p. 307.

96 Operation for Empyema. J. M. Gama.—p. 320.

89. Prostatectomy.—Uriarte remarks that his experience with perineal prostatectomy has been very unfavorable, some

of the patients being left with fistulas and one with a suppurating epididymitis. On the other hand, in five cases in which the suprapubic route was followed, the immediate and the remote results have been fine. The perineal technic has several disadvantages, among them the necessity for leaving a bridge of prostatic tissue. This remnant of tissue may serve as the source for renewed growth, while its presence prevents the bladder from regaining normal tone.

90. **History of Medicine in Mexico.**—Leon's data refer to the period after the university had been founded in 1553 and a medical department organized in 1582. The various documents, theses, etc., have been mostly preserved, and they throw light among other things on the American origin of syphilis. This is sustained by the sudden introduction of descriptions of syphilis into the medical literature at the close of the fifteenth century. There is no proof, however, that the syphilitic lesions found in ancient bones in America date from before Columbus' day. On account of the humidity in Mexico, very few prehistoric bones are found there, and as the burial places have been used for centuries since then, it is impossible to set any date for them. The same may be said of the descriptions of syphilitic lesions in the early Spanish writings in Mexico. The main work of one of these early Spanish writers, Juan de Cardenas, dated 1591, has recently been republished by the Museo Nacional of Mexico. He says of syphilis that nowhere in the world are its ravages so common or so severe as "in the Indias," meaning Mexico. . . . "It reigns there as if it were the fruit of the soil." He adds, "The nature of this contagious *mal de las bubas* is unknown, but it is not a modern disease. It is new to Europe, but I imagine that the Indians here have had it ever since they occupied the country, as it seems to be inherent in the land here on account of the heat and humidity." . . . "The Indians say that a man without some trace of this disease is not an honest man. It is so common here that the absence of bones in the face scarcely attracts a glance." The Inquisition was introduced into Mexico in 1571 and all books brought into the country had to be registered, and the shadow cast by the Inquisition checked the progress of medical science both in Old and New Spain. In 1592 the viceroy of Mexico complained to the king of Spain that "so many useless emigrants were sent out from Spain, *medicos y literatos*, when the demand was for *agricultores e industriales*." Cortez founded a hospital in 1524, placing it in charge of a religious brotherhood, and the early foundation of more than thirty-six others is mentioned.

92. **Plotz' Alleged Typhus Bacillus.**—Fabela was unable to cultivate from the blood of fourteen typhus patients any bacilli resembling in the least Plotz' *Bacillus typhi*.

93. **Gonorrheal Joint Lesions in Infants.**—Prieto reports the cases of three infants of from 5 to 20 months old, with a catarrhal urethritis and multiple joint disturbances. The latter promptly subsided under immobilization alone. The gonococcus was found in the urethra or vulva.

Prensa Medica Argentina, Buenos Aires

Aug. 30, 1918, 5, No. 9

- 97 *Cystic Sarcomas. P. M. Barlaro and A. Buzzi.—p. 89.
98 Atypical Degeneration of Retina in Adult. E. Dameno.—p. 90.
99 *Syphilis with Gastric and Duodenal Ulcers. R. E. Parody.—p. 91.
100 *Syphilitic Banti's Disease. L. L. Resio.—p. 92.

97. **Cystic Sarcoma of the Liver.**—Barlaro and Buzzi have been unable to find on record any case resembling the one they describe. The primary sarcoma was in the ovary, and the metastases in liver and lung were of a cystic type. The cystic tumors looked like giant graafian follicles, as is evident in the four illustrations.

99. **Inherited Syphilis in Etiology of Gastric Ulcers.**—Parody refers to Castex' recent publications on this subject as of fundamental importance. His views were summarized recently on page 320. Parody reports two cases as further evidence of the causal connection between syphilis and gastric ulcer. A young woman had a gastric ulcer and hematemesis, and investigation then revealed signs of inherited syphilis. Her mother had also had hematemesis on several occasions since puberty, and presented various signs of acquired syphilis.

The rapid improvement in the daughter under specific treatment confirmed the diagnosis. For fear of bringing on the hematemesis anew, Parody gave calcium chlorid as a preliminary to the mercurial treatment.

100. **Banti's Disease in a Syphilitic.**—Resio argues that the prompt subsidence of the Banti syndrome under treatment as for syphilis testified to its syphilitic origin.

Revista de Medicina y Cirugia, Havana

Aug. 10, 1918, 23, No. 15

- 101 Bacteriotherapy in Typhoid Group. M. M. Dominguez.—p. 409.

Aug. 25, 1918, 23, No. 16

- 102 *Results of Operations on Biliary Apparatus. J. A. Presno.—p. 439.
103 *Elephantiasis. V. Pardo y Castello.—p. 449.

102. **Remote Results of Gallstone Operations.**—Presno remarks that the principal function of the gallbladder seems to be merely to maintain the balance of pressure in the bile passages. This function can be readily assumed by compensating dilatation of the common bile duct. This has evidently been the case in 18 of his 67 cholecystectomy cases, as there has been no disturbance of any kind from the loss of the gallbladder during the interval of five years or more since the operation. The group includes three women who have passed through normal pregnancies since. In another group of 21 cases, the cholecystectomy was supplemented by operations on the bile ducts, and in no instance have there been any disturbances from the bile apparatus since. In another case, chronic pancreatitis hampered the functioning of the sound biliary passages, and he implanted the gallbladder in the jejunum. All the symptoms, including those from the pancreas soon subsided to permanent recovery. The theoretical danger of ascending infection does not justify, he thinks, needlessly complicated operations in such cases. This patient has been in excellent health during the year to date. In conclusion he reports a case of what seems to be actual recurrence of gallstones.

103. **Elephantiasis.**—One of the three cases illustrated presents various manifestations of filariasis besides the elephantiasis, including chyluria and chylocele. The arms are the main seat of the elephantiasis in this case; in the third case, the scrotum. It reaches 10 cm. below the knees of the tall man.

Revista de Medicina y Cirugia Practicas, Madrid

July 28, 1918, 120, No. 1516

- 104 *Retention of Pancreatic Secretion. L. Urrutia.—p. 97.
105 Sheet Lead in Treatment of Leg Ulcers. S. de Aja.—p. 101.

Aug. 21, 1918, 120, No. 1519

- 106 Relations between the Pathology of the Skin and Internal Pathology. D. E. de Oyarzabal.—p. 193.

104. **Pancreatic Retention.**—Urrutia reports two cases which warn that the absence of the pancreatic ferments from the stools does not inevitably imply insufficiency of the pancreas. The outlet may be merely blocked; the amylase thus disappears from the stools and appears in the urine. The pancreas may become insufficient later from the disturbance in the circulation and sclerosis, but even with a cancer in the pancreas, the sound portion of the pancreas may long function perfectly.

Revista Medica del Uruguay, Montevideo

August, 1918, 21, No. 8

- 107 *Prophylaxis of Anthrax. Committee Report.—p. 435.
108 Febrile Return of Uterine Cancer. F. Cortabarría.—p. 451.
109 *Echinococcus Cysts in Lungs. M. Legnani.—p. 458.
110 *Lethargic Encephalitis. L. Morquio.—p. 463.
111 Case of Cicatricial Stenosis of Larynx. J. C. Munyo.—p. 478.
112 Osteomas of Nasal Fossas. M. Quintela.—p. 481.

107. **Prophylaxis of Anthrax.**—The Sociedad de Medicina of Montevideo appointed a committee of three to study this question, and their report is an able summary of the present status of our knowledge of malignant pustule and means to avoid it. They regard as indispensable for prophylaxis the compulsory vaccination, by experts, of all animals susceptible of contracting anthrax. A certificate of vaccination should be exacted in sales of cattle and products from them, and other measures should be adopted to ensure this. They give a

circular to be posted in workshops, etc., warning of the danger of anthrax as a very grave and frequently fatal disease, and how it is acquired, and how avoided. The neck should be protected against it with special care, as the pustule is particularly dangerous in the neck. They describe a protecting device to be worn when handling hides, which protects against this. The committee refer in conclusion to certain ranches, etc., where vaccination has amply demonstrated its usefulness, without mishaps of any kind, and they reiterate that anthrax will be eradicated when all the susceptible animals are vaccinated. On the other hand, it now is increasing at an alarming rate.

109. Echinococcus Cysts of the Lungs.—Legnani's ten cases teach that this disease should be suspected whenever hemoptysis, small or profuse, develops without anything else to suggest pulmonary tuberculosis or embolism of cardiac origin, even when there is no primary cyst in the liver or elsewhere, and no stethoscopic or radiosopic findings on a single examination. He is convinced that many cases of echinococcus cyst escape detection, and he urges search for signs of it in the sputum, as many pulmonary processes, congestion, pleurisy, chronic bronchitis, etc., may be based on an echinococcus cyst, and simulate tuberculosis by their persistency. The entire absence of signs and symptoms beyond the hemoptysis was most striking in some of his cases, especially in the four boys, 10 to 15 years old, but also in some of the adults. He operated in all the cases, except those with spontaneous vomica and one in which the hemoptysis proved fatal. All the patients were cured at once.

110. Lethargic Encephalitis.—Morquio reports three cases which fit into the clinical frame of lethargic encephalitis as described by Netter, recently, in Paris and by Economo in Vienna in May, 1917. His patients were two girls of 10 and 12, and a boy of 13. All were taken suddenly with headache, fever, convulsions and unconsciousness, the stupor persisting till death the fifth and twenty-third days in the two girls. The boy recovered after a period of lethargy with slight meningeal reaction. Necropsy revealed a congestive and inflammatory process in the brain, superficial and diffuse, with apparently normal cerebrospinal fluid. There was no meningitis, no tumor. One of the children slept constantly as if in normal slumber, except for the ptosis and diplopia, headache and general depression, but no general disturbances and no fever. The somnolency gradually became actual coma, with death the twenty-third day. Tuberculous meningitis was excluded in all by the apparently normal lumbar puncture fluid. Another child presented a somewhat similar picture with somnolency predominating, but necropsy revealed a tumor of the pituitary body.

Semana Medica, Buenos Aires

June 20, 1918, **25**, No. 25

113 The Newly Born. U. Fernandez.—p. 683.

114 Tuberculosis of Hilum of Lung. J. B. Morelli.—p. 686.

June 27, 1918, **25**, No. 26

115 *History of Hygiene in Argentina. J. Penna.—p. 707.

116 *Treatment of Burns. H. Gregorini and O. Ivanishevich.—p. 708.

117 *Gastro-Intestinal Disorder in Infants. R. Cabrera and T. Scanavino.—p. 712. Commenced in No. 17, p. 465.

118 *Campaign against Tuberculosis. E. R. Coni.—p. 721.

115. History of Hygiene in Argentina.—This is the prologue to Coni's book, now on the press, "Memorias de un Médico Higienista." As he was official statistician and a pioneer in matters of public health and demography, as well as in medical education and administration, Penna says that his simple memoirs form practically the history of public hygiene in Argentina.

116. Film Treatment of Burns and Leg Ulcers.—Gregorini and Ivanishevich extol the benefits of film treatment of burns, relating several instances of rapid healing under the protecting film. They incorporate some methylene blue in the film they use, but do not give the formula. Leg ulcers rebellious to all other measures for months healed smoothly under it in about a month. After a hemorrhoid operation, the tube to be introduced for flatus is coated with the film, and the anus is covered with it around the tube. It is also useful after circumcision.

117. Digestive Disturbances in Young Children.—This serial article discusses the clinical picture with overfeeding, specific enteritis, etc. The writers emphasize that the statistics do not reveal all the mortality from injudicious feeding of infants, as the deaths are attributed to intercurrent diseases which the children might easily have weathered if they had not been so debilitated by the digestive disorders. They reiterate that the ignorance of the mothers is the main thing to be combated, and the only way to do this effectually is to teach in the schools the proper care of infants, impressing it on the schoolchildren by repeating the course and amplifying it year after year. Courses for adults should also be organized, as the most important and necessary part of hygiene is that which corresponds to alimentation of all ages. What is learned in childhood makes the most impression, and the lessons of puericulture and hygiene then inculcated will bear the most fruit.

118. Campaign Against Tuberculosis.—Coni reiterates that the campaign against tuberculosis is a function of the state, and that the national, provincial and municipal authorities should all take part in it. In order for it to be efficiently managed, the authorities should place the management in a single hand.

Siglo Medico, Madrid

Aug. 10, 1918, **65**, No. 3374

119 *Changes in Blood with Gastric Ulcer. S. Carro.—p. 633.

120 *Oxygen in Treatment of Rheumatism. C. G. Zabaleta.—p. 638.

121 *Practical Ophthalmology. D. J. and D. E. Wieden.—p. 639.

119. Blood Changes and Gastric Ulcer.—Carro rejects the assumption that hyperchlorhydria is the main factor in gastric ulcer, as ulcer may occur without it, while it may exist without development of ulceration. The composition of the blood and conditions of circulation seem to have more influence on gastric cancer than any other factor. The differential blood count may throw light on the intensity of the process and on the prognosis.

120. Oxygen in Treatment of Rheumatism.—Zabaleta reports that subcutaneous injection of oxygen has been systematically applied for several years and in thousands of patients with different forms of rheumatism, mostly subacute and chronic, at the dispensary in his charge. These experiences, he declares, have established the efficacy of this technic. It is a powerful adjuvant to other measures, and it is absolutely harmless with care to refrain from piercing a vessel. He usually injects 100 c.c. at the site of the pain, sometimes injecting all the larger joints at one sitting, using up 2, 4 or more liters. The blood afterward shows an increase in the reds and hemoglobin, and there is an increased output of urine and its urea content. A few examples are cited to show the great relief afforded, even in severe cases of long standing. One elderly woman with chronic nodular rheumatism for two years in hands and knees was relieved of all pain and inflammation by eight injections of oxygen. The urea output increased by more than double. The oxygen was injected into the dorsum of the hands and was massaged into the fingers. Rheumatic sciatica for two months in an elderly man yielded to ten injections at three day intervals; the improvement was pronounced after the first injection. The injections were made at the points of severest pain, the sciatic foramen and the popliteal and malleolar regions. In many cases of deforming rheumatism the disease seemed to be permanently arrested, besides the relief of all pain.

121. Practical Ophthalmology.—Wieden relates experiences with Barraquer's aspiration extraction of cataract in the capsule. He regards this technic as "one of the greatest achievements of surgery of the eye in current century, as it realizes the ideal operation for which all have been longing." (It was described in THE JOURNAL, June 9, 1917, 1789.)

Hygiea, Stockholm

August 31, 1918, **80**, No. 16

122 History of Medicine in Holland. V. Djurberg.—p. 921.

123 Further Discussion of Poliomyelitis. W. Wernstedt.—p. 955; K. Petren.—p. 964.

Sept. 16, 1918, **80**, No. 17

124 Medicolegal Service in Sweden. A. E. Bastman.—p. 977.

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THE SPECIALIST'S RELATION TO THE AMERICAN MEDICAL ASSOCIATION

AND A PLEA FOR GENERAL GORGAS' RETENTION
IN OFFICE*

GREENFIELD SLUDER, M.D.

ST. LOUIS

When I was elected to this most important and flattering position last year, I felt that there were so many others that could have served the purpose better, that I was sorry for it, but as the year has gone by, I have felt more and more that my privilege was a very high and sacred one, and have done the best I could to merit it.

Rarely, I think, has a chairman had matters of such importance to present to the section. I have two subjects of the greatest interest to all medical men, namely, the position in which the Army medical service at present finds itself,¹ and our relation to the American Medical Association.

SECTION DIFFICULTIES

The second subject that I bring to your attention is our relations with the American Medical Association. I say our relations, by which I mean those of otolaryngologists and ophthalmologists. It seems that, according to the categories of the Association, we are the only ones thought of as specialists; or at least that is the impression that I get from reading the proceedings of the House of Delegates in New York City last year.

So we, as specialists, have a problem to present to the Association. In fact, however, almost every practitioner at the present time, at least the successful professional men in the larger cities, are, in reality, specialists. The whole field of medicine now-a-days is an absolute physical impossibility for any one man to compass satisfactorily and permit himself to say that he can do it all.

The specialties now include not only gynecology and genito-urinary surgery, formerly considered in the same section, but also gastro-enterology, etc.

The number of sections in the present meeting is fifteen. Each of these sections may be said to be a special section; but for some reason, the Trustees

have not considered it so, and have selected us as men more or less outside the pale of interest for the general practitioner; and because our papers are "of no interest to the general practitioner," they propose to leave us out of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

We shall be permitted to meet as a section of the Association, to transact as much or as little business as we please; but our proceedings are to be ignored, as they put it on the ground that the cost of THE JOURNAL has increased very greatly. Later, they passed a resolution declaring all section papers voluntary, and to be edited.

That the cost of everything has increased greatly is familiar to all of us—painfully so. THE JOURNAL has shared in this increase, which might also be shared by us, just as we share in bearing the increased cost of everything else. If the cost of THE JOURNAL is beyond the subscription price of \$5 at the present time, as a matter of business there can be no possible reason given why the price of THE JOURNAL couldn't be raised somewhat to meet the necessities of the publication at the present time. But that has not been the plan of action of the Trustees. They have elected to omit our papers, except when they see specially fit to publish one, and on second thought, to omit all other section papers they see fit.

At first thought, some of us might be indifferent to this rule, but on second thought, it seems to me that none of us can possibly be indifferent. We are medical men in sympathy with our fellow practitioners. We want to know what they are doing; and I can see no reason why we should not arrogate unto ourselves the idea that they should be interested, somewhat at least, in what we are doing.

THE CHARGE OF UNDUE TECHNICALITY

The Trustees have characterized our papers as too technical to be of interest to the general practitioner. They have also criticized the censorship exercised over the papers admitted to the program. We can readily understand that some papers may be very highly technical, and for that reason the author himself should consent to the publication, not of his full text, but of some small abstract which will point the way for the general practitioner, should he care to look the paper up. And if there is laxity in censorship, this not only might be, but should most decidedly be, corrected.

As a member of the section for a number of years, it seems to me that the papers presented before this body have been almost uniformly good, and worthy of presentation and of our time spent in listening to them.

* Chairman's address, read before the Section on Laryngology, Otolaryngology and Rhinology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Concerning this subject statements were made relative to the retention of General Gorgas as surgeon-general. These are omitted from THE JOURNAL since General Gorgas was retired in October, having reached the age limit. The complete text appears in the Transactions of the Section.

The idea of being outcasts from the pages of THE JOURNAL seems to me such a calamity for us that I feel that special emphasis at this time should be laid on what THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION is, and what are its possibilities for us.

Firstly, there is no journal in the country that reaches anything like the number of men that THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION reaches. It is the only general journal; all the other journals are more or less local affairs. A parallel has been drawn between our country and Great Britain. This doesn't seem to me to be exactly a thing permitting argument. The Trustees have declared that the British Medical Association publishes only abstracts, and finishes them up in a very short time, possibly a few weeks.

The policy of the *British Medical Journal* is to publish the abstracts and finish them very quickly. The reader of the paper then has the privilege of publishing them anywhere. Physicians have the well known *Lancet*, in which their material may appear. There is no journal in our country that in any wise compares with the *Lancet*. We are left, then, if we have the desire to appeal to the general profession, to one journal only, THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

It appears to me that this proceeding, by which we are ruled out of THE JOURNAL, is not only a disaster for us, but a disaster for the general profession. I cannot agree with the Trustees in their point of view, although I recognize by their names that they are a most estimable and intelligent body.

When they say that our work is of no interest to the general practitioner, they overlook the fact that almost all the general practitioners and general surgeons of the entire country at the present time will remove tonsils and adenoids if they have the opportunity of doing so, or at least they will try to remove them. They will also perform all the intranasal surgical operations that their intelligence permits them to suggest to the patient; and from an observation of such patients after having been operated on by the general men, we must all be struck with the idea that, if the general practitioner knew more about this work it would be not only to his advantage, but even more to the advantage of the patient. Many of the unfortunate results from which the patient suffers would be avoided. If the general practitioners are to continue in the practice of nose and throat surgery, then it behooves us from the same altruistic motive so emphasized by THE JOURNAL itself, as part of its plan of action, to educate the general profession as far as possible further along the line of the specialties for which they operate. Therefore, it is impossible to understand how any intelligent medical man can declare that the work of the eye, ear, nose and throat sections is of no interest to the general profession.

The Trustees have emphasized the fact that the papers are technical. Every now and then, it is true, there comes out a perfectly simple technical paper—a record of facts; but facts can never be properly valued at the time they are presented. Nevertheless, the record of a new fact is always justifiable.

A SPECIALIST'S DISCOVERY OF GENERAL INTEREST

Nothing can more clearly emphasize this point than the work of my friend, Dr. W. E. Shahan of St.

Louis, who, four or five years ago, began the investigation of the effect of heat on the eye. He determined the cornea would stand a certain degree of heat without detriment. He then took up the question, "What is the degree of heat at which the various organisms are killed in the tissues?" and by experiment he found that at a temperature of 156 F. the pneumococcus was killed within the cornea. He devised a machine by which heat could be very accurately controlled, and this temperature applied to the ulcers of the cornea. It is perfectly well known that the pneumococcus is one that destroys the globe in the great majority of instances.

Through this bit of observation, Dr. Shahan has determined that the pneumococcus ulcer, heretofore so destructive, can be satisfactorily controlled in almost any case, as I understand it; and when the ulcers are beginning to form they are stopped and cured. The number of eyes that have been saved by this practice is unlimited.

The discovery has been turned to use for other purposes also, in other departments of ophthalmology. All of this was published in THE JOURNAL.

It is impossible for me to understand how an observation such as this can fail to be of interest to the general practitioner. It seems to me that if facts of this type cannot interest him, he is an exceedingly poor, low-grade sample of his kind. That there were such practitioners some years ago is perfectly well known; but certainly, as the years go by, that number diminishes. The men who replace them are of a different type. They are infinitely better educated, and of infinitely wider interests, not only in medicine, but in human affairs at large. Furthermore, the minute their interest in such observation is aroused, the working method by which such an end-result is obtained, would be worth, I should think, an inestimable figure to them.

Many of us would like to do original work, and we admire the men who do; but when, on asking ourselves, "Why don't we do it?" we admit to ourselves that we have no ideas. To follow the working of such an idea as that of Dr. Shahan must surely be a help and an inspiration to all who have any aspiration toward original observation.

Previous to Dr. Shahan's idea, various efforts had been made to apply heat to the eye for therapeutic purpose; but the fact that it was not known at what temperature the cornea or bacteria within the cornea were killed worked for the failure of these attempts.

It seems to me that with the difficulty now confronting the management of THE JOURNAL, we should all be sympathetic.

As a suggestion by which all may feel that they have fair play, I see no reason why a certain number of pages should not be allotted to each section, and these portioned out as may seem best to the authors on the program, by officers of the section. This would relieve the editorial staff of much work and would relieve us of the feeling that our affairs are possibly in the charge of a staff that is not only inimical to us, but ignorant of our rights as scientific medical men. It would give each section the best opportunity to maintain the high value and standard of THE JOURNAL, independent of its able editors and trustees.

ABSTRACT OF DISCUSSION

DR. WENDELL C. PHILLIPS, New York: I have taken pains to find some remedy for the situation which confronts not only this section but all of the sections of the Association. Talking will never accomplish anything. We must take more active measures to get at the facts. There are two sides to the situation, and many difficulties present themselves to the trustees in the management of this great American Medical Association. I have been simply amazed at the responsibilities as well as the care and the thought that is necessary in order that the work of the Association may be carried on well and that we may properly represent the membership.

I will suggest this, that this section and, if possible, the Section on Ophthalmology, appoint a committee with instructions that they consult with the Board of Trustees regarding the question of the publication of papers and to give the proper publicity to the papers read before this section and the Section on Ophthalmology. If you will look over the program you will have no difficulty in seeing that even in THE JOURNAL it would be impossible to publish all the papers and discussions together with the other things we are expected to publish during the year. It simply cannot be done, so that some censorship and care has to be taken, and some papers must be eliminated. But I do feel that an effort should be made—and usually it can be done if it is done in the right way—so that the sections and the central officers may have a proper understanding and adopt the best possible plan. I may say, however, that in so far as the specialties have adopted special journals under the auspices of the Association, general satisfaction has been obtained.

DR. L. W. DEAN, Iowa City, Iowa: Last year the executive committee of this section was instructed to confer with the Board of Trustees in regard to the publication of papers read before this section, and there also is a committee from the section to report on the method of publication.

DR. WENDELL C. PHILLIPS: So far as I know no such matter has been brought before the Board of Trustees during 1918.

DR. GREENFIELD SLUDER, St. Louis: Dr. Phillips has been exceedingly helpful in giving us some needed information. The procedure by which we were outcast was one in which we had no part and in which we were denied a part. When I stated that the difficulties of THE JOURNAL should be considered sympathetically, I meant precisely what I said—I selected the term to the best of my ability.

Carbon Tetrachlorid Vapor as a Delousing Agent.—M. H. Foster, Surgeon, United States Public Health Service, in *Public Health Reports*, October 25, makes a preliminary report on experiments for the killing of lice in the clothing by the vapor of carbon tetrachlorid. Heat and hydrocyanic gas are probably the best agents for killing lice but require somewhat complicated apparatus for their use and can be used to advantage only where the work is to be done on an extensive scale. The object of the experiment was to find some agent that could be used practically anywhere and for small operations. It was found that carbon tetrachlorid vapor was effective after two hours' exposure with the clothing rather closely packed in a tin or other vessel that is air tight, in an amount of 25 c.c. The material to be disinfected should not occupy more than half or two thirds of the containing vessel. In the experiments only the lice were killed. The nits were only partly killed, but their hatching was delayed. The method used was simply to pack the material to be disinfected in the can, on top of which were placed several layers of filter paper on which was poured the carbon tetrachlorid. The can was then covered with several thicknesses of toweling and a loose cover placed over this. In some experiments, the lice infested material was wrapped up tightly in papers, etc., and various combinations of carbon tetrachlorid with gasoline, were tried. The unadulterated carbon tetrachlorid was found to be best and the lice were always killed in about the time mentioned. At the present price of carbon tetrachlorid, the cost for treatment of the clothing of one soldier will amount to from 1½ to 5 cents.

ACROMEGALY OF THE LARYNX *

CHEVALIER JACKSON, M.D.

PHILADELPHIA

The literature of acromegaly contains but little reference to the larynx, which seems strange in view of the fact that in a number of cases alteration of the voice is mentioned. I hope that the herein recorded cases will lead to systematic examination of the larynx not only in every case of acromegaly but also in every case of hypophysial abnormality. It is to call attention to the necessity for this that the four cases are reported. Complete reports of all the cases would require too much space and would detract from the emphasis desired to be placed on the laryngeal phases:

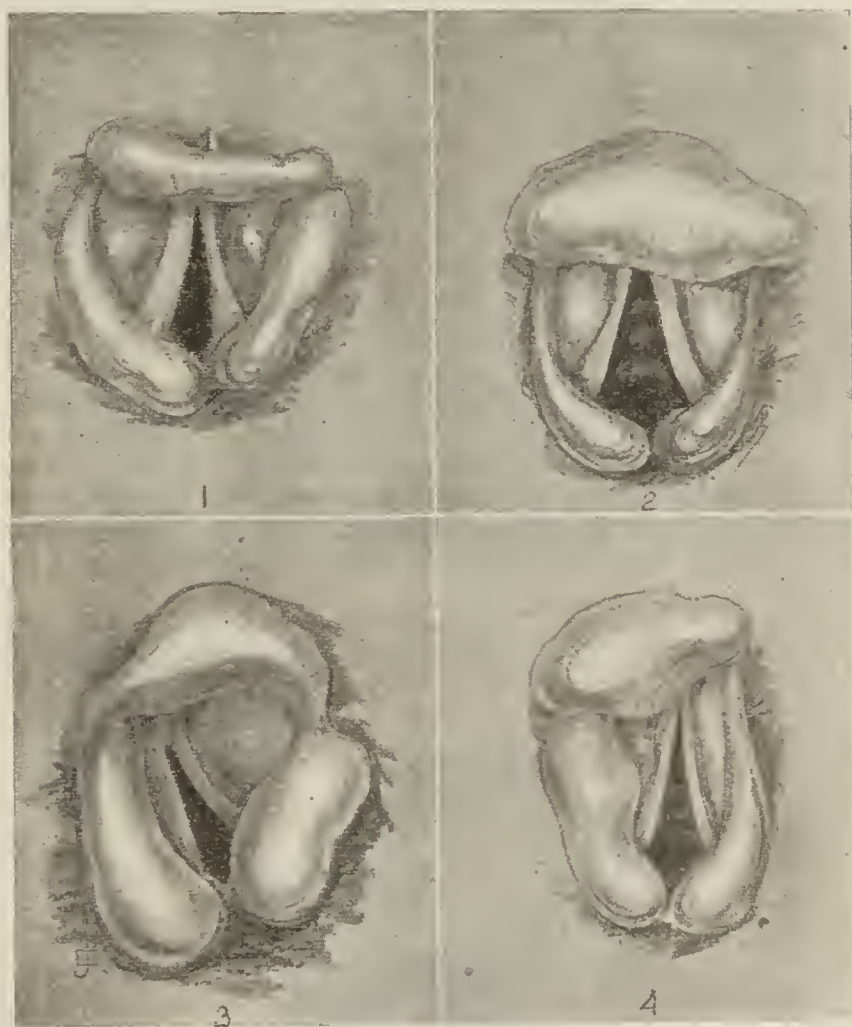


Fig. 1.—Acromegaly of the larynx. The enlargement and thickening of the various prominences of the larynxes are bilateral. The asymmetry seems rather a distortion, though at 4 is shown a larynx with elongation of one aryepiglottic fold associated with thickening of its fellow. The larynx shown at 3 was so suggestive of the typical acromegalic hands as to merit the appellation of "gingerbread larynx." The whole larynx by external palpation seemed symmetrically enlarged in all cases except the one shown at 2, in which the overgrowth was limited to the epiglottis.

REPORT OF CASES

CASE 1.—History.—A man, aged 43, complained of remittent shortness of breath of two years' duration. Breathing was noisy at night. Repeated "asthmatic" attacks culminated in a severe dyspneic attack two weeks before. A laryngologist arrived in time to do a tracheotomy and save the patient's life. A diagnosis of laryngeal cancer was made and the patient was referred to me.

Laryngeal Examination.—External palpation of the larynx revealed it to be of enormous size, the enlargement seeming even and symmetrical. Laryngoscopic examination showed a general overgrowth of the larynx. The epiglottis, aryepi-

* Read before the Section on Laryngology, Otology and Rhinology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

glottic folds, ventricular bands and vocal cords were proportionally enlarged. An appearance of asymmetry was given by the deviation of the long axis of the glottis, which, instead of being sagittal, was deviated to the left posteriorly (3, Fig. 1). The glottic chink was very narrow and was insufficient for breathing. The left aryepiglottic fold was as much thickened as the right, but was not so long. The whole laryngeal image was strongly suggestive of the facies (Fig. 2) and "gingerbread hands" (Fig. 3) of acromegaly. This, with the suggestive facies of the patient led to an investigation which revealed the case to be one of acromegaly, the diagnosis of which had not previously been made. Questioning elicited the fact that when 23 years of age (Fig. 4) the patient wore a number 8½ shoe, and a 15 collar. At the time of examination, twenty years later, he wore a number 9½ shoe, and a 16½ collar.

Roentgenographic Examination (by Dr. George C. Johnston).—The pituitary fossa is 1¼ inches anteroposteriorly and 1 inch deep. There is a pressure atrophy of the posterior clinoids and of the roof of the sphenoidal sinus. The roof of the sinus is crushed in. There is obliteration of air cells, the anterior lobe of the pituitary resting largely within the sphenoidal sinus. Frontal and maxillary sinuses are very large and clear. There is but little evidence of pressure on the anterior clinoidal region; therefore the bitemporal hemianopsia which we can expect to develop later is probably not yet present. The pituitary enlargement may be expected to encroach on the posterior lobe with a resulting posterior lobe hypopituitarism, and

pharyngeus muscle. The superior cornu of the thyroid cartilage is also very distinctly seen to be elongated, especially the left. The patient is an acromegalic in an advanced stage, showing characteristic gingerbread hands and rough hewn face with African nose.

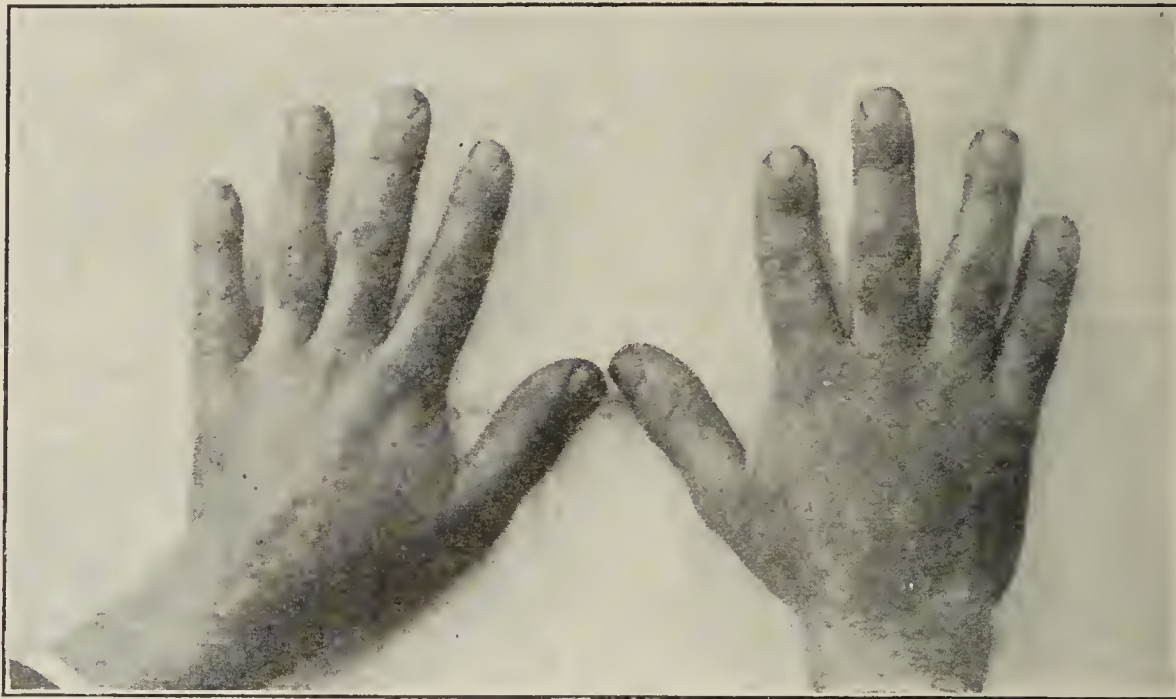


Fig. 3 (Case 1).—"Gingerbread" hands.

The attending laryngologist was advised to send the patient to Dr. Harvey Cushing for study; but before this could be done the patient died suddenly at his home, apparently of asphyxia. No necropsy was obtainable.

CASE 2 (Abstract).—A minister, aged 42, was referred for laryngeal examination because of impaired voice, which in recent years had become very harsh and weak. Laryngeal tuberculosis was suspected by the laryngologist in attendance. Palpation revealed a symmetrically enlarged larynx. Indirect laryngoscopy showed the epiglottis thickened. The left aryepiglottic fold was thickened near the epiglottis. The right aryepiglottic fold was elongated (1, Fig. 1). The movement of the right arytenoid was impaired. A diagnosis of acromegalic larynx was made because of the laryngeal overgrowth covered with normal mucosa, in a man with the following general signs of acromegaly: gradual increase in the size of hat and shoes required, enlargement of the external nose, the malar prominences, and the lower jaw. These changes were sufficient to be unmistakable once attention was called to them, but they were not striking; hence the diagnosis of the general malady had not been made by the regular medical attendant. This patient was seen before the days of the usefulness of the roentgen ray in diagnosis of pituitary disease was developed.

CASE 3 (Abstract).—A woman, aged 33, referred for consultation as to supposed tuberculosis of the epiglottis, had a masculine voice, and indirect laryngoscopy revealed a thickened epiglottis somewhat suggestive of the turban shape often seen in tuberculosis; but the thickening was more irregular, and all the usual appearances of a laryngeal tuberculosis were absent. The mucosa was normal (2, Fig. 1). A diagnosis of acromegalic overgrowth of the epiglottis was made on the basis of the following general signs: nose enlarged, forehead somewhat retreating, both ears enlarged, finger rings had become so tight as to require sawing to remove them. Hypophysial disease was revealed by roentgenography at Western Pennsylvania Hospital. The masculine character of the voice with a normal laryngeal interior pointed to changed resonating cavities, though of course the character of the normal male voice is partly due to laryngeal differences.

CASE 4 (Abstract).—The patient was referred for supposed lupus of the larynx, the diagnosis being based largely on a scar on the nose which the patient attributed to a "boil." Indirect laryngoscopy revealed a larynx very much elongated anteroposteriorly, the left aryepiglottic fold being fully half

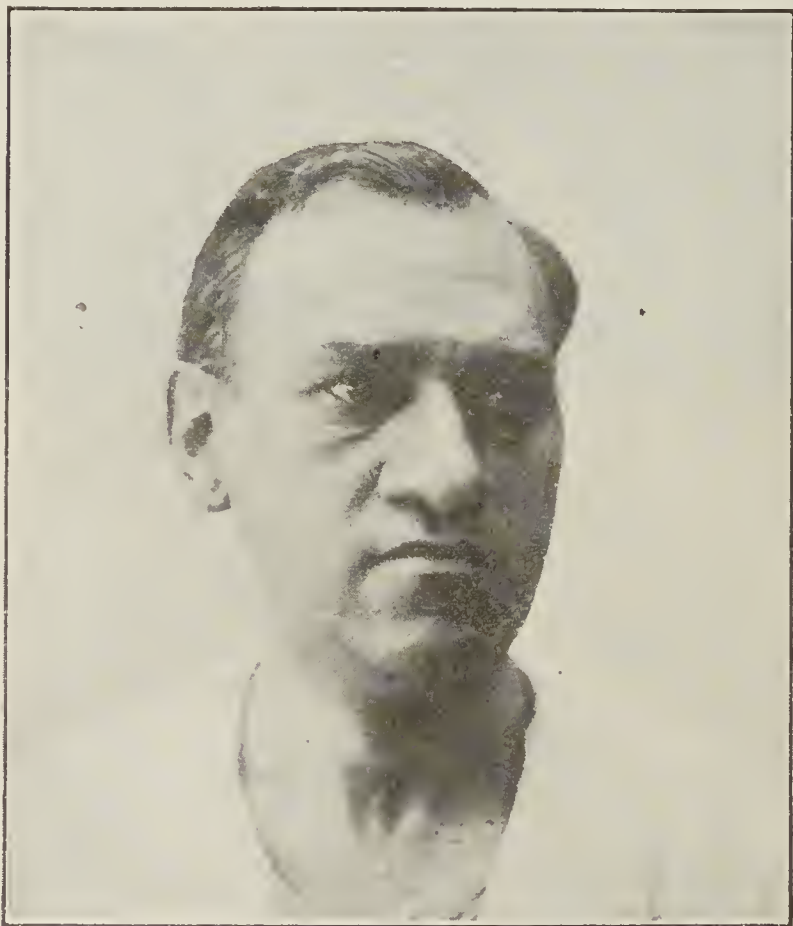


Fig. 2 (Case 1).—Acromegalic facies of patient, aged 43, who had acromegalic laryngeal stenosis requiring tracheotomy.

I should expect as the disease progresses that this patient will show epileptiform manifestations. It may be that the glottic spasm for which tracheotomy was necessary was partially of this nature. The roentgenogram of the larynx (Fig. 5) shows increased density in all the cartilages of the larynx and an apparent calcification of the stylo-

again as long as normal, the sagittal length of the glottic chink being increased by about one third. The epiglottis was overgrown to about thrice its normal thickness, and it was tilted at an angle of about 10 degrees. The right aryepiglottic fold was overgrown in all directions with a nodular thickening near the epiglottis (4, Fig. 1). The mucosa was chronically inflamed. A diagnosis of acromegaly of the larynx was made because of the following general signs of acromegaly; facies, gingerbread hands, kyphosis, and projecting os calcis. Disease of the hypophysis was demonstrated by Dr. Russell H. Boggs.

CONCLUSIONS

Four cases are too few for final conclusions, but the following points seem important:

1. The larynx should be examined in every case of hypophyseal abnormality.
2. The overgrowth characteristic of acromegaly in some cases involves the laryngeal cartilages and soft parts.
3. Acromegalic changes in the larynx may produce stenosis sufficient to require tracheotomy to prevent asphyxia, dyspnea being added to by impairment of the glottic movements, resulting in a defective bechic cycle.
4. In three out of four cases, the laryngeal mucosa was normal. In one, the chronic laryngitis present was probably a coincidence.
5. In three of the four cases, the laryngeal image was not symmetrical, though the laryngeal enlargement seemed so by external palpation.
6. In all cases of apparent hyperplasia of the larynx, acromegalic overgrowth should be listed for diagnostic exclusion.



Fig. 4 (Case 1).—Patient at the age of 23.

7. Laryngeal examination should be recorded as a routine in all cases of hypophyseal abnormality, for the accumulation of data.

8. Altered voice in acromegaly may be due to laryngeal changes as well as to alteration in the resonating cavities, lingual enlargement, etc.

ABSTRACT OF DISCUSSION

DR. WILLIAM B. CHAMBERLIN, Cleveland: I would like to ask Dr. Jackson if the general signs of acromegaly are essential, and in the absence of other signs how he would differentiate these cases from rhinoscleroma?



Fig. 5 (Case 1).—Overgrowth and ossification of the thyroid cartilage with extensive elongation, especially of the left cornu. (Roentgenogram by Dr. George C. Johnston.)

DR. CHEVALIER JACKSON, Philadelphia: Dr. Chamberlin brings out an exceedingly important point and I wish I could answer it. It has often been said of medical men that they get one case and make sweeping generalizations from it, and we often do. In this instance, there are only four cases, and, therefore, broad generalizations seem unjustifiable. I do not believe anybody could make a diagnosis of acromegaly by laryngoscopic examination alone: it would require the corroboration of the general symptomatology. As to the local points of differentiation between laryngeal acromegaly and rhinoscleroma, I feel that Dr. Chamberlin has raised an important point, but one that I cannot answer on the experience of only four cases.

For the present we must rely on the symptoms outside the larynx.

Removing Joint and Muscle Disabilities.—It is of the utmost importance to understand the use that can be made of a man's sound limbs to enable him to recover the use of an injured one. Attention is too much centered on obtaining some anatomically correct movement; meantime all the other limbs are allowed to remain inactive, and if the anatomically correct movement cannot be obtained, then the case is given up as incurable. Such concentrated treatment ignores the value of associated movements of joints brought about by the muscles passing over one or more joints. Take the case of a man who cannot flex one joint of the upper or lower limb, or who can only partially flex a joint. In addition to any special effort to flex that joint singly, it is important to get him to flex all the sound joints of the limb, which all tends to make him capable of flexing the injured one.—Col. H. E. Deane, *Gymnastic Treatment for Joint and Muscle Disabilities*.

THE TREATMENT OF GENITAL TUBERCULOSIS IN THE MALE*

WILLIAM C. QUINBY, M.D.

BOSTON

For the intelligent and therefore successful treatment of any surgical ailment an exact knowledge of its pathology and mode of invading the various structures of the body is most important. In the case of tuberculosis of the male genitalia such exact knowledge is in some respects lacking; especially in regard to the structures primarily attacked by this disease. At the present writing, the majority opinion holds that the first structure to become involved in the tuberculous process is the epididymis, and that from this the disease quickly spreads to involve the vesicle and prostate. A smaller number of investigators feel that the disease begins its genital invasion in the prostate, spreading from there to the vesicles and epididymis. This is a question which has long been argued, and is of much more than mere academic importance, because only by eradicating the primary focus may we expect the greatest number of cures.

In accordance with this majority opinion, that the tuberculous process begins in the epididymis, the operation of removal of this structure has been widely employed and in some instances has undoubtedly been followed by excellent results. By the operation, not only is the suppurating or tender focus in the scrotum disposed of, but also further disease either in the testis, or in the prostate and seminal vesicle may become quiescent. But that such a fortunate result cannot always be expected, and that our attempts to cure tuberculosis of the male genital tract by epididymectomy thus far leave much to be desired may be easily seen from the statistics collected by many surgeons. To mention two writers, Keyes¹ says, in speaking of tuberculosis of the testicle, "Relapse on the opposite side almost inevitably occurs." And from his table, it may be seen that, of fifty-three relapses in the other epididymis, forty-six had occurred within one year after operation on the side primarily diseased. Barney² says:

It is a characteristic of the disease to attack the opposite epididymis in over one-half the cases, within a year or two of the time of involvement of the first side. This catastrophe occurs in spite of all efforts to prevent it, but early excision of the epididymis first attacked will improve the chances for the escape of its fellow.

Results such as these are hard to explain if we assume that the disease process is primary in the epididymis. On the other hand, they are easily explained if we consider the prostate and vesicles to be the point of first attack. If this assumption is made, it is evident that the focus nearer the center, untouched by the removal of the epididymis, is still present, ever ready to involve the second epididymis in the same manner as it did the first.

In what percentage of cases of tuberculosis of the epididymis are the prostate and vesicles free from this disease? It is evident that in the answer to this ques-

tion lies the solution of our perplexity. The sources of evidence on which to base the answer thus far made use of are mainly two: necropsy findings, and clinical examination of the prostate and vesicles by digital exploration. Large series of postmortem statistics have been examined by various men, with the result that in an overwhelming majority of the cases the tuberculosis is found to involve the whole genital tract, at least on one side. Though a few isolated instances are recorded in which only the epididymis, the vesicle or the prostate was the seat of the disease, the number of such cases is far too small to be of weight in demonstrating the usual point of first attack. This can mean only that by the time the patient dies, the disease has progressed so far that its exact genital origin is obscure.

The clinical evidence that may be brought to bear on this question is even more insecure than is the post-mortem, for it is admitted by nearly all clinicians that it is frequently impossible to detect the presence of tuberculosis in the prostate or vesicles, though the tuberculosis in the epididymis is obvious. On the other hand, Keyes makes the statement that every case of tuberculosis of the testis (epididymis) examined during ten years showed some involvement of the prostate.

For final conclusive evidence, it is therefore clear, I think, that we must turn to the "pathology of the living," that is, to the evidence obtained from histologic examination of tissue removed or investigated at operation. Though it may well be beyond the usual opportunity of any one of us to bring together an amount of such operative material adequate for the complete proof, nevertheless if the continued efforts of many working toward this end are made, we shall soon have our answer. It is, then, with the hope of stimulating a more general interest in this subject among urologists, rather than with the feeling that I am yet able to bring any final word on the subject, that I present this paper.

INVOLVEMENT OF OTHER ORGANS IN TUBERCULOSIS OF THE EPIDIDYMIS

As partial answer to the question, "In what percentage of cases of tuberculosis of the epididymis are the prostate and vesicles free from disease?" I am able to offer the histories of seven cases seen during the past two years at the Peter Bent Brigham Hospital. These patients have all been treated by complete removal of the whole of either one or both seminal tracts. The operation usually performed consisted of a unilateral vesiculectomy, vasectomy and epididymectomy; the operator using practically the same method which Dr. Young³ has recently published. A small area of prostate was also removed when it could be demonstrated to be diseased.

Stated briefly, the answer which these cases bring to our question is that in *no* case were those structures central to the epididymis found free from tuberculosis, and that therefore the percentage is zero. Of course, I do not expect this result to obtain when a much larger accumulation of such operative evidence is available. It is interesting, nevertheless.

It is also of interest to note that, though I have been unable to find an epididymis which was tuberculous without there being at the same time a demonstrable

* From the Urological Clinic of the Peter Bent Brigham Hospital, Boston.

* Read before the Section on Genito-Urinary Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Keyes: Tuberculosis of the Testicle; Observations on 100 patients, *Ann. Surg.*, 1907, **45**, 918-937.

2. Barney: Genital Tuberculosis, *Mod. Urol.*, 1918, **1**, 498.

3. Young, H. H.: Presentation of a Radical Operation for Tuberculosis of the Seminal Tract, *Surg., Gynec. and Obst.*, 1918, **26**, 375.

tuberculosis of some more central portion of the genital tract, there has come under my observation a case of tuberculosis of the prostate in which the process was confined to this organ, or at least in which the epididymides showed no abnormality. The patient was operated on by prostatectomy, and has thus far shown no tuberculosis elsewhere in the genital tract. It is added to the cases herein reported, which may be briefly summarized here.

The average age of the patients was 28, the oldest being 33 and the youngest 25. Four were single and three were married. The time from onset of evident disease in the epididymis till operation averaged about three months, with one exception in which the process was present for two years and nine months. In two cases both prostate and vesicle gave palpatory evidence of being diseased, while in three cases the vesicles only could be positively felt to be abnormal. In two cases the rectal examination was entirely negative. In three cases the urine contained pus; in four it was normal. In no case could evidence of renal or bladder tuberculosis be demonstrated. Five patients had a discharging sinus in the scrotum before presenting themselves for operation.

CLINICAL RESULTS OF OPERATIONS

Each of these patients has been seen within the past month, six having reported personally at the hospital. One was seen by the nurse of the social service department. Only one patient has done badly and this poor result is clearly due to an error of surgical judgment in not removing the whole of a very evidently and extensively diseased vesicle. Two months after this operation, the other epididymis and testicle became extensively diseased and had to be removed. The patient is now well. With this exception, the history after operation in each of the remaining cases has been one of apparent return to complete health. In no other of them has there been any evidence of further extension of the tuberculosis. One patient underwent an acute infection by the gonococcus fifteen months after operation, and after four weeks of self-medication this resulted in an acute gonorrheal epididymitis of the side not operated on.

The average time since operation is thirteen months. This is not nearly so extensive a time as is necessary for conclusions in regard to recurrence of tuberculosis. I am sure that it is sufficient, however, to demonstrate that this more radical method of operation does not carry with it any unusual or unjustifiable complications or risks. I have not attempted the operation, however,

in any case which showed signs of active tuberculosis elsewhere in the body.

CASES OF TUBERCULOSIS OF EPIDIDYMIS TREATED BY EXCISION OF ENTIRE SEMINAL TRACT

CASE 1 (No. 5920).—*History*.—A student, aged 25, single, Dec. 18, 1916, complained of swelling and discharge from right testicle for four months. The family history and past history were both negative. There was no venereal disease. Four months previous to consultation, while working as a porter in a summer hotel, the patient had lifted a heavy piece of ice and noted pain in his right testicle. The pain had been followed by swelling, which had lasted from four to five days, at the end of which time the patient had seen a doctor. The doctor had aspirated it, obtaining a small amount of bloody fluid. The pain had then disappeared, but the swelling had remained, had increased slightly in size, and through the aspiration point, the patient had had a yellowish discharge. There were no night sweats, no cough, no urinary disturbance and no loss of weight.

Physical Examination.—Lungs were negative. Over the lower pole of the epididymis on the right was a small sinus discharging a thin, seropurulent material and here the skin was slightly puckered. The epididymis was considerably enlarged throughout but was not tender. The testicle appeared to be normal. The left testis and epididymis were not remarkable. The rectal examination was negative. The urine was normal.

Dec. 19, 1916, right vesiculectomy, vasectomy and epididymectomy were performed. The structures removed included an adjacent nodule in the prostate.

Jan. 4, 1917, the patient was discharged after a rather stormy convalescence. He had to be catheterized for several days, and the perineal wound cozed considerable bloody serum. The perineum had nearly healed on his leaving the hospital.

Pathologic Report.—The patient was suffering from tuberculosis of the epididymis, vas, seminal vesicle and prostate.

Subsequent History (out-door department).—Jan. 12, 1917, the perineum was healed, and the scrotum nearly so. There was considerable induration in the right scrotum and cord but this was not tender. Erections had been present. There was no difficulty in regard to urination. The urine was clear, with a few granular shreds. It was passed at normal intervals.

Feb. 10, 1917, the patient had gained 8 pounds. The scrotal wound was not then entirely healed.

March 10, a sinus appeared in the perineum discharging a few drops of pus intermittently.

August 24, the sinus remained closed almost entirely. The patient had been working hard and had lost a few pounds of weight previously gained. He was put on a course of tuberculin.

October 1, during the summer vacation the patient showed marked improvement. There had been no further discharge from the sinus since the last note. He had gained about 15 pounds.

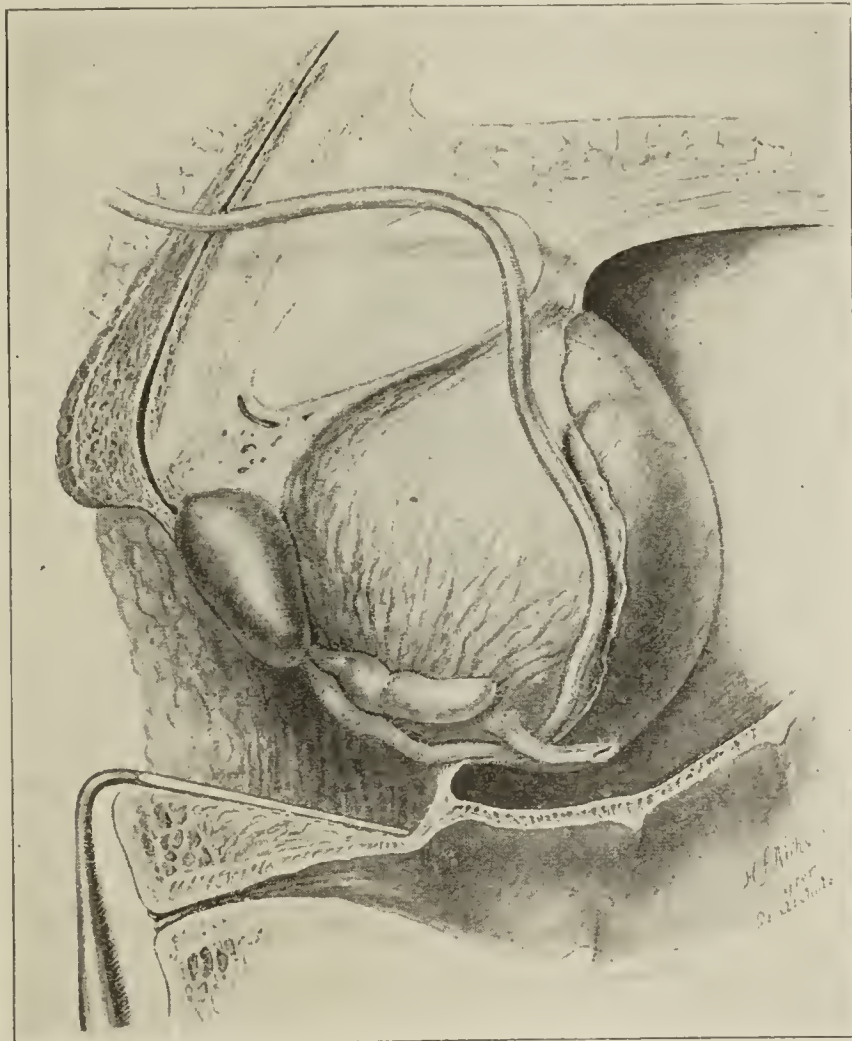


Fig. 1.—Sagittal section of male pelvis showing approach to vesicle by division of structures which unite the rectum and bulb of urethra. Note relation of ureter to vas and also pouch of peritoneum behind bladder.

May 28, 1918, the patient reported that although he had been working hard during the past school year, his health had been excellent. Examination on this date proved both testes normal, the right being minus its epididymis. By rectal palpation, the prostate felt normal, but there was a small depressed area at its upper right side over which the rectal mucosa was puckered. The left vesicle could not be palpated. The expressed prostatic secretion was normal under the microscope and no pus was found. Spermatozoa were absent, however. The urine was normal in all respects.

CASE 2 (No. 5880).—*History*.—Dec. 11, 1916, a laborer, aged 27, single, complained of swelling of the scrotum. The family history was negative. There was a rather vague history of pleurisy five years previously and of gonorrhea eight years previously. The trouble began about six months before with pain in the groin and the scrotum. At this time an incision was made in the scrotum, which continued to discharge. A week previously the swelling and tenderness had increased. There were no urinary symptoms. The patient thought he had lost some weight but he did not know how much.

Physical Examination.—The lungs showed a slight increase of dullness with prolongation of expiration on the right at the apex. The roentgenogram was negative except for slight haziness in the region of the right apex. The left testis was three times its normal size on account of involvement of the whole epididymis. In the region of the lower pole, the skin was adherent about a sinus tract. The contents of the right scrotum were normal. The left cord was definitely thickened. By rectal palpation, no abnormality could be felt in the prostate. The left vesicle was definitely thickened, the right questionably so. The microscope showed that the urine contained a little pus and blood.

Dec. 13, 1916, vesiculectomy, vasectomy, epididymectomy and orchidectomy were performed on the left side. No evidence of prostatic involvement was to be seen. The right vesicle was normal, the left enlarged and adherent. Orchidectomy was done on account of an extensive necrosis of the testis.

December 23, the inguinal incision still discharged considerably and had become slightly infected. The perineal wound was nearly healed.

Jan. 3, 1917, the inguinal wound was completely healed. The wounds in the lower part of the scrotum (area of original sinus) and the perineum still discharged a little. The urine was normal. The patient was sent to the outdoor department for dressings.

Pathologic Report.—He was suffering from tuberculosis of the testis, epididymis and seminal vesicle. The patient continued to have dressings for the slowly healing sinus in the outdoor department till Sept. 13, 1917. His general condition was excellent.

Subsequent History.—March 19, 1918, he reentered as No. 8392. Almost two months later he had acute urethritis five days after exposure. He used self medication in part and had a swelling and tenderness of right epididymis. Gonococci were found in the urethral discharge. His fever rose as high as 103 F. No tenderness was discovered by rectal palpation.

March 29, 1918, the process had run the usual course of a gonorrheal epididymitis. There was then much less soreness and swelling and the urethritis was only moderately severe. No evidence of recurrent tuberculosis had been seen. The patient was discharged to the outdoor department.

May 1, 1918, he was still under treatment for prostatitis. The epididymis was practically normal, except for an occasional small nodule. The urine was clear, without shreds.

CASE 3 (No. 6017).—*History*.—Jan. 4, 1917, a butcher, aged 28, married, complained of swelling and slight pain in the left testicle. The family history was negative. He had had gonorrhea nine years before. He had not lost eight. He had been married seven years, and six years previously had had a child. Three and one one-half months before consultation, the patient fell, striking the lower part of his back. A week later the testis began to swell and grow painful. For two weeks it had grown worse and had remained at the same size since. Walking was painful, though somewhat helped by a suspensory. There were no urinary symptoms.

Physical Examination.—The lungs and the right genitalia were normal. The left scrotum was twice the size of the right. The upper pole of the epididymis was nodular and hard, and the rest of the epididymis was definitely thickened. The cord was somewhat thickened. The skin was not adherent. By rectal palpation it was found that the left vesicle had one nodule near its top which could not be expressed, otherwise the rectal examination was negative. The urine was normal.

Jan. 6, 1917, left vesiculectomy, vasectomy and epididymectomy were performed. The vesicle was only slightly adherent. One small nodule in the prostate at the entrance of the ejaculatory duct was excised.

Jan. 9, 1917, the wounds were clean and healing well.

January 14, the patient was discharged after an uninterrupted convalescence.

Pathologic Report.—The patient had tuberculosis of the prostate, the seminal vesicle and epididymis.

Subsequent History.—Jan. 23, 1917, the wounds were solid. There was an entire absence of tenderness by rectal palpation. The rectal mucosa was more thick and velvety than usual over the prostate. The remaining vesicle was not palpable. The patient soon gained in weight. He was put through a course of antituberculous hygienic treatment.

May 27, 1918, the patient came to report. His health had been excellent since the operation. He had gained 4 or 5 pounds. He had

coitus normally three or four times a week, but his wife had not borne a child since the one of six years ago. Both testes were rather small and somewhat atrophic. The left one, except for the absence of the epididymis, was the same as the right. The rectal examination was normal except for a few small adhesions of mucosa to the underlying structures. There were no urinary symptoms. It was impossible to obtain prostatic secretion by expression for examination. The urine was normal.

CASE 4 (No. 6698).—*History*.—May 7, 1917, a storekeeper, aged 30, single, complained of a swelling of the testicle. The family history was negative. He had not had gonorrhea.

March 5, 1917, he had observed on walking that the left testis was swollen, tender and painful. He had stayed at home five days on account of the pain. The swelling had gradually decreased, but had not disappeared. Ten days previous to consultation, he had observed a soft area at the lower part of the scrotum which had broken and discharged pus a day before. There were no urinary symptoms. During the previous six months he had lost 8 pounds.

Physical Examination.—The lungs were normal. The left testis was slightly enlarged. The epididymis was swollen

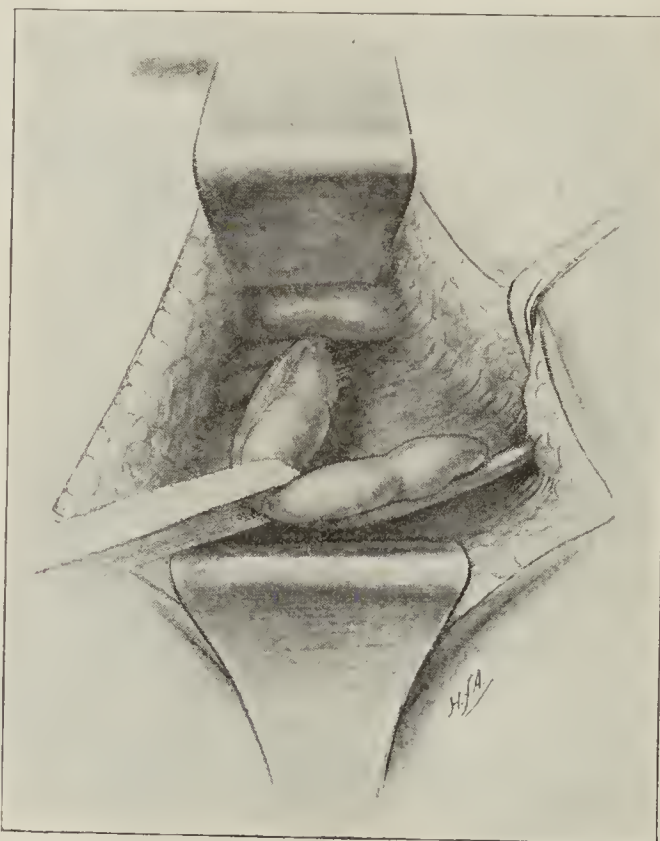


Fig. 2.—Method of traction on vas and vesicle after they have been separated from the base of the bladder.

hard and nodular in both the upper and lower poles, and the lower part of the swelling had become adherent to skin about a fistulous tract. The cord was not thickened. The contents of the right scrotum were normal. No involvement of the prostate or testicles could be palpated. The urine was normal.

May 8, 1917, vesiculectomy, vasectomy and epididymectomy were performed on the left side. The left vesicle was found very rudimentary and evidently not diseased. No diseased areas of the prostate could be palpated. The ampulla of the vas was somewhat thickened.

May 20, 1917, the patient had made an absolutely uninterrupted convalescence and was discharged to the outdoor department for dressing of a small sinus in the scrotum.

Pathologic Report.—The patient had tuberculosis of the ampulla of the vas deferens and of the epididymis.

Subsequent History.—May 24, 1917, in the outdoor department, a stitch, which was causing slight discharge from the scrotum, was removed. A dry dressing was used.

June 6, 1918, he was seen by the nurse of the social service department. He had been entirely well since the previous visit.

CASE 5 (No. 7266).—*History.*—Aug. 24, 1917, a sailor, aged 26, single, complained of deformed testes. The family history and past history were negative. There was no evidence of tuberculosis.

In May, 1914, he hurt his testicles in jumping a fence, and two days later passed bloody urine, with no pain, however. The condition lasted three weeks and stopped suddenly. The patient did not stop work. The left testis was at first swollen, then gradually diminished to the size of a robin's egg. He was then well till September, 1914, when the right testis became sore and swollen at the lower end. The swelling persisted but the pain disappeared.

August, 1917, the left side, which had been small since May, 1914, began to swell again in the lower pole, and to be painful. There were no urinary symptoms.

Physical Examination.—The lungs were negative. The right testis was about normal in size. The lower pole of the epididymis was enlarged, but not inflamed or painful. Above the testis was a discrete mass, the size of a marble, connected with the cord. The left epididymis was swollen more than the right and more diffusely indurated. The vas was slightly enlarged for a short distance above the testis. The scrotum was not involved. The prostate was about normal size, and of somewhat increased hardness, with a nodule in the left lobe. There was no pain on pressure. The seminal vesicles felt as nodular masses rising above the prostate, the left one being somewhat more marked than the right. The urine contained a few pus cells, as the microscope showed.

Aug. 27, 1917, double vesiculectomy, vasectomy and epididymectomy were performed. The left vesicle was more recently inflamed than the right, which was fibrous. No definite nodules were to be found in the prostate.

August 30, all drains were removed. The patient was free from pains and his general condition was good.

September 7, all wounds were healed.

September 12, he was discharged in good general condition. The scars were perfectly healed. The testes were slightly indurated, but were not at all painful. There was no ecchymosis. The urine still contained a little pus.

Pathologic Report.—The patient was suffering from tuberculosis of both epididymides and seminal vesicles. The vasa

showed no change. A pig inoculated with the urine, Aug. 28, 1917, and killed Sept. 26, 1917, showed no sign of tuberculosis. The disease affected the left side for two years and nine months, and the right side for two years and seven months.

June 3, 1918, he was at work and in splendid health. He had gained from 15 to 18 pounds. Coitus was normal, but not as frequent as before. The testes were of normal size and freely movable in the scrotum. The cords were not thickened. By rectal palpation the prostate felt normal. At its upper limit, there was a definite shelf left by the removal of vesicles. The rectal mucosa was somewhat adherent. The urine was clear and acid, with a specific gravity of 1.014, and with no albumin and no sugar.

CASE 6 (No. 6468).—Oct. 3, 1917, a barber, aged 33, married, complained of swelling and abscess on the left side of the scrotum.

History.—The family history was negative. The patient had been married twelve years and had eight children. He had had chancroid at 17 years of age and gonorrhea at 18. He had experienced no urinary troubles since. For the previous five months he had noticed that the urine had not been as clear as usual. He had observed swelling and pain in the left testicle about twelve weeks previous to consultation. There was no history of infection or trauma to account for

the condition. The pain was of a dull aching character, relieved considerably by warm applications and a suspensory. A week later the patient felt perfectly well. The pain recurred in two weeks and the swelling, which persisted to date of consultation, finally led to an abscess which was later incised. He lost 10 pounds in two weeks.

Physical Examination.—The patient was a pale, poorly nourished Jew. The lungs appeared to be normal. The left scrotum was distinctly larger than the right, because of a large firm testicle and epididymis. The skin of the scrotum was adherent at the globus minor in the area of the previous incision. The cord seemed normal. The structures of the right scrotum were normal. Rectal examination showed a prostate

somewhat larger than normal, but not tender or nodular. The left seminal vesicle was readily palpated as a hard, indurated, enlarged area above the prostate. The right vesicle was not definitely palpated. The urine contained considerable pus.

Oct. 5, 1917, vesiculectomy, vasectomy and epididymectomy were performed on the left side. The vesicle was markedly adherent, and the operative exposure not all that could be wished. Therefore the whole of the vesicle was not removed. As will be seen later, this was a definite error of surgical judgment.

Pathologic Report.—The patient had tuberculosis of the epididymis, vas and vesicle.

Subsequent History.—He made rather a slow convalescence. For several days he had an obstinate, moist, bronchial cough. The temperature was 102 F. on the sixth day. This ceased and the temperature became normal. The wounds healed slowly, especially that in the perineum which was still discharging a very little at his departure from the hospital, Nov. 2, 1917.

Dec. 4, 1917, it was found that though advised as to hygiene, diet, etc., the patient had been taking no care of himself at all. He had been working for the previous three days and had felt pretty well. The sinuses had not healed, however, and the day before the right testicle had become swollen and tender. There was a slight frequency of urination with

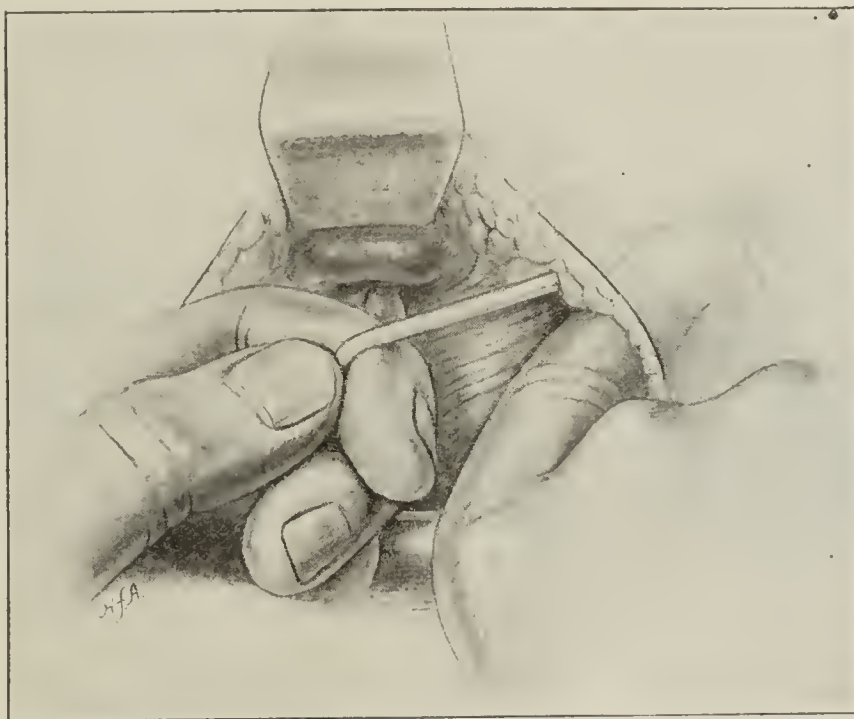


Fig. 3.—Separation of ureter from vas. The vesicle has been entirely freed, and firm traction is being made on the pelvic portion of the vas.

slight terminal pain. There were no chills or cough. On examination, the right epididymis was slightly enlarged, but not nodular or fluctuant. Throughout the whole palpable course of the vas, there was extreme tenderness.

Dec. 14, 1917, he reentered the hospital as No. 7856. The process in the right scrotum had rapidly increased. The swelling was the size of a large lemon and the testicle and epididymis could not be differentiated. Rectal examination did not reveal any further involvement in the region of the prostate, but on the left side there was a boggy induration in the region where a portion of the vesicle was allowed to remain, and this was probably related to the persisting perineal sinus.

December 19, right orchidectomy was done. The testicle was found extensively involved by disease, and so removed, together with the epididymis and as much of the vas as could be secured by drawing it down from above.

December 23, a residual abscess appeared at the level of the internal inguinal ring on the right side. This was opened under cocain.

Jan. 24, 1918, the patient made a poor convalescence. He had hectic fever, especially at night, and did not react to forced feeding and antituberculous hygiené. The sinuses were treated with bismuth iodoform petrolatum paste.

Feb. 1, 1918, he was discharged though the sinuses still persisted.

June 5, 1918, he came to report that he was in a surprisingly good condition, having gained 10 pounds since leaving hospital. He spent the summer at the seashore and worked one day only each week. There was a minute sinus in the right groin and one in the right side of the perineum, but these discharged so little that no dressing was needed. The urine contained a little pus by microscopic examination. Coitus was normal but there was no ejaculated fluid.

CASE 7 (No. 8326).

—*History.*—March 7, 1918, a riveter, aged 26, married, complained of a swollen testicle. His mother had died of tuberculosis. He had been married three years and had one child 22 months old, who was well. He had had no cough or night sweats. He had lost 20 pounds in the previous two months. Six weeks before consultation, he had felt a dull pain in the scrotum. A week later he had experienced a swelling and tenderness in the left side of the scrotum, had felt poorly and could not work. He had stayed in bed and used poultices for the swelling which began to suppurate the previous week. Since his illness he had urinated once during the night. There were no other urinary symptoms.

Physical Examination.—Tactile and vocal fremitus increased at right apex posteriorly. There was dullness on percussion down to the midscapular region. There were no râles. There was an extensive involvement of the left epididymis by a low grade suppurative process, which was undoubtedly tuberculosis. The epididymis was enlarged at least five times its normal size, and at its upper pole, as well as at the lower, the disease had involved the skin, which at the upper pole had broken down and formed two sinuses. The contents of the right scrotum were normal. There was evidently no thickening of the cord on the left. By rectal palpation, there was a nodular thickening in the region of the left vas. The prostate felt normal, as also did the region of the right vas. The urine was normal.

March 8, 1918, vesiculectomy, vasectomy and epididymectomy were performed on the left side. The prostate was

evidently not involved. A rather excessive adhesion of the vesicle to its surroundings caused moderate hemorrhage, easily controlled, however.

March 14, all drains were removed. The patient was comfortable, but for two days after operation, he complained of gas pains.

March 18, the perineal wound was well healed, and the one in the scrotum was granulating.

March 22, the fourteenth day, he was discharged in good condition. He had been out of bed for five days. There had been no fever since the operation. The slight discharge of seropurulent material from the area in the scrotum that remained was to be dressed for the patient in the outdoor department.

Pathologic Report.—The disease was tuberculosis of the epididymis, the vas deferens, and of the vesicle.

Subsequent History.—June 3, 1918, the sinus in the scrotum was healing slowly. The patient had gained 9 pounds and was stronger though he had not yet worked. The urine was normal.

CASE 8 (No. 5987).—*Tuberculosis of the prostate; normal epididymides.*—*History.*—Dec. 30, 1916, an ex-policeman and ex-woodcarver, aged 67, a widower, complained of difficulty in passing water. The family history was negative. The patient's health had always been excellent. He had had gonorrhea forty years ago, though he denied syphilis. For the previous eight years he had been having gradually increasing difficulty in starting the stream, together with some increased

frequency. There was no hematuria. Two weeks previous to consultation after an excessive amount of alcohol he had great increase in frequency, urgency and dysuria. Three days before he had had retention and at time of consultation he had not been able to empty the bladder for twenty-four hours.

Physical Examination.—No evidence of tuberculosis was to be found. The lungs were clear. Systolic blood pressure was 148 and diastolic 88.

The bladder was distended to within 2 cm. of the umbilicus. The report of the rectal examination was missing.

December 30, suprapubic drainage of the bladder was accomplished under local anesthesia. About 1,200 c.c. of urine were withdrawn. Exploration of the prostate revealed marked hypertrophy of the median lobe.

Jan. 5, 1917, the general condition was much better. Suprapubic prostatectomy under ether was performed. Three lobes were removed, the left being markedly enlarged as was also the median, while the right lobe was about normal in size. The line of cleavage was easily found for the lateral lobes. The median lobe was less discrete and had to be removed with scissors in part. There was but little bleeding.

Pathologic Report.—The patient had tuberculosis of the prostate with glandular hyperplasia and chronic prostatitis.

Subsequent History.—Jan. 12, 1917, he was in good condition, being out of bed.

January 16, there was no longer any leakage of urine from the wound.

January 19, he was discharged in good condition.

Jan. 25, 1917, he reported that he rose three times each night to urinate. The urine was turbid. The catheter found 20 c.c. residual. He was to have bladder lavage with silver nitrate each week.

May 3, 1917, he was in good condition. There was no residual urine. There was a slight right hydrocele; otherwise

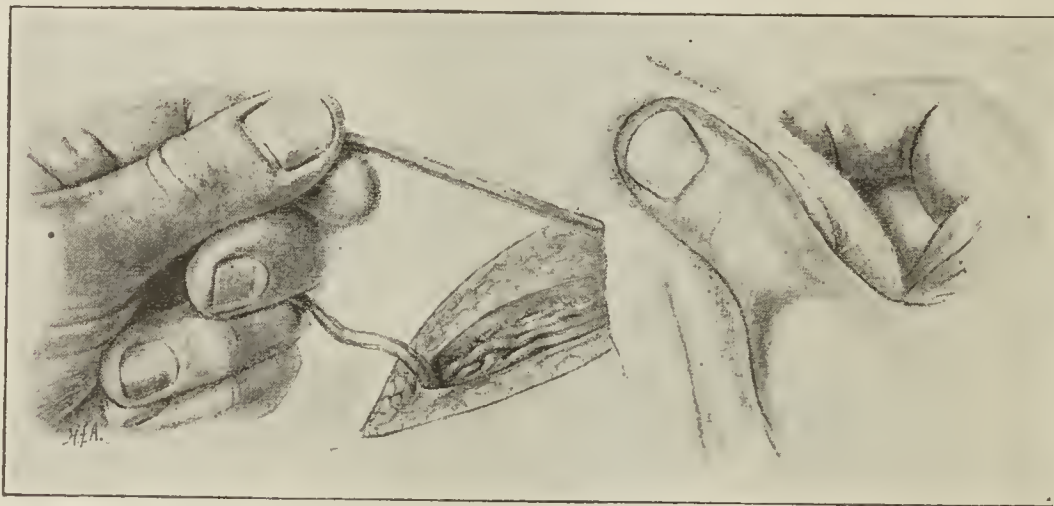


Fig. 4.—Inguinal incision. The spermatic cord from which the vas has been separated shows in the bottom of the wound. Traction is made on the vas, and at the same time the surrounding structures, together with the peritoneum, are wiped back by a gauze sponge.

the testes were normal. He was much disappointed that since the operation he had lost potency.

May 27, 1918, he reported that he had been entirely well in regard to the urinary system since the preceding year. He complained only of dizziness and constipation. The dizziness was evidently due to arteriosclerosis. The urine still contains a few pus shreds. The testes were symptomless, and except for the slight hydrocele noted in the foregoing, they were normal.

PATHOLOGIC FINDINGS

An extensive and searching pathologic investigation of the material obtained from this series of cases has been planned, but because of the unfortunate exigencies of the times, has not yet been completed. I regret that this is the case, and will ask your indulgence till opportunity offers when such results will form the basis of a subsequent communication. From a superficial histologic examination of the material, my impression is that the tuberculosis in the prostate or vesicle calls forth a tissue reaction of the chronic inflammatory type, characterized later by a considerable amount of connective tissue formation, in which caseation and liquefaction necrosis are but little marked. In the epididymis, however, the process is much more commonly a destructive one, leading to early necrosis and suppuration. We have here a notable analogy to the condition characteristically found in the tonsil on the one hand, and the cervical lymph node on the other.

Is the tuberculosis of the prostate and vesicle as seen in this material an older process than that of the epididymis? I am strongly of the opinion that it is, although I cannot definitely say so at present, for reasons previously mentioned. Certainly the findings thus far made are consistent with this assumption.

SUMMARY

Since it has been demonstrated that seven cases bearing tuberculous epididymides had a central area of infection with this disease at the time of operation, may it not be that many of our bad results, after the removal of the epididymis, are due solely to a misconception of the mode of invasion? Pathologic and clinical evidence of the past has not been able to afford a sure knowledge of this subject. The evidence which the cases under discussion offer is at least consistent with the hypothesis that when the male genitalia are affected with tuberculosis, this occurs first in the prostate or vesicle, to extend later to the epididymis. After removal of the entire seminal tract on one or both sides, the results are at least as good as those following epididymectomy alone. My belief is that the future will show that they are much better.

ABSTRACT OF DISCUSSION

DR. J. DELLINGER BARNEY, Boston: I was very much interested in Dr. Quinby's paper. We have now about two hundred cases which have been followed from a few months to several years since operation. It seems to me that the evidence is overwhelming, that the primary focus is not in the prostate or seminal vesicle, but in the epididymis. My reasons for this view are simple. Why is it that when the epididymis is removed on one, or particularly both sides, the process in the seminal vesicle or the prostate will quiet down? This has taken place in all but two or three of our cases. In these cases there was a continuance of the process, with rupture of an abscess sometimes into the perineum—once, I believe, into the rectum. But in all other cases the prostate and the seminal vesicles which were markedly indurated and clearly tuberculous before operation, subsequently quieted

down, resulting in a clinical cure. Also the tuberculous bladders have quieted down symptomatically and cystoscopically. It seems to me that this in itself is almost a sufficient answer.

I had occasion two or three years ago to go over the entire literature of the subject, and found that primary tuberculosis of the seminal vesicle or of the prostate was excessively rare, whereas secondary invasion from the epididymis, was almost constant. I have been informed by competent pathologists that it is sometimes impossible to tell the age of a tuberculosis process by either the gross or microscopic appearances.

I have great respect for the operations which Dr. Quinby has performed; but it is my belief that it is impossible to remove tuberculosis by such an operation, because by the time the diagnosis can be made, the process has spread outside of these organs and the lymphatics are involved. I do not believe that his, or any technic, will enable us to clear it all out.

DR. J. P. O'NEIL, Chicago: I think we are all agreed that these cases of tuberculosis are primarily surgical; but I do not believe that we should stop there; it is essential to eradicate the primary focus as much so as in the treatment of tuberculosis. I have used mostly Koch's old tuberculin in dilutions of 1 to 10, 1 to 100, and 1 to 1,000; and as high as 1 to 100,000. In all of these cases I started in with tuberculin immediately after the operation, or as soon afterward as possible.

If possible I make the injection about 4 o'clock in the afternoon. About twenty-four to twenty-eight hours after the injection a temperature reaction appears with a local reaction at the area primarily involved. I have found that we may have no temperature reaction until 48 hours afterward. I have often seen it go as long as 72 hours afterwards before a temperature reaction appeared. I think the temperature reaction did not go above 99.6 F. I believe that when we get above 99.6 F. we get above the opsonic index which we are really trying out there.

Many of these cases usually show no temperature reaction at all for six or seven days afterward. They will have merely the general reaction. You must be careful about increasing the doses. You should give about the same doses for two or three weeks at a time if the temperature reaction does not go above that. Provided you have no reaction you can increase the dosage one drop. I give tuberculin usually seven or eight days apart. My aim is to bring them, if I can, up to the point where I give them pure tuberculin eventually, that is, one drop of pure tuberculin without getting a reaction. It takes possibly two years or more to reach that point; but the effect that I have seen is in the abatement of the symptoms more than anything else. You must see that their living conditions are as good as possible. Pure tuberculin, if it is legitimately used, should be used in every case, because general tuberculosis or kidney tuberculosis is an adjunct following the treatment.

DR. JAMES A. GARDNER, Buffalo: I should like to ask Dr. Quinby about the number of sinuses that he has after this operation. It appeals to me as a very clever one, but in our hands we have found that an operation on the vesicles was much like an operation on the kidney; that we usually had tubercular tracts in spite of all we could do. Within the last few years, a municipal sanatorium at Perrysburg near Buffalo, was opened where there was administered the Rollier or sun treatment. I think the practitioners in Buffalo did not think very much of it until it had been established two or three years, and then a number of so-called hopeless cases, not only urinary cases, but bone tubercular cases—which they were glad to get rid of—were sent out there. They give a program at the Buffalo Academy of Medicine one evening during the winter at which they exhibit a number of these cases, and also show photographs and moving pictures. We were shown a number of cases which we felt were practically hopeless that had improved wonderfully. We have felt since that if we can remove some of the foci and send them there to be treated that they clear up reasonably well. I should be glad to hear what Dr. Quinby has to say about end results.

DR. OSWALD S. LOWSLEY, New York: When I was in Cincinnati recently, a gentleman whose name I do not just remember now, called my attention to an article he had written on the effect of ether anesthesia on early tuberculosis lesions. In this article he called attention to the fact that in certain pulmonary conditions where in operations it had been necessary to employ ether anesthesia the patient had derived some benefit when the disease was not too far advanced. He quoted a number of cases to bear this out; and on my return home I gave two or three patients ether anesthesia in connection with cystoscopy which was painful, in order to determine the truth of his assertions about kidney tuberculosis. They did show some improvement of their tuberculosis lesion; they both gained slightly in weight, and improved as regard their other symptoms. They were both early cases. What I did to them had absolutely nothing to do with their treatment, it was simply a matter of investigation.

DR. W. C. QUINBY, Boston: I am thankful to Dr. Barney for making the very frank remarks that he has, because my point in presenting this paper was to bring this subject to your attention; recognizing very well, indeed, that our treatment is not yet a final one. It was far from my intention to try to do unnecessary operating. That is not justifiable, and if we can definitely know that the removal of the epididymis is sufficient, I will be the first person to agree. But Dr. Barney is not consistent. He said that of about 200 cases of tuberculous epididymides, in all but two or three instances the disease in the prostate and vesicles has quieted down after the removal of the epididymis, and that there has been no recurrence. If the results of epididymectomy only, are as good as this, then there is no earthly point in these operations which I have been doing. But this recently mentioned very small number of recurrences is not what Dr. Barney has gone on record in print as finding from his statistics; neither is it shown by the statistics of any other men. Therefore I maintain that he is not consistent.

When one begins to draw deductions from embryologic sources on which to base the physiologic function of an organ of the body, one is treading on very insecure ground indeed. To consider the testicle an excretory organ because in its embryology it takes origin near the kidney, is no more logical than to consider the suprarenal an excretory organ simply because it takes origin in the embryo near the kidney in the general region of the wolffian body. This is no proof at all; it is a theory merely, fabricated to explain the clinical situation. To my mind it explains nothing whatsoever.

In regard to the pathologic question as to how one can tell the age of a tuberculous process, I quite agree with Dr. Barney that it is a very difficult thing to do, and for this reason I have been unwilling as yet to make any definite statement in regard to the material which I have secured by operation. I have the opinion of three or four pathologists whom we all recognize as being men of ability that it will probably be possible to tell the age of the tuberculosis when one has the whole tract for examination. It was planned to make an extensive serial section study of all this material, but this has not yet been done, because my technician has gone to the war.

Dr. Barney makes the point that it is impossible to remove all the tuberculosis. I quite agree with him. I do not pretend to remove all the tuberculosis. The outcome of surgical tuberculosis is improved by the removal of a certain amount of tuberculous tissue to give the patients' bodily forces and powers of resistance a sufficient opportunity to combat what remains. I feel in regard to these genital cases that they are in no sense different from those bearing a tuberculosis of the bowel or of the cervical glands. The problem is the same in all of them. If the surgeon states that by operation he is removing all the tuberculosis in the patient's body he merely illustrates his ignorance of the pathology of the disease. I do not feel that this operation which I have done removes all the tuberculosis. I do feel that, if the statistics which we have in hand showing that about half the cases suffer recurrence after a simple epididymectomy are

correct, this makes it evident that there has not been sufficient tuberculosis removed to give the patient a chance to overcome the disease. Therefore more of the disease should be attacked than is done by the performance of a simple epididymectomy.

I agree with Dr. O'Neil's remarks concerning tuberculin. All of my patients have been put on a strict antituberculous hygiene and this includes regular visits to the hospital. They are also looked after by the social service department and they are given "old tuberculin."

In regard to Dr. Gardner's question about sinuses in the perineum following operation, this is an important point and is the strongest argument which has previously been advanced against the perineal operation in tuberculosis. There was only one occasion in which the perineal sinus discharged for as long as three months, and in no case was there enough discharge to amount to anything.

I have not had any experience in regard to the subject discussed by Dr. Lowsley. Almost invariably all my operative work in urinary or genital cases is done under nitrous oxid anesthesia.

DR. J. DELLINGER BARNEY: Will Dr. Quinby please state the point that he is in doubt about?

DR. QUINBY: I quoted what you had published in an article written about two years ago. You said "It is characteristic of the disease to attack the opposite epididymis in over one half the cases, within a year or two of the time of the involvement of the first side. This catastrophe occurs in spite of all efforts to prevent it, but an early excision of the epididymis first attacked will improve the chances of its fellow;" and this statement is in direct accord with the statement made by Dr. Keyes, Jr., several years before. You now tell of cases to the number of 200 or more which you have personal knowledge of, and in only two or three of these did the genital tuberculosis of the vesicle or prostate fail to quiet down after the epididymis was removed. It is evident that these statements are not consistent.

DR. BARNEY: I see your point of view. I think that the situation is this, and it will answer Dr. Quinby's question and straighten out the matter. Recurrence or relapse occurs on the opposite side in about 50 per cent. of the cases. This we have considered to be due to involvement of the prostate and vesicles from the first epididymis, but after removal of the first epididymis the process in the prostate and seminal vesicle quiets down in about 50 per cent. In the other 50 per cent. the process in the prostate or seminal vesicle does not subside before involvement of the second epididymis takes place. We have divided the second vas at the time of the removal of the first epididymis, or have taken out a section in the hope of preventing a recurrence on the second side, and have found the latter measure very successful. Where sterility can be shown to exist, as it does in most instances of this nature, no harm is done. It is also true in the cases where both epididymides have been taken out, with two or three exceptions, that the prostate and the vesicle which were previously tuberculous have quieted down to the extent that they are clinically cured. In other words, unilateral epididymovasectomy will retard a tuberculous process in the prostate and seminal vesicle and prevent relapse on the opposite side in about half the cases; in the other half the second epididymis becomes involved in spite of the removal of its fellow. After bilateral epididymovasectomy either at one or two sittings the prostate and seminal vesicle become clinically cured. Does this remove the apparent inconsistency of my remarks?

Health and Economic Loss.—I cannot estimate the economic losses that occur daily or yearly because of inefficient health and unsuccessfully treated disease. Great economists have tried but their estimates can never even approximate the real loss. There are other losses of greater importance than the economic losses. They are world losses in intellectual output; losses in public service; losses in ideal, commercial, professional, educational and religious progress; and, greatest of all, losses in human happiness—which follow this worldwide careless waste of human health and human life.—T. A. Storey, M.D., Ph.D., on Physical Training.

SOME NEW INSTRUMENTS IN OPERATIVE CYSTOSCOPY*

BRANSFORD LEWIS, M.D.

ST. LOUIS

PROSTATIC INCISOR

The pathologic reality and the various serious consequences of the condition known as contracture of the vesical neck are now well established. Endeavors

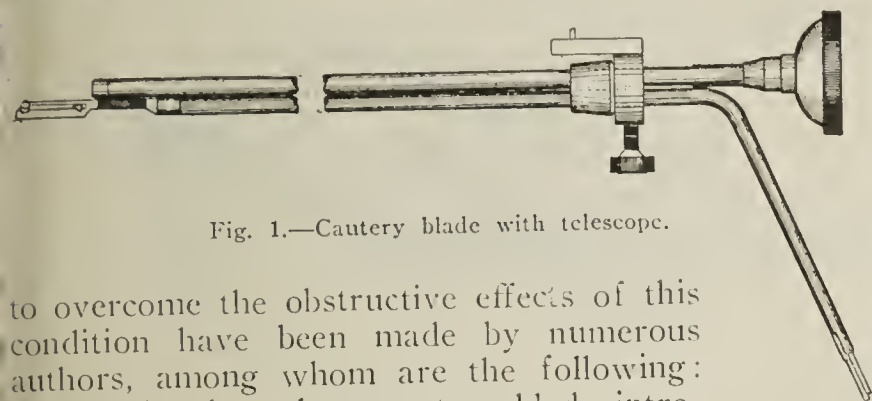


Fig. 1.—Cautery blade with telescope.

to overcome the obstructive effects of this condition have been made by numerous authors, among whom are the following: Bottini, by the galvanocautery blade introduced through the whole urethra; Chetwood, by the same method applied through a perineal incision; Young, by punching out a section of the constricting neck. And Bugce has used high-frequency fulguration with the ordinary insulated wire.

Two years ago or longer the desirability of opening the constricted channel without the perineal urethrotomy of Chetwood, or the strong tendency to hemorrhage induced by the punch operation of Young, was impressed on me. It was thought that some mode of applying fulguration more effectively than could be done by the wire was the desideratum. An irido-platinum blade suggested itself.

With the assistance of the Wappler Electric Manufacturing Company and Mr. William A. Phillips, the instrument presented in Figure 1 has been evolved.

It consists of the blade mentioned, attached to a well-insulated wire, the center of a flexible shaft, capable of being attached by clips to either the direct or indirect telescope of my universal and operating cystoscope and utilized under direct observation of the operator.

The d'Arsonval (bipolar) current is used because of greater ease of control with respect to insulation, and the more effective cauterization it conveys.

A footswitch is used to turn on the current, when it is seen that the blade is properly applied against the constricting ring; and while the current is active



Fig. 2.—Ureteral knife.

the blade may be slowly drawn toward the operator, or back and forth, as desired.

Pain is avoided by the use of one or two tablets of cocaine through the urethral tablet depositor. Bleeding seldom accompanies, but if it does occur in connection with an inflamed prostatic urethra, the blood may be swept out of view by opening the irrigating cock of the cystoscope sheath.

The after-effects are so little in evidence that the cases are ambulatory with the exception, perhaps, of a day or so of quietude to avoid infection.

Internal antiseptics (helmitol) are advisable coincidentally.

As an illustration of the efficiency and at the same time the innocuousness of this method, the following notes are given in brief:

CASE 1.—D. R., a farmer of Oswego, Kan., aged 64, was referred to Dr. E. E. Liggett. Fifteen years before, the patient had been hurt while riding horseback and had suffered from prostatitis and retention of urine. Six years later, he had had retention. Aug. 26, 1916, after an auto ride on a cold day, he had suffered from retention and had been catheterized every eight hours for several days. August 31, he consulted surgeons of another city, where, on account of the seriousness of the situation, continuous drainage through a catheter suprapubically was established. He was then sent home to be advised later as to when prostatectomy should be carried out. Dissatisfied with this arrangement, he consulted me in October. His condition was then bad. He was unable to pass any urine save through a catheter or the suprapubic drainage tube, and infection of the suprapubic opening was making itself manifest. The urine was of low specific gravity, indicating that the kidneys were beginning

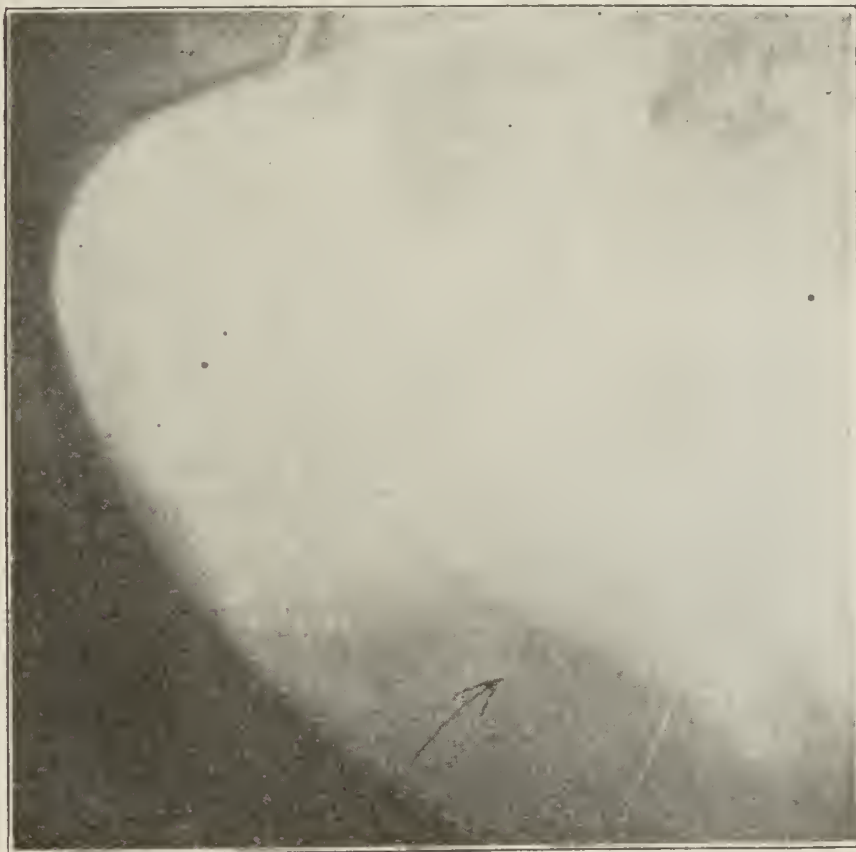


Fig. 3 (Case 2).—Shadow in contact with ureteral catheter, simulating ureteral stone (compare with Figure 4).

to participate in the degenerative process. Indeed, he was in no condition for prostatectomy, even if it had been desirable.

Fulguration with the prostatic incisor was first used October 17. The effects were striking. A few days after the first one, he was able to urinate voluntarily and to empty the bladder completely. The fulgurations were supplemented with deep urethral dilatations from time to time.

The patient has reported once or twice since, being in fine condition, with free urination and complete emptying of the bladder.

Several other instances of equally satisfactory results might be cited, but are omitted for lack of space.

URETERAL KNIFE

For a number of years, since about 1904, I have made use of ureteral scissors in connection with the operating cystoscope, for the purpose of opening a constricted ureter, or enlarging its orifice. In most such cases, they have given good service, but in some it was found that the lip of the orifice would slip

* Read before the Section on Genito-Urinary Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

away from the closing blades of the scissors and an incomplete effect was the result.

The accompanying ureteral knife (Fig. 2), acting from behind forward, is intended to overcome this uncertainty. The blade is sunk and out of play while being introduced or until it is brought into play by turning the thumbscrew on the handle. The amount of divergence of the blade may be gaged and controlled by observing the number of turns of the screw and the direction of the blade as indicated by the little knob on the handle. It is obvious that the blade should be directed toward the superior lip of the orifice, so that the cutting will be toward the cavity of the bladder.

USE OF URETERAL FORCEPS FOR DIFFERENTIATION OF PHLEBOLITH FROM URETERAL STONE

CASE 2.—Mrs. S., aged 42, was referred by Dr. Boynton of Sparta, Ill. She gave a history of intense suffering in the right renal region and also of intermittent colics on the left side, apparently low down in the ureter. A roentgenogram



Fig. 4 (Case 2).—Ureteral forceps 3 inches up the ureter, removing the ureter from the shadow of a phlebolith previously in contact with a ureteral catheter (compare with Figure 3).

(Fig. 3) taken with a catheter in the ureter showed a shadow apparently in immediate contact with the catheter.

While the shape of the shadow did not conform to that typically characteristic of stone, it was not such as to make a definite denial of stone, and its apparent apposition to the catheter gave strong evidence presumptive of a stone, especially when taken in connection with the symptoms given. But this evidence was shown to be erroneous when ureteral forceps were introduced into the same ureter and another roentgenogram was taken (Fig. 4). The forceps, being more rigid than the catheter, straightened out the ureteral channel, definitely separating it from the shadow by a distance of half an inch. This action indicated that it could not be a stone within the ureter and therefore must be a phlebolith.

It is hoped that this sign may in certain cases prove as useful for differentiation as it proved in this one.

URETERAL DILATOR WITH PARALLEL DILATING BARS

The ureteral dilators previously submitted by me have had an objectionable feature in the fact that the

most forcible dilatation was centered at some one point instead of being applied evenly along the ureter for a given distance (Figs. 5 and 6).

The latest model, herewith shown (Fig. 7), overcomes this objection and also gives a more forceful effect than the previous ones.

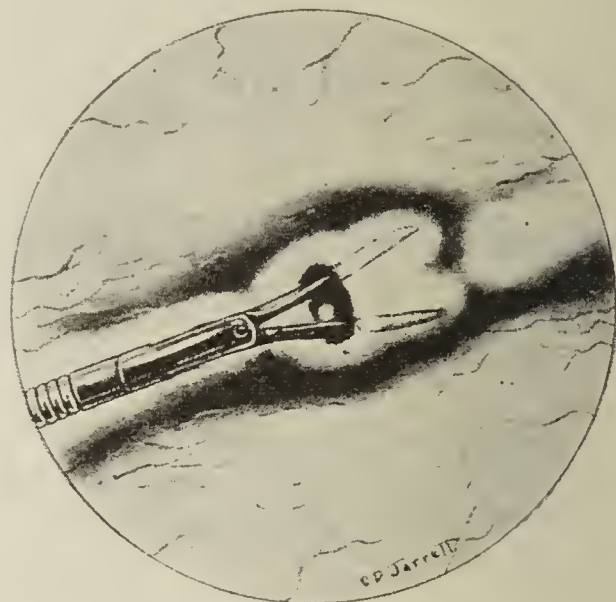


Fig. 5.—Ureteral dilator.

In addition to its use as a dilator, either at the meatus or above, it is conceivable that it might be used for traction on an incarcerated stone, as shown in Figure 8 D. I have not had an opportunity of using it in this way.

Since reading this paper, the author has removed an incarcerated stone by the method described above directly from the ureteral caliber, fully 2 inches above the orifice.

ABSTRACT OF DISCUSSION

DR. WILLIAM F. BRAASCH, Rochester, Minn: The instruments which Dr. Lewis demonstrated are a distinct improvement over his previous ones; the rectangular dilator is a great improvement over the Kollmann dilator type. The intraureteral knife ought to be much more practical than the scissors. Although the meatus may be cut with impunity, it is necessary to exercise great care in cutting the ureter itself. But in the upper portion of the ureter, above the distance of 2 c.c., I would be very loath to do much cutting. I have seen several ureters punctured by the introduction of stiff ureteral catheters. I was also much interested in Dr. Lewis' very ingenious method of distinguishing shadows in the para-ureteral area.

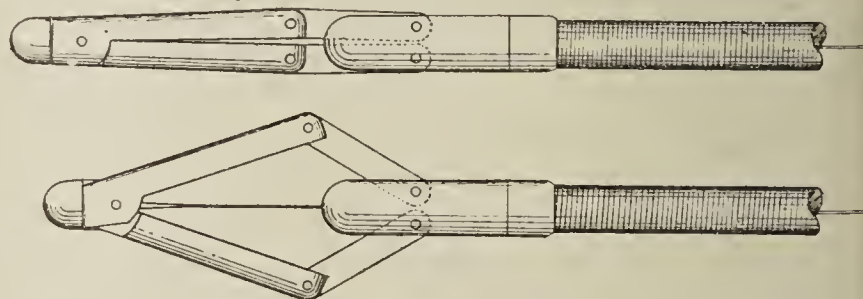


Fig. 6.—Ureteral dilator, closed and open.

I think it is a very valuable point, something well worth trying. The idea of using a stiff instrument which will not bend and will not permit the ureter to bend, or to straighten out the ureter drawing it away from the shadows, is a good point. I think it would be a good thing to follow in making a diagnosis of those troublesome shadows in the lower ureter. The unaided catheter is of comparatively little value in interpreting small shadows; it is as frequently misleading as it is of diagnostic value. I have long ago called attention to this point, and have advocated the use of the ureterogram. I can plainly see that even a stiff instrument or sound can also be misleading under certain conditions. I think that after all is said

and done a final evidence as to the identity of these doubtful stones is the ureterogram. I have never yet seen a ureterogram fail if properly interpreted. I recognize the value of the method that Dr. Lewis has suggested in these particular cases.

DR. H. L. KRETSCHMER, Chicago: A contribution such as Dr. Lewis' is responsible, in part at least, for the fact that the entire treatment of stone in the ureter, for instance, has come back to the urologist, and that we have more cases referred to us for treatment for intravesical manipulation

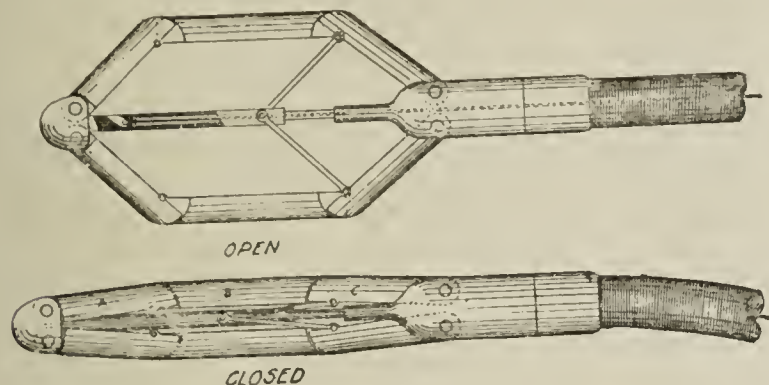


Fig. 7.—Latest model of ureteral dilator, with detail of parts.

instead of having them operated on by the open method. Surely I believe that all of us, if we had a ureteral stone, would want to be operated on by the intravesical rather than by the open operation. Any improvement in the technic or in the instruments is always a step in the right direction. In reference to localizing shadows in the ureter, I think his method is very novel and very good; but it means that Dr. Lewis passed a shadowgraph catheter first, subjecting the patient to a second cystoscopic to accomplish his object. It required a second cystoscopy. Recently we have been doing that in another way. We make a double exposure with one plate. After the shadowgraph catheter has been passed an exposure is made. Then, without changing either the position of the patient or without changing the position of the plate, a

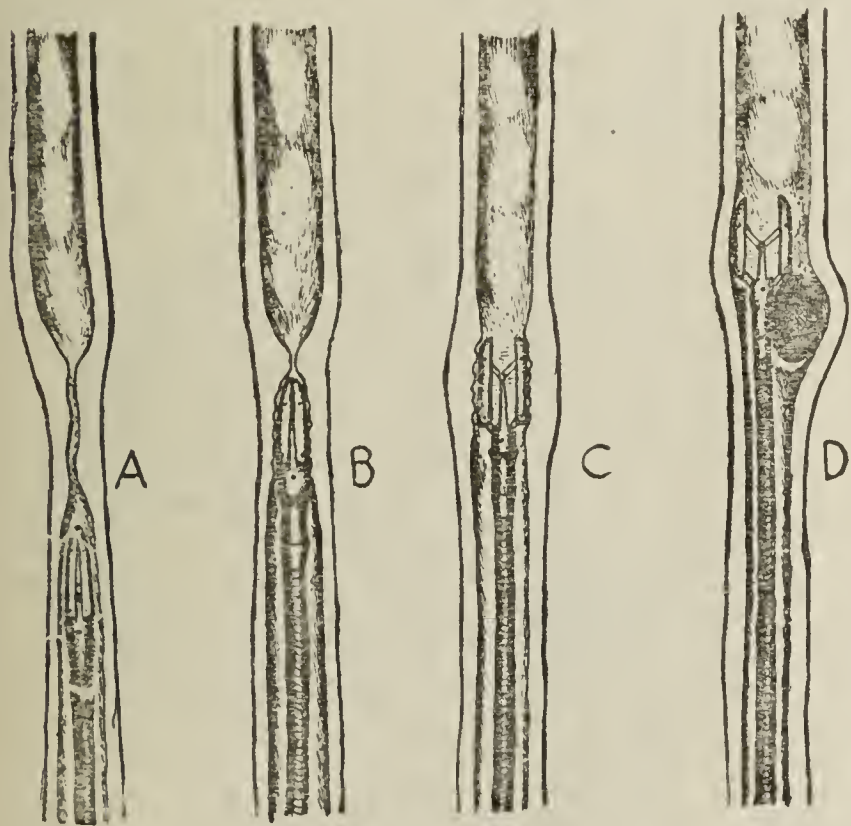


Fig. 8.—Use of dilator: A, in strictured ureter; B, entering stricture; C, dilating stricture; D, making traction on a stone in the ureter.

second exposure is made on the same plate by changing the position of the tube. In cases of ureteral stone two shadowgraph catheters are seen and two ureteral calculi, both in exactly the same relationship to the catheter. In cases in which we suspect a stone, but the suspected stone shadow is produced by an extra ureteral shadow-producing body, we then obtain a double exposure, one of which shows a distinct interval between the suspicious shadow and the ureteral catheter. It seems to me in that way we can avoid two cystoscopic examinations.

FAMILIAL MACULAR DEGENERATION WITH AND WITHOUT DEMENTIA

WITH A REPORT OF TWO NEW CASES OF THE TYPE
WITH DEMENTIA *

HOWARD S. CLARK, B.S., M.D.

Assistant Professor of Ophthalmology and Otolaryngology, University
of Minnesota Medical School

MINNEAPOLIS

Since 1897, when R. D. Batten¹ reported two cases in brothers, each of whom showed symmetrical affections in the two eyes consisting of dark spots in the macula and pallor of the optic nerve heads, a small number of cases in families have been reported.

These cases belong in the classification of familial degenerative diseases, among which those affecting the eye are the amaurotic family idiocy of Tay and Sachs; the juvenile type of amaurotic family idiocy of Spielmeier,² Vogt, F. E. Batten³ and others, and familial macular degeneration with and without dementia.

Between Tay-Sachs' disease on the one hand and macular degeneration without dementia on the other there are, of course, great differences; but analysis of many cases of familial disease seems to show a gradual transition from one to the other. In fact, when one attempts to put together syndromes and to give them definite names, one is at once confronted by numbers of atypical cases that might belong to one of any two groups.

For example, the juvenile type of amaurotic family idiocy seems to merge on the one hand into the infantile type, and on the other into familial macular degeneration with dementia.

Of the form known as familial macular degeneration, we may say that, combined with symmetrical degeneration of the macular region of the two eyes, there is in some cases a cerebral degeneration causing dementia.

Oatman⁴ divides this form of degenerative disease into two types: the macular type in which the retina alone is affected, and the maculocerebral type in which both retina and brain are attacked. In this discussion, when the term "macular type" is used, it refers to the type without dementia. The term "maculocerebral type" is used to convey the idea of the disease combined with dementia. In the macular type we have simply an affection of the eyes and no cerebral symptoms whatever. This begins during the period of puberty, between the ages of 12 and 14 years, though Stargardt⁵ reports one case beginning as early as the eighth year. This is in marked distinction to the maculocerebral type, the form with dementia, which begins between the fifth and seventh years, the period of second dentition.

The condition in the two eyes is symmetrical, and the objective and subjective symptoms develop very gradually, though we find exceptions to this rule in Lutz⁶ and Sterling.⁷ The first symptom is diminution of central vision of both eyes and central scotoma for

* Read before the Section on Ophthalmology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Batten, R. D.: Tr. Ophth. Soc. U. Kingdom, 1897, **17**, 48.

2. Spielmeier: Neurol. Centralbl., **225**, 51.

3. Batten, F. E.: Quart. Jour. Med., 1913, **14**, 444.

4. Oatman, E. L.: Am. Jour. Med. Sc., 1911, **142**, 221.

5. Stargardt: Arch. f. Ophth., 1909, **71**, 534; Ztschr. f. Augenh., **30**, 95.

6. Lutz: Klin. Monatsbl. f. Augenh., 1911, **49**, 699.

7. Sterling: Neurol. Centralbl., **225**, 55.

red and green, which goes on gradually until, after some years, there may be complete loss of central vision. The periphery of the field of vision is unaffected and shows normal boundaries. Because of disease of the macular region while the periphery of the retina remains fairly normal, the patient develops, first, excentric fixation, and finally, nystagmus.

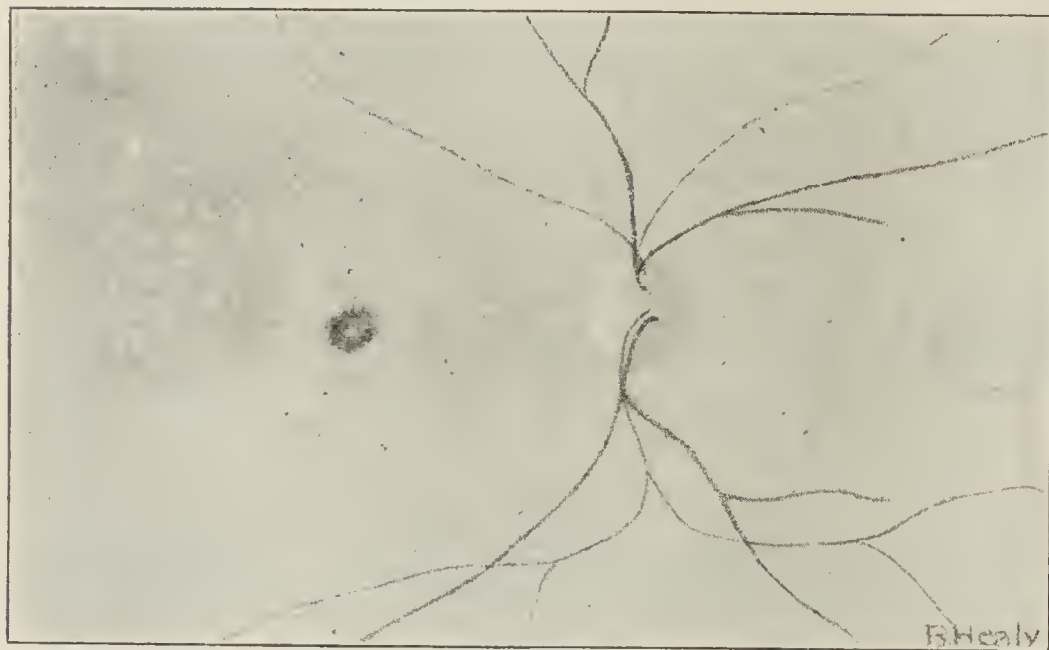


Fig. 1 (Case 1).—Right fundus, April, 1918. Left fundus practically the same. No optic nerve atrophy; vessels narrowed.

Ophthalmoscopically we find atrophy and degeneration of the retina almost always confined to the macular region, somewhat resembling the conditions produced by a senile macula. At first, the macular region shows delicate yellowish gray spots apparently not raised above the level of the surrounding fundus. These spots gradually coalesce and we have a dirty grayish yellow spot about the macula with a diameter equal to that of one or two disks. Covering the spot is a sprinkling of fine pigment granules. For a short distance around the grayish yellow spot the fundus may be dotted with a fine pigment, resembling black pepper. The retinal vessels are normal in the macular type. As to the general condition, we find in the macular type that there are no mental symptoms nor, in fact, any symptoms at all excepting failure of vision, excentric fixation and nystagmus. The general health is good in all reported cases.

This type is much more common than is the type combined with dementia. I was able to find reports of thirty-seven cases of the macular type and ten undoubted cases of the maculocerebral type. Of the latter, four additional cases have been reported which, however, we should class as atypical, because of some variations in history and symptoms.

The maculocerebral type, that is, the type which is characterized by the addition of cerebral symptoms, or dementia, to the eye symptoms already described, is distinguished from the macular type by the fact that the onset occurs at about the time of second dentition, instead of at puberty, and that cerebral changes begin at the same time as those in the macula. There is a gradual loss of intelligence leading to dementia. Ophthalmoscopically the changes are identical, except that optic nerve atrophy is more common in the type combined with dementia. The general health in practically all cases of both types reported has been remarkably good, and the patients have been well nourished, free from constitutional diseases and paralyses, and of good family history.

In addition to the cases that may be definitely designated as of the macular type and of maculocerebral type, we have some cases reported which, while conforming in many details to the accepted syndrome of the disease, present variations that prompt us to classify them as irregular cases. As examples, we have Stock's⁸ three cases and Hirschberg's⁹ one case.

REPORT OF TWO NEW CASES OF FAMILIAL MACULAR DEGENERATION WITH DEMENTIA

The patients in these cases are two of a family of five children. The other children of the family, one brother aged 7 years and two sisters aged 11 and 4, respectively, are in good health and are normal in every particular.

The two children who are affected present typical cases of the maculocerebral form, showing distinct cerebral symptoms as previously reported by F. E. Batten¹⁰ and Oatman,⁴ Nettleship,¹¹ and others.

The parents are persons of ordinary intelligence and in good health. There is no history of consanguinity, hereditary diseases, or mental diseases known in any branch of the family. There is no Jewish blood. The eyes of the parents are normal. There is no history of eye trouble in the grandparents or in the brothers or sisters of the parents or their descendants. The parents are farmers and give no history of venereal disease, and in both the Wassermann test was negative. In brief, there is absolutely nothing in the family history that has a bearing on this condition.

CASE 1.—R. L., boy, aged 9 years, referred by Dr. C. L. Scofield, Benson, Minn., to Dr. J. P. Sedgwick, July 3, 1916, complained of poor vision and was of lowered intelligence.



Fig. 2 (Case 2).—Left fundus, June, 1916. The retinal vessels, two years later, have almost disappeared, reaching only slightly beyond the disk margin, and the optic nerve has become atrophic.

He was well nourished and strong, and showed no paralyses. In earlier years he had been a normal child, as far as was known, with apparently normal vision. He had played about as other children, had started school when about 6 years of age,

8. Stock: *Klin. Monatsbl. f. Augenh.*, **46**, 1, 225.

9. Hirschberg, J.: *Centralbl. f. Augenh.*, January, 1904, p.12.

10. Batten, F. E.: *Tr. Ophth. Soc. U. Kingdom*, 1903, **23**, 386.

11. Nettleship: *Tr. Ophth. Soc. U. Kingdom*, 1909, **29**.

and had learned the alphabet. At this time he had no difficulty with vision and was said to be mentally as alert as other children. Previous diseases were mild measles and whooping cough. After he had passed the age of 7 years, his vision began to fail and the parents noticed that he looked sidewise in order to see.

At the same time he had suffered a gradual loss of mental alertness, which had made him unable to continue in school. These symptoms had become gradually more marked until at the age of 9, he was quite dull mentally and had no central vision. He could see large objects with the periphery of the retina by turning the head—eccentric fixation. Horizontal ocular nystagmus was present to a moderate extent. Examination of the visual fields was found impossible because of the patient's limited intelligence, poor vision and nystagmus. The Wassermann reaction was negative, as was also the roentgenogram of the skull. The urine and the blood were negative. Externally, the eyes were normal, and the cornea and aqueous were clear. The iris was of normal appearance with no evidence of previous inflammation. The pupils were dilated and reacted little, if at all, to light, but did react to accommodation.

The ophthalmoscope showed that mediums were clear and the optic nerve and retinal vessels normal. At the macula was a horizontally oval spot resembling those in some cases of senile macula, about 1 D. in long diameter, of a dirty dark gray yellowish color, and with very fine pigment spots. The spot at the macula was quite distinctly marked off from the adjacent area, but the retina had a grayish cast for about 1 D. surrounding it. The remainder of the fundus was apparently normal. The appearance of the two eyes seemed almost identical. There were no edema, exudates, coarse pigment deposits nor any results of previous inflammation seen in the fundi. In March, 1918, nearly two years later, all conditions were practically unchanged.

CASE 2.—P. L., girl, aged 13 years, a sister of the patient in Case 1, had always had good general health, though she had complained of headache. There were no paralyses. She was very well nourished and the urine, blood and Wassermann reaction were negative. The roentgenogram of the skull was negative. The only previous disease had been measles. Vision had fallen so that she could not go about alone. She had been a bright child and at about 6 years of age, had begun school, where she had learned to read and to write her name. She was about 7 years old and in the second grade when her vision and mind had begun to fail. One year after discontinuing school she had begun to have what her parents called "fits." Mentally, the child was demented until her intelligence was about that of an imbecile. Because of the nystagmus and mental condition, visual fields could not be taken. The pupils were dilated and reacted little, if at all, to light. She had eccentric fixation and the staring appearance of one almost blind.

Externally, the eyes showed no disease. Ophthalmoscopic examination showed clear media and no evidence of previous inflammation. The fundi showed a condition similar to that of the brother's, but seemingly more advanced. The optic nerve was distinctly atrophic and the retinal vessels were small. At the maculae was the same dirty grayish yellow area as seen in the brother's eyes. This area was about 1 D. in its horizontal diameter. Around this macular area, for a width of about $1\frac{1}{2}$ D., the retina had an atrophic appearance, was of slightly lighter color than the rest of the fundus, and looked as though it had been sprinkled with fine black pepper. The fundi of the two eyes were alike, except that one showed in the nasal inferior quadrant some flat, pale, grayish splotches of pigment which were almost transparent, and which were traversed by the retinal vessels without modification.

In March, 1918, the condition was the same, except that considerable pigment deposits appeared in other parts of the fundi than the maculae, and the retinal vessels atrophied so that they extended only a short distance beyond the disk.

The two cases reported in the foregoing are of the type of familial macular degeneration with dementia, eight cases of which were reviewed. The eight do

not include Hirschberg's one case or Stock's three, which may be classed as atypical.

Oatman⁴ reported the cases of two children in a family of three, which are remarkably like the two new cases that I have just reported. The eldest and the youngest were affected with macular degeneration with dementia, while the intermediate child, aged 10, was normal in all respects.

Summarizing the findings in the cases of macular degeneration with dementia which are so far reported, we are able to form a definite syndrome. It is true that some cases vary in details, but this is true in summarizing the symptoms of any disease. Of this type we find reported five families, consisting of thirty-two persons, ten of whom were affected. In all the cases the two eyes were symmetrically affected.

The age at which patients were examined varies from 8 to 13 years, except in Nettleship's patient, who was 48 years old at the time of examination. The age of onset in the maculocerebral type varies from 5 to 7 years, approximately the period of second dentition. At this time, we have failure of vision and intellect, sometimes accompanied by headache and convulsions, though convulsions may not set in until later in the course of the disease, and have not always been reported present.

As stated before, judging by our knowledge of this condition at the present time, I am inclined to regard macular degeneration with and macular degeneration without dementia as the same disease. Why the onset of one type occurs at the time of the second dentition and is accompanied by cerebral degeneration, while the onset of the purely macular type occurs at puberty, and is not accompanied by cerebral change, remains to be explained.

Of the other type of the disease, that is, macular degeneration without dementia, I find thirty-seven undoubted cases. Stargardt⁵ has reported to date ten cases in three families, which is the largest number reported by any observer.

ETIOLOGY

No positive statement of the cause of this disease can be made in the present state of our knowledge. There are no deformities, nor ocular anomalies reported, nor any chronic general disorders with which the disease can be brought into relation.

Syphilis is strikingly absent. Only Mayou,¹² in his family of three cases out of the ten reported cases of the type with dementia, mentions it as a possibility, and he simply states that "doubtful syphilitic history was given by the mother." Batten in three cases and Nettleship in one case ignore this point. Oatman, in his family of two cases, and the family of two new cases that I have reported, give definitely a history of the absence of syphilis.

We thus have four cases of the type with dementia reported with definite absence of syphilis, three in which syphilis is not mentioned and three with doubtful syphilitic history in the mother. Since it is very probable that syphilis would have been mentioned by Batten and Nettleship had it been present in their cases, we may assume that they did not find it. Concerning the incidence of syphilis in the type without dementia, of the thirty-four cases reported twenty-two are definitely nonsyphilitic. In ten cases the point is not mentioned, and in two cases of R. D. Batten

12. Mayou, M. S.: *Tr. Ophth. Soc. U. Kingdom*, 1904, **24**, 142.

syphilis is mentioned in the parents, but the children showed no signs of hereditary syphilis.

Thus out of forty-four reported cases in both types of the disease, twenty-six are reported definitely non-syphilitic, the point is not mentioned in thirteen cases, and five cases give a doubtful syphilitic history. We should seem justified in excluding syphilis as an etiologic factor until such time as undoubted syphilis is demonstrated in a fair number of cases. At present the evidence is against it.

Against the theory that macular degeneration is congenital stands the fact that, in the type without dementia, vision remains good until the period from the tenth to the thirteenth year or about puberty, while in the type with dementia, the patient is normal until about the time of second dentition, at the age of 6 or 7 years.

In all analyzed cases, except Feingold's¹³ three cases, the patients were Gentiles, in marked distinction to the Tay-Sachs type of amaurotic family idiocy, which attacks Jews almost exclusively.

Consanguinity cannot be totally excluded as an etiologic factor, as there was blood relationship in some reported cases, but those in which there was no blood relationship preponderate. As consanguinity has appeared, however, in four out of ten cases of the type with dementia, we must bear it in mind as a possible cause. In the cases of macular degeneration without dementia, it has appeared in only three out of thirty-four cases reported. Stargardt,⁵ who in 1913 evidently had not seen the Jennings¹⁴ report of 1909, describing three cases of the macular type in which the patients were children of first cousins, advances the theory that since consanguinity had not, to his knowledge, been reported in the macular type, it might possibly be a factor in determining whether the disease should assume the macular or maculocerebral type. His idea was that where there was consanguinity the form with dementia was more liable to appear than in those cases in which there was no blood relationship.

In the light of analysis of reported cases, I cannot at this time accept this theory, because I have reviewed cases enough of the type with dementia in which consanguinity is precluded to make the theory untenable. Besides, Jennings' three cases of the type without dementia in which there was consanguinity, make it even less probable that blood relation determines what form the disease shall assume.

Among forty-four cases of both types reported, seven cases give a definite history of consanguinity, twenty-two of no consanguinity, and in fourteen the point is not made clear. Thus, it may be seen that until we have an opportunity of analyzing many more carefully reported cases, the question of consanguinity as an etiologic factor must remain unsettled. At present I may say that, while consanguinity may be a contributing factor, it is not a necessary element of the etiology.

Heredity must also be considered as a cause. Direct heredity, as in congenital cataract, etc., has not been observed. Rather this disease should be classed under collateral heredity, as defined by Bollinger, "when children of the same family suffer from the same disease, no cause for which can be found among parents or grandparents." No cases of the disease have been reported, except among brothers and sisters.

We should bear heredity in mind as a possible etiologic factor, though the disease itself has not appeared in succeeding generations.

As to the nature of the disease, we are absolutely in the dark. Stargardt says, "The question of the nature of the inherited *Krankheitsanlage* and of the direct cause of the disease process remains completely unsettled." He suggests that in the retinal disease, as also in the cerebral disease, which appears in the type with dementia, we have a certain autocytotoxin that has an affinity for the neuro-epithelium of the retina and, in some cases, for certain brain cells. He further suggests that when this purely hypothetic toxin attacks not only the retina, but also the brain cells, we have the type with dementia. Stock also assumes the presence of a toxin as a cause of his cases, which he reports under the name of *Familiäre amaurotische Demenz*.

Pusey¹⁵ reports a family of five patients affected with the macular type, who showed arteriosclerosis of the terminal branches of the vessels in the macular region. He suggests that this arterial condition may have something to do with the macular disease.

Recorded cases reveal no previous illnesses that help us in regard to etiology. Only the common infectious diseases of childhood are mentioned.

The health and general condition of all patients of both types reported are strikingly good.

CHARACTERISTICS OF THE TWO TYPES

In the type with dementia the loss of vision and intelligence is gradual; no cases are reported in this type in which it has been rapid. The majority of cases have been examined from one to six years after onset, when mental and visual deterioration was well advanced. The vision of one of the patients whose case is reported in this paper was so poor six years after onset that she was practically blind. Two years after onset, her brother could see large objects fairly well. Of Mayou's patients, one examined four years after onset could count fingers. Mental deterioration seems to follow with about the same rapidity as that of vision. We may safely state that from three to six years is sufficient time in the maculocerebral type to change bright children with good vision to patients in a condition approaching amaurotic dementia.

In the type without dementia, in which the retina alone is involved, the loss of vision has been gradual, except in Lutz's⁶ four cases and Stirling's¹⁶ three cases, in which it was rapid at first. After the primary deterioration, the vision in this type may remain stationary for years and then fall again, but it does not go on to complete blindness.

In the two cases of the type without dementia in Batten's family, one child had "fits." One of the two patients whose cases I have reported (Patient 2) had convulsions, starting one year from the date of onset of the disease. One of Oatman's patients developed epileptiform seizures two years after the onset of the disease, which continued for a period of four years to the time of his last report, at which time they were less frequent. In the maculocerebral type of the disease, we find that convulsions are reported in four out of ten cases, and that they appeared from one to two years after the onset of the disease. Convulsions do not occur in the macular type of this disease, but only in the maculocerebral type.

13. Feingold, Marcus: Tr. Sect. Ophth. A. M. A., 1916, p. 312.

14. Jennings: Am. Jour. Ophth., St. Louis, 1909, 24, 296.

15. Pusey: Tr. Am. Ophth. Soc., 1915, 14, 364.

16. Stirling, A. W.: Ophthalmoscope, London, 1912, 10, 141.

No paralyses are reported in either type of macular degeneration. The eyes externally appear normal. There are no signs of inflammation and the refractive media are clear. In both types the reported cases showed eccentric fixation. There were also nystagmus and searching movements of the eyes.

The visual acuity depends on the stage of the disease at which the examination is made. It varies from slight deterioration to almost complete blindness, though the latter condition is more common in the maculocerebral type, in which the vision passes through all stages between these two extremes in from three to six years. The periphery of the fields is not contracted, and there is, at first, a central scotoma for red and green, and later an absolute central scotoma.

The macular region has been described in detail. As to the optic nerve, four out of ten cases of the type with dementia are reported as showing optic nerve atrophy, while in two cases there was paleness of the nerve. In the two cases that I have reported, one of the patients showed distinct optic nerve atrophy, while in the other case, the nerves were normal. Optic nerve atrophy is more commonly seen in the maculocerebral type than in the macular type. Outside the macular region, the fundus has been normal in a majority of reported cases, but enough atypical cases have been reported to make mention of these variations necessary. Examples of the latter may be found in Stargardt's⁵ family S., which were of the type without dementia. The cases herein presented show some irregular pigmentation in other parts of the fundi.

DIFFERENTIATION

In the differentiation of familial macular degeneration with or without dementia, we have to consider amaurotic family idiocy and retinitis pigmentosa.

There are two types of amaurotic family idiocy: first, the typical cases (Tay-Sachs form) in which the onset occurs in infancy and, second, the so-called atypical cases in which the onset is delayed until childhood and which may be termed juvenile amaurotic idiocy.

Any attempt to construct a definite syndrome and to separate sharply the juvenile type of amaurotic family idiocy from maculocerebral degeneration lands the investigator in a wilderness of atypical cases, which is most disconcerting. The more cases he analyzes, the more is he convinced that the two types merge into one another in the same manner that the infantile and juvenile types of amaurotic family idiocy seem to merge. For example, Spielmeyer's² cases of juvenile type resembled maculocerebral degeneration with dementia in the matter of age of onset, course, mental and visual symptoms, and absence of paralyses.

Vogt's cases showed yet another juvenile type of amaurotic family idiocy, in which paralyses were present with loss of vision, which condition seems to link them, on the other hand, to the infantile type. The onset of Vogt's cases covered a period of from six to fourteen years; loss of vision led to complete blindness, and the paralyses to complete helplessness.

In discussing the cases of the juvenile type described by Spielmeyer and also those of Vogt, Jendrassik¹⁷ says, "From the description, it is apparent that the two types stand in close relation and can hardly be classed as separate diseases. They are only members of the great family of heredodegenerations." He explains the intensity and rapidity with which the

infantile type develops as depending on a lack of resistance due to the extreme youth of the patients.

I may briefly state that in differentiating the types of degenerations to which any particular cases may belong, one must consider the syndrome presented and then place the cases as nearly as possible where they belong after a thorough analysis of reported cases, bearing in mind the large percentage of atypical cases.

PATHOLOGY AND TREATMENT

Unfortunately, little is known of the pathologic conditions of macular degeneration with dementia. Stock's⁸ report, while of atypical cases, should be mentioned. He holds that the process of the primary disease, so far as the eye is concerned, is destruction of rods and cones, and finally, gradual destruction of the neuro-epithelium and of the outer nuclear layer.

The subject of the treatment of this disease may be dismissed with the statement that, to date, there is no known remedy for the condition.

CONCLUSIONS

We have a large class of cases showing a great variety of motor, sensory and mental symptoms, which may be called heredodegenerations.

Those in which we are particularly interested as affecting the eyes, are retinitis pigmentosa, infantile amaurotic family idiocy, juvenile amaurotic family idiocy, and maculocerebral degeneration.

While what have come to be known as typical cases of these conditions are easily distinguishable one from another, there are many atypical cases which are transitional forms and might be in one of any two classes.

The cause of these degenerations is unknown. If there is a common cause, we are totally in the dark as to why the disease assumes one form at one time and a different one at another.

Pathologically in amaurotic family idiocy, the ganglion cells of the retina and central nervous system are attacked. From our slight present knowledge, I think that the retinal condition in maculocerebral degeneration is due to degeneration of the neuro-epithelium.

The relationship, if any, among these different types of degenerative disease must be cleared by a study of atypical cases.¹⁸

ABSTRACT OF DISCUSSION

DR. PARK LEWIS, Buffalo: Two points are suggested in Dr. Clark's analysis of cases which apply equally to familial idiocy. The first is the fact that they are familial conditions, which would suggest heredity. But obviously they cannot be inherited conditions, because the children become degenerates before they reach the period in which they can propagate their kind. Perhaps, according to the mendelian system, this is what would be termed a unit character, and therein lies the possible explanation of the family relationship. The second point is that both these conditions occurred at critical periods in the life of the child, the first at the period of second dentition and the second at the period of adolescence. This fact suggests a relationship with other organic changes that are occurring at that time. The pineal gland and the thymus cease to function at this time. The ovaries, the testes and the pituitary begin to activate. Dr. Timme brought to my attention a most important fact connected with the glands of internal secretion. He has shown that the conditions which

18. In addition to the references already given, the following will prove of interest:

Batten, F. E., and Mayou, M. S.: *Ophth. Rev.*, London, 1915, **34**, 91.

Doyne: *Tr. Ophth. Soc. U. Kingdom*, 1899, 71.

Darier, A.: *Clin. ophth.*, January, 1914, **20**, 3.

Doyne: *Tr. Ophth. Soc. U. Kingdom*, 1909, p. 12.

Coriat: *Arch. Pediat.*, **30**, 404.

Harbitz: *Arch. f. Augenh.*, 1913, **73**, 140.

Wolfsohn, J. M.: *Amaurotic Idiocy*, *Arch. Int. Med.*, August, 1915, p. 257.

17. Jendrassik: *Handbuch der Neurol.*, **2**, *Spez. Neur.*, **1**, 420.

are perpetuated are not necessarily the individual conditions which appear in the child, but are due to a disparity in the relationship of the endocrine glands. That would be quite in accordance with the mendelian law.

These people do not inherit a distinct unit character, but, in all probability, a tendency toward an imbalance in the endocrine system. That would explain how apparently normal parents can have children showing these degenerative characteristics. And it is not unlikely that if the family tree were followed we would find not only atrophies and neural degeneracies, but other conditions of which this neural degeneracy is simply one manifestation. The crux of the whole problem lies in the fact that optic atrophy is a common condition and that it is not infrequently associated with low mentality.

DR. HAROLD GIFFORD, Omaha: These cases are not interesting until you have seen one or two of them. I have seen two of the Vogt type, which begin to show signs of defective vision and mentality at the age of the first dentition. In the Stargardt-Batten type, to which Dr. Clark refers, the patients develop macular degeneration at puberty, but not cerebral degeneration. In my experience those cases are the most common. Dr. Clark is right in laying down the proposition that it is impossible to draw a dividing line between the groups, and that the chances are that they all represent a series in which there is something defective in the nervous system. Or you may explain it by the exhaustion theory of Edinger, or it may be attributed to a defective "anlage." We do not know the reason why it is, but the fact remains that the retinal cells and the cerebral cells tend to degenerate at an early age. This Stargardt-Batten type is the one we must look for. These children live to the age of puberty, are perfectly normal, and then their vision begins to fade, and if you examine their retinas at this time you will find a little dusky pigmentation in the center of the macula. It looks as if there was a little soot spread over it and partly wiped off. This pigment then accumulates in larger clumps and you see little areas of whitish degeneration mixed with it. It extends out, perhaps, two disk breadths in diameter and then stops. The periphery remains normal, and they retain good mentality. Recently I saw cases with everything typical in the family, except that instead of beginning at the age of puberty, I am quite certain that their trouble began along about seven or eight years of age. In other words, the action of the sexual cells has nothing to do with it, and the fact that the Vogt type, which usually begins at the beginning of the second dentition, is also coincident with the time when the children have to use their eyes and their minds actively, may indicate that this is a mere coincidence. The child may be slightly defective, and it passes entirely unnoticed until the child goes to school, when it is found out that there is something wrong. This particular type goes on to idiocy or dementia and epileptiform convulsions, paralyses, etc.

To show how these types run into one another: A family is reported by Higien, in which one child had the typical Tay-Sachs degeneration, beginning in infancy, the child dying in a few years. The second child had the Vogt type, beginning with the second dentition and going on in the usual way; and the third had the Stargardt-Batten type. Dr. Brown Pusey has suggested that this Stargardt-Batten type of macular degeneration is nothing more or less than a familial tendency to arteriosclerosis of the central portion of the retina. I think that theory is worthy of consideration.

DR. E. J. BERNSTEIN, Detroit: I have had only one case of the Tay-Sachs type of amaurotic family idiocy. Looking up the etiology, I find that many men lay stress on consanguinity as a cause. That is simply a confession of ignorance. I cannot understand, in the face of the great number of married people who are related and who have perfectly healthy progeny, why consanguinity should be assigned as a cause of disease in the small number of cases in which some stigmata develop.

Amaurotic family idiocy usually occurs among Jewish children; marriage between relatives is very common among Jews, but no one accuses the Jews of degeneracy, as a rule. Very few of these cases usually occur among the Russian Jews. It seems to me that this form of degeneracy is due to the economic conditions under which the parents have lived for so many years and not to consanguinity.

PERICHOLECYSTITIC ADHESIONS

THEIR IMPORTANCE AND CLINICAL RECOGNITION *

FRANK SMITHIES, M.D.

Associate Professor of Medicine, University of Illinois, College of Medicine; Gastro-Enterologist, Augustana Hospital

CHICAGO

Experimentally by Rosenow,¹ pathologically by MacCarty² and clinically by Fowler,³ Cheney⁴ and myself,⁵ it has been satisfactorily demonstrated that affections of the gallbladder commonly represent progressing infection of the structures forming the gallbladder wall. The infecting bacteria are usually blood-borne. In a large degree, abnormal contents of the gallbladder are the by-products resulting from bacterially induced inflammation involving any or all of the four layers of tissue comprising the wall of the viscus.

In origin, pericholecystitic adhesions may be intrinsic, that is, occurring as a consequence of changes primary in the gallbladder, or extrinsic, that is, secondary involvement of the gallbladder, due to disease in neighboring structures.

The term "pericholecystitic adhesions" commonly signifies the complications resulting from inflammatory processes arising in the gallbladder wall and involving the serous layer. The extrinsic origin of gallbladder adhesions is comparatively infrequent. Such lesions include primary and secondary malignancy involving the gallbladder, contiguous invasion of gallbladder structure from disease in adjacent viscera (most commonly, ulcerative processes of the duodenum, stomach, bile ducts or colon), or inflammatory or malignant disease originating in the peritoneum.

The newer laboratory and clinical studies have clearly proved that since gallbladder disease is commonly initiated by bacterial growth, the manifestations of the inflammatory reaction on the part of the gallbladder wall may be continuous and progressive (acutely or chronically) or intermittent at variously separated intervals. Pathologically, two facts are consequently emphasized: First, very extensive pericholecystitic adhesions may arise within a short time, should there be actively progressive bacterial invasion, or similar lesions may represent years of disease, should the infecting organisms be of low virulence, the tissue defense strong or the extension of infection intermittent. Second, the clinical or histopathologic study of pericholecystitic adhesions furnishes no clue as to the time duration of the existing evidences of inflammatory tissue reaction. These facts are further commented on later.

MATERIAL STUDIED

The cases furnishing the basis of this report have been studied during the past eight years. On account of space, this paper must be limited to a consideration of pericholecystitic adhesions arising from disease intrinsic in the gallbladder. It may, however, be mentioned here that of 556 operatively demonstrated instances of benign gastric ulcer, gallbladder adhesions

* Read before the Section on Gastro-Enterology and Proctology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918

1. Rosenow, E. C.: Bacteriology of Cholecystitis and Its Production by Injection of Streptococci, *THE JOURNAL A. M. A.*, Nov. 21, 1914, p. 1835.

2. MacCarty: *Ann. Surg.*, May, 1910, p. 651.

3. Fowler, R. S.: *Am. Jour. Med. Sc.*, 1917, **153**, 497.

4. Cheney, W. F.: *Am. Jour. Med. Sc.*, 1917, **153**, 477.

5. Smithies, Frank: *Surgical Clinics of Chicago*, June, 1918, p. 505.

were noted in 41, or 7.3 per cent.; of 1,201 cases of duodenal ulcer similarly studied, pericholecystitic adhesions were present in 149, or 11.5 per cent., and of 947 cases of gastric cancer proved operatively or at necropsy, the gallbladder was invaded in 51, or 5.4 per cent. It is thus apparent that lesions extrinsic to the gallbladder may be complicated by pericholecystitic adhesions quite frequently enough to render such complication important from the standpoint of diagnosis, prognosis and therapy.

PERICHOLECYSTITIC ADHESIONS IN DISEASE ARISING PRIMARILY IN THE GALLBLADDER

A year ago I placed on record⁵ the pathologic and clinical manifestations of 1,000 surgically demonstrated instances of gallbladder disease. This material has been restudied with respect to pericholecystic adhesions. The facts resulting from this study are now presented.

Frequency.—Including twenty-one cases of primary malignancy of the gallbladder, there were pericholecystitic adhesions in 489 (48.9 per cent.) of the 1,000 cases of intrinsic gallbladder disease. In sixty-five cases of the adherent gallbladders the viscus was universally adherent, buried in dense adhesions, or the structures involved by adhesions were not definitely determined. This group of cases has been excluded from the study and analysis made of the remaining 424 cases in which adhesions extended from the gallbladder to neighboring tissues.

Viscera Involved by Pericholecystitic Adhesions.—Table 1 demonstrates how extensive may be the scope of such adhesions and furnishes significant information respecting the degree to which pericholecystitic adhesions may modify the clinical pictures of disease either of the gallbladder itself or of abdominal viscera, particularly such as are concerned with digestion and

rarely infected and represent bridges of inflamed serosa by which bacteria may be transplanted to viscera far removed from the initial bacterial focus. That such conception is not unimportant is emphasized by noting that in this series, pericholecystitic adhesions involved the pancreas eight times, the appendix or cecum three times, and a cystic ovary once.

Frequency of Pericholecystitic Adhesions Simultaneously Involving Two or More Structures.—Table 2 indicates that in eighty-four cases, or 19.5 per cent.,

TABLE 2.—FREQUENCY OF PERICHOLECYSTITIC ADHESIONS SIMULTANEOUSLY INVOLVING VARIOUS STRUCTURES

Duodenum and cystic duct	13
Ulcer, duodenum or pyloric	11
Duodenum and colon	9
Duodenum and pylorus	9
Duodenum and liver	7
Duodenum and omentum	6
Duodenum, pylorus and cystic duct.....	6
Cystic duct and colon.....	5
Cystic and common ducts.....	4
Pylorus, duodenum, liver and colon.....	4
Omentum and colon	2
Duodenum, colon and liver	2
Liver and stomach	2
Cystic and hepatic ducts.....	2
Cystic duct and anterior abdominal wall.....	2
Multiple structures involved in.....	84
Or 19.5 per cent.	
Stone cases adherent	165 or 38.9 per cent.
Nonstone cases adherent	259 or 61.1 per cent.

in which the gallbladder was adherent, multiple visceral attachments were present. It will be observed that the duodenum, the pylorus, the colon and the bile ducts were most frequently the locations of such multiple adhesions. The occurrence of eleven cases of duodenal or pyloric peptic ulcer (13.3 per cent.) in connection with multiple pericholecystitic adhesions gives significant hints relative to the clinical problems in such cases.

Gallbladder Contents.—In the cases in which pericholecystitic adhesions were demonstrated, the viscus contained calculi in 165 instances (38.9 per cent.). In 259 cases, or 61.1 per cent., no calculi were present. It would thus seem apparent that gallbladders free from stones are adherent to neighboring structures nearly twice as frequently as are those in which stones are found. A biopathologic explanation of this fact is evidently possible. It is quite likely that when adhesions form rapidly and extensively, there exists active, progressive infection which causes exuberant inflammatory reaction in the serous coat of the gallbladder or the lymph channels, before great damage is done to the gallbladder mucosa with consequent marked alteration in the gallbladder content or interference with the free emptying of the viscus.

The foregoing facts also emphasize the fact that in the absence of the commonly considered clinical history of gallstones, one is not justified in assuming that the gallbladder is not seriously at fault. It is quite apparent that not only may the gallbladder function be seriously interfered with, but that the viscus may be the abdominal focus of infection from which bacteria may be widely disseminated. Moreover, the presence and extension of such pericholecystitic adhesions may interfere with the proper working of the digestive apparatus more than would the existence of calculi in the gallbladder.

Pathologic Effects of Pericholecystitic Adhesions.—There were eighteen instances of perforation of the gallbladder with extensive pericholecystitic infected adhesions, in seven of which stones lay imbedded.

TABLE 1.—PERICHOLECYSTITIC ADHESIONS; TOTAL GALLBLADDERS ADHERENT IN 1,000 CASES OF GALLBLADDER DISEASE (INCLUDING MALIGNANT—21)

	No. of Times	Percentage
To adjacent structures.....	489	or 48.9
Adhesions universal and not specified.....	65	or 6.5
Structures involved by adhesions in.....	424	or 42.4
FREQUENCY OF INVOLVEMENT OF ADJACENT STRUCTURES		
Structure	No. of Times	Percentage
Cystic duct	104	or 24.5
Duodenum	96 } 97	or 22.8
Ampulla of Vater.....	1 }	
Stomach { pylorus.....	38 }	or 10.4
{ other part of.....	6 }	
Omentum	43	or 10.1
Colon—Hepatic flexure	35 }	or 8.9
Transverse	3 }	
Liver	30	or 7.7
Common duct	23	or 5.4
Pancreas	8	or 1.9
Hepatic duct	6	or 1.4
Anterior abdominal wall	6	or 1.4
Appendix and cecum	3	or 0.7
Ovarian cyst	1	or 0.24

assimilation. Attention is called to the facts that, in nearly one of three cases of gallbladder disease, adhesions involve the bile ducts (cystic duct 24.5 per cent., common duct 5.4 per cent. and hepatic duct 1.4 per cent.); that in nearly one of four cases, pericholecystitic adhesions reach the duodenum, causing some anomaly in contour, position or function, and that in more than one of ten cases the gallbladder adhesions are attached to the stomach, commonly at or near the pylorus. Adhesions to the omentum, the colon and the liver are frequent enough to merit serious consideration, if from no other standpoint than that of prognosis, when it is recalled that such adhesions are not

There were five instances of acute perforation in which the gallbladder was surrounded by extensive, recent adhesions and pus. In one case, a pericholecystitic abscess appeared to originate from an adjacent, enlarged and infected lymph node. In seven cases, adhesions from the gallbladder to the duodenal or pyloric ulcer cemented the viscera together and was the site of protected perforation with resultant deformity and malposition of the parts. There were four instances of fistula between the gallbladder and the duodenum or stomach (duodenum three, and pylorus one). Two cases of fistula between the gallbladder and the hepatic portion of the colon were observed. A gallbladder appendix fistula was noted once. In another case, a stone had worked its way from an adherent gallbladder into the head of the pancreas.

Most commonly, the gross effects of pericholecystitic adhesions was to interfere with the free emptying of the viscus. This was particularly frequent in that great group of adhesions involving the cystic or the common duct (29.9 per cent.). In such cases, the gallbladder was often so tightly bound down that sharp angulation of the ducts resulted and enormous dilatation of the viscus followed. Not rarely the gallbladder contents measured more than a liter. The ducts themselves, proximal to the adhesions, were frequently dilated almost to the diameter of one's thumb. Such embarrassment to the free emptying of the gallbladder repeatedly accounted for the major clinical symptoms and signs pointing to gallbladder malfunction. Separation of such pericholecystitic adhesions not uncommonly permitted the free emptying of the gallbladder and the subsidence of signs of obstructed bile flow. In nine cases in which the bile ducts were involved by stenosing adhesions, enlargement of the liver of a cirrhosis-like type was recorded.

Pericholecystitic adhesions to the duodenum were sufficiently pronounced to cause malformation, some degree of stenosis, fixation, or faulty position in 43, or 44.3 per cent., of the ninety-seven instances in which such adhesions included that portion of the intestine. The adhesions were commonly attached to the second and third portions of the duodenum. In only nineteen cases was the first portion of the duodenum extensively involved. This fact is significant diagnostically when it is recalled that the first portion of the duodenum is the common location of peptic ulcer. Only once did pericholecystitic adhesion extend distally as far as the papilla of Vater. There were seven instances in which strong adhesive bands resulted in sharp constriction and angulation of the duodenum and in which, proximal to such constricting bands, the intestine was greatly dilated and exhibited intense vascular engorgement.

Malposition of the duodenum was sometimes extreme, the viscus often being drawn up beneath the liver and firmly fixed there. In ten cases of this type there was cicatricial stenosis of the intestine.

Pericholecystitic adhesions involving the pylorus or other parts of the stomach caused obstruction to free gastric emptying in twenty-three, or 54.5 per cent., of the forty-four cases in which such adhesions existed. In thirteen cases there was definite pyloric stenosis, seven of these being due to malignant adhesions. Deformity of pyloric contour was present in twenty-nine cases. Abnormal position of the pylorus, generally partial or complete fixation to the right of the midline (even direct attachment to the liver), was

observed in twelve cases where pericholecystitic adhesions involved the stomach.

Gross deformity of the colon was recorded in nine (26 per cent.) of the thirty-eight cases where adhesions reached the colon. Three of these cases were malignant. In the remaining six cases the colon was pulled up beneath the liver, tied to the gallbladder, the duodenum or the anterior abdominal wall. There were two instances in which strong nonmalignant adhesions between the gallbladder and the hepatic flexure of the colon caused sufficient obstruction to lead to the laparotomy at which gallbladder disease was demonstrated to be responsible for the colon stenosis.

CLINICAL MANIFESTATION OF PERICHOLECYSTITIC ADHESIONS

It should be stated here that in eighteen cases, or 4.2 per cent., there were no prelaparotomy symptoms or signs pointing to abnormality of the gallbladder or the digestive apparatus. The operative procedure was instituted for the relief of other disorders and at the abdominal exploration, the gallbladder pathology was demonstrated.

Of the remaining 406 cases, malignancy was present in twenty-one, and although such malignant disease was not always suspected to involve the gall tract, before laparotomy, neoplasms were considered probable in the clinical diagnosis. There thus remain 385 cases of pericholecystitic adhesions in which clinically the preoperative departures from normal were sufficiently pronounced to warrant exploration of the right upper abdominal quadrant. These clinical symptoms and signs can be considered only very briefly.

Symptoms.—It is quite impossible to differentiate dyspeptic disturbances due to gallbladder disease without pericholecystitic adhesions from such disease complicated by adhesions, unless there is clinical evidence of gross abnormality in function in adjacent viscera coexistent with the gallbladder upset. Such abnormal function is commonly of a mechanical type, as for example, when there is stenosis of ducts, the stomach, duodenum or colon, is in the nature of such acute right upper abdominal crisis as occurs in gallbladder or ulcer perforation with abscess. In cases with clinical courses of this form, in the absence of proof of the existence of primary disease in the stomach, duodenum or colon and in the presence of dyspepsia of the gallbladder type, one may suspect that symptoms and signs that experience has proved to be unusual in ordinary uncomplicated gallbladder ailments are produced by pericholecystitic adhesions. Special examinations and laparotomy may eventually substantiate this suspicion.

1. Pain. Apart from the pain due to ulcer or malignancy involving the stomach or duodenum, when there exists coincident gallbladder disease, two main sources of pain due to the gallbladder disturbance are possible: first, pain due to the passage of calculi and that due to adhesions interfering with free emptying of the gallbladder. In both types of lesion "colics" may be severe. They were present in rather more than 60 per cent. of our stone cases and nearly 55 per cent. of the nonstone cases, in which pericholecystitic adhesions interfered with free emptying of the gallbladder and ducts. It is thus evident that there is little in the clinical history of pain that permits segregation of the gallstone cases from those in which gallbladders are the origin of adhesions to neighboring structures.

When colicky attacks of pain are not recorded, the manifestations of right upper quadrant may be exceedingly indefinite. A sensation of distention, fulness, up-pressure, or crowding may be annoying. The distress is commonly most pronounced soon after taking food or during the night. The former distress appears to arise as a consequence of an embarrassed gallbladder attempting to empty its contents when food begins to leave the stomach. The latter type of discomfort seems to result from the fact that the distended, inflamed gallbladder is irritated by gastric hunger contractions and a fecal or gas-filled hepatic colon crowding up into the gallbladder zone. At times a sensation of pulling, sticking or dragging leads to the suspicion that adhesions to adjacent viscera may be present.

2. Bowels. Constipation was obstinate in 62.7 per cent. of the instances of pericholecystitic adhesions in this series. There was diarrhea in 9.8 per cent. and normal motions in 27.4 per cent. These figures closely approximate those instances of gallbladder disease in which pericholecystitic adhesions did not exist.

3. Nausea was an annoying symptom in eighty-nine cases, or 18.2 per cent., and vomiting in 106 cases, or 21.7 per cent. With respect to these symptoms, there was no appreciable difference between the stone and the nonstone cases, but the frequency is considerably less than in instances of gallbladder disease in general (45.2 per cent.).

4. Signs of Obstructed Bile Flow. Jaundice was constant or intermittent in ninety-two, or 18.8 per cent., of the cases. There was a possible history of jaundice in forty other cases (10.2 per cent.). Except in the cancer cases, constant jaundice appeared to be rather more frequent in the stone cases than in those in which duct obstruction was caused by pericholecystitic adhesions. In the case of malignant gallbladder adhesions, jaundice was persistent in thirteen of the twenty-one cases. Clay colored stools were noted in sixty-one cases, or 12.4 per cent., and bile pigment in the urine in seventy-six cases, or 15.5 per cent.

5. Abdominal tenderness was recorded in 91 per cent. of cases. There was a palpable gallbladder tumor in twenty-nine instances and an enlarged palpable liver in eighteen cases.

6. Gastric Function. Complete test meal analyses are available in 370 cases. The emptying power of the stomach was interfered with in twenty-six cases, or 7.1 per cent. These gastric extracts exhibited persistent twelve hour food retention. In such cases, pericholecystitic adhesions involved the pylorus, the duodenum, the cystic and hepatic ducts, the omentum and the liver. There was gastric retention in seven of the twenty-one malignant gallbladders.

These facts respecting gastric emptying power are of considerable diagnostic significance when considered in relation to such information returned in disease of viscera in the right upper abdominal quadrant other than the gallbladder. In our series of gastric cancer, some degree of twelve hour food retention was proved in 71 per cent., in ulcer of the duodenum in 52 per cent. and in gastric ulcer in 39 per cent. It is evident that even though pericholecystitic adhesions to the duodenum or the stomach may be very extensive, the lumen of the viscera is but infrequently grossly occluded.

7. Gastric Acidity. The average free hydrochloric acid was 35.1, with a range of from 0 to 140. There

were forty-five instances of achlorhydria, of which only seven were malignant cases. Total acidity averaged 43.2, with a range of from 4 to 146. Combined acidity averaged 4.7, with a range of from 0 to 19.

It is apparent from the foregoing observations that grossly the gastric secretion does not greatly vary from the normal in this type of case, although there is a rather high proportion of achlorhydrias. There are numerous instances of high free hydrochloric acid—quite as high as occurs in such lesions as duodenitis or ulcer of the duodenum or of the stomach. The test meal analysis may closely approximate that of peptic ulcer, with the exception that blood is uncommonly detected in gastric extracts.

ROENTGEN-RAY EVIDENCE

By roentgenograms, in which nonmalignant pericholecystitic adhesions involve the first part of the duodenum or the pylorus, it is not possible to differentiate the resultant deformity or malposition from anomalies due to chronic ulcer of duodenum or pylorus. In fact, as we have pointed out, peptic ulcer was concomitantly present in eleven of the fifty-seven cases (19.2 per cent.), in which the adhesions involved the pylorus and the common ulcer-bearing area of the duodenum. Thus in nearly one of five cases, a roentgen ulcer picture may modify the possible deformity from pericholecystitic adhesions. Roentgenograms may thus indicate displacement and fixation of the stomach to the right, deformity of the duodenal cap or pylorus, stenosis of the pylorus or duodenum, dilatation of the stomach or duodenum, and angulation of the antrum, the pyloroduodenal junction or of the duodenum itself. Alterations in gastric peristalsis, as a consequence of pericholecystitic adhesions even of a nondeforming or nonstenosing nature are by no means uncommon. The hyperperistalsis with rapid gastric or duodenal emptying or with obstinate pyloric, gastric or duodenal spasm may be quite as pronounced in the case of acute or subacute gallbladder affections with adhesions, as when duodenal or pyloric ulcer is present and associated with them. It may, however, be emphasized again that deformity of the stomach due to pericholecystitic adhesions is most common at the pylorus. Very infrequently the pericholecystitic adhesions reach the gastric antrum or parts of the viscus in which peptic ulcer is common. Similarly, the duodenum was involved by pericholecystitic adhesions in only nineteen out of ninety-seven cases, in its first portion, that is, the most frequent location of duodenal ulcer.

In 211 cases of gallbladder disease complicated by adhesions, of which roentgen study was made, the duodenum showed stenosis in ten, sharp permanent acute angulation of the intestine in seven, dilatation of the first two-thirds in twenty-six, possible deformity in forty-nine and possible malposition or fixation in twenty-three cases. In this group of patients there was gastric retention of the opaque meal in thirteen instances.

When the pylorus or stomach was involved, there was deformity or malposition in eighteen out of thirty-two cases, stenosis in twelve, with three malignant cases, and six hour opaque meal retention in ten cases. Deformity of the pylorus or duodenum was always most pronounced and persistent in the malignant cases or in those in which pericholecystitic adhesions complicated a greatly distended and enlarged gallbladder.

As in the case of roentgen examination of lesions other than pericholecystitic adhesions, it is important to make serial plates, with the patient in different positions, before and after the administration of such antispasmodic medicine as atropin or belladonna. This procedure will prevent local or general spasms of the stomach or duodenum from being considered as definite persistent deformities and will aid in establishing the fact that the deformity or malposition is constant or is localized.

If roentgenograms show enlarged gallbladder, definite gallbladder contour, or stone shadows, then, in the absence of clinical data indicating organic disease of the stomach or duodenum, gross anomalies of these viscera may with a fair degree of safety be interpreted as being due to pericholecystitic adhesions.

Pericholecystitic adhesions involving the colon are neither frequently nor readily demonstrated by roentgenograms. If the clinical history points to gallbladder disease, especially in association with evidences of colon stasis, and if roentgenograms show an enlarged gallbladder shadow or stones, then anomalies of position of the hepatic portion of the colon, if persistent in plate series after the administration of atropin or belladonna, may be interpreted as arising from pericholecystitic adhesions. Such anomalies are more pronounced in instances of malignancy of the gallbladder invading the colon.

Fluoroscopically, deformities of contour or malposition of viscera due to pericholecystitic adhesions are more accurately detected than by plate studies. Not rarely one may definitely prove the absence of primary lesion, such as ulcer or cancer, in the stomach, duodenum or colon, and by palpatory manipulation during the examination (particularly when the study is made in several seances) one may demonstrate that displacements, alterations in contour, angulations, spasms or stenoses are dependent on causes extrinsic to the viscera. Comparison between the observations made before and after the administration of antispasmodic drugs is of such great value that the procedure should be adopted as routine, if mistakes are to be avoided and accuracy in diagnosis sought.

ABSTRACT OF DISCUSSION

DR. ROBERT T. MORRIS, New York: Dr. Smithies referred rather briefly to points which require rather more elaboration. Rosenow has shown that this group of adhesions bears relation to the elective affinity for structures in the vicinity for toxins. This class of adhesions may be grouped under what I have sometimes called "cobwebs in the attic." These cobwebs in the attic do not necessarily accompany an acute inflammatory process. Even a burn at a distance may give rise to adhesions in this vicinity, because toxins are being collected there by elective affinity. After a burn a toxalbumin may be produced, not, perhaps, different in its ultimate effect from the enzyme from an infected tooth root, from the enzyme from bacteria in the tonsil, from enzymes from the colon on their way out. All being grouped in this vicinity by elective affinity produce a second physiologic effect; they call out antibodies, and the antibodies are called out in such an amount that destructive cellular processes result; we then have desquamation of endothelium and plastic exudation, and this forms adhesions, even without the patient being aware of the process at all. There are acute symptoms in some of these cases, in other cases practically none. The symptoms may simulate very closely those of gallstones, and I have seen very many mistakes made by younger surgeons in making a diagnosis of gallstones. Do not make a diagnosis of gallstones; make a diagnosis of cholecystitis. How are we

going to prevent recurrence of adhesions after we have separated them, or after we have removed a gallbladder? We must look for the original focus of infection and remove it. Shall we use mechanical means for preventing a recurrence? In cases where adhesions have been very extensive, I believe yes. My first choice is the Senn omental graft; my second choice is Cargile membrane; my third choice is to make an aristol film. The oils are not to be used in this vicinity, because oils catch leukocytes, which are thrown out for purposes of repair, and prevent their organizing and carrying new endothelium over the surface.

DR. G. A. FRIEDMAN, New York: Recent work on the same subject as that of Dr. Smithies' paper and my experience have convinced me of the possibility of diagnosing pericholecystitic adhesions without waiting for exploratory laparotomy. The points are the tender spots or pressure points in the axillary, scapular and posterior median lines to the right. Tender spots may not be detected in the region of the gallbladder. From the presence of these spots, cholecystitis was diagnosed by my house physicians without the aid of roentgen rays or other examinations. After carefully examining and comparing the spots at the right side with corresponding spots at the left side, and when repeated examinations have convinced you of marked tenderness in the axillary and scapular lines, you may be sure that operation will reveal, if not gallstones, at any rate, cholecystitis or pericholecystitic adhesions. I do not claim this sign as my discovery. Boas pointed it out years ago, but it was never utilized in the proper way for diagnostic purposes, especially in atypical cases. I have frequently diagnosed cholecystitis in patients who never have had any pain. They presented only the nervous symptoms, such as sensitiveness in the stomach, as the sensation of a load or stone.

I have demonstrated that these pressure points are to the right in the scapular line, just at the level of the gallbladder, and also near the posterior median lines. Usually the tender spots are found in the axillary line alone; very often, however, in both the axillary and scapular lines, and occasionally in the axillary, scapular and posterior median lines. I seldom find these spots in the region of the gallbladder. When repeated pressing on this region fails to disclose tenderness, it is falsely concluded that there is no cholecystitis.

DR. NATHAN ROSEWATER, Cleveland: May I ask Dr. Friedman how he distinguishes those pains from pains that would occur in rheumatic muscles, or, say, from some other cause?

DR. FRIEDMAN: I have never found the aforesaid pressure points in muscular rheumatism or in the neuralgias, unless it is an intercostal neuralgia, and then the diagnosis is usually obvious. I had three cases of hepatic syphilis in which they were absent; in carcinoma of the pancreas with enlargement of the liver, and in secondary carcinoma they are absent; they are absent in all conditions except in cholecystitis.

DR. MARY DUNNING ROSS, New York: I wish that some one would tell us a little more in detail how to get in back of these bacteria before the enzymes and the antibodies have done their damage.

DR. WILLIAM VAN VALZAH HAYES, New York: The cases that interest me particularly are those with adhesions or bands running from the gallbladder to the duodenum and the colon. These patients may have no symptoms whatever for a considerable period, and later on they develop attacks almost exactly simulating gallstones. There is sudden violent colicky pain and distress, and the patient is put to bed incapacitated. On operation no sign of ulcer, no sign of thickening of the gallbladder, no distinct evidence of any inflammatory condition existing at the time is found. Bands are found, and to secure for the patient complete and permanent relief these bands are divided transversely and sutured longitudinally.

DR. ROLAND HAZEN, Paris, Ill.: I have been doing work in repairing a ptosed colon, and found a great deal of trouble with adhesions connecting the colon with the stomach, duodenum, gallbladder and ducts. The work that I have been taking up has been based more on the anatomic arrangement of the normal fixed colon. I take the view of a colon as though looking at it from behind, and study what there is

that prevents the colon, either normal or ptosed, from getting all the way down. In dissecting a 5-month-old fetus I found that the descending colon had already fused; it was firmly fixed; I could peel it away without difficulty. The ascending colon was very slightly fixed. These adhesions occur between the outer layer of the mesocolon or the ascending colon and the flank. In addition to that adhesion I found a little band of adhesion that ran from the hepatic flexure up to the gallbladder, not involving the entire gallbladder, but rather a thickening of the edges, and was evidently giving some support, pulling on the descending and ascending colon. There was some node on the surface of the liver, which is undoubtedly the beginning of the formation of the hepatocolic ligament. The only thing that held was this attachment to the end surface of the liver, which involved the bile vessels. Take that in the adult subjects; we have a case in which we have not had any fusion of the ascending colon, but the hepatocolic ligament is developed, and after adult age, with the enlargement of the pelvis, the colon will tend to sag if it is not fastened to the ascending colon; the strain will come on the ascending colon and all bands which go to the liver. Thus we are going to have congestion. Just what rôle the bacteria will play in that case which develops purely from a mechanical start on this basis, I do not know, but undoubtedly bacteria will have some part in that development; but primarily the trouble in these cases is not due to the infection; it is mechanical. On that basis I have examined the adhesions very carefully, and find that by drawing up the hepatic plate you will find that the adhesions radiate from the hepatic plate to the gallbladder, and in cases of cystolith of the gallbladder the adhesions radiate from the gallbladder out in a different direction, and those adhesions attach to something. In the final cases they attach to the gallbladder. If you look into these cases you will find that a great many are due to the colon trying to hold onto something to keep it from falling down. Sometimes the colon is held up by the adhesions, so that these persons have not developed the general symptoms of ptosis.

DR. FRANK SMITHIES, Chicago: The points which Dr. Morris brought out are referred to in the text. Dr. Friedman's observations correspond in a certain degree to the zones of peripheral tenderness or hyperesthesia spoken of by Head and others some years ago. Very likely the points are better made out in gallbladder disease, because we have to do with an infective process, which is frequently quite active. The question of pain indicating gallbladder disease I have emphasized in previous work. Less than a third of our cases of gallbladder disease gave the so-called classic symptoms of gallstones, or gallbladder malfunction.

Dr. Rose asks how we are to control the bacteria in the gallbladder wall. Most people come to the doctor after they are sick. The bacteria have already done damage then. If we pay more attention to the complications of the infectious diseases occurring in early life I feel that we can prevent some of the serious damage done later on in the gall tract.

Dr. Harris' explanation of the adhesions along embryologic lines is very interesting. I think adhesions follow these directions because the lymph stream and the blood stream follow natural bridges, and some of these ligaments are natural bridges.

As to the effect of ptosis in causing pain, I am not so pronouncedly in agreement with the doctor, because I have begun to forget about nine tenths of what I learned twenty years ago about ptosis. We see fewer so-called ptoses now than formerly, and we correct fewer ptoses than we did. I pay less attention to ptosis every day. If the bowel function is normal and the stomach function is normal, I do not care where the viscera are placed.

Operation and Low Blood Pressure.—An operation should not be done to a shocked man unless his blood pressure has been artificially raised above the critical level. Blood transfusion or intravenous injection of the gum-salt solution may be done at the start of an operation, and the pressure may thus be prevented from falling.—*Review of War Surgery and Medicine.*

RÔLE OF PASTEURIAN METHODS IN PROPHYLAXIS OF INFECTIOUS DIS- EASES IN THE ARMIES

ESPECIALLY IN THE ARMY OF THE ORIENT AT THE
DARDANELLES AND IN MACEDONIA *

P. F. ARMAND-DELILLE, M.D.

Médecin des Hôpitaux de Paris; Médecin Major, French Army
PARIS, FRANCE

The past forty years have seen a complete modification of the methods of hygiene in public health under the influence of the progress of bacteriology. It is surely not paradoxical to say that the present war, with its great agglomerations of men, could not have been possible without the aid of a prophylaxis against infectious diseases.

The expedition to the Orient furnishes us with the most striking demonstration. I was appointed in 1915 as chief of the Service of Bacteriology and Epidemiology for the armies, with a well-equipped bacteriologic laboratory. All our army laboratories are indeed standardized with the help of the Institut Pasteur.

I shall not speak of the serotherapy against diphtheria, which has been employed not only curatively but also prophylactically in the control of epidemics. Nor shall I more than mention the serotherapy of tetanus, which has been systematically practiced among all the wounded since the first twenty-four hours of the war. The serotherapy of cerebrospinal meningitis and of dysentery has also rendered us great service, although the great variety of bacilli has made the latter much less efficacious in certain cases.

VACCINATION AGAINST TYPHOID

The vaccination against typhoid and against cholera has been, on the other hand, of much value. At the beginning of the campaign of 1914, it was only the forces of the regular army who were vaccinated against typhoid, so that numerous cases developed among the reserve. We are able, however, to stop this epidemic by the vaccination of the entire army, employing the antityphoid vaccine of Vincent.

We also encountered among the men of the army of the Orient a certain number of cases of paratyphoid A and B, both in Saloniki and at the Dardanelles. From March, 1916, we made use of the paratyphoid vaccine "T. A. B." of Widal, by which means we eradicated all typhoid and paratyphoid, to such an extent that during the latter half of 1916 the proportion was but one in ten thousand per month, and the cases observed always occurred in individuals, non-vaccinated for one reason or another.

Since May, 1917, we have employed the lipovaccine of Pinoy and Le Moignic, which has had the added advantage of requiring but a single dose. I have seen with much interest that studies of this vaccine have been made in this country by Whitmore, Fennel and Peterson of the United States Army.

PROPHYLAXIS IN CHOLERA, AMEBIC DYSENTERY AND PLAGUE

Vaccination against cholera has been practiced among all the soldiers and officers of the expedition-

* Read before the Section on Preventive Medicine and Public Health at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

ary forces to the Orient, and I had the opportunity of establishing its efficacy in an epidemic arising among the civil population in the town of Koritza on the Albanian frontier in August, 1916. The town comprised almost 10,000 inhabitants and the epidemic was rather severe, with a death rate of from seven to ten persons per day, during the three weeks before we arrived. I sent one of my assistants, Major Lemaire, with the technical councilor, Major Sarrailhè, who was able in the first twenty-four hours to isolate in seven samples the vibrio of cholera, entirely characteristic and verified by a high agglutinating experimental serum from the Institut Pasteur.

With the aid of a local physician, these officers vaccinated the entire indigent population in the period of one week. This resulted in a complete arrest of the epidemic in less than three weeks. Three months later, a French division was billeted in this region without the development of a single case of cholera. The same results were obtained at Corfu by other French medical officers, who succeeded in stopping a similar epidemic that had been introduced by the Serbian soldiers.

At the Dardanelles and in Saloniki we observed a certain number of cases of amebic dysentery by the discovery in the stools of the adult amebas and cysts. These cases were treated by the injections of emetin with complete success.

In order to prevent contamination of fecal origin, we organized a system for the incineration of all refuse and, as much as possible, of fecal matter. When that was not possible, chlorination with lime was employed.

The prevention of plague was foreseen by the installation of a special laboratory in which my assistants performed necropsies on the bodies of all the rats secured each day by a group of men designated for that purpose. Fortunately, we found only a small number of rats infected with the *Bacillus pestis*. There was but one case of plague observed during the year 1916, and that in an indigent stevedore. The house was completely disinfected and the rats of the whole quarter were systematically destroyed.

With the object of coordinating all the services of prophylaxis in the Orient, there was established shortly after our arrival a high commission of preventive medicine and hygiene, which met each week and at which were represented the chief of the medical service of the French army, of the British army, of the Serbian, the Greek and the Italian armies, as well as the director of civilian public health of Macedonia.

PREVENTION OF TYPHUS

One of the most important points was the prevention of exanthematic typhus. The great Serbian epidemic did not reach Saloniki, but we observed a few cases in the Serbian army, as well as two cases among the civilian population of Monastir. Afterward an epidemic with thirty cases and fourteen deaths appeared in the Russian brigade.

Among the French troops there were observed only a few cases of relapsing fever. These few cases were contracted by the soldiers from the civil population. Relapsing fever, which is due to the spirochete of Obermeier, is, in fact, very frequent in Macedonia. During the first Balkan War in 1912, 50 per cent. of the Greek troops located in Macedonia were rendered

useless by reason of this infection during the last months of the winter. Exanthematic typhus and relapsing fever are transmitted by lice, a fact now thoroughly established. By means of our systematic measures of disinfection, we were able almost completely to eradicate lice from the French troops. These measures consisted in the installation of shower baths for all the soldiers and the disinfection of their clothing. For the troops in the resting cantonments, the disinfection was accomplished by the so-called "groupes bains douches desinsectisation de Geneshe-Hercher brazier," which consist of 3-ton trucks carrying an apparatus for twelve shower baths and eight autoclaves for disinfection. This permits of passing the men serially and the delousing of one battalion in ten hours. For the troops confined to the trenches, when the nature of the country does not permit of the transportation of the larger apparatus, we employ a smaller one, the "appareil bain douches portatif de Charles Leblanc" of four baths, which weighs only 200 pounds and can be carried on a mule. For the destruction of the lice in the clothing, we employ simply ironing. This system, introduced by Dr. Sarrailhè, is very useful and efficient, if it is repeated at least once a week. The cycle of growth from the egg to the age of reproduction of the louse is twelve days. The destruction is produced by a type of tyndallization, that is to say, that the first ironing destroys a certain number of eggs and lice; and when the process is repeated each week, the progressive generations are also prevented from reaching maturity. We were able to demonstrate in a number of regiments that this method removed the lice effectively in 95 per cent. of the cases.

The epidemic which appeared in the Russian brigade was arrested by the creation of a sanitary barrier which was easily enough established in such a desert region with stations for disinfection and a second hospital for disinfection previous to discharge, furnished with the apparatus just described.

PROPHYLAXIS AGAINST MALARIA

The prophylaxis against malaria was unfortunately less successful, at least during the first year, because of the military conditions in the country, and on the other hand the difficulties in securing prophylactic medicines, quinin, for example, in sufficient quantities. In the winter of 1915 and 1916 I proposed an anti-malaria campaign similar to that carried on by Major Craig at Panama. Macedonia, and particularly the valley of the Vardar, is perhaps comparable to the most dangerous tropical regions. At that time I was able to establish the fact that there were 20 per cent. of carriers in a village housing Greek refugees at Zeitenlick, 5 km. from Saloniki, in the neighborhood of the French and English camps. And the endemic index determined by the presence of splenomegaly, studied by Major Mauban, was nearly 50 per cent. among the children. For the 3,000 inhabitants of this village we had the opportunity of practicing quinin sterilization, and were able to diminish very markedly the contamination of the troops stationed in the camps. This was, unfortunately, not possible with the troops assigned to the trenches in the valley of the Vardar and the Butkova. For this group of men, preventive quininization was instituted, but was not efficiently carried out in certain regiments. In addition, the men

were housed in tents with insufficient mosquito netting, so that the contamination was considerable. Further, it was impossible to have sufficient screening for the barracks, the clapboarding of which was poor. An insufficiency of crude oil did not allow of this treatment of the marshes, which were frequently 50 miles in extent, and those in Macedonia were interspersed with numerous marshy-bordered lakes. From July to October, 1916, we encountered a serious epidemic among the French as well as the English troops, with a certain number of cases of the pernicious type. It is necessary to add that our microscopic examinations of the blood demonstrated to us in September and October that the proportion of malignant tertian malaria was 95 per cent.

In 1917, the conditions were such as to allow of a reduction in the number of cases of malaria, thanks to a special service of prophylactic measures against malaria organized with the aid of M. Justin Godard, undersecretary of the Service de Santé. The plan was prepared by Dr. Edmond Sergent, chief of the Pasteur Institute of Algiers; Dr. Etienne Sergent, chief of the Antimalarial Service for Algeria, and Dr. Segroux of the Pasteur Institute of Paris. Following a mission for the study of conditions made by Dr. Sergent and myself in Macedonia, the service was organized with the following personnel: twenty physicians who had specialized in questions of tropical medicine, a woman physician who could talk to the indigent population, 300 nurses to supervise the quinization, all for the mechanical protection of the cantonments, and an engineer with a force of peons for the drainage of the district. The physicians were distributed in their respective districts and were consulted on the location of the camps, which were more easily chosen during the second year of the occupation.

Furthermore, the screening of all the base barracks was accomplished during the winter. All the soldiers were furnished with large individual mosquito nets and their use was enforced by the physicians and nurses under pain of severe punishment. Finally the drainage of all the small marshes neighboring to the camps was carried out. The quinization of the soldiers and of the civil population of the villages in proximity to the camp consisted of 0.4 gm. per day, effectively supervised. I am forced to add, however, as a result of my experience among a certain number of persons, that the preventive quinization even at this dosage is not sufficient to protect against tertian malaria, if the number of infections is considerable. This was the case in Macedonia, where the anopheles is extremely numerous. Thanks to these measures, it was possible to reduce to 75 per cent. the number of cases during 1917, and the pernicious cases occurred but rarely.

CONCLUSION

I may say that the complete eradication of malaria in Macedonia, impossible during the war, would require several corps of excellent engineers, a hundred million dollars and twenty years of labor. We hope it may be accomplished in the future, but at the present time for the protection of our troops we can only employ the mechanical measures against the anopheles, quinization and the drainage of the smaller marshes.

THE PRESENT STATUS OF THE OPERATIVE TREATMENT OF CHRONIC FRONTAL SINUSITIS *

T. W. MOORE, M.D.
HUNTINGTON, W. VA.

Today, obliteration of the frontal sinus is attempted only in those cases in which there has been extensive necrosis of the bony wall, and our treatment is directed to establishing ventilation and drainage.

Various operators have devised new methods and modified old ones of opening the frontal sinus intranasally since Schaeffer, in 1890, published his method of penetrating the floor of the sinus through the ethmoid cells. This method had been abandoned until it was revised and improved in 1905 by E. Fletcher Ingals, who later used gold tubes. In the same year it was improved by Segura, we are told by Watson Williams and also by Ingals in their interesting historical reviews of the subject. In 1906 Max Halle described his operation of removing part of the nasal crest with burrs. He has since modified his method by making a flap of mucoperiosteum, which has not proved advantageous in the hands of other operators. Vacher, Goode, Sullivan, Thompson and other rhinologists have added new methods and different technic.

Sluder, by his ethmoid knife operation, aided us. Later Mosher gave us much assistance, as the result of his painstaking anatomic studies, by simplifying the entrance to the sinus intranasally by the method which bears his name, through the agger nasi cell, and according to his later recommendation, through the upper part of the anterior end of the middle turbinate. This has again been made easier, I think, by the curet devised and used by Faulkner.

Then, Watson Williams advised opening the anterior ethmoid cells by cutting through the anterior end of the middle turbinate at its attachment to the outer nasal wall with biting forceps. In discussing Williams' paper, Tilly stated that he removed the anterior end of the middle turbinate. This, as all operators know, must be done when the space between the septum and nasal wall is very narrow. Cases of this type have always been the most difficult for us to handle. Williams also advised breaking down the ethmoid cells posterior to the ostium, as was recommended in greater detail of instrumentation and technic by Freer in 1915. As far back as 1911, Killian stated that he no longer performed the operation bearing his name. Beck's osteoplastic flap operation gives us an opportunity to work from the sinus downward into the nose, while observing each step taken. The fear of the terrible deformity that would result if the bony flap failed to unite has made this too formidable a procedure to me.

When there is extensive destruction of the bony walls, especially the external wall, it is not practical to adhere to any special type of operation. I remember some years ago operating on a beautiful woman of about 40, a time when women are much interested in their personal appearance. When the incision was made, I found a large sequestrum of bone covering the entire sinus, and including much of the super-orbital ridge. In fact, nature had made a Beck bony

* Read before the Section on Laryngology, Otology and Rhinology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

flap. When this was removed, there was a step about half an inch deep in the median line. I was much puzzled as to what to do, but chiseled off the anterior wall of the other frontal sinus, obliterating both. Fortunately for me, the patient was pleased with her appearance afterward.

LOTHROP'S OPERATION

The most distinct advance made, I think, in the surgery of the frontal sinus, is the operation devised and advocated by Lothrop. This offers all the advantages of the intranasal operations, and at the same time permits direct inspection of the sinuses and also of the work, step by step, as it is accomplished. It will be remembered that Lothrop recommends first the removal of the anterior end of the middle turbinate and the breaking down of the anterior ethmoid cells with a curet, which frequently gives a free opening into the frontal sinus. This procedure he follows ten days or two weeks before the more radical operation is done. This drainage, as we know, in a large percentage of cases will effect a cure.

His more radical operation is done as follows: A pledget of cotton saturated with a 4 per cent. cocaine in epinephrin solution, is inserted in each nostril as far forward and as high as it can be placed. This lessens the bleeding during the operation. Under general anesthesia a curved incision, about 1 inch in length, is made through the eyebrow, beginning at the superorbital notch and extending over to the nose, the periosteum is carefully elevated, and a Vail or Jansen retractor inserted. An opening is now chiseled through the bone into one sinus at the naso-orbital angle, or Ewing's point. The sinus is now carefully inspected and any pus, polypi or granulation tissue removed, care being taken to preserve as much of the mucous membrane intact as is possible. A probe is now passed into the nasofrontal duct and used as a guide, while with curet, rasps and burrs, the cells anterior to the nasofrontal duct are broken down, and the mass of dense bone at the root of the nose, formed by the nasal process of the superior maxillary, frontal and nasal bones, is removed.

The partition between the sinuses is broken through and removed and the intranasal floor of the second sinus removed, whether it is diseased or not. At the same time the operator takes away the upper portion of the nasal septum, thus making a large passage from the now single sinus into the nose, which may be entered readily from either nostril. The external wound is now closed, without packing, and a pressure bandage applied and left on for twenty-four hours. When a dressing of cotton and collodion is applied and permitted to remain for five or six days, when the stitches are removed.

There is no after-treatment required, except a nasal (not intrasinus) douche to remove the increased secretion, due to the irritation produced by the operation. This usually subsides in two or three days.

MINOR ADVANTAGES OF OPERATION

There is no question in my mind but that frontal sinuses which have free drainage and ventilation do much better without being probed or treated in any way, which is usually distressing to the patient. Freer lays stress on this.

The burrs and rasps that have been devised by various operators, Lothrop, Tilly and Lynch, have added to my armamentarium.

We must never overlook the roentgen-ray picture in these cases, preferably stereoscopic pictures. While I have not acquired the proficiency of Beck in interpreting these plates and in being able to say so exactly by them what the pathology is, still they are invaluable to me.

Dr. Fletcher Ingals in a paper last year quotes some one as saying, "The value of an operation is not what it accomplishes in the hands of its inventor, but what can be done with it in the hands of other operators." Hence, my advocacy of this operation, which has proved very satisfactory to me, and to my twelve patients on whom I have used it, six of whom had been operated on by myself or some other rhinologist previously, without being permanently relieved.

An objection has been offered to opening a healthy sinus for increased drainage, for fear that it might be infected. My answer is that it does not, or did not become infected in any of my twelve cases, in only three of which both sinuses were involved.

I examined one of my first patients recently, now more than two years since the operation was performed, and there is still a free opening and the roentgen-ray picture shows a healthy sinus, although the patient had to have an operation on a maxillary antrum.

The variations in the anatomy as shown in Shambaugh's recent paper should make us hesitate to attempt to open all sinuses intranasally without seeing just what we are doing. In one of his specimens, one sinus had no outlet except into the other frontal sinus.

ABSTRACT OF DISCUSSION

DR. FRANK R. SPENCER, Boulder, Colo.: We have all been forced to realize how rapidly an opening into the frontal sinus tends to close, even when we have been successful in enlarging the nasofrontal duct, and this closure soon defeats free ventilation and drainage. For this reason all intranasal surgery, on this sinus, is more or less unsatisfactory. The Killian radical operation has become very unpopular except in rare cases, on account of the disfigurement. This shortcoming has been met by the Lothrop operation. However, I should like to emphasize the importance of making the opening into the frontal sinus no larger than is necessary for efficient work, so as to avoid disfigurement, and the importance of making the opening into the nose, from the sinus, as large as the nasal anatomy, in any given case, will permit. Since the former is a temporary opening and the latter a permanent one the reason for this is self evident.

Another feature, which Dr. Moore mentioned briefly, is the importance of removing thoroughly projecting bone in the region of the frontal process of the superior maxillary. This can best be done with the burr. If left undone it gives rise to granulations which tend to close even the large double opening.

DR. GEORGE E. SHAMBAUGH, Chicago: I am in accord with the conclusions of the essayist regarding the question of an external operation. I am coming more and more to the conclusion that satisfactory relief for most of the frontal sinus cases can be reached by intranasal work. It is very seldom that we are required to do any operation for an acute sinus, but where there is recurring acute sinus infection the first step is the removal of the anterior and of the middle turbinate. In chronic cases this should be followed by an exenteration of the anterior ethmoid cells. With this accomplished one usually has little difficulty in making a satisfactory widening of the nasofrontal duct. The use of rasps are of great assistance in this work. In most of the cases of chronic sinus empyema we can relieve a patient of the larger part of his discomfort, even in cases in which the complete cure of the chronic process does not result from the nasal operation. In my opinion the external operation should be reserved for cases in which

carefully carried out intranasal work fails to relieve the patient from annoying headache and in cases in which there is a threatened intracranial complication. Such cases will arise only exceptionally in one's experience.

DR. JAMES J. PATTEE, Pueblo, Colo.: Frontal sinusitis, requiring operation, is a troublesome affection, and the operation of choice should be determined with care. From a general survey of the published opinions there is, in my judgment, a progressive increase in the number of intranasal operations with a corresponding lessening of the external. I am in accord with this order of things. I agree with Dr. Shambaugh that it is applicable in the vast majority of cases. In rare cases we must resort to external measures.

The Killian operation fails occasionally, even in the hands of our best operators. It frequently produces much disfigurement and in some cases fails to afford ample permanent drainage, the feature on which its greatest claims are based. Dr. Ingals' statement is very true. The intranasal operation requires intimate anatomic knowledge and much experience. The narrowest part of the nose is on a plane with the canthi. The Lothrop operation has the advantage of opening the sinus very near this point, a great advantage. The Lothrop operation permits of thorough work; establishes adequate drainage; affords the best vision, and offers the most direct route to the site of greatest difficulty and danger. It permits healing in the shortest time and minimizes untoward after-effects.

Military Medicine and Surgery

THE TONSILS AS FOCI OF INFECTION
IN STREPTOCOCCUS HEMOLYTICUS
CARRIERS *

H. J. NICHOLS, M.D.
Lieutenant-Colonel, M. C., U. S. Army
AND
J. H. BRYAN, M.D.
Major, M. C., U. S. Army
WASHINGTON, D. C.

The study of hemolytic streptococcus infections, which has been stimulated by the Army experiences of last winter, naturally includes the subject of carriers. We have done some work in this field and are convinced that the tonsils play a part that should be emphasized. It has already been shown that throat swab cultures demonstrate the presence of hemolytic streptococci in various percentages of individuals and that hemolytic streptococcus complications, for example, in measles, occur only in those with positive throats.¹ Throat swab cultures for hemolytic streptococci, therefore, have a practical value in the maintenance of clean and infected wards which has been confirmed by experience at this hospital.

INFECTION OF THE TONSILS

With the established importance of positive throat cultures as a starting point, our attention was directed toward localizing the focus of infection if there is one. For this purpose we made swab cultures in positive throat cases from each side of the nose, from the pharynx, from each tonsil and from the saliva. In making the nasal cultures, the swabs were passed into

the nasopharynx. The results, which are shown in Table 1, were striking. The cultures of nasal swabs were either negative or showed a few hemolytic streptococcus colonies; the pharynx cultures were moderately positive; those of the saliva were slightly so, but the tonsil cultures showed in every case a rich growth of hemolytic streptococci. In the isolation and identification of hemolytic streptococci the methods adopted by the Medical Department of the United States Army were followed.²

TABLE 1.—RESULTS OF SWAB CULTURES IN POSITIVE THROAT CASES *

Case #	Right Tonsil	Left Tonsil	Pharynx	Saliva	Right Nostril	Left Nostril
1	+	+++	—	—	—	—
2	++	+++	+	—	—	—
3	++	++	++	+	—	—
4	++	++	++	—	—	+
5	++	++	+	—	+	+
6	+++	+++	++	+	+	—
7	++	++	+++	+	+	—
8	+++	+	+++	—	+	+
9	++	++	+++	—	+	+

* Positive findings are thus indicated: +, few colonies; ++, many colonies; +++, innumerable colonies.

These results pointed to the tonsils as possible foci of infection. One hundred pairs of excised tonsils were then examined by means of crypt cultures made with a platinum loop. Seventy-five pairs were found positive. The degree of infection in one or both tonsils of each pair was found to be as given in Table 2.

TABLE 2.—DEGREE OF INFECTION OF DISEASED TONSILS BY HEMOLYTIC STREPTOCOCCI

Pure hemolytic streptococci.....	31	} 70%
Predominating hemolytic streptococci.....	23	
Many hemolytic streptococci.....	16	
Few hemolytic streptococci.....	5	
No hemolytic streptococci.....	25	

These tonsils were removed on clinical grounds on account of size, presence of discharge from the crypts, cervical glandular enlargement and possibility of focal infection and not on account of the carrier state except in a few instances. The results of this series of examinations made it clear that diseased tonsils harbor hemolytic streptococci in a large proportion of cases.

The condition of the surface of tonsils was then compared with that of crypt contents in regard to streptococci, and it was clearly shown that the ordinary throat swab cultures may be negative while loop cultures from the crypts may be positive. The findings were:

Normal cases, 50; percentage of throat swab cultures positive, 28; percentage of tonsil crypt cultures positive, 50; percentage of error in throat swab cultures, 44.

Additional evidence of the importance of the tonsils in carriers is found in the results of throat cultures taken after tonsillectomy, which will be referred to later.

Out of twenty-five cases of typical acute follicular tonsillitis, only one failed to show a rich culture of hemolytic streptococci. We believe that the ordinary case of tonsillitis is most frequently caused by hemolytic streptococci, and that the organisms in many cases persist and reinfect the individual or spread to others.

In persistent carriers of any infectious disease, some focus seems necessary, as pathogenic organisms do not seem able to live indefinitely on healthy tissue. In typhoid and cholera carriers the gallbladder, liver or kidneys are recognized foci rather than the intestine or

* From the Laboratory Service and the Ear, Nose and Throat Section of the Surgical Service of the Walter Reed General Hospital, Washington, D. C. In this work the writers were assisted by: Capt. C. O. Stimmel, Capt. William H. Huntington, Lieut. S. A. Alexander and Lieut. E. Sturm.

1. Cole, Rufus, and MacCallum, W. G.: Pneumonia at a Base Hospital, THE JOURNAL A. M. A., April 20, 1918, p. 1146. Levy, R. L., and Alexander, H. L.: The Predisposition of Streptococcus Carriers to the Complications of Measles, *ibid.*, June 15, 1918, p. 1827.

2. Methods for the Isolation and Identification of Streptococcus Haemolyticus, Adopted by the Medical Department, U. S. Army, June 1, 1918.

urinary tract as a whole. In diphtheria carriers the tonsils are being recognized as the principal focus.³ We believe the same is true in streptococcus carriers. The possibilities, of course, include the nose, the sinuses, the gums and the adenoids; but in our experience the tonsils are by far the most frequent foci. Sections made of positive tonsils have usually shown erosion of the epithelium of the crypts with exudate.

IDENTIFICATION OF CULTURES

One hundred strains of streptococci have been studied by Captain Stimmel for cultural reactions in His sugar mediums with results shown in Table 3. In this work each tube was checked for purity and growth by smears and by transfers to blood agar plates. In case of contamination of any tube or lack of growth in negative tubes, the work was repeated. Fresh serum was found necessary for good growth, and serum water controls were used without sugar, as some serums naturally contain over 0.5 per cent. of glucose. Tests were also made for bile solubility, hemolysis in blood broth and morphology. The results were clean cut and uniform.

TABLE 3.—CULTURAL REACTIONS OF STREPTOCOCCI

Source of Strain	Num-ber	Glucose	Lac-tose	Saccha-rose	Man-nite	Mal-tose	Dex-trin	Inulin	Saline
Tonsil.....	43	+	+	+	—	+	+	—	+
Throat.....	26	+	+	+	—	+	+	—	+
Empyema.....	18	+	+	+	—	+	+	—	+
Miscellaneous....	11	+	+	+	—	+	+	—	+
(middle ear, etc.)									

In other words, no differences were found in strains from empyema fluids and surgical conditions, as compared with those from throats and tonsils. Of course, there may be differences in immunity reactions; but for the present in the prophylaxis of pneumonia and empyema, no differentiation is available. Several tonsil strains tested for virulence were low, requiring 0.5 c.c. to kill a mouse; but by mouse passage they became more virulent.

THE CURE OF CARRIERS

In our experience the only radical method of curing carriers is excision of the tonsil, which is successful except in a few cases in which other foci are present in the gums or elsewhere. The problem of chemical or mechanical disinfection has been attacked at this hospital as well as elsewhere with some enthusiasm, but a short experience has shown the futility of most measures. It has been found that a certain number of carriers on no treatment give two successive negative cultures in about three weeks. With dichloramin-T, Dobell's solution and hot alcohol, a few carriers cleared up in about the same time.

Under daily use of 25 per cent. silver nitrate, several cases became negative in about one week; but in some of these cases the crypts were still positive after negative throat cultures. In order to test the disinfecting power of silver nitrate, several excised streptococcus tonsils were submerged in 25 per cent. silver nitrate for five minutes. They were then washed in salt solution and incised, and cultures were made from the crypts. All these cultures were positive. In cases with a few open crypts, the silver nitrate treatment may be effective; but in most tonsils it is impossible to sterilize the crypts by this means.

The difficulty in sterilizing the tonsil may be realized by attempting to inject all the crypts with lampblack in paraffin; after all visible openings have been injected and the paraffin allowed to cool, incision of the tonsil will show a number of perfectly good crypts that have escaped the injection. If this is so with excised tonsils, the impossibility of mechanically or chemically disinfecting this tissue in vivo is easily understood.

The change noted in throat cultures after tonsillectomy was striking as compared with any other method. Twenty-seven out of thirty-one cases showed a second consecutive negative culture in eleven days. In the cases that did not clear up under tonsillectomy, there were foci in the nose or gums, and the cases became negative when these were attended to. No case of a carrier has been found in men who had previously had their tonsils properly removed.

COMMENT

It is evident that the removal of diseased tonsils is indicated not only for the good of the individual but also for the good of others, because it reduces the number of carriers of *Streptococcus hemolyticus*. Whether a carrier with healthy tonsils should be operated on simply because he is a carrier may be a debatable point; but in view of the lack of standards for "healthy" tonsils, it is justifiable to operate in our opinion, provided the case does not clear up in a few weeks spontaneously or under silver nitrate.

The practicability of materially reducing the number of carriers by this means is also a debatable point, as the number of carriers may be large, running at times from one third to one half of the military population. It is at least possible, however, to examine the tonsils of chronic carriers and to remove those tonsils which are manifestly diseased.

CONCLUSIONS

1. The tonsils are the principal foci of infection in throat carriers of *Streptococcus hemolyticus*.

(a) Cultures taken from different parts of the nose, mouth and throat show more streptococci in the tonsils than elsewhere.

(b) Cultures from excised tonsils show streptococci in 75 per cent. of cases.

(c) Crypt cultures show a higher percentage of positive results than surface cultures.

(d) Excision of the tonsils renders the throat negative in nearly all cases.

2. The streptococci isolated from tonsils and throats show no cultural difference on sugar mediums from those obtained from empyema fluids.

3. Excision is the only radical method of curing carriers of the infection.

(a) Dobell's solution, dichloramin-T and hot alcohol had little better effect than no treatment.

(b) Silver nitrate, 25 per cent., gave the better results in negative throat cultures, but the crypts frequently remained positive.

4. The presence of hemolytic streptococci in pathologic tonsils is an additional reason for their removal.

3. Keefer, F. R.; Friedberg, S. A., and Aronson, J. D.: A Study of Diphtheria Carriers in a Military Camp, THE JOURNAL A. M. A., Oct. 12, 1918, p. 1206.

Obligation of Physician to Report Births.—The state protects the physician in his practice, and on ethical ground has a right to expect him to comply with the laws affecting his practice, and on legal grounds to demand the registrations of births as a matter of public welfare. Court decisions have held this many times.—W. J. V. Deacon, M.D., State Registrar, Kansas.

STUDIES ON IRRITABLE HEART

PRELIMINARY REPORT

LOUIS M. WARFIELD, M.D. (MILWAUKEE)

Major, M. C., U. S. Army

AND

FRED. M. SMITH, M.D. (CHICAGO)

First Lieutenant, M. C., U. S. Army

JEFFERSON BARRACKS, MO.

In an attempt to discover if there is any method of diagnosing the so-called neurocirculatory asthenia before the men enter service, we have been engaged in an intensive study of the syndrome. We feel that the work has gone far enough to justify us in presenting our results briefly, leaving the more detailed statistics for later presentation. Our purpose is to state our reasons for considering that we can detect these cases at the recruiting depots or at the Local Examining Boards and thus save both applicant and government time and money.

Careful study of the reports of Lewis¹ and his associates leads us to believe that we are not dealing with the same class of patients. His patients were invalidated from the front, where overexertion and shell shock were factors. Our patients have come from civil life, where men have been doing their daily tasks under no great strain. He was able to return 20 per cent. to active duty. Our experience coincides with that of Major Robey,² who found that these men were not benefited by graded exercises. These men, for the most part, had been working daily at some vocation. The work was uniform, required no sudden strain, no sudden call on the reserve of the heart. Frequently men told us that they themselves had found certain work too hard and had voluntarily sought easier and, at times, sedentary, jobs. This distinction, we consider, is important.

We have studied 435 cases. Two hundred of these were referred for examination at Camp Upton and Camp Beauregard (F. M. S.). The 235 cases that both of us have studied more in detail at Jefferson Barracks will, for the most part, form the basis of this report. These represent the referred cases at the recruit depot among 20,000 examinations during the months of July and August.

HISTORY

The careful history from the man who has tachycardia is almost the most important factor in the determination of a man's fitness for the Army. The men who have shortness of breath, a feeling of exhaustion out of all proportion to the exertion made, palpitation of the heart, precordial pain and dizziness on exertion in civil life have invariably failed in their military training. The 200 patients that were examined by one of us at Camp Upton and Camp Beauregard were men who had broken down in training. With very few exceptions, they complained of subjective symptoms that dated back into civil life, in some instances as far back as childhood.

Our plan has been to enter all patients into the hospital for observation who could not be rejected at once in the examining barracks. Patients with frank

exophthalmic goiter, of evident hyperthyroidism and of patent pulmonary tuberculosis were rejected at once. The cases studied represent the men who were not normal, who had tachycardia and who, we considered, had not enough symptoms and signs to reject at once. One hundred and five patients have been put in hospital and been given graded exercise. The time in the hospital varies from four days to three weeks. Sixty-five have been discharged as unfit, all of whom had symptoms prior to the time they were drafted. Eighteen have been accepted for military service, all of whom had no subjective symptoms on exercise. These men were observed because of tachycardia.

ETIOLOGY

The irritable heart is frequently a symptom of some well recognized disease. In the study of 235 cases from the standpoint of etiology, the diagnosis of pulmonary tuberculosis was made in eighty-eight. In no instance was the opinion of one man taken as final. Frequently, the diagnosis was made on the basis of the findings of three or four examiners. Forty-one of the most doubtful cases were observed in the hospital. Here, these patients were given graded exercises, the temperature was taken every three hours, and frequent chest examinations were made. Roentgenograms were made in a number of cases, and were often of considerable value. The exercise caused a rise of temperature and brought out positive chest findings in cases which, previous to exercise, were only suspicious.

Seventy-three patients were discharged with the diagnosis of hyperthyroidism.³ In all these, there were definite eye signs, as lagging of the lids, poor convergence and occasionally exophthalmos. The thyroid gland was enlarged in every instance. There was a tremor of the hand and tachycardia. The systolic blood pressure was usually increased, ranging from 120 to 170 mm. of mercury.

In thirty cases that gave a typical history of "effort syndrome," nothing was found to account for the condition. Twenty-one of these patients were rejected in the examining barracks with the diagnosis of irritable heart without hospital observation. On the basis of our later results, we feel that, possibly, tuberculosis could have been found in some of these men, had they been put under observation.

Three men had the symptoms and physical findings of early cirrhosis of the liver. One had chronic malaria, one bronchial asthma, and twenty-one are still in hospital under observation.

Eighteen men were sent to duty. These were men who had been sent to the hospital because of tachycardia, and had at no time subjective symptoms. They all responded to exercise well and, so far as we know, are having no difficulty in their training.

GRADED EXERCISES

The graded exercises have proved very valuable, first, in the determination of a man's fitness for the Army, and second, in establishing the diagnosis.

Those individuals who are not able to do the simplest exercises without distress and who have shown no improvement from day to day are very obviously not

1. Lewis, Thomas: Report, Medical Research Committee, London, 1918.

2. Robey, W. H., Jr., and Boas, E. P.: Neurocirculatory Asthenia, THE JOURNAL A. M. A., Aug. 17, 1918, p. 525.

3. We have called these cases hyperthyroidism. We ourselves are not satisfied with the term. We feel that exophthalmic goiter would probably be a better term to use as all the cases were potentially Graves' disease. The term is in such general use that we have here employed it to designate cases not frankly exophthalmic goiter, but with certain of the Graves' disease stigmata.

fit for military service. Those men who have given a history of having had subjective symptoms in civil life have all made complaints following these exercises. Those cases in which the irritable heart had as its basis pulmonary tuberculosis have usually responded poorest to the exercises.

In forty-one cases, we feel confident that the exercises brought out positive findings in the chest and caused a rise in temperature, so that we were justified in making the diagnosis of pulmonary tuberculosis. Thirteen of the patients under observation were discharged with the diagnosis of hyperthyroidism. The exercises in those cases brought out signs that previously were only suggestive.

SUMMARY

For the present, we feel safe in saying it is possible to detect the irritable heart before a man is inducted into service. This can be done, first, by taking a careful history, paying particular attention to previous attacks of dizziness or fainting, exhaustion, precordial pain, and pounding of the heart on *slight exertion*; second, by noting the unusual physical response to the hopping exercise and the increase in the pulse rate out of all proportion to the exercise.

THE INFLUENZA EPIDEMIC AT CAMP DIX, N. J.

MARTIN J. SYNNOTT, A.M., M.D. (MONTCLAIR, N. J.)
Major, M. C., U. S. Army; Chief of Medical Service

AND

ELBERT CLARK, Ph.D., M.D. (CHICAGO)
Major, M. C., U. S. Army; Chief of Laboratory Service
CAMP DIX, WRIGHTSTOWN, N. J.

The influenza epidemic began at Camp Dix, September 15, and ended, October 6. The number of daily admissions increased rapidly and reached the maximum, September 26, on which day 806 patients were received, making a total of 4,025 in the hospital on that date. The number then decreased daily, reaching the normal average of eighty admissions, October 7. During the twenty-two days of the epidemic, 6,500 patients were cared for. Approximately 6,000 of these men had influenza. There have been 800 deaths due to the epidemic. Four of our nurses and one dietitian died during the epidemic, contracting the disease while on duty. One medical officer was taken ill while on leave and died from bronchopneumonia a few days later at the Massachusetts General Hospital.

When the epidemic began to subside and the hospital discharges to increase, wards were consolidated as rapidly as possible. The emptied wards were renovated and disinfected thoroughly and all bedding sterilized in the steam autoclave before being used again for noninfluenza patients.

ADMINISTRATION

To take care of the large number of patients, all of the forty-eight wards of the hospital, except six, were turned over to the medical service; but in spite of this, it was found necessary to expand, and an annex was started in the camp. Through the cooperation of the headquarters authorities and the camp surgeon, a number of empty barracks were quickly equipped, a medical and nursing staff organized, and in this way eighteen additional wards with accommodations for

1,100 patients were provided. The annex was used for the most part for convalescent patients, and the patients were moved there from the base hospital as rapidly as safety permitted. Our rule was not to transfer patients until the temperature had been normal for forty-eight hours. They were kept in bed at the annex for another forty-eight hours and not discharged until the temperature had been normal for ten days.

By this plan overcrowding was avoided and, as soon as possible, arrangements were made by which each influenza and pneumonia patient in the hospital was given 100 square feet of floor space. All patients, including those on the porches, were placed in cubicles. Nurses, medical officers and orderlies wore gauze mouth and nose coverings while on duty. Nasal discharges and sputum of patients were disinfected. A 2 per cent. solution of tincture of iodine in physiologic sodium chlorid solution was used for oral and nasal hygiene. Floors of all wards were gone over daily with a cloth wet in disinfectant. Individual drinking cups were provided. Particular care was given to the disinfection of thermometers and other utensils as they passed from patient to patient. Enlisted attendants in wards wore white cotton coats and trousers. Medical officers and nurses were instructed to disinfect carefully their hands before and after the handling or examining of patients and before leaving the ward, or passing from one class of patients to another. Pails containing a disinfecting solution were provided at convenient places in every ward.

Blankets, mattresses, mattress covers and pillows were disinfected by steam before being used for another patient. Soiled linen was immersed in a 2 per cent. dilution of liquor formaldehydi before being sent to the laundry. The clothing of patients was disinfected by steam or formaldehyd before discharge.

For patients too ill to use covered sputum cups, paper napkins were provided for the reception of sputum and nasal secretions. At the head or side of each bed a paper bag was fastened with a pin or adhesive plaster. These bags were used for napkins, gauze, swabs and other infected refuse and burned when full.

The medical service was directed by the medical chief and an assistant. There were ten ward supervisors, admitting officers and consultants. These men met with the chief for a conference at 8 a. m. daily, when the work of the day was outlined and discussed. There was a daily conference of all medical officers attached to the medical service (about eighty-five officers at the time of maximum stress) at 1:15 p. m. when matters requiring advice, questions of discipline, treatment, etc., were gone into fully.

The patients were grouped as rapidly as possible, all uncomplicated influenza cases being kept together, and the cases complicated by pneumonia gathered in separate wards.

The following laboratory tests were ordered for all pneumonia patients:

1. Routine urine examination.
2. Urine precipitin test, for type of pneumococcus.
3. Blood examination: white corpuscle and differential blood count.
4. Blood culture (only in serious cases).
5. Sputum: Collected in sterile Petri dish, after patient had rinsed mouth and throat with physiologic sodium chlorid solution, to eliminate contaminating organisms as much as possible; for smear and white mouse necropsy to determine the type of pneumococcus.

The following rules are laid down for the guidance of ward surgeons in the general management of convalescent pneumonia patients:

1. It is advisable that in all serious or severely toxic cases of pneumonia, the patient shall remain in bed for at least two weeks after temperature is normal.
2. Convalescent patients are to be transferred to the convalescent ward, as soon as this can be safely done.
3. No patient will be transferred without the approval of the consultant. Patients so transferred will be carried on litters, not wheel chairs.
4. Before discharge from the hospital, all pneumonia patients are to be sent to the roentgen-ray laboratory for fluoroscopic heart examination and cardiac measurement.
5. Generally speaking, no patient is to be discharged until the heart is normal in size, as determined by fluoroscopic measurement.
6. No influenza patient is to be returned to duty until the temperature has been normal for ten days.

All ward surgeons were repeatedly warned to be on the alert for the early detection of empyema and were given these instructions:

1. Consult your supervisor as to advisability of exploration.
2. *Technic of Exploration:* A 10 to 20 c.c. Lürer syringe and appropriate needle. One per cent. cocaine anesthesia by infiltration at site of puncture. Send fluid to laboratory (in syringe in which fluid is obtained) for smear and culture labeled "Chest fluid for smear and culture."
3. Roentgen ray to be requested as indicated.
4. *Aspiration:* If exploration has been advised and if fluid is sterile, do not remove by aspiration until after consultation and unless something in clinical condition warrants it, i. e., exacerbation of fever, pressure symptoms, respiratory distress, etc.
5. Repeated explorations are to be avoided on account of danger of conveying fresh infection from lung to pleura incident to puncture of lung by exploring needle. The pleural fluid may be sterile. Avoid infecting it.
6. If fluid is thin enough to run through a Potain aspirating outfit, it should be removed in this way, as often as symptoms indicate. If after consultation a case is considered to be one requiring thoracotomy, the sick soldier will be transferred to the surgical ward for operation.

In addition to the large stationary outfit in the roentgen-ray laboratory, we have two portable bedside machines. These were kept almost constantly in use during the epidemic.

CLINICAL FEATURES

The usual history was one of gradual onset with prodromes for four or five days prior to admission—consisting of headache, malaise, backache, myalgia, fever and chills or chilly sensations, and marked prostration. There was a history of anorexia, and of aggravation of symptoms, after drill or exercise. Occasionally the onset was sudden, sharp and severe. On admission there was cough, often with rusty sputum, a temperature of 103 F., occasionally hyperpyrexia, respirations of 28 or 30, the pulse between 80 and 120. A low temperature in a severe case was an unfavorable sign. The blood count showed usually leukopenia. The urine contained albumin and casts. The patients looked very ill, but often did not feel so. Few complained of sore throat or the early sticking pains in the chest, aggravated by coughing, so commonly observed in beginning pneumonia.

One third of our cases presented frank signs of pneumonia. Every patient who had fever, prostration, rapid pulse, increased respirations, cough and bloody sputum was at once put down as a pneumonia suspect,

which diagnosis could usually be confirmed later by physical signs and roentgen examination.

Frequently no physical signs of pneumonia were apparent on the initial examination. A day or two later bronchopneumonia was discovered, the lobules subsequently tending to become confluent. This condition sometimes gave the physical signs of a lobar pneumonia, but the real condition was repeatedly demonstrated at necropsy. The roentgen ray was an invaluable aid in the diagnosis of such cases.

The outstanding feature of the disease was the extreme toxemia noted in the serious cases. We could predict almost from the first inspection the outcome of each case. There has been a sharp line of demarcation between the serious and mild cases. In the former, many patients developed a cyanosis early in the disease and died promptly, after periods varying from a few hours to three days after admission.

The cyanosis appeared early and was progressive. It was a fairly constant and characteristic symptom in the severe cases. This intense cyanosis was a striking phenomenon. The lips, ears, nose, cheeks, tongue, conjunctivae, fingers and sometimes the entire body partook of a dusky, leaden hue. Frequently this cyanosis was apparent before there were any demonstrable physical signs of pneumonia. The cause could not be ascertained, a few spectroscopic readings failing to show absorption bands of methemoglobin. As necropsy revealed marked so-called compensatory emphysema in these cases, and as cyanosis is a common accompaniment of emphysema, possibly this was in some way accountable for the condition. Otherwise a purely mechanical conception of the mode of production of the cyanosis seems untenable. Lividity, occurring early in the disease proved to be an ill omen.

Very often this cyanosis came on suddenly in patients who had been doing well. It was not due to cardiac dilatation. The pulse was often slow, full and regular in such cases, and remained so, with a rate under 100, almost until death.

The disparity between temperature and pulse was striking. Patients with temperature between 104 and 106 not infrequently had a pulse rate below 80. This we regard as a strong point in differential diagnosis between these influenzal pneumonias and those of pure pneumococcic origin.

The disease was a veritable plague. The extraordinary toxicity, the marked prostration, the extreme cyanosis and the rapidity of development stamp this disease as a distinct clinical entity heretofore not fully described.

It is entirely different from our previous pneumonia epidemics. It is fair to state that it is primarily a profound, rapidly progressing septicemia and toxemia in which pneumonia is an important but somewhat secondary factor.

There was noted in many instances a distinct tendency to relapse. In several of our mild cases, after a day or two of nearly normal temperature, exacerbations occurred and the infection changed to the severe, toxic type.

Herpes labialis was relatively infrequent, but became more common as the disease advanced. It was seemingly of little help in prognosis, as many with herpes died, contrary to the teachings of the older clinicians.

The sputum showed varying characteristics. It was mucoid, mucopurulent, blood streaked, frothy and bloody, the blood pure as in infarct.

In one of our cases it was thin, brown, without froth and homogeneous (prune juice variety). At times it was rusty but lacking tenaciousness and of the consistency of typically pneumonic sputum; it was odorless. In one case the patient coughed up a large quantity of homogeneous, thick, purulent, greenish sputum at one time.

Necropsy in this instance revealed multiple bronchopleural fistulas leading to an encapsulated empyema on the right side.

Tachypnea was constant and variable in rate. The expiratory grunt was uncommon.

The cough differed materially from that of lobar pneumonia, being free, often painless, sometimes paroxysmal, resembling the cough of pertussis. One may reason from this that pleurisy was relatively uncommon as an initial feature. Pleuritic rubs were occasionally heard, however, while diaphragmatic pleurisy with its referred pain was not uncommon, often simulating a condition suggestive of appendicitis.

Flushing of the face was common. An early generalized erythema resembling that of scarlatina, most noticeable on the chest and back, was often observed. Miliaria (sudamina) was common later in the disease, especially in lethal cases in which sweating was frequent and excessive.

The throat was usually injected, but not painful; the tonsils were not swollen as a rule; there was marked conjunctival congestion at the outset of the disease. The tongue was variable: usually coated, moist in milder cases, dry, cracked and occasionally bleeding in severe cases. Sordes appeared frequently on the teeth.

Hoarseness was frequent, due either to the trauma of coughing or to superficial laryngeal ulceration or edema, as demonstrated at necropsy.

The mental condition was either apathetic or there was an active delirium. Cerebration was slow at the onset; the sensorium was numb; a noticeable incident in attempting to elicit history was the frequent apparent disregard of one's question or a response with an interrogatory and blank "What?" or "Sir?" Possibly this was due to a defect of ratiocination, rather than a faulty sense perception (tubotympanic catarrh with retracted membrana tympani or straight lethargy). The patient's assurances and statements as to the condition in many instances were unreliable, a moribund patient stating that he felt very well, requesting permission to get out of bed, reading the daily newspaper in some instances audibly and intelligently, or laying plans optimistically for the future. In other cases, apprehensiveness was most striking, the patient fearing for the future, predicting in a gruesome way the time of death, and making requests to be carried out posthumously. In moribund patients, motor and psychic restlessness was remarkable. In some cases the typical typhoid state existed: stupor, low muttering delirium, subsultus, tendinum, carphology, incontinence of urine and feces; one patient lay for several days stupid with the eyes wide open following imaginary objects about the ward (coma vigil).

In the lungs, the physical signs varied from impairment of resonance, especially over the lower lobes, with diminution of the vesicular murmur; with showers of crepitant and later subcrepitant râles to straightforward signs of consolidation, namely, dullness, bronchial breath and voice, increased fremitus and whisper with a few consonating râles. Often the only evidences of early pneumonia were the signs first

enumerated and these confined to a small area or a number of small areas, most commonly at the upper part of the right lower lobe or in either axilla, high up.

In the abdomen, meteorism occurred in some cases; in certain lethal cases it was excessive. Abdominal pain and tenderness were frequent, possibly not entirely due to pleurisy, but in the light of necropsy findings, to infection and hemorrhages in the rectus muscles. In one case necropsy revealed the presence of bilateral abscess in the lower rectus (Zenger's hyaline degeneration). The liver percussed large but was not often felt, owing to abdominal resistance. The spleen could be felt at or just below the costal margin in about one third of our cases. This finding was of little value, however, as many of these subjects were of the status lymphaticus type, in which cases splenomegaly is often observed.

Weakness and tremulousness of the extremities were noticeable manifestations in many cases.

Among accidents of the disease may be noted one case of death shortly after admission with no forewarning, and one case of sudden death many days after febrile period when the patient was regarded on the high road to convalescence.

EMPHYEMA

There have been fewer cases of empyema in this epidemic than might be expected, owing to the fact of the extreme toxicity of the disease with the result that death has occurred early. Most of the cases examined postmortem showed lesions in the pleura which would undoubtedly have resulted in empyema had the patients lived longer. Twenty cases of frank empyema have been discovered up to the present time.

Our experience here has taught us that early operation is not advisable in empyema. Aspiration with the Potain apparatus is resorted to when fluid is demonstrated to be present in the pleural cavity, unless the fluid is found to be sterile, in which event it is not removed. Aspiration may be repeated at two to four day intervals. Many patients do well under this plan of treatment; and if a costectomy is later deemed advisable, the patient's chances of recovery are very much enhanced if this operation is delayed until the acute stage of the disease has been passed, and the patient has begun to immunize himself.

The following type case illustrates the wisdom of this procedure:

Col. F. D. L., taken ill while in New York, Sept. 21, 1918, had a severe chill the next day at 3 a. m. He traveled back to Mount Holly in the afternoon. He complained of fever, chilliness and drowsiness. Signs of a diffuse bronchopneumonia with involvement of all lobes quickly developed. On the fourth day there was a remission in temperature and the patient felt better, but on the fifth day he had an exacerbation and the condition rapidly became critical. His fever was continuously high and expectoration was bloody. There were several attacks of hematemesis and one rather severe hemoptysis. The patient became delirious, September 28. This condition persisted one week. He was cyanosed and toxic, with signs of dilatation of the right ventricle and myocardial failure. The pulse rate ranged between 140 and 150, with respirations between 44 and 50 a minute. A pronounced jaundice, due probably to a hemolytic infectious process, developed about this time. On the fifteenth day, signs of fluid developed at the base of the right chest. Exploration in the eighth interspace at the posterior axillary line revealed a cloudy serofibrinous exudate, which on smear and culture showed the staphylococcus. Next day, 250 c.c. were removed by aspiration. On the eighteenth day, 400 c.c. of slightly

cloudy serous fluid were removed, and on the twentieth day 600 c.c. of frankly purulent fluid were obtained. On the twenty-third day, 1,120 c.c. of similar fluid were removed by aspiration. After this aspiration the patient's condition began to improve at once, and at present writing his temperature is normal, and the prognosis for recovery is excellent. The sputum on white mouse necropsy showed the Type IV pneumococcus. The urine contained albumin and casts. Cultures of the blood were made twice but were negative on each occasion. All aspirated fluid has shown a pure culture of *Staphylococcus aureus*.

OTHER COMPLICATIONS

The complications other than empyema associated with the epidemic were those ordinarily encountered in an infectious disease of great virulence. Pulmonary edema was a comparatively frequent terminal condition. One of the most striking of the complications was hemorrhage from the mucous membranes, especially from the nose, stomach and intestine. Frequently pneumonia patients would have hemoptysis like the hemorrhage of tuberculosis. Bleeding from the ears, and petechial hemorrhages in the skin also occurred. Purpura was seen rather frequently. Other complications were phlebitis, thrombosis, or embolism of peripheral arteries (with gangrene of the foot in two cases), toxic erythema, vomiting, diarrhea, conjunctivitis, convulsions, purulent peritonitis, inflammation of the accessory sinuses and of the middle ear, and pericardial effusion. A pronounced jaundice, not obstructive, as the stools are not acholic and probably of infectious origin, was noted in many of our severe cases. Retention of urine was not uncommon.

In several instances the infection produced a pronounced hemolytic effect with rapidly progressive anemia. In one instance, that of a medical officer, the red cell count was reduced to 1,600,000, with 50 per cent. hemoglobin on the fifth day of his disease. This patient is recovering.

A report of our series of cases, twenty in all, showing subcutaneous emphysema of the tissues of the neck, face, upper portion of the chest and arm will be published elsewhere.

Other rarer complications were meningismus, fibrinous and serofibrinous pleurisy, rupture of an encapsulated empyema into the bronchus, thyroiditis, pneumothorax and cerebral thrombosis or embolism (one case showed hemiparesis, hemianesthesia, and probably hemianopia).

TREATMENT

Influenza cases were treated symptomatically. Codein or heroin was found useful in relieving the distressing cough. Medicated steam vapor inhalations were found useful in relieving laryngeal irritation.

In the pneumonia cases, digitalis is begun early and given in full dose for forty-eight hours. It is then discontinued or reduced to one or two doses daily, after the heart muscle is digitalized.

Abdominal distention is guarded against, and when symptoms of this condition develop, an enema is given or, if necessary, pituitary solution hypodermically is administered.

If the patient is toxic or unable to take fluid freely by mouth, water is given by proctoclysis, hypodermoclysis or intravenous administration.

In the pulmonary edema cases, postural treatment, the Trendelenburg position being employed, was found useful in a few instances; in others it seemed to add

to the distress. Atropin or belladonna did not prove of any value in these cases.

The diet that we have recommended for influenza and pneumonia cases is a nourishing one providing calories in excess of 3,000 a day. It includes such articles as gruels, broths, purées, eggs, and milk fortified with cream and lactose.

To lessen the danger of relapses and exacerbations, we believe it is of the utmost importance to keep all patients in bed until the temperature has been absolutely normal for at least forty-eight hours. The rule not to discharge patients until the temperature has been normal for ten days has been rigidly enforced.

SERUM THERAPY

Serum was administered in cases in which the laboratory reported the Type I pneumococcus. It was given only after desensitization and under the direction of the medical officer to whom the supervision of pneumonia patients had been entrusted. It was administered intravenously in doses of from 60 to 100 c.c. at twelve hour intervals until the temperature remained below 101 F.

SPINAL PUNCTURE

As many soldiers who died from pneumonia were shown at necropsy to have had an infection of the meninges with the pneumococcus organism, in a few instances of Type I, a lumbar puncture was advised in every case in which any symptoms of meningeal irritation developed. The spinal canal was drained, and the fluid withdrawn was sent to the laboratory for examination.

The precipitin test on the spinal fluid is rapidly done and the type thus easily determined. If the laboratory reported the Type I pneumococcus, serum was administered at once intraspinally (20 c.c.) and a desensitizing dose of 5 c.c. given subcutaneously. Five hours later, from 80 to 100 c.c. were given intravenously.

PROPHYLACTIC IMMUNIZATION

In the course of the epidemic the War Department offered prophylactic immunization to the camp, and several thousand inoculations have been given. These are given only to volunteers, but all medical officers, nurses, orderlies and soldiers in good health are strongly advised to take it. The vaccine consists of 10,000 million of each of the three types I, II and III of the pneumococcus. The dead organisms are suspended in cottonseed oil, making thus a lipovaccine. One dose is administered. The advantage claimed for oil over saline is that the vaccine is more slowly absorbed and hence the period of "negative phase," with lowered resistance, is avoided. Our experience at this camp substantiates this claim. All reactions have been light.

Observations following the use of this vaccine at Camp Upton indicate not only successful immunization against pneumococci of Types I, II and III, but also a very low incidence of streptococcus cases among the vaccinated. The vaccine is given subcutaneously.

Pneumonia is the most serious complication, and if this can be avoided, influenza will be robbed of most of its terrors.

PATHOLOGY AND BACTERIOLOGY

The pathology of the cases of influenzal pneumonia coming to necropsy at Camp Dix have presented very diverse pictures. In the cases that we have seen at

necropsy the lesions were confined for the most part to the chest cavity. This is especially true of the cases which ran a rapidly fatal course. In the latter, the greater part of the visible pathologic changes consisted of very much congested and hemorrhagic, water-logged lungs. Some of the patients who had been in the hospital two weeks or longer presented a pathologic picture more or less like those bronchopneumonia patients coming to necropsy here last spring and those described by MacCallum for the pneumonia epidemic at Fort Sam Houston, Texas, during the winter of 1917-1918. Between these two extremes there have been many intermediate stages.

A notable feature of the cases in which death occurred early in the disease has been the extreme water-logged appearance of the lungs—lungs that are more or less completely filled and distended with a watery, bloody and frothy fluid, with petechial and larger hemorrhagic areas in the pleura. The right lung in one of our cases weighed just short of 4½ pounds and was absolutely devoid of air except for a small area at the apex of the upper lobe and small areas here and there along the anterior margin. The latter areas appeared to contain air under pressure. The remainder of the lung was tightly filled with fluid, was soft at all points, and did not contain any nodules or firmly consolidated areas. When the lung was held up, large quantities of fluid ran out. A slice cut from the lung lost about half its weight in fluid squeezed out by pressure with the hand. From this lung there was grown a nonhemolytic streptococcus and the influenza bacillus. Pronounced inflammation of the trachea and bronchi was noted in all cases in which death occurred early in the disease.

While only one case of well marked empyema has come to necropsy, several showed evidence of beginning empyema.

The heart showed nothing beyond dilatation of the right ventricle in the more acute cases. Early pericarditis has been seen in cases of longer duration.

The spleen as a rule showed no evident change.

The liver has weighed on the average approximately 2,000 gm. and has been more or less congested and yellowish.

The kidneys have shown a markedly congested and yellowish cortex.

The intestinal tract has shown in the majority of cases only slight congestion, and petechial hemorrhages in the gastric mucosa.

Blood examination in more than 700 cases has revealed in most instances an absence of leukocytosis in the more severe cases and during the acute stage of those running a more favorable course. The average has been about 5,000 white cells per cubic millimeter during the acute stage. The lowest recorded was 1,200.

The lymphocytes experienced a relative percentage increase. The red cell count has as a rule shown no decrease and frequently a high count during the acute stage. After two or three weeks in the hospital the picture changes in most of the serious cases. The red cell count decreases, sometimes to 1,600,000, and a leukocytosis develops ranging from 12,000 to 30,000 white cells, with polymorphonuclear leukocytes running as high as 95 per cent. So far as we have seen, the hemoglobin varies directly with the red cell count.

The urine in practically all seriously ill patients has shown a liberal amount of albumin with frequent casts.

BACTERIOLOGY

A large variety of organisms has been encountered in cultures and smears from the lung substance, from the bronchial mucous membrane and from the sputum. Streptococci and pneumococci have been most frequently found. The influenza bacillus (Pfeiffer's) has been encountered in sputum, bronchi and lungs, but we have made no particular effort to study it or to determine its frequency. It has, however, been encountered in the majority of cases when looked for. It has been recovered from the lung substance, from the bronchi, from the trachea and from the sputum, but in none of our large series (over 300) of blood cultures.

It is worthy of note that *Bacillus influenzae* has in no single instance been the sole invading organism. It has occurred, as stated, in the sputum and in secretions taken directly from the trachea and bronchi and from the lung, but it has never been in pure culture. It has been always associated with one or more pathogenic organisms. We have found it associated with *Micrococcus catharrhalis*, with the pneumococcus of various types, with *Streptococcus hemolyticus* or *viridans*, with pneumococci and streptococci, and in one or more of these combinations plus various other undetermined organisms. Of the latter class there have been observed; spirilla, gram-negative cocci and bacilli and frequently a pleomorphic gram-positive coccus. It would thus appear that, whatever rôle *Bacillus influenzae* plays in the present epidemic, it does not invade the blood and in all probability cannot solely be responsible for the fatal termination.

The sputum in more than 500 cases has been examined as to organisms and subjected to test for pneumococcus type by the white mouse necropsy method. The organisms mentioned above have been recovered, namely, pneumococci of various types, *Streptococcus viridans* and *hemolyticus*, *Micrococcus catharrhalis*, *Bacillus influenzae*, a gram-positive pleomorphic coccus, and gram-negative bacilli and cocci in the associations already noted. During the early phase of the epidemic when the pneumococcus was encountered, it as a rule failed to give any type reaction by either the precipitin or the agglutinin test. More recently Type III and to a less extent Type II pneumococci became more and more frequent.

Three hundred and fifty urines and 120 spinal fluids from seriously ill patients were subjected to the precipitin test. The results are comparable to those from the sputum examination, Types III and II became more frequent during the later phase of the epidemic. It would thus appear that neither pathologically nor bacteriologically are we dealing with a definite disease. There is a variety of conditions found at necropsy and a multiplicity of organisms in the various cases. The epidemic has, however, shown phases, the later of which tend to resemble the bronchopneumonia of streptococcus and pneumococcus origin.

CONCLUSIONS

We are of the opinion that the infection begins in the upper respiratory tract and is characterized by an intense exudative inflammation. A tracheitis and intense general bronchitis follow. The exudate in the severe cases is so thin and voluminous that neither coughing nor the ciliated epithelia suffice to throw it off. The lungs soon become water-logged. This exudate carries with it into the lungs the organisms ordinarily found in the nose, nasopharynx and throat,

namely, streptococcus, Type IV pneumococcus, *M. catarrhalis*, Pfeiffer's bacillus, etc. A confluent lobular pneumonia ensues, caused by one or more of these organisms. In other words, we consider this a type of aspiration pneumonia.

However, it is by no means certain that *Bacillus influenzae* of Pfeiffer is the original infecting organism. We have not found it in pure culture in any of our cases examined postmortem. The disease may eventually be shown to be caused by some filterable virus or ultramicroscopic organism.

LOBAR PNEUMONIA AT A BASE HOSPITAL

LABORATORY AND CLINICAL STUDY OF FIFTY CASES *

LEON S. MEDALIA, M.D. (BOSTON)

Major, M. C., U. S. Army; Chief of Laboratory Service

AND

NATHAN S. SCHIFF, M.D. (NEW YORK)

First Lieutenant, M. C., U. S. Army

CAMP MAC ARTHUR, WACO, TEXAS

Early in March, 1918, it was suggested by one of us (L. S. M.) that a more careful study be made on the lobar pneumonia cases that appeared at this camp. The chief of the medical service was therefore requested to continue Lieutenant Schiff on duty as ward surgeon in charge of the pneumonia wards. It was felt that a comparative study of the cases clinically could best be made if the same man were continued on duty.

This article is a report on two series of cases. In the first, thirty cases were followed up in a routine way. Polyvalent antipneumococcus serum was administered in each case without regard to the outcome of the type determination. The second series is a study of twenty cases in which more complete laboratory methods were done, such as blood cultures, daily leukocyte counts, type determination, and the use therapeutically of Type I serum only in those cases that were found to be due to the Type I pneumococcus.

TABLE 1.—FREQUENCY OF POSITIVE BLOOD CULTURES IN PNEUMONIA AND ITS PROGNOSTIC SIGNIFICANCE (SECOND SERIES)

Type	Cases		Blood Cultures				Mortality in Cases with	
	Examined	Per Cent.	Positive		Negative		Positive Blood Cul.	Negative Blood Cul.
			No.	Per Cent.	No.	Per Cent.	Per Cent.	Per Cent.
I	3	15	1	33	2	66	—	—
II	9	45	4	44	5	56	1	25
III	—	—	—	—	—	—	—	—
IV	8	40	3	38	5	63	1	33

PNEUMOCOCCUS SEPTICEMIA AND ITS PROGNOSTIC SIGNIFICANCE

The incidence of positive blood cultures in lobar pneumonia has been variously stated as ranging from 20 to 50 per cent. The findings at the Rockefeller Institute¹ were 30 per cent. Our findings, as will be seen in Table 1, are 40 per cent., thus distributed: Type I, 33 per cent.; Type II, 44 per cent., and Type IV, 38 per cent. The two deaths that occurred were both among those with the positive blood findings, one in Type II and the other in Type IV. The mortality

of those with positive blood findings according to this table is 20 per cent., as compared with no mortality in the negative cases.

The technic followed was to obtain about 20 c.c. of blood from a vein at the elbow under aseptic precautions; plant 10 c.c. of the blood in a bottle containing 80 c.c. of meat infusion broth, and from 2 to 3 c.c. in each of a tube containing plain agar melted and brought down to 45 C., and plated. The cultures were kept under observation for from five to seven days and examined daily before a definite negative report was made. The typing was done mostly by Avery's cultural method. Both the agglutination and precipitin

TABLE 2.—COMPLICATIONS AND MORTALITY *

Type	No. Cases		Empyema		Otitis		Died		Recovered	
	1st	2d	1st	2d	1st	2d	1st	2d	1st	2d
	Series	Series	Series	Series	Series	Series	Series	Series	Series	Series
I.....	3	3	0	1	0	0	0	0	3	3
II.....	4	9	0	2	0	3	0	1	4	8
III.....	0	0	0	0	0	0	0	0	0	0
IV.....	11	8	0	1	1	0	0	1	11	7
Undetermined...	12	0	0	0	0	0	0	0	12	0

* Comparison between Series 1, cases treated at random with polyvalent serum, and Series 2, those treated with Type I serum only when found due to Type I pneumococcus infection.

tests (the routine method was the agglutination test) were done in a number of cases. The mouse method was not used, owing to the impossibility of obtaining white mice.

The pneumococcus obtained from the blood was in all cases found to correspond to the type obtained in the sputum.

The blood cultures were taken from two to nine days following the first initial symptoms, and in most cases from two to five days prior to the occurrence of the crisis.

It is significant that in the fifty cases here reported there was not a single case of Type III. It would be of interest to know whether the infection with this type of pneumococcus was as rare in other camps. In the thirty-one cases of lobar pneumonia reported by Cole and MacCallum² at Fort Sam Houston, Texas, they found only one case with Type III, or 3 per cent., as against 13 per cent. at the Rockefeller Institute.¹

In a recent article by A. A. Small³ in a report on the pneumonia cases at Camp Pike, the type determination findings were: Type I, 21 per cent.; Type II, 34 per cent.; Type IV, 45 per cent.—no Type III in the whole series. Our findings of those fifty cases that were typed were: Type I, 16 per cent.; Type II, 34 per cent.; Type IV, 50 per cent.—none of Type III in this series.

COMPARISON OF COMPLICATIONS AND MORTALITY BETWEEN THE TWO SERIES

In comparing the complications and mortality between the two series in Table 2, one cannot help but recognize the marked difference between them. One would expect the course of the disease to be much more severe and the mortality much higher in the first series of the thirty cases, which extended through the months of January, February and March, the coldest months of the year, as compared with the second series of cases, which extended through the last week of March, April and May, the wards and general treatment being the same and carried out by the same ward surgeon.

*From the Clinical and Pathological Laboratory, Base Hospital, Camp MacArthur, Waco, Texas.

1. Avery, Chickering, Cole and Dochez; Monographs of the Rockefeller Institute for Medical Research, No. 7, Oct. 16, 1917.

2. Cole, Rufus, and MacCallum, W. G.: Pneumonia at a Base Hospital, THE JOURNAL A. M. A., April 20, 1918, pp. 1146-1156.

3. Small, A. A.: Pneumonia at a Base Hospital, THE JOURNAL A. M. A., Aug. 31, 1918, pp. 700-702.

As a matter of fact, the course of the disease was much worse in the second series of twenty cases, which had in its favor the better weather conditions, having four empyema cases, three cases with otitis media, and two deaths; while in the first series of thirty cases there were no empyema cases, only one with otitis media, and not a single death. The only difference in the treatment between the two series was the use of the polyvalent antipneumococcus serum as a routine measure in the first series, while only in those that were of Type I infection, three cases out of the twenty, in the second series was serum given. The general impression as expressed by Major O. H. Campbell, chief of the medical service, was to the effect that the cases in which the polyvalent serum was administered ran a much milder course, the patients feeling better, breathing easier, and in every respect being much better off than those patients in the second series who did not receive serum, not having Type I infection.

The same impression was expressed by the various ward surgeons who observed the other cases that occurred in camp on whom polyvalent serum was used as a routine measure. Credit for the use of the polyvalent serum is due to Major Campbell, who instituted its use as a routine measure in all cases of pneumonia in the beginning, before we had any facilities in the hospital to do type determination. Because of the apparent good the polyvalent serum did and the easier course these cases ran and the low mortality obtained, the routine use of polyvalent serum was continued for a long time after the type determination was instituted in this laboratory.

SPECIFIC THERAPY: POLYVALENT VERSUS TYPE I SERUM

A critical analysis of Table 2, with special reference to the difference in complications and mortality between the first series, which received the polyvalent serum as a routine measure, and the second, which did not, is the strongest evidence, at least for the present, that we have in favor of using the polyvalent serum as a routine measure. We have no means of determining thus far the amount of antibodies Type IV organisms are capable of producing against their own respective types, while against Type II, according to the Rockefeller Institute,¹ an antiserum can be produced, though much less potent than against Type I. These facts, and the fact that Type II plus Type IV infections make up from 70 to 80 per cent. of the cases of lobar pneumonia that occurred in the camps, strongly suggest the advisability of using the polyvalent serum as a routine measure, until such time at least as monovalent serums can be produced against the respective individual types of infections. The potency against Type I infection of the polyvalent antiserum, as pointed out by Wayson and McCoy⁴ of the U. S. Public Health Service, must in all respects compare favorably with that of Type I monovalent antiserum.

The important thing in the use of an antiserum as a routine measure is the avoidance of anaphylaxis. This may be accomplished by the intradermal and subcutaneous test. The technic as followed in this hospital is the administration intradermally, on the flexor surface of the upper arm, of 0.5 c.c. of a 1 per cent. antipneumococcus serum in sterile saline, controlled by

0.5 c.c. of saline solution introduced at points from 3 to 4 cm. apart on the same level of the skin, followed, if negative, in fifteen minutes by 1 c.c. of straight serum subcutaneously. If the subcutaneous test is found negative, it is followed one hour later by 50 c.c. of polyvalent serum intravenously. This dose is repeated from every twelve to twenty-four hours until the temperature, respiration and pulse warrant its discontinuation.

If properly carried out, this intradermal and subcutaneous skin test should do away with the objection raised against the routine use of the polyvalent antipneumococcus serum of unquestionable potency (as tested by the U. S. Public Health Service) in pneumonia due to pneumococcus infections of whatever type.

TOXIC GASES IN MODERN WARFARE

WITH SPECIAL REFERENCE TO DIAGNOSIS AND
TREATMENT

GEORGE WILLIAM NORRIS, M.D. (PHILADELPHIA)

Lieutenant-Colonel, M. C., N. A.

FRANCE

The idea of employing gases in warfare is, of course, not new. In 360 B. C., the time of the Trojans, resinous woods, sulphur and pitch were employed. Long ago the Chinese availed themselves of the so-called "stink-pots" to choke and nauseate their adversaries. The Turks used "Greek fire" against the crusaders. In more modern times we find General Joubert protesting to General White, during the Anglo-Boer War, because the bursting lyddite shells caused suffocation. In the latter instance the carbon monoxid poisoning was, of course, entirely incidental to combustion and not primarily a method of destruction.

Under the guise of studying industrial intoxications, the Hun had experimented extensively with chlorin, bromin, formaldehyd, nitrous vapor, sulphurous anhydrid, etc., long before the beginning of the present war. The knowledge and experience thus gained was first employed in warfare in April, 1915, when large quantities of cylinder gas were discharged against the Canadians and Turcos at Ypres with such ghastly effect.

Since that time various gases, either simply or in combination, have been employed, nearly all of them being based, so far as their production is concerned, on chlorin or methyl alcohol. Lately, arsenical compounds have also been used.

METHODS OF EMPLOYMENT

1. Cylinder, drift or cloud gas (generally chlorin or phosgen). The gas is discharged from large numbers of big cylinders, generally at night or in the early morning when a steady, properly directed wind, of from 4 to 12 miles an hour, is blowing. The gas is heavier than air, sinks into trenches, dugouts and shell holes, and is unaffected by mist, rain or water courses. Such attacks have been made on a 5-mile front and have produced intoxication at points 6 miles behind the line.

2. Artillery shells. Shells containing gas in a liquid state, and lately also explosive charges to insure dissemination are used for distant ranges. With fifty or more guns firing ten shots a minute, often in salvos,

4. Wayson, N. E., and McCoy, G. W.: The Potency of Antipneumococcus Serum, THE JOURNAL A. M. A., June 8, 1918, pp. 1747-1749.

it is quite possible to drench thoroughly a given area with gas, especially if the ground is low or wooded. Such shelling is now much in vogue previous to an infantry attack, and is often directed against artillery positions.

3. Mortars (short range projectors, "minenwerfer"). By this method enormous gas shells can be projected for 2,000 yards. A large number of mortars are fired simultaneously, by an electric device, and thus a tremendous concentration of gas may be attained in a given locality, practically without warning. After such attacks, 40 per cent. of casualties with 15 per cent. of fatalities are not uncommon. When one reflects that an 8-inch shell contains $2\frac{1}{2}$ gallons of volatile liquid, it is not difficult to understand why this should be so.

4. Hand grenades. Grenades containing lacrimatory, combustible or lethal gas are occasionally employed to "clean out" saps and dugouts.

The effects of gas depends on: (1) the kind used, and the concentration obtained; (2) the duration of the exposure, and (3) the promptness and efficiency of protective measures, such as gas alarms and respirators. It should be borne in mind that symptoms may be delayed, sometimes for hours, in certain types of gases.

THE DIFFERENT TYPES OF GASES

1. Lacrimators (acetone, xylene or benzene bromid). These gases act immediately, causing a copious ocular irritation, intense lacrimation and thus a temporary, indirect functional blindness. They are commonly employed in gas chambers for purposes of instruction, and to test out the "fit" of a mask.

2. Sternutators (diphenylchlorarsin). The symptoms produced by this type of gas are immediate sneezing, coughing, headache, salivation, vomiting and substernal pain. They are employed preliminary to or early in a gas attack so as to render gas mask protection difficult or impossible. A man who is seized with the above mentioned symptoms generally finds it impossible to get or keep his mask on, and hence falls a victim to the lethal gas that accompanies or follows the initial dose.

3. Lung irritants (suffocating gases—chlorin, phosgen, diphosgen, oxychlorcarbon). These gases produce death by irritation of the pulmonary alveoli, resulting in edema of the lungs.

4. Vesicants (dichlorethylsulphid, dichlormethyl-ether). The brunt of the attack is borne by the skin, eyes and upper respiratory tract. Blistering and subsequent sloughing of the tissues affected results in cutaneous burns and intense bronchial, tracheal and laryngeal inflammation, and sloughing. Death results from bronchopneumonia.

5. Gases destroying erythrocytic function. (a) Carbon monoxid—causing death by asphyxia resulting from methemoglobinemia.

(b) Arsin—causing hemolysis, jaundice, hemoglobinemia, nephritis and gastro-intestinal disturbances.

SPECIAL TYPES OR VARIETIES OF GAS

Diphosgen (trimethylchloroforminate, "surpalite"),—This gas, now used instead of phosgen ("palite"), is the most intense lung irritant known. In a dilution of 1:50 (rare) one inhalation kills by laryngeal spasm. It diffuses quickly, and in a dilution of 1:1,000,000 is toxic if breathed for a considerable time. When brought into contact with water it forms hydrochloric

acid. It produces but little local or early irritation, and during periods of excitement or when mixed with smoke, may be breathed for some time without discomfort. It does, however, cause slight, early, ocular smarting, nausea, retching and vomiting (pharyngeal irritation). Its chief and important action, however, is on the pulmonary alveoli, and its effect is pulmonary edema.

Symptoms: These are slight cough, nausea, substernal pain, soreness or sense of constriction, headache, epigastric pain, dyspnea, fever from 100 to 106, syncope and weakness.

Slightly gassed cases are difficult to diagnosticate. The symptoms may be slight and physical signs absent. It is safe to assume that a man who shows no physical signs at the end of from twenty-four to thirty-six hours either has not been gassed or, if so, only to a negligible degree.

The severe cases fall into one of two categories: (a) cyanotic cases: increasing restlessness, dyspnea, weakness and cough with slight frothy, sometimes blood-tinged, expectoration; dyspnea, cyanosis, venous distention and a full, strong pulse of about 100; or (b) gray cases: slight cough, no expectoration, ashen pallor, marked tachypnea, shallow respiration, a leaky skin, very low blood pressure, a rapid, thready pulse (140) and collapse. Needless to say, the prognosis in the latter case is far worse than in the former.

Physical Signs: In the early stages there may be no auscultatory signs—simply an increase of the respiratory rate and an increased fulness of the pulse. Later the signs of beginning pulmonary edema manifest themselves—crackling râles, harsh breath sounds, not infrequently together with pleural frictions. It is noteworthy and striking that such physical findings are first noted, most marked, and, during convalescence, most persistent, over the upper lobes anteriorly, and not, as is the case in disease, at the bases. Local tympany may be found, resulting from emphysematous areas. As the edema increases, resonance becomes impaired and breath sounds are lost, being totally replaced by crackling râles or completely silent areas. The heart dulness increases to the right, and as dilatation increases, the pulmonic second sound becomes enfeebled. Death results from deficient oxygenation due to cardiac dilatation, following pulmonary engorgement and edema. It is mechanical, therefore, there being no direct cardiotoxic effect. Occasionally symptoms and physical signs may be precipitated by physical exertion or a full meal, several hours after the exposure to gas, the patient collapsing quite suddenly.

Morbid Anatomy: The trachea and bronchi are filled with slightly blood-tinged froth. The lungs outwardly appear mottled as a result of alternating areas of congestion and emphysema. On section, congestion, capillary hemorrhages and extreme, widespread edema are found. Small, slightly bloody, pleural effusions are quite common. The right heart is dilated and often contains thrombi. The venous system is engorged, and thromboses are sometimes encountered. The kidneys are congested, and the glomeruli may contain clots.

Four fifths of all the deaths occur within the first twenty-four hours. If the patient can be tided over this interval he usually recovers. The pulmonary edema clears up rapidly after the second or third day. Cardiac dilatation may persist and be troublesome for several weeks.

Treatment: This consists of: (1) absolute rest; (2) warmth (to prevent shivering, which increases carbon dioxide); (3) venesection; (4) removal of clothing; (5) oxygen inhalations (in the cyanotic cases); (6) cardiac stimulation (camphor, digitalin, spartein, caffeine), and (7) fresh air.

Venesection is the sheet anchor of treatment. About 500 c.c. of blood should be removed as soon as evidences of pulmonary edema begin to appear. This may have to be repeated within a few hours. The beneficial effects, both subjective and objective, are immediate and striking. A good-sized vein must be freely opened or a portion of its wall excised, since the blood is inspissated, clots quickly and flows with difficulty. Most observers believe that in cases belonging to the ashen gray type the patients should not be bled.

Contraindications in Treatment: Opium in any form, ipecac, emetin, expectorants or depressants, such as acetylsalicylic acid or other coal tar derivatives, are contraindicated. Opium tends to check cough, and hence the patient drowns in his own secretions sooner than he otherwise would.

Atropin produces no beneficial results; neither does epinephrin. It should be remembered that recovery may occur in the most desperate cases; active treatment should be kept up as long as the patient breathes. Raising the foot of the bed sometimes aids expectoration.

Practical Considerations: Gassed patients usually arrive in large numbers and tend to swamp the personnel of the field hospital; hence to save time and labor the following arrangements should be made:

1. Serious cases should be kept in one or two wards, and not scattered at random. Thus both observation and treatment will be facilitated.

2. One officer is detailed to see all incoming cases, to judge of their severity and order their disposition. He should circulate constantly through the wards so as to pick out cases with beginning edema.

3. One officer and one or two orderlies are assigned to perform venesection in the severe cases. More may be required.

4. One officer should supervise the oxygen administration and the giving of hypodermic stimulation. Oxygen is given for five or ten minutes, with ten or fifteen minute intervals, according to the degree of cyanosis present.

All diphosgen patients must be transported by litter. They are not allowed to undress or bathe themselves. Light food in small quantities is allowed in the milder cases. In the severe cases the patients are kept at the field hospital for several days until acute symptoms have subsided. In the evacuation hospital it is usually possible at the end of a few days to pick out the patients who will soon be fit for duty from those requiring evacuation to the base. Convalescence will be more prolonged and must be more guarded than in the case of yperite ("mustard gas").

Chlorin.—The treatment of chlorin poisoning is similar in all respects to that of diphosgen, except that ammonia inhalations may be added.

Dichlorethylsulphid (yperite, "mustard gas").—This gas has a faint odor which has been compared to French mustard, vinegar, etc. Characteristically, it produces no immediate or early effects. One may remain or sleep in a dugout charged with it for several

hours before becoming conscious of its presence, and then it is often too late.

Occasionally nausea, retching, vomiting, and smarting of the eyes occur as valuable, even life-saving, symptoms at the end of from twenty to sixty minutes. As a rule, however, symptoms appear from two to five hours after the beginning of exposure.

The face and neck become red and the eyelids swollen. There is marked photophobia and blepharospasm, lacrimation, ocular and substernal and epigastric pain, pharyngitis, bronchitis, and an increased pulse and respiratory rate. At the end of twenty-four hours, severely gassed patients show in addition to an exaggeration of the symptoms just mentioned, cutaneous blistering of the face, neck, scrotum, inner surface of thighs, penis, buttocks, etc. Burns in the latter region are especially common after sitting on gas-impregnated earth. Widespread and severe purulent inflammation of all the upper mucosae and the bronchi are present. The expectoration consists of bloody pus and is sometimes accompanied by sloughs of the entire tracheal and bronchial mucous membrane.

At the end of forty-eight hours, bronchopneumonia, often widespread and coalescing, has occurred, as a result of tissue destruction and leukopenia. The patient is delirious, coughs, is cyanotic, exhausted, tortured by pain and suffocation, and finally lapses into unconsciousness. It is to be noted that in contrast to the phosgen cases, dyspnea, cyanosis, fever, tachycardia and prostration occur late. Practically none of the patients die within thirty-six hours, and death may occur weeks later. Slight transient albuminuria is quite common.

Convalescence: Photophobia of a functional type and unexplained origin persists for weeks and should be ignored as soon as local inflammatory changes have subsided. Bronchitis may also last for weeks, together with substernal and epigastric pain. None of these symptoms should prevent a man's being sent to the convalescent depot if his general physical condition warrants it. Some of the cases develop E. S. (effort syndrome), and require special treatment in "heart classes." Severely gassed patients—those that have developed a demonstrable bronchopneumonia—usually die. The slightly gassed patients usually recover. There is doubtless a middle class in which bronchiectasis develops in time as a result of cicatricial changes; but so far as is known, true tuberculosis as a sequel does not occur. It is, of course, easy to conceive that latent lesions may be activated by gassing.

Morbid Anatomy: There are purulent inflammation, destruction and sloughing of the respiratory mucosae. The lungs show alternating areas of congestion, emphysema and bronchopneumonia. The small bronchi and bronchioles are filled with pus. Sometimes coalescing areas of bronchopneumonia may produce extensive lobar involvement. Small areas of pulmonary edema may exist. The stomach, chiefly near the cardia, as well as the duodenum, generally contains submucous hemorrhages, conditions apparently resulting from the swallowing of saliva and responsible for the epigastric pain and gastro-intestinal symptoms. The kidneys are usually congested. Death results from bronchopneumonia and asphyxia due to obstruction of the smaller bronchi and bronchioles by mucosal sloughs and pus.

Treatment: 1. The patient should be evacuated early; as soon as possible, all clothes should be removed

and the entire body washed with soap and water. (Yperite is freely soluble in animal and vegetable fats.) The hair, which retains the gas, should be clipped. The room must be well ventilated, the clothes thrown outdoors, and the attendants must wear gloves.

2. The eyes, nose and mouth should be doused with 1 per cent sodium bicarbonate solution. This should be followed by the instillation of a bland oil. If obtainable, 0.5 per cent. dichloramin-T dissolved in chlorcosane should be used for the eyes (1 drop in 3, each eye, thrice daily as suggested by Major J. E. Sweet). Dichloramin-T has a twofold purpose: (a) It is a chemical antidote, by virtue of its chlorin. (b) It is an antiseptic.

3. Skin burns are treated with any alkaline dusting powder (talc, magnesium carbonate, zinc oxid), or by oily dressings such as petrolatum or paraffin. They are not as painful as fire burns, presumably owing to the edema and degeneration of the nerve endings (Warthin and Weller). Blisters should be pricked, but their fluid should not be allowed to run over neighboring skin areas.

DIFFERENTIAL DIAGNOSIS AND TREATMENT

Yperite (mustard gas):	Diphosgen (also phosgen and chlorin):
Late symptoms; death from three to sixty days after exposure.	Early symptoms, death from one minute to forty-eight hours after exposure.
Skin burns, conjunctivitis, bronchitis, bronchopneumonia.	No skin burns nor conjunctivitis; dyspnea, cyanosis, edema of lungs.
Late fever, weakness, dyspnea and tachycardia.	Early fever, weakness and tachycardia.
Remove clothes, wash with soap, cut hair, treat eyes and skin burns.	Absolute rest, <i>venesection</i> , oxygen and cardiac stimulants.
Codein or morphin indicated for severe cough.	Codein and morphin contraindicated.
After-effects: photophobia, bronchitis, aphonia.	After-effects: weakness and cardiac dilatation.

4. Cough is treated with steam inhalations (benzoin), codein or morphin; and, unless the skin is already blistered, by counterirritation of the chest (mustard).

Eye shades should be provided, or light bandages applied. The latter must not prevent the free escape of discharges. Eye pain is relieved by forcing open the lids from time to time, and allowing the imprisoned secretions to escape. Cocain must not be used on account of its deleterious effect on the cornea. The ensuing purulent conjunctivitis, and occasional corneal ulceration, are treated by customary methods. The eyes rarely suffer permanent damage. Patients who have developed bronchopneumonia should be screened, to prevent, if possible, the infection of others. Oxygen inhalations are useful as a method of alleviation in severe cases, but they are not life saving as in the case of diphosgen, etc.

Clothing permeated with yperite if unaired remains poisonous for weeks. The gas can best be removed by passing the clothing through a steam sterilizer (thirty minutes wet steam, fifteen minutes dry steam, fifteen minutes air). If no sterilizer is available, they should be sunned and aired until they can be steamed.

Slightly gassed patients, of whom there are usually large numbers, may be allowed to walk to the shower baths and wash themselves. Physical exertion does not entail danger in any way comparable to that which exists after exposure to the phosgen group of gases.

Much diagnostic assistance may be gained by non-suggestive questioning of the more intelligent and not too greatly prostrated patients. The patient should tell his own tale in regard to odors, irritation, nausea, vomiting, sneezing, cough or weakness. Early sneezing and headache point to sternutants or arsin; early cough, vomiting and weakness to phosgen; late conjunctivitis, nausea and cough, to yperite. Prognosis should never be discussed in the hearing of patients: psychoneuroses are too easily developed.

Ethyldichlorarsin.—This gas and others containing arsenic are now increasingly used. Lately a shell containing 50 per cent. dichlormethylether and 50 per cent. ethyldichlorarsin has been employed. Aside from early sneezing, it produces a condition practically identical with yperite except for the fact that its action is much more rapid. It is said that the arsenical gases, in addition to the other symptoms, produce somnolence, nephritis (edema of the hands and face), abdominal cramps, diarrhea and hemolytic jaundice. I have not as yet seen any such cases.

Carbon Monoxid.—This gas, which results from the combustion of high explosives, produces similar, though less intense, symptoms than the illuminating gas poisoning of civil life. Thus we find headache, asthenia, amnesia, delirium and syncope; symptoms which result from methemoglobinemia. Such cases are sometimes evacuated as "shock."

Treatment: This consists of rest, oxygen, stimulation and transfusion. Bleeding is, of course, contraindicated.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, SECRETARY.

ANTIRABIC VACCINE (See N. N. R., 1918, p. 324).

Dr. D. L. Harris' Laboratory, St. Louis (National Pathological Laboratories, Chicago).

Rabies Vaccine (Harris).—Brains and spinal cords of rabbits, dead of fixed virus rabies infection, are ground to a paste which is frozen in a container surrounded with carbon dioxide snow. The mass is pulverized and rapidly dried *in vacuo*. The resulting dry powder is standardized by the method devised by Dr. Harris, and stored *in vacuo* in the cold. One dose is given daily over a period of ten days or more, the early doses increasing in unitage up to a maximum. Each package contains vaccine and apparatus for the administration of one complete treatment, consisting of 10 tubes of rabies vaccine (Harris), sealed in a vacuum, and numbered consecutively; 10 vials containing sodium chloride solution for preparing the vaccine solution; and a Luer syringe with needle.

Drug Cultivation in Madras.—According to U. S. Consul Lucien Memminger at Madras, India, experiments are being made in the cultivation of a number of drug plants on the Nilgiri plantations. Among them are jalap, ipecacuanha, belladonna, foxglove, henbane, common mint, fennel and rosemary, as well as lobelia inflata and chenopodium. Jalap has been raised for a number of years. On account of its high price during the war efforts have been made with some success to increase the production on the government cinchona plantations and in botanic gardens. It has been found that the plant can be propagated from cuttings from the young stems as well as from the tubers, which latter is the usual method. In Ootacamund an acre of jalap yields about 5,000 pounds of green tubers, or about 1,000 pounds of powder.

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SATURDAY, NOVEMBER 30, 1918

THE NONIDENTITY OF ANTINEURITIC AND ANTISCORBUTIC FACTORS IN NUTRITION

When the investigations that resulted in the demonstration that beriberi is truly a disease due to dietary deficiency established the vitamin hypothesis, an impetus was at once given to the consideration of other conditions of malnutrition from the same general standpoint. Before long, scurvy, rickets, pellagra and other maladies were put into the category of dietary deficiency diseases. As the polishings of rice had been clearly demonstrated to contain a substance—a vitamin—which will prevent the onset of beriberi or cure its symptoms when once they have made their appearance, a multiplicity of specific vitamins was at once postulated, each involved in a definite disease. In rickets, and particularly in scurvy, the probability that a dietetic factor is concerned has long been recognized; and in many instances improvement or cure has followed the institution of changes in the regimen of the patients. The specificity of the dietary deficiency diseases lent probability to the existence of specific deficiencies and consequently to the existence of a multiplicity of essential vitamins.

Meanwhile the need has been demonstrated of at least two types of vitamins in addition to the familiar nutrients, if physiologic well-being is to be attained. Investigations¹ are tending to demonstrate that certain properties of the water-soluble food accessory are similar to those associated with the so-called antineuritic vitamin which prevents the onset of beriberi and cures experimental polyneuritis. In fact, the suggestion has already been advanced that they are identical. Hence the question at once suggests itself as to whether the other alleged vitamins are identical, rather than specific—in other words, whether the belief in a diversity of nutrition-promoting substances should be abandoned.

For at least two of these vitamin-like factors in nutrition, the answer to this query is a negative one. It has long been known that many plants and fruit

juices are capable of preventing and curing scurvy, that is, they contain an antiscorbutic substance. The information as to the chemical and physical properties of the latter has been exceedingly meager—far more so than in the case of the antineuritic vitamin studied by Funk and others.² A recent investigation³ at the Lister Institute, London, has led Harden and Zilva to the definite conclusion that the antiscorbutic property is not identical with the antineuritic factor, since substances showing marked antineuritic activity are antiscorbutically inactive, and vice versa. There is also evidence that the antiscorbutic substance is more thermolabile than the antineuritic. The latest experiments show that, under certain conditions at least, the antineuritic substance behaves quite differently from the other toward adsorbents. If a mixture is made of autolyzed yeast—containing antineuritic vitamin—and orange juice, a recognized antiscorbutic, fullers' earth will remove the antineuritic factor while the other property remains unaltered. Common adsorbents like fullers' earth and colloidal ferric hydroxid do not appreciably affect the antiscorbutic potency of orange juice, which, furthermore, can even be filtered through porcelain without having its activity vitiated to any appreciable extent. The nonidentity of the curative agents for two diseases associated with faulty nutrition raises the question whether each malady is actually due to an avitaminosis or lack of suitable vitamin in the diet—a recently debated problem.

THYROID FUNCTIONS AND THERAPY

There can be little doubt that some, at least, of the so-called endocrine glands play an important part in metabolism. An attempt at present, however, to discover their precise function on the basis of dependable facts is more than likely to lead into a maze of conflicting hypotheses, some of which will not bear even superficial scrutiny. Endocrinology, to borrow a pretentious designation, still remains in good part a collection of guesses enriched and in some cases confused by clinical experiences. It will be imperative to prepare a far more substantial foundation for these new aspects of physiology and pathology before the therapy of the subject can be put on a rational basis. Lately several substantial contributions in the direction of progress have been made. Carefully conducted experiments on thyroidectomized animals in which precautions were taken to leave the parathyroid glands functionally intact have shown that, following the abolition of thyroid function, there ensues an unmistakable hypoglycemia and also a tendency to delayed removal of glucose from the blood, that is, a delayed

2. Vitamins and Metabolism, editorial, THE JOURNAL A. M. A., Nov. 16, 1918, p. 1662.

3. Harden, A., and Zilva, S. S.: The Differential Behavior of the Antineuritic and Antiscorbutic Factors Toward Adsorbents, Biochem. Jour., 1918, 12, 93.

1. McCollum, E. V., and Kennedy, C.: Jour. Biol. Chem., 1916, 24, 491. Drummond, J. C.: Biochem. Jour., 1917, 11, 255.

blood sugar tolerance curve.¹ An explanation is thus afforded for the low blood sugar values observed in myxedema and cretinism. Since hypoglycemia has been reported in Addison's disease, pituitary disorders and other less clearly defined endocrine conditions, such as muscular dystrophy,² it has been suggested that this symptom is evidence of hypofunction of the endocrine glands, the thyroid being taken as an example.³ It seems likely, therefore, that as the thyroid evidently functions to maintain the blood sugar at its normal level, there is a very intimate relation between the gland and carbohydrate metabolism.

With respect to nitrogenous metabolism, it has long been known that administration of thyroid preparations may stimulate the disintegration of tissue. In an attempt to trace the specific effect thus recorded to definite metabolic factors, Janney and Isaacson⁴ have studied the partition of nitrogen in the urine both in hypothyroidal conditions and after experimental hyperthyroidism. For the latter purpose Kendall's thyroid hormone was administered. No selective action of the thyroid on urea and ammonia could be observed; their percentages remained within normal limits. The creatinin metabolism also appeared to be independent of thyroid influence. The purin metabolism alone seemed to be altered, the output being decreased in hypothyroid function and increased in hyperthyroid conditions. In a special series of investigations at the Montefiore Home and Hospital, New York,⁵ it was found that the nitrogen balance is a rather delicate measure of the action of thyroid products. Contrary to widely held assumptions, a gain rather than a loss of nitrogen is a result of the therapeutic action of the thyroid; whereas a loss of nitrogen, that is, of protein, is due to the toxic action of the gland.

If it proves to be correct that nitrogen loss following thyroid medication is a toxic manifestation—a sign of overdosage or hyperthyroidism—a fact of unique importance will have been acquired. Janney fortifies his belief by reminding us that abolition of thyroid function in the very young leads to stunted growth (cretinism). Proper thyroid medication causes growth to be resumed. The therapeutic action of the thyroid should therefore be found to be accompanied by a gain, not a loss, of nitrogen. Accordingly, small doses of thyroid which suffice to cause clinical improvement in a cretin have actually been attended by an increased retention of nitrogen in the body. According to Janney's interpretation, the

depressed nitrogen excretion in cretinism is not due to "absence of stimulatory effect," but rather to the failure of normal repair and growth processes controlled by the thyroid. As these constructive processes are inhibited, little food is taken, because more cannot be assimilated. A low nitrogen output results.

That the metabolism is depressed in cretinism has long been recognized. Janney's studies indicate that this cannot be due to decreased alimentary absorption of food attributable to intestinal sluggishness. The adiposity sometimes observed may be due to the altered assimilability of sugar, since disturbances of carbohydrate metabolism have now been demonstrated to attend hypothyroid conditions. With these newer points of view, the problems of therapy and dosage can be considered to better advantage.

THE ILLINOIS EXPERIMENT IN REGULATING MEDICAL PRACTICE

Seventeen months have elapsed since the new arrangement became effective for regulating the practice of medicine in Illinois under the Consolidation Law. As already outlined in *THE JOURNAL*,¹ the registration of physicians, together with the licensing of dentists, pharmacists, midwives, followers of various cults and other registrable occupations, were together placed in a single department headed by an official who had authority to select advisers in the registration of each of the professions and occupations concerned. This arrangement in Illinois is an experiment, since it has no parallel in the methods adopted in other states. The arrangement places in a single department the control of all forms of healing, and the director of the department is in position to require, without discrimination, reasonable educational qualifications of all who are to practice regardless of the "system" or method of treatment employed. The success of any law depends, of course, on the ability and integrity of those appointed to enforce it. That the new law in Illinois is in proper hands is evident from the energetic prosecution of medical crooks and illegal practitioners since July 1, 1917, and in the establishing of better conditions in medical schools. The article by Mr. Francis W. Shepardson, director of the Department of Registration and Education of the State of Illinois, which was published two weeks ago,² therefore deserves careful reading. Mr. Shepardson and his co-workers entered on their duties with little or no knowledge of the irregularities of quacks, crooks and charlatans, who have always preyed on the sick and the injured. These irregularities, however, have been and are well known to the better class of physicians, who from time immemorial have struggled to uphold the

1. Janney, N. W., and Isaacson, V. I.: The Blood Sugar in Thyroid and Other Endocrine Diseases: The Significance of Hypoglycemia and the Delayed Blood Sugar Curve, *Arch. Int. Med.*, August, 1918, p. 160.

2. The Origin of Progressive Muscular Dystrophy, editorial, *THE JOURNAL A. M. A.*, May 11, 1918, p. 1376.

3. Hamman, Louis, and Hirschman, I. I.: Studies on Blood Sugar, *Arch. Int. Med.*, November, 1917, p. 761.

4. Janney, N. W., and Isaacson, V. I.: The Influence of Thyroidectomy and Thyroid Diseases on Protein Metabolites, *Arch. Int. Med.*, August, 1918, p. 174.

5. Janney, N. W.: Studies in Thyroid Therapy: The Effects of the Thyroid Hormone as Determined by a Clinical, Metabolic and Dietetic Investigation: New Points of View on Thyroid Function in Health and Disease, *Arch. Int. Med.*, August, 1918, p. 187.

1. The Illinois Consolidation Bill Becomes a Law, *THE JOURNAL A. M. A.*, March 17, 1917, p. 869.

2. Shepardson, F. W.: A Registration Fee for Physicians, *THE JOURNAL A. M. A.*, Nov. 16, 1918, p. 1629.

dignity and honor of the medical profession—although Mr. Shepardson in his article apparently has not appreciated this fact. The article is written with the vividness usual to a layman who has suddenly had his eyes opened to the seriousness of the conditions disclosed. As he states:

They found an army of advertising charlatans, some with fixed offices and others appearing "for one day only," making extravagant claims of curative skill in handling all diseases, specialists in everything, blatant fakers, robbing the poor and the ignorant, preying on the superstitions of gullible foreigners, as bold and daring bandits as ever sandbagged a lone wayfarer at night.

The irregularities found, however, were not only of those who because they hold degrees in medicine are physicians, but who prefer to resort to quackery; the description includes, also, the hordes of those representing the endless variety of cults, fads and isms, who skulk in the shadow of the medical profession, but who excuse their failure to secure the educational qualifications required of physicians by the claim that they are "not practicing medicine." As Mr. Shepardson further states:

They found a motley array of so-called "doctors" of every name and cult under the sun: regulars, homeopaths, eclectics, osteopaths, chiropractors, naprapaths, spondylotherapaths, mechanotherapaths, suggestive therapaths, psychotherapaths, naturotherapaths, iridologists, magnetic healers, religious healers, and many other varieties, the list forcibly reminding one of the description which Masson gives in his "Life of Milton" of the sects which flourished in England in the poet's time. After naming a great many, he includes in a sweeping classification the remainder of the some hundred-odd varieties of "fluent, rancorous, inquisitorial and on the whole nasty kinds of Christians."

This article is especially interesting because it turns the strong light of publicity on the quacks, cultists and pretenders who for ages have thrown discredit on the practice of medicine. It is well known to medical men that the conditions disclosed in Illinois are not limited to that state. A similar investigation would show affairs equally as bad or worse in other states. Only a few states have provided for regulating all forms of the practice of the healing art by a single department. On the other hand, as previously shown in *THE JOURNAL*,³ the authority over the various forms of healing has been divided in several states (Arkansas, for example) among as many as six different and independent boards—a situation which allows faddists, quacks, medical crooks and charlatans to prey at will on the credulity of people who are rendered still more unwary in times of worry, sickness and distress. Mr. Shepardson's disclosures tend to show what is the next great reform movement needed in this country, namely, the conducting of a thorough investigation by a disinterested but competent committee of educators of the conditions underlying the practice of medicine in the United States, similar to that conducted by Mr. Justice

Hodgins in Ontario two years ago. All the publicity possible should be given to the conditions found. The medical profession as a whole has nothing to fear from it and would undoubtedly favor such a house cleaning. It is only the quacks, crooks and fakers who prefer to skulk in the darkness and who, like rats, will try to hide when the light is turned on. The medical profession has striven for years to clear out these offenders, but the public has either remained indifferent or has unknowingly sided with the pretenders. The efforts of the profession have frequently been misinterpreted as being made in its own interests, and the cultists and quacks have claimed that they were being "persecuted by the medical trust," etc. It is evident, therefore, that the most effective investigation would be by an educational agency representing the public and independent of the medical profession. It is clear also that in each state the licensing of those who are to treat the sick should be in charge of a single board of disinterested but competent lay educators who, as in Illinois, are authorized to select an advisory board of physicians to aid in enforcing the practice laws. Finally, such educational qualifications should be required as will insure that those licensed shall have a knowledge of the normal functions of the human body and their reactions to injury and disease.

DOES BEER CONTAIN VITAMINS?

In the final appeals of the advocates of beer for a hearing in defense of their claims, considerable emphasis has been given to the nutrient properties of the brewed malt beverages. As cereals form the basis for the production of beer, the advertising specialist has hit on the clever device of calling this fluid "liquid bread." No cogent reason is given, however, why one should depart from the time honored custom of consuming bread prepared in the more substantial form of a nonalcoholic loaf.

The discovery that the dietetic value of a food product cannot be determined solely by reference to its calorific value or its content of long recognized nutrients has introduced new criteria into the study of nutrition. With the recognition of "quality" distinctions in proteins and the existence of vitamins has come the need of investigation from new and more numerous standards. It has become evident that articles intended for the dietary should be examined and evaluated not only for the usual ingredients, but also for the accessory factors which may add to their dietary significance.

The beer enthusiasts have been quick to grasp the situation. Barley¹ and yeast, both of which are involved in the manufacture of beer, are recognized sources of

3. Medical Licensure in the United States, Current Comment, *THE JOURNAL A. M. A.*, Nov. 4, 1916, p. 1377.

1. Steenbock, H.; Kent, Hazel E., and Gross, E. G.: The Dietary Qualities of Barley, *Jour. Biol. Chem.*, 1918, **35**, 61. Barley as a War Time Substitute for Wheat, editorial, *THE JOURNAL A. M. A.*, Sept. 7, 1918, p. 828.

nutrition-promoting vitamin. It is true that the barley is germinated and heated to produce malt prior to the brewing process. The conjecture that vitamins may be present in beer is therefore not an unreasonable one. However, the popular alcoholic beverage is meeting its Waterloo on all sides. An investigation made by Harden and Zilva² to test the subject by the physiologic methods now available has given a clear-cut answer. Their conclusion is that bottled ale and stout, and fined beer as brought to the market, are lacking both in the antineuritic and antiscorbutic accessory factors, and kilned malt is also wanting in these two principles. It is an interesting commentary on the alcoholic aspects of the subject that in testing for the antineuritic factor by attempting to cure polyneuritic pigeons it was necessary to remove the alcohol from the beer, lest this component might induce the very disease which the postulated beer vitamin was expected to relieve or avert.

The truth is the same today as it has been for decades. Beer is not chiefly appreciated on account of the nutritious value of its ingredients, nor on account of the by-products of the brewing industry which may help to produce milk and meat. Beer and alcohol still go together; and the claims of alcohol for respectful consideration have been duly considered and found wanting.

Current Comment

THE ANTIQUITY OF DISEASE

The development of a new subdivision of science, paleopathology, which aims to interpret the pathologic conditions discovered among the fossil remains of ancient geologic times, is likely to throw new light on the antiquity of disease. Existing evidences already relegate its beginnings back as far as the carboniferous or great coal period. We may be certain, particularly as the result of the investigations of French scientists, that fungi and bacteria existed in this early period, although the presence of such micro-organisms does not constitute a convincing proof of their pathogenicity. According to Moodie,³ who has reviewed much of the work in this field of study, the great Permian period, with its widespread development of curious reptilian forms, has furnished us with the first evidences of traumatic conditions as they prevailed among the early forms of life. Fractures may have occurred earlier than the Permian, but they have not yet been seen. Some of the uncovered fossil vertebrates have been described as exhibiting opisthotonos or spastic distress.⁴ In other instances, necrosis of the

bones has been postulated. Even such specific lesions as are represented by hemangiomas have been detected by microscopic study of the fossil remains of the great dinosaurs. Osteomas and other osseous defects are also known to have occurred. Dental caries is certainly not a novelty of modern ages. Moodie points out that no new ideas of pathology have been revealed by the study of the ancient lesions; but, he adds further, none were to be expected, since the organization of the animal forms of ancient times presumably differed only in minor details from the structures of the present geologic age. The presence of lesions suggests definite causes for their origin. Whether they represent extinct diseases or still existent etiologic factors remains to be ascertained as part of the development of the newly formulated science.

INDUSTRIAL MEDICINE IN THE PLACEMENT OF RETURNED SOLDIERS

As America entered the war, industry faced the tremendous problem of releasing millions of workmen, and, at the same time, maintaining or increasing production. Now that the war is over, it faces the no less difficult problem of assimilating the returned and disabled soldiers without seriously affecting production and labor conditions. Wisdom calls for the safe and efficient utilization of all workers, and it should guide the redistribution in industry of our returned soldiers. Most employers will welcome back those who left their jobs to enter the Army or Navy. Patriotism, fairness, generosity or whatever be the motive, the fact remains that scientific placement of these returned soldiers will be a wiser policy than their indiscriminate employment even in the industries from which they came. Eventually, the returned soldier, be he physically fit or physically disabled, will have to compete with his fellows for employment and wages on the basis of efficiency. Industry will be forced to use these men as it will have to use all workers—where they can be most productive. The returned soldiers in the aggregate will come back in better physical condition than when they left employment. Many of them will know what physical defects they possess and something of their significance. They will know that they can adapt themselves to new conditions of life and work. It will be for the good of all if industry, in reassimilating these men, capitalizes these changed conditions of body and mind by placement in the light of physical qualifications. Herein lies a great opportunity for the industrial physician and surgeon. He can carry over into the solution of a national problem his skill and experience in the human maintenance department of modern industry. As a physician he can take stock of a man's physical assets in relation to the work he can perform and, in cooperation with efficient employment managers, can place that man in his most advantageous occupation. But not all of our soldiers and sailors will come back physically fit. Some will return with physical capital much depleted. Some have been crippled or maimed or blinded. Some have been disabled by less apparent but no less serious injuries, such as shell shock and

2. Harden, A., and Zilva, S. S.: An Investigation of Beer for Antineuritic and Antiscorbutic Potency, *Jour. Institute of Brewing*, 1918, **24**, 197.

3. Moodie, R. L.: Studies in Paleopathology, I, General Consideration of the Pathological Conditions Found Among Fossil Animals, *Ann. Med. History*, 1918, **1**, No. 4; Paleontological Evidences of the Antiquity of Disease, *Scient. Month.*, 1918, **7**, 265.

4. Moodie, R. L.: Studies in Paleopathology, III, Opisthotonos and Allied Phenomena Among Fossil Vertebrates, *Am. Naturalist*, 1918, **51**, No. 617.

other war neuroses, disease, strain, exposure and other incidents of modern warfare. For these the government is making adequate provision for medical and surgical treatment, convalescent care, occupational therapy, vocational education and for placement in gainful employment. In carrying out this program, industrial physicians and surgeons have been given an important place. As these reconstructed men return to civilian life to become self-supporting members of society rather than pensioners, the industrial physician, by the nature of his calling, will be the wisest guide in their placement in industry and in the maintenance of their productive ability.

TERMINAL INFECTIONS

The reactions by which the organism defends itself against bacteria are by no means simple in nature. Despite the almost limitless opportunities for the introduction of the micro-organisms, they rarely reach the blood stream. This is due in part to mechanisms that prevent their passage through the exterior of the body, or devices that destroy them within the alimentary path. It is further due, however, to factors of immunity which are chemical in nature. Whenever bodily resistance of this sort is referred to we think of the so-called immunity reactions. Bacteriolysins, agglutinins, precipitins and opsonins play a prominent part in determining whether bacteria can be present or multiply in the blood. It is commonly believed that prior to death from other than very acute or accidental causes the natural defenses of the body may fail to a large extent. If this is true we may expect that invasion of the blood stream will be frequent, and consequently true terminal infections may be added to those already present as a primary cause of disease. The question here involved is capable of at least partial solution by actual examination of the blood—by investigation of bacteremias in the agonal period. This aspect of the bacterial invasion of the blood stream has been considered recently at the Magee Pathological Laboratories of the Mercy Hospital in Pittsburgh by Richey and Goehring,¹ who tried to determine the frequency of the presence of bacteria in the peripheral vessels immediately after death. This anatomic location was selected in preference to the heart as a source of the blood because of the relatively great postmortem invasion of the heart's blood from surrounding structures. Out of more than 200 cases, about one third gave positive cultures. The value of the method was fortified by the fact that when antemortem cultures were taken, the results were usually the same as those obtained by immediate postmortem examination through the median basilic or cephalic vein. In the acute traumatic deaths only one positive culture was obtained out of thirty-six examinations. This was in striking contrast to the thirty-six positive results out of fifty-five trials in the case of chronic debilitating diseases. Cocci appeared to be the commonest invaders of the blood stream, the representative of the streptococcus-pneumococcus group being most conspicuous. Pneu-

mococci were isolated immediately after death in 50 per cent. of the cases diagnosed clinically as pneumonia. There can no longer be any doubt that true terminal infections frequently occur under the conditions of lowered resistance. Judging from the character of the organisms isolated, the main foci are probably in the intestine, the pulmonary alveoli, the upper respiratory passages, and other mucous membranes.

THE BACTERIA ON VEGETABLES

In the earlier days of modern bacteriologic technic there was developed a sort of semipopular scientific sport which might not inaptly have been termed "microbe hunting." Air, food and water, books and bankbills, toys and toggery were examined for evidences of bacteria. Danger seemed to lurk in everything that was acceptable to mankind, until the realization came that not all bacteria are baneful, and that some may even be beneficent. Thus it became the duty of the bacteriologist to identify our microbial enemies and direct his hygienic warfare more specifically against them. There are other lessons, too, that progress has taught. The unsuspected carrier has been brought into the limelight. In the dairy industry the importance of the cleanliness of the utensils used and of the personnel has become emphasized along with the necessity of keeping the milk-producing animal free from objectionable germs. Lately considerable has been said about the significance of sanitary conditions of food shops for the public health. In this connection a recent bacterial examination of green vegetables sold in Chicago stores is not without interest. At the University of Chicago, Kurk¹ attempted to discover whether the general sanitary condition of the store at which the purchase was made had any influence on the bacterial contents. *Bacillus coli* was found on twenty-two out of twenty-nine samples of the vegetables. It was present in ten out of twelve samples from stores classified as clean; in six out of ten samples from stores classed as fair, in five out of six from dirty stores and in watercress from a free lunch counter. Streptococci were found on three samples, two being from clean stores. Thus there was no indication that the general sanitary conditions of the store influenced the bacterial count. A clean shop is not a guarantee of hygienic safety; for food, like man, may be a carrier.

"SCIENTIFIC" NOMENCLATURE

A member of the Association's chemical laboratory, who is in the service, writes from a well-known eastern institution deploring the use of proprietary names around the laboratory there. He writes:

In bacteriology we disinfect our hands with a solution labeled, "Lysol." I asked one of the instructors why they didn't use Liquor Cresolis Compositus. He replied that that actually was the substance in the bottle, but that it was labeled "Lysol" so the doctors would know what they wanted!

Comment on this would be gilding refined gold, and painting the lily.

1. Richey, D. G., and Goehring, C.: Studies on Bacteremias in the Agonal Period, Jour. Med. Research, 1918, 38, 421.

1. Kurk, F. W.: A Bacterial Examination of Green Vegetables, Am. Jour. Pub. Health, 1918, 8, 660.

Medical Mobilization and the War

Personnel of the Medical Department

On November 22 the total commissioned personnel of the Medical Corps was 31,158, a decrease of 240 from the previous week, consisting of 3 major-generals, 7 brigadier-generals, 187 colonels, 431 lieutenant-colonels, 2,338 majors, 9,807 captains and 18,385 first lieutenants. The total number in active service was 30,339, a decrease from the previous week of 252. To date 2,791 officers have been discharged for the following causes: physical disability, 1,006; inaptitude, 333; other branches of service, 727; resignations, 305; domestic troubles, 64; needed by community, 50; deaths, 261; dismissals, 24; duty completed, 3; no reasons given, 18.

ORDERS TO OFFICERS OF THE MEDICAL CORPS, U. S. ARMY

Alabama

To Camp Custer, Mich., base hospital, for instruction, from Fort Oglethorpe, Major M. MASON, Birmingham.
To Camp Jackson, S. C., base hospital, for instruction, from Fort Oglethorpe, Capt. D. G. CAMPBELL, Mobile.
To Camp Sheridan, Ala., base hospital, from Fort Oglethorpe, Lieut. W. L. SHACKLEFORD, Gordo.
To Canal Zone, from Washington, Major G. H. S. SEARCY, Tuscaloosa.
To Cape May, N. J., base hospital, from Fort Sill, Lieut. C. H. DRAKE, Birmingham.
To Charleston, S. C., from Camp Beauregard, Capt. S. G. GAY, Selma.
To Fort Oglethorpe, evacuation hospital, from Camp Joseph E. Johnston, Lieut. J. R. CHISOLM, Marion Junction.
To Omaha, Neb., Creighton University, from Lincoln, Lieut. R. CALLEN, Birmingham.
To Fort Clinton, Ohio, from Atlanta, Major W. C. DABNEY, Birmingham.
To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Meade, Md.*, base hospital, from Fort Oglethorpe, Capt. J. H. ASHCRAFT, Fayette. On completion *to Camp Upton, N. Y.*, base hospital, from Fort Oglethorpe, Capt. F. P. PETTEY, Albany.
To St. Paul, Minn., Overland Bldg., from Fort Wayne, Mich., Capt. A. P. WEBB, Atmore.

Alaska

To Camp Meade, Md., base hospital, from Fort Oglethorpe, Capt. W. T. H. PALLISTER, Juneau.

Arizona

To Camp Sheridan, Ala., base hospital, from Fort Oglethorpe, Lieut. E. B. THOMPSON, Benson.
To Cape May, N. J., base hospital, from Walter Reed General Hospital, Capt. C. A. THOMAS, Tucson.

Arkansas

To Camp Colt, Pa., from Camp Custer, Lieut. W. M. MAJORS, Walcott.
To Camp Jackson, S. C., from Camp Custer, Lieut. W. M. MATTHEWS, Crossett.
To Camp Knox, Ky., from Fort Oglethorpe, Lieut. A. C. KOLB, Hope.
To Carlisle, Pa., from Plattsburg Barracks, Lieut. J. B. HESTERLY, Prescott.
To Cincinnati, Ohio, University of Cincinnati, from Camp Custer, Lieut. E. BAKER, Dermott.
To Fort Snelling, Minn., from Jefferson Barracks, Major W. K. READ, Texarkana.

California

To Army Medical School for instruction, from New Cumberland, Pa., Lieut. R. W. WILCOX, San Francisco.
To Boston, Mass., from Camp Custer, Capt. J. E. CLARK, Oakland; E. A. JONES, Taft.
To Camp Cody, N. M., base hospital, from Camp Kearney, Major H. C. LOOS, San Diego.
To Camp Crane, Pa., from Camp Kearney, Capt. E. H. THOMPSON, Burbank. Base hospital, from Fort Douglas, Capt. W. B. DEAS; from Camp Fremont, Capt. R. PATEK, San Francisco; from New York, Lieut. F. H. TAYLOR, San Diego. Evacuation hospital, from San Francisco, Capt. C. A. BELL, Santa Barbara. Mobile hospital, from Camp Kearney, Lieut. J. H. NORMAN, Allegheny. Surgical group, from Camp Kearney, Capt. J. C. ROBERTSON, Modesto.
To Camp Custer, Mich., base hospital, for instruction, from Fort Oglethorpe, Capt. H. L. PARISH, Oakland.
To Camp Jackson, S. C., from Camp Custer, Lieut. W. F. KELLER, Long Beach.
To Camp Kearney, Calif., Capt. C. H. WILDER, Oakland.
To Camp Kendrick, N. J., from Fort Sill, Lieut. G. F. HARRIS, San Diego.
To Camp Lewis, Wash., as orthopedic surgeon, from San Francisco, Capt. N. T. ENLOE, Chico; Lieut. D. R. WILSON, San Jose.
To Camp Sevier, S. C., as tuberculosis examiner, from New Haven, Major R. L. BYRNES, Los Angeles. Base hospital, from Fort McDowell, Col. P. C. FAUNTLEROY.
To Camp Shelby, Miss., base hospital, from Camp Fremont, Capt. T. R. McNAB, Los Angeles; from Camp Pike, Capt. G. J. BERGENER, San Francisco.
To Camp Upton, N. Y., base hospital, from Camp Wheeler, Lieut. H. D. WILLIAMS, San Francisco; from Fort Oglethorpe, Capt. J. C. COPELAND, Los Angeles.
To Camp Wheeler, Ga., base hospital, from Camp Kearney, Lieut. G. H. BOYD, Los Angeles; from Fort Oglethorpe, Capt. J. G. HAM, San Bernardino.

To Cape May, N. J., base hospital, from Camp Grant, Capt. C. A. JOHNSON, Los Angeles; from Rock Island Arsenal, Capt. F. F. SPRAGUE, Los Banos.

To Fort McHenry, Md., from Ann Arbor, Capt. B. P. STOOKEY, Los Angeles.

To Fort Sheridan, Ill., base hospital, from Camp Cody, Capt. W. H. SMITH, Los Angeles; from Camp Lewis, Capt. R. CADWALLADER, San Francisco.

To Mineola, N. Y., Hazelhurst Field, for instruction, from Fort Riley, Capt. V. D. BROWN, San Francisco.

To report to the commanding general, Southeastern Department, from North Charleston, Lieut. A. E. DICKINSON, San Jose.

To San Francisco, Calif., Leland Stanford University, for instruction, from Letterman General Hospital, Capt. W. C. BAKER, San Mateo; E. L. COTTRELL, Scotia; Lieut. L. DOZIER, Stockton. Letterman General Hospital, Major L. ELOESSER, San Francisco.

The following order has been revoked: *To Camp Crane, Pa.*, from San Francisco, Major A. C. CARLTON, San Mateo.

Canal Zone

To Camp Crane, Pa., mobile hospital, from New Haven, Lieut. D. J. MURPHY, Corozal.

To Fort Oglethorpe, evacuation hospital, from Camp Shelby, Lieut. L. M. DRENNAN, Ancon.

Colorado

To Azalea, N. C., from Markleton, Pa., Major P. A. LOOMIS, Colorado Springs.

To Camp Greene, N. C., base hospital, from Camp Logan, Major J. H. BROWN, Colorado Springs.

To Camp Knox, Ky., from Fort Oglethorpe, Lieut. P. C. GEISSLER, Colorado Springs.

To Camp Lee, Va., base hospital, from Fort Riley, Lieut. R. L. CHARLES, Denver.

To Camp Logan, Texas, base hospital, from Camp Shelby, Capt. T. A. STODDARD, Pueblo.

To Camp Sheridan, Montgomery, Ala., from Cedar Falls, Capt. J. A. DUNWODY, Cripple Creek.

To Camp Wadsworth, S. C., base hospital, from Fort Riley, Lieut. K. F. ROEHRIG, Denver.

To Fort Oglethorpe, evacuation hospital, from Camp Cody, Major H. S. FINNEY, Denver.

To Fort Sheridan, Ill., base hospital, from Fort Riley, Lieut. A. R. WILLIAMSON, Pueblo.

To Newport News, Va., from Rockefeller Institute, Capt. E. G. GRIFFIN, Denver.

To Urbana, Ill., University of Illinois, Lieut.-Col. C. N. BARNEY, Denver.

To Washington, D. C., from Fort Oglethorpe, Lieut. P. B. WALLACE, Eagle.

Connecticut

To Camp Abraham Eustis, Va., base hospital, from New Haven, Lieut. H. W. BRAYTON, Hartford.

To Camp Sevier, S. C., base hospital, from Camp Gordon, Capt. R. W. LOWE, Ridgefield.

To Camp Shelby, Miss., base hospital, from Fort Oglethorpe, Capt. F. F. SIMONTON, Thompsonville.

District of Columbia

To Camp Bowie, Texas, as division surgeon, Lieut.-Col. H. B. MCINTYRE.

To Camp Crane, Pa., base hospital, from Lakewood, N. J., Lieut. F. D. ADAMS, Washington. Surgical group, from Walter Reed General Hospital, Lieut.-Col. F. B. LUND.

To Camp Devens, Mass., base hospital, from Fort Oglethorpe, Capt. P. E. LARKIN, Washington.

To Camp McClellan, Ala., as division surgeon, Lieut.-Col. A. W. SCHOENLEBER.

To Edgewood, Md., from Walter Reed General Hospital, Lieut. H. F. DUNN, Washington.

To the inactive list, from Western Department, Lieut.-Col. W. P. BANTA.

Florida

To Army Medical School for instruction, from Newport News, Major J. W. ALSOBROOK, Plant City.

To Camp Crane, Pa., base hospital, from Fort Oglethorpe, Capt. D. FORSTER, Hawks Park; from Lakewood, N. J., Lieut. A. J. WOOD, St. Petersburg.

To Camp Sheridan, Ala., base hospital, from Camp Shelby, Capt. G. R. HOLDEN, Jacksonville.

To Charleston, S. C., from Camp Lee, Major G. R. PLUMMER, Key West.

To Fort Ethan Allen, Vt., base hospital, from Camp Devens, Capt. L. A. PEEK, West Palm Beach.

Georgia

To Atlanta, Ga., Morehouse College, and Atlanta University, from duty as a private, Lieut. R. B. FOSTER, Athens.

To Camp Colt, Pa., from Camp Upton, Lieut. C. A. WITMER, Waycross.

To Camp Crane, Pa., evacuation hospital, from Camp Jackson, Capt. W. B. CRAWFORD, Savannah.

To Camp Gordon, Ga., from Walter Reed General Hospital, Lieut. C. REED, Babcock.

To Camp Sherman, Ohio, sanitary train, from Fort Oglethorpe, Lieut.-Col. J. L. ROBINSON.

To Camp Wadsworth, S. C., base hospital, from Fort Oglethorpe, Lieut. J. G. DEVANE, Adel.

To San Antonio, Texas, Kelly Field, from Americus, Ga., Lieut. J. M. J. LIKE, Fitzgerald.

To White Plains, N. Y., for instruction, from Fort McPherson, Capt. G. P. HUGULEY, Atlanta.

Idaho

To Washington, D. C., for instruction, from Jefferson Barracks, Capt. R. E. MASON, Mackay.

Illinois

To Ann Arbor, Mich., University of Michigan, for instruction, from New York, Capt. O. T. ROBERG, Chicago.

To Austin, Texas, Texas State University, from Indianapolis, Major O. A. SUTTLE, Mount Vernon.

- To Biltmore, N. C., from Camp Crane, Lieut. H. E. LUTYENS, Farmingdale.*
- To Boston, Mass., from Camp Custer, Lieut. H. D. EATON, Harvard.*
- To Camp Crane, Pa., evacuation hospital, from Camp Grant, Lieut. P. F. SNYDER, Chicago; from New York, Capt. H. A. BEAM, Moline. Mobile hospital, from New Haven, Lieut. P. B. RABENNECK, Nashville.*
- To Camp Custer, Mich., base hospital, for instruction, Capt. P. M. OLIVER, W. J. SWIFT, Chicago.*
- To Camp Forrest, Ga., to examine drafted men for nervous and mental diseases, from Fort Oglethorpe, Capt. I. J. FRISCH, Chicago.*
- To Camp Greene, N. C., from Fort Oglethorpe, Lieut. S. E. LYNCH, Chicago. Base hospital, from Camp Hancock, Lieut. E. H. SEIFERT, Chicago.*
- To Camp Hancock, Ga., base hospital, for instruction, from Fort Oglethorpe, Lieut. E. ZIMMERMAN, Quincy.*
- To Camp Jackson, S. C., from Camp Custer, Lieuts. J. J. LEACH, P. P. O'CONNOR, Chicago; J. R. BIERLY, Springfield.*
- To Camp Joseph E. Johnston, Fla., base hospital, for instruction, from Fort Oglethorpe, Capt. L. A. BEATON, Chicago; Lieut. E. AUSTIN, Benton.*
- To Camp Kendrick, N. J., from Camp Colt, Lieut. R. M. MONTFORT, Danville.*
- To Camp Logan, Texas, base hospital, from Fort Oglethorpe, Capt. T. H. PAGE, Peoria. Base hospital, for instruction, from Fort Oglethorpe, Lieut. H. H. FLETCHER, Winchester. To examine drafted men and on completion to base hospital, from Fort Oglethorpe, Capt. F. W. JONES, Alton.*
- To Camp MacArthur, Texas, base hospital, from Fort Oglethorpe, Lieut. G. T. MEACHAM, Taylorville.*
- To Camp McClellan, Ala., base hospital, from Camp Beauregard, Major T. O. WARD, Mount Vernon; from Fort Oglethorpe, Capt. J. K. RETICKER, Quincy.*
- To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Capt. L. A. BURHANS, Peoria.*
- To Camp Shelby, Miss., base hospital, from Camp Gordon, Capt. H. L. THOMPSON, Harrisburg.*
- To Camp Sheridan, Ala., from Fort Oglethorpe, Lieuts. G. W. WESTERMEIER, Carlville; G. E. KNAPPENBERGER, Macomb. Base hospital, from Fort Oglethorpe, Capt. H. G. WRIGHT, DeKalb; Lieut. W. G. McCANDLESS, Sterling.*
- To Camp Travis, Texas, base hospital, for instruction, Lieut. G. HALPERIN, Chicago.*
- To Camp Upton, N. Y., base hospital, from Camp Sherman, Lieut. L. B. SHORT, East St. Louis; from Fort Oglethorpe, Capt. H. JACKSON, Chicago; Lieut. W. I. GREEN, Sumner.*
- To Camp Wadsworth, S. C., base hospital, from Fort Oglethorpe, Lieuts. W. H. MILLER, Chicago; C. L. CAREY, Marion.*
- To Camp Wheeler, Ga., as assistant to division surgeon, from Camp McClellan, Lieut. G. F. RENDLEMAN, Anna.*
- To Cape May, N. J., base hospital, from Camp Custer, Capt. D. N. EISENDRATH, Chicago; from Camp Hancock, Lieut. E. L. CAVENEE, Champaign; from Camp Meade, Lieut. A. J. LINOWIECKI, Chicago; from Fort Sill, Lieut. E. A. SCHLAGETER, Chicago.*
- To Dansville, N. Y., from Syracuse, Capt. A. E. MOWRY, Chicago.*
- To Eastern Department, from Camp Upton, Capt. J. A. KLEINSMID, Aledo.*
- To Fort Bayard, N. M., from Denver, Capt. H. C. MILLER, Chicago.*
- To Fort Benjamin Harrison, Ind., base hospital, from Jefferson Barracks, Major J. W. TURNER, Pleasant Hill.*
- To Fort Oglethorpe, evacuation hospital, from Camp Cody, Capt. H. A. MILLARD, Minonk; from Camp Zachary Taylor, Capt. R. T. VAUGHAN, Chicago. For instruction, Lieut. M. V. ROBINSON, Chicago; from Camp Forrest, Capt. I. J. FRISCH, Chicago.*
- To Fort Sam Houston, Texas, for instruction, from Camp Hancock, Lieut. J. A. BOZARTH, McLeansboro; from Fort Oglethorpe, Capt. G. D. DRENNAN, Woodhull.*
- To Fort Sheridan, Ill., base hospital, from Camp Custer, Lieut. B. W. CLAYPOOL, Chicago; from Camp Grant, Capt. G. S. DUNTLEY, Bushnell; Lieut. H. W. VERNON, Chicago; from Fort Snelling, Major E. K. FINDLAY, Chicago.*
- To Fort Snelling, Minn., from Fort Riley, Capt. E. Z. LEVITIN, Peoria.*
- To Lakewood, N. J., from Hoboken, Lieut. E. J. DEVINE, Chicago.*
- To Nashville, Tenn., Meharry Medical College and Fisk University, from duty as a private, Lieut. W. H. CALHOUN, Chicago.*
- To Plattsburg Barracks, N. Y., base hospital, from Camp Devens, Major F. S. CHURCHILL, Chicago.*
- To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Camp A. A. Humphreys, Va., base hospital, from Fort Oglethorpe, Lieut. O. B. ORMSBY, Murphyshoro. On completion to Camp Dix, N. J., base hospital, from Fort Oglethorpe, Capt. J. E. WOELFLE, Cairo; Lieut. K. W. WAHLBERG, Moline.*
- To Roland Park, Md., from Camp Gordon, Capt. OTIS H. MACLAY, Chicago.*
- To San Antonio, Texas, Kelly Field, from Wichita Falls, Texas, Capt. R. H. KUHN, Chicago. To examine the command for nervous and mental diseases, Lieut. F. A. CAUSEY, Peoria.*
- To Waynesville, N. C., from Army Medical School, Lieut. W. S. NEEDHAM, Hanna City; from New Haven, Lieut. J. L. ANDERSON, Winfield.*
- To Williamsbridge, N. Y., from Chicago, Major W. FULLER, Chicago.*
- The following order has been revoked: *To Fort Oglethorpe, evacuation hospital, from Fort Riley, Lieut. F. C. FINK, Pleasant Plains.*
- Indiana**
- To Ames, Iowa, from Pine Bluff, Ark., Capt. A. T. FAGALY, Lawrenceburg.*
- To Boston, Mass., from Camp Custer, Lieut. V. G. BLACK, Fishers.*
- To Camp A. A. Humphreys, Va., base hospital, from Fort Oglethorpe, Capt. A. W. LLOYD, Hammond.*
- To Camp Abraham Eustis, Va., base hospital, from Camp Sheridan, Lieut. E. H. CLAUSER, Muncie.*
- To Camp Crane, Pa., base hospital, from Camp Zachary Taylor, Lieut. J. G. BOSTWICK, Mishawaka; from Lakewood, Lieut. G. N. DRULEY, North Webster. Evacuation hospital, from Camp Grant, Lieut. B. E. LEMMON, Greencastle.*
- To Camp Jackson, S. C., from Camp Custer, Lieut. H. H. ISAACS, Tangier.*
- To Camp Meade, Md., from Fort Leavenworth, Capt. D. V. McCLARY, Dale.*
- To Camp Pike, Ark., from Camp Zachary Taylor, Lieut. H. G. HAMER, Indianapolis.*
- To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Lieuts. R. P. HALE, East Chicago; L. R. ELLARS, Peru.*
- To Camp Shelby, Miss., base hospital, from Camp Bowie, Capt. M. I. ROSENTHAL, Fort Wayne; from Camp Jackson, Capt. J. W. SHAFFER, Lafayette; from Fort Oglethorpe, Capt. R. M. TILTON, Columbus.*
- To Camp Sheridan, Ala., from Camp Colt, Capt. C. L. ROWLAND, West Point.*
- To Camp Upton, N. Y., base hospital, from Camp Grant, Capt. C. S. BOARDMAN, Gary.*
- To Camp Wadsworth, S. C., base hospital, from Fort Oglethorpe, Lieut. M. B. GUTHRIE, Bedford.*
- To Camp Wheeler, Ga., base hospital, for instruction, from Fort Oglethorpe, Lieut. C. A. McNEILL, Indianapolis.*
- To Fort Des Moines, Iowa, from Camp Dodge, Capt. I. M. WASHBURN, Rensselaer.*
- To Fort Myer, Va., from Fort McHenry, Capt. G. W. BONER, Washington.*
- To Fort Oglethorpe, evacuation hospital, from Camp Jackson, Capt. H. H. WHEELER, Indianapolis; from Camp Sevier, Capt. O. E. FINK, Terre Haute; from Camp Zachary Taylor, Lieut. J. W. CARMACK, Indianapolis. For instruction, from Ann Arbor, Capt. H. B. SHACKLETT, New Albany.*
- To Hoboken, N. J., base hospital, from Fort Oglethorpe, Lieut. J. V. KERRIGAN, Michigan City.*
- To Rockefeller Institute for instruction, from Camp Meade, Lieut. E. L. SCHAIBLE, Gary; from New Haven, Capt. J. P. SEALE, Fairmount. For instruction in the treatment of infected wounds and on completion to Camp Dix, N. J., base hospital, from Fort Oglethorpe, Capt. F. A. ZELLER, Union City.*
- To Williamsbridge, N. Y., from Camp Upton, Capt. H. B. COX, Morristown.*
- To Washington, D. C., from Camp Zachary Taylor, Lieut. C. W. COREY, Hartford City.*
- Iowa**
- To Boston, Mass., from Camp Custer, Capt. T. LUCAST, Forest City.*
- To Camp Abraham Eustis, Va., from Camp Custer, Lieut. J. W. MYERS, Sheldon.*
- To Camp Crane, Pa., mobile hospital, from Fort Oglethorpe, Capt. R. B. MORDEN, Des Moines; Lieut. T. A. BURKE, Mason City.*
- To Camp Jackson, S. C., from Camp Custer, Lieut. C. C. BOWIE, Dedham.*
- To Camp Sevier, S. C., base hospital, for instruction, from Fort Oglethorpe, Lieut. C. E. DAKIN, Mason City.*
- To Camp Sheridan, Ala., from Fort Oglethorpe, Capt. I. W. TRAVERSE, Fort Madison.*
- To Camp Upton, N. Y., base hospital, from Fort Oglethorpe, Capt. C. W. MEHLOP, Dubuque.*
- To Camp Wadsworth, S. C., base hospital, from Camp Bowie, Lieut. C. E. MAGOUN, Sioux City; from Camp Travis, Capt. G. W. YAVORSKY, Belle Plaine.*
- To Camp Wheeler, Ga., as sanitary inspector, Capt. H. R. REYNOLDS, Clinton. Base hospital, from Camp Sheridan, Lieut. R. E. PARRY, Scranton.*
- To Fort Des Moines, Iowa, from Walter Reed General Hospital, Capt. J. M. KILBORNE, Sioux City.*
- To Fort Oglethorpe, evacuation hospital, from Camp Cody, Lieut. J. E. REEDER, Sioux City. For instruction, Lieut. H. G. MOERSHEL, Homestead.*
- To Fort Sheridan, Ill., base hospital, from Fort Riley, Lieut. J. R. BLACK, Jefferson.*
- To Rockefeller Institute for instruction, from New Haven, Lieut. W. H. HOMBACH, Remsen.*
- The following order has been revoked: *To Camp Cody, N. M., from Hawaiian Department, Major A. V. HENNESSY, Council Bluffs.*
- Kansas**
- To Boston, Mass., from Camp Custer, Capt. H. G. HUNSBERGER, Mount Hope; Lieut. C. W. LONGENECKER, Kingman. For instruction, from Camp Zachary Taylor, Capt. G. M. GAFFORD, Kinsley.*
- To Camp Jackson, S. C., from Camp Custer, Lieut. W. S. HUDIBURG, Independence.*
- To Fort Des Moines, Iowa, from Lakewood, Lieut. H. M. WEBB, Humboldt.*
- To Fort Douglas, Utah, from New Haven, Lieut. T. M. AGNEW, Wichita.*
- To Fort Oglethorpe, evacuation hospital, from El Paso, Capt. L. B. SPAKE, Kansas City. For instruction, Lieut. W. H. YOUNG, Fredonia.*
- To Fort Sheridan, Ill., base hospital, from Fort Riley, Lieut. W. P. CALLAHAN, Wichita.*
- To Rockefeller Institute for instruction, from New Haven, Lieut. R. W. VAN DEVENTER, Wellington.*
- The following orders have been revoked: *To Hoboken, N. J., from Fort Oglethorpe, Capt. G. A. LANDES, Parsons. To San Antonio, Texas, Kelly Field, from Garden City, Lieut. W. H. ROBINSON, Endira.*
- Kentucky**
- To Camp Crane, Pa., base hospital, from Camp Hancock, Capt. J. R. COWAN, Danville; from New Haven, Capt. H. T. LIGGETT, Louisville; Lieut. W. G. COMBS, Kirksville.*
- To Camp Shelby, Miss., base hospital, from Camp Gordon, Lieut. A. H. SHEMWELL, Paducah; from Fort Oglethorpe, Lieut. S. L. HENSON, Benton.*
- To Camp Sheridan, Ala., from Camp Meade, Capt. J. G. TALBOT, Burkesville; from Fort Oglethorpe, Capt. W. F. ALVEY, Elizabethtown; Lieut. C. H. JONES, Lynn Grove.*
- To Camp Travis, Texas, from Hoboken, Capt. E. C. BRANDON, Springfield.*
- To Fort McPherson, Ga., from Fort Oglethorpe, Lieut. A. C. WILLMOTT, Hutchinson.*
- To Fort Oglethorpe, evacuation hospital, from Camp Shelby, Lieut. J. F. MORGAN, Cynthia.*
- To Fort Ontario, N. Y., from Fort Porter, Major M. H. YEAMAN, Henderson.*
- To Watertown, Mass., from Camp Upton, Capt. M. M. MOSS, Bowling Green.*

Louisiana

To Camp Beauregard, La., Lieut. W. W. SMITH, Shreveport.
To Camp Greene, N. C., base hospital, from Fort Oglethorpe, Capt. W. H. AIKEN, New Orleans.
To Camp Shelby, Miss., base hospital, from Fort Oglethorpe, Lieut. R. D. MARTINEZ, Bunkie.
To Camp Sheridan, Ala., Lieut. F. PALMER, Blackburn.
To Cape May, N. J., base hospital, from Walter Reed General Hospital, Capt. J. G. MARTIN, Lake Charles.
To Fort Oglethorpe, evacuation hospital from Camp MacArthur, Capt. S. L. WHITE, Ruston; Lieut. R. C. WEBB, Rayne.
To Fort Sheridan, Ill., base hospital, from Fort Riley, Capt. J. L. KELLY, Melrose.
To St. Paul, Minn., Overland Building, from Fort Wayne, Lieut. H. C. CHAMBERS, Girard.

Maine

To Camp Crane, Pa., base hospital, from Fort McPherson, Capt. C. D. McDONALD, Portland.
To Camp Shelby, Miss., base hospital, from Fort Oglethorpe, Lieut. H. W. FROHOCK, Rockland.
To Camp Wheeler, Ga., base hospital, from Camp Gordon, Lieut. H. C. BUNDY, Lake View.
To Camp May, N. J., from Camp Dix, Lieut. C. D. GRAY, Portland.
To Fort Monroe, Va., from Fort Oglethorpe, Lieut. L. O. ROY, Lewiston.
To Fort Oglethorpe, evacuation hospital, from Camp Zachary Taylor, Lieut. L. H. TRUFANT, Norway.
To Fort Porter, N. Y., from Newport News, Capt. F. T. KOYLE, Fort Levett.
To Walter Reed General Hospital, D. C., from Camp Pike, Capt. A. WOODCOCK, Bangor.
The following order has been revoked: *To San Antonio, Texas,* Kelly Field from Garden City, Lieut. R. D. WALTON, Frankfort.

Maryland

To Camp Abraham Eustis, Va., Lieut. J. C. Baldwin, Baltimore.
To Camp Crane, Pa., evacuation hospital, from Camp Meade, Lieut. H. H. WARNER, Baltimore.
To Camp Forest, Ga., to examine drafted men for nervous and mental diseases, from Camp Meade, Lieut. F. N. OGDEN, Sykesville.
To Camp Greene, N. C., base hospital, from Fort Oglethorpe, Lieut. M. RASKIN, Baltimore.
To Camp Sheridan, Ala., base hospital, for instruction, from Fort Oglethorpe, Lieut. E. G. HALL, Baltimore.
To Camp Upton, N. Y., base hospital, from Camp Lee, Lieut. W. L. JACKSON, Baltimore; from Camp Meade, Lieut. S. H. STREETT, Baltimore; from Camp Shelby, Lieut. G. W. BISHOP, Govans.
To Fort San Houston, Texas, Capt. R. E. Caldwell, Bivalve.
To Garden City, N. Y., to examine the troops for cardiovascular diseases, from Lakewood, Lieut. J. T. KING, JR., Baltimore.
To Walter Reed General Hospital, D. C., for instruction, from Fort Oglethorpe, Lieut. W. L. DENNY, Baltimore.
To Washington, D. C., from Edgewood, Major S. L. CHAPPELL.

Massachusetts

To Atlanta, Ga., Emory University, from Miami, Fla., Lieut. A. O. McLAUGHLIN, Haverhill.
To Boston, Mass., Capt. F. H. McCRUDDEN, Boston; from Camp Devens, Lieut. W. H. MERRILL, Lawrence; from Camp Dix, Lieut. W. T. HOLLAND, Boston; from Fort McHenry, Capt. F. A. DAVIS, Boston.
To Camp A. A. Humphreys, Va., as orthopedic surgeon, from Walter Reed General Hospital, Lieut. A. D. VAMVAS, Boston.
To Camp Crane, Pa., base hospital, from Baltimore, Lieut. E. E. SMITH, Webster; from Camp Devens, Capt. J. H. WYMAN, Medway; from Camp Hancock, Major E. B. BIGELOW, Worcester. Evacuation hospital, from Camp Dix, Lieut. T. J. NORTON, Pittsfield; from Fort Benjamin Harrison, Lieut. C. L. HOITT, Lynn. Surgical group, from Camp Upton, Capt. W. G. DROUIN, Holyoke; from Camp Wheeler, Capt. E. A. KNOWLTON, Holyoke.
To Camp Devens, Mass., from Fort Oglethorpe, Major W. S. PARKER, Boston.
To Camp Knox, Ky., from Fort Oglethorpe, Lieut. D. G. PLUMB, Melrose.
To Camp McClellan, Ala., base hospital, from Fort Oglethorpe, Lieut. T. R. DONOVAN, Fitchburg.
To Camp Upton, N. Y., as camp surgeon, from East Norfolk, Mass., Major R. P. WILLIAMS.
To Camp Wadsworth, S. C., base hospital, from Camp MacArthur, Capt. J. H. DEWEES, Boston.
To Camp Wheeler, Ga., base hospital, from Fort Oglethorpe, Capt. R. B. OBER, Springfield. Base hospital, for instruction, from Fort Oglethorpe, Capt. L. J. MASKELL, Newton.
To Eastern Department, from Camp Upton, Capt. H. H. SUMNER, Lowell; W. H. ALLEN, Mansfield.
To Fort Bayard, N. M., from Camp Upton, Capt. D. J. HURLEY, Charleston.
To Fort McPherson, Ga., from Camp Devens, Capt. H. J. FITZ-SIMMONS, Boston.
To Fort Slocum, N. Y., as orthopedic surgeon, from Capt. Joseph E. Johnston, Lieut. M. A. GILBERT, Chelsea.
To Garden City, N. Y., from Mineola, Major C. S. BUTLER, Boston.
To Hoboken, N. J., base hospital, from Camp Wadsworth, Lieut. G. HARTMANN, Lynn.
To Lakewood, N. J., from Camp Devens, Major S. J. MIXTER, Boston.
To New Haven, Conn., from Camp Devens, Major L. H. SPOONER, Boston.
To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Wheeler, Ga.,* base hospital, from Fort Oglethorpe, Major H. ROBB, Winchester; Lieut. E. W. SMITH, Newton.
To Walter Reed General Hospital, D. C., from Camp Devens, Lieut.-Col. C. FROTHINGHAM, JR., Boston.
The following orders have been revoked: *To Camp Hancock, Ga.,* base hospital, from Fort Oglethorpe, Lieut. G. L. STEELE, West Springfield. *To Camp Shelby, Miss.,* from Camp Jackson, Lieut. N. HOLDEN, Malden.

Michigan

To Camp Cody, N. M., as assistant to camp surgeon, from Camp Zachary Taylor, Lieut. D. M. GRISWOLD, Grosse Pointe.

To Camp Crane, Pa., mobile hospital, from Camp Meade, Capt. R. K. YOUNG, Detroit.
To Camp Custer, Mich., base hospital, Capt. W. H. DIEBEL, Detroit.
To Camp Joseph E. Johnston, Fla., base hospital, from Camp Bowie, Lieut. W. L. SHERMAN, Detroit.
To Camp Sheridan, Ala., from Angola, Ind., Lieut. A. J. McKILLOP, Wolverine.
To Fairchild, Ohio, Wilbur Wright Field, from Mount Clemens, Lieut. W. L. SHERMAN, Detroit.
To Fort Benjamin Harrison, Ind., Capt. H. G. PALMER, Detroit.
To Fort Crockett, Texas, as tuberculosis examiner, from Fort Sam Houston, Capt. R. L. FELLERS, Detroit.
To Fort Sheridan, Ill., base hospital, from Camp Zachary Taylor, Lieut. J. J. O'MEARA, Jackson; from Fort Des Moines, Lieuts. H. LIEFFERS, Coopersville; G. H. CAMPAU, Detroit.
To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Wadsworth, S. C.,* base hospital, from Fort Oglethorpe, Lieut. C. J. JENTGEN, Detroit.
To San Antonio, Texas, Kelly Field, to examine troops for cardiovascular diseases, from Camp Pike, Lieut. L. M. BUSH, Detroit.
To Washington, D. C., Bolling Field, from Mount Clemens, Lieut. H. A. MILLER, Lansing.
To Williamsbridge, N. Y., from Camp Jackson, Capt. J. S. BROTHERHOOD, Grand Rapids.
Honorably discharged on account of physical disability incurred in line of duty, Capt. T. G. HOLMES, Detroit.
Resignation of Major G. E. McKEAN, Detroit, accepted.

Minnesota

To Boston, Mass., from Camp Custer, Lieut. A. M. CRANDALL, Fairfax.
To Camp Crane, Pa., from Rochester, Major J. C. MASSON, Rochester. Base hospital, from Camp Dodge, Capt. F. M. MANSON, Worthington; from Fort McPherson, Capt. A. W. SHALEEN, Hallowell; from New Haven, Lieut. W. H. DANIELS, Crookston.
To Camp Joseph E. Johnston, Fla., base hospital, from Camp Wheeler, Lieut. G. C. DITTMAN, St. Paul.
To Camp Shelby, Miss., base hospital, from Fort Oglethorpe, Lieuts. J. E. O'DONNELL, Minneapolis; E. R. REYNOLDS, Rochester.
To Camp Sheridan, Ala., base hospital, for instruction, from Fort Oglethorpe, Capt. J. F. X. GENDRON, Grand Rapids.
To Camp Upton, N. Y., base hospital, from Camp Dodge, Capt. A. E. SMITH, Minneapolis.
To Camp Wheeler, Ga., base hospital, from Camp Shelby, Capt. A. E. BENJAMIN, Minneapolis.
To Fort Benjamin Harrison, Ind., from Cincinnati, Lieut. A. A. TOFTE, Pine City.
To Fort McDowell, Calif., Capt. A. PETERSON, Rochester.
To Fort McPherson, Ga., from Fort Oglethorpe, Major H. M. MORTON, Minneapolis. For instruction, from Camp Pike, Lieut. S. V. HODGE, Minneapolis.
To Fort Sheridan, Ill., base hospital, from Camp Grant, Capt. E. BOECKMANN, St. Paul; Lieuts. C. LEMBKE, C. H. ZANDER, St. Paul.
To Fort Sill, Okla., Post Field, from Bellevue, Ill., Capt. G. T. AYRES, Ely.
To Fort Snelling, Minn., Lieut. J. C. WALKER, JR., Rochester.
To Rochester, Minn., Mayo Clinic, for instruction, Lieut. B. A. DOGGETT, Rochester.
To Rockefeller Institute for instruction, from New Haven, Lieut. L. BAKER, Minneapolis. For instruction in the treatment of infected wounds, and on completion *to Camp A. A. Humphreys, Va.,* base hospital, from Fort Oglethorpe, Lieut. H. D. NEWKIRK, Minneapolis.
To Washington, D. C., Surgeon-General's Office, from Fort Sam Houston, Major A. R. COLVIN, St. Paul.
The following order has been revoked: *To San Antonio, Texas,* Kelly Field, from Garden City, Lieut. F. L. POWERS, Pipestone.

Mississippi

To Camp Crane, Pa., base hospital, from Fort Sill, Capt. J. T. IRBY, Enterprise.
To Camp Shelby, Miss., base hospital, from Camp Logan, Capt. E. F. HOWARD, Vicksburg.
To Fort Bayard, N. M., from Denver, Lieut. B. C. BERNARD, Indianola.
To Fort Oglethorpe, evacuation hospital, from Camp Zachary Taylor, Lieut. J. B. HIRSCH, Greenville.
To Hattiesburg, Miss., Mississippi Normal College, from Camp Shelby, Capt. J. R. TACKETT, Meridian.
To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Sherman, Ohio,* base hospital, from Camp Crane, Capt. J. CRISLER, Jackson.

Missouri

To Boston, Mass., from Camp Custer, Lieuts. O. P. McCARTNEY, Kansas City; C. A. ORR, Mendon.
To Camp Beauregard, La., base hospital, from Fort Riley, Lieut. O. R. CROOKS, Kansas City.
To Camp Crane, Pa., evacuation hospital, from Camp Dodge, Lieut. J. O'CONNELL, St. Louis. Mobile hospital, from Fort Oglethorpe, Capt. G. H. MORELAND, Kansas City; from New Haven, Lieut. E. V. KRING, St. Louis. Surgical group, from Colonia, N. J., Capt. V. CADWELL, Poplar Bluff.
To Camp Gordon, Ga., base hospital, for instruction, from Fort Oglethorpe, Lieut. J. M. WILSON, Stoutsville.
To Camp Jackson, S. C., from Camp Custer, Capt. R. L. FOGLE, Otterville.
To Camp MacArthur, Texas, base hospital, Capt. W. E. YOUNT, Cape Girardeau.
To Camp McClellan, Ala., base hospital, for instruction, from Fort Oglethorpe, Lieut. J. D. POE, St. Louis.
To Camp Meade, Md., from Fort Sill, Major F. W. SHAW, Mount Vernon.
To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Capt. E. P. HAMILTON, Kansas City.
To Camp Shelby, Miss., base hospital, from Fort Oglethorpe, Lieut. F. B. SPENCER, Hannibal.
To Camp Sheridan, Ala., base hospital, from Fort Oglethorpe, Lieut. A. L. HEARST, Kansas City.
To Camp Upton, N. Y., base hospital, from Camp Grant, Lieut. C. D. SCOTT, St. Louis.

To Cincinnati, Ohio, from Fort Riley, Capt. J. MIDDLETON, Kansas City.

To Eastern Department, from Camp Upton, Lieut. H. J. WITTEW, St. Louis.

To Fort McPherson, Ga., from Lexington, Va., Lieut. W. J. BIL-LETER, Bynumville.

To Fort Oglethorpe, exacuation hospital, from Camp McClellan, Lieut. W. J. SPARHAWK, St. Louis; from Camp Sevier, Capt. W. H. MINTON, St. Joseph. For instruction, from Camp Pike, Capt. C. A. TUCKER, Springfield.

To New Cumberland, Pa., from Fort Oglethorpe, Lieut. J. H. WILLIAMS, Hume.

To New Haven, Conn., from Camp Jackson, Capt. O. L. SUGGETT, St. Louis; from Fort Benjamin Harrison, Lieut. F. R. DEHONEY, Fredericktown.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to his proper station, Lieut.-Col. M. G. SEELIG, St. Louis.

To San Antonio, Texas, Kelly Field, from Camp Dick, Lieut. I. N. PARRISH, Polo.

The following order has been revoked: To Jefferson Barracks, Mo., Lieut. R. HEREFORD, Ashley.

Montana

To Camp Colt, Pa., from Camp Custer, Lieut. J. R. McDOWELL, Intake.

To Camp Crane, Pa., evacuation hospital, from Camp Grant, Lieut. C. A. JOHNSON, Livingston.

To Fort Riley for instruction, Lieut. A. B. ECKERDT, Helena.

Nebraska

To Camp Abraham Eustis, Va., from Camp Sheridan, Lieut. W. J. McCRANN, Omaha.

To Camp Crane, Pa., base hospital, from Camp Travis, Lieut. J. D. McCARTHY, Omaha.

To Camp Zachary Taylor, Ky., as orthopedic surgeon, from Fort Riley, Lieut. L. K. STRATE, Hastings.

To Fort Oglethorpe, evacuation hospital, from Camp Beauregard, Capt. F. J. WURTELE, North Platte; from Camp Bowie, Capt. G. H. RATHBUN, Fremont.

To Indianapolis, Ind., from Rantoul, Lieut. N. L. CRISS, Omaha.

To Lake Charles La., Gerstner Field, from Fort Oglethorpe, Lieut. F. W. PLEHN, Scottsbluff.

To New Haven, Conn., Yale Army Laboratory School, from Fort Oglethorpe, Major H. E. EGGERS, Omaha.

The following order has been revoked: To Fort Oglethorpe, evacuation hospital, from Camp Jackson, Capt. W. N. ANDERSON, Omaha.

Nevada

To Camp Crane, Pa., Surgical Group from Camp Cody, Capt. L. V. SMITH, Reno.

To Fort Douglas, Utah, for instruction, Lieut. W. H. RILEY, Aurora.

New Hampshire

To Camp Upton, N. Y., base hospital, from Fort Oglethorpe, Lieut. F. E. SPEAR, Woodsville.

To Camp Sheridan, Ala., base hospital, from Fort Oglethorpe, Lieut. E. W. COATES, Concord.

To Dallas, Texas, from San Antonio, Capt. D. R. CHASE, Lebanon.

To Mineola, N. Y., Hazelhurst Field, for instruction, from Colonia, Capt. G. H. PARKER, Hanover.

New Jersey

To Camp A. A. Humphreys, Va., to examine drafted men for nervous and mental diseases, and on completion to his proper station, from Washington, Capt. G. PAYNE, Cedar Grove.

To Camp Crane, Pa., from Camp Zachary Taylor, Capt. N. W. CURRIE, Plainfield. Base hospital, from Camp Dix, Capt. F. R. CORSON, Atlantic City; from Camp Greene, Lieut. J. WILLIS, JR., Jersey City. Evacuation hospital, from Camp Gordon, Lieut. R. T. VREELAND, Clifton. Mobile hospital, from Camp Lee, Capt. J. H. ORAM, Paterson.

To Camp Dix, N. J., from Camp Lee, Capt. C. J. AILPERIN, Newark.

To Camp Joseph E. Johnston, Fla., base hospital, for instruction, from Fort Oglethorpe, Lieut. T. SMITH, Sea Isle City.

To Camp Logan, Texas, base hospital, from Fort Oglethorpe, Lieut. L. D. WHITNEY, Belleville.

To Camp Sevier, S. C., base hospital, from Camp Gordon, Lieut. J. N. PANNULLO, Newark. Base hospital, for instruction, from Fort Oglethorpe, Lieut. P. A. D'ACIERENO, West Hoboken.

To Camp Shelby, Miss., to examine drafted men for nervous and mental diseases, from Washington, Capt. P. C. WASBURN, Cape May.

To Camp Sheridan, Ala., from Fort Oglethorpe, Lieuts. T. H. PLATT, Dunellen; J. J. LEVY, Ocean Gate.

To Camp Upton, N. Y., base hospital, from Fort Oglethorpe, Capt. F. R. HAUSSLING, Newark; Lieut. M. H. STEIN, Elizabeth; from Hoboken, Major L. O. TARLETON.

To Camp Wadsworth, S. C., as orthopedic surgeon, from Fort Oglethorpe, Lieut. F. J. T. WAS, Paterson. Base hospital, from Fort Oglethorpe, Capt. A. NELON, Jersey City.

To Camp Wheeler, Ga., base hospital, from Fort Oglethorpe, Lieut. A. UREWITZ, West Hoboken.

To Camp Zachary Taylor, Ky., as tuberculosis examiner, from Syracuse, Capt. G. E. HAHEN, Newark.

To Colonia, N. J., for instruction, from Camp Hancock, Capt. A. S. HARDEN, Newark.

To Fort Ethan Allen, Vt., base hospital, from Camp Dix, Major M. J. SYNNOTT, Montclair.

To Fort Monroe, Va., from New York, Lieut. H. F. WESTCOTT, Bridgeton.

To West Point, N. Y., from Syracuse, Lieut. J. WECHSLER, Jersey City.

Resignation of Lieut. C. E. BORN, West Hoboken, accepted

The following order has been revoked: To Camp Crane, Pa., Surgical Group, from Fort McHenry, Capt. J. L. FEWSMITH, Newark.

New Mexico

To Boston, Mass., from Fort Oglethorpe, Lieut. M. McCAHILL, Albuquerque.

To Camp McClellan, Ala., as assistant to the division surgeon, Major H. R. BROWN, Albuquerque.

New York

To Arcadia, Fla., Carlstrom Field, from Fort Wayne, Mich., Major H. L. SCHELLING, Brooklyn.

To Boston, Mass., for instruction, from Fort Oglethorpe, Capt. T. FARNAM, New York.

To Camp A. A. Humphreys, Va., from Plattsburg Barracks, Lieut. W. C. THOMPSON, Plattsburgh.

To Camp Abraham Eustis, Va., from Eastern Department, Capt. F. W. HUNTER, Fort Totten.

To Camp Crane, Pa., base hospital, from Camp Abraham Eustis, Lieut. H. S. MARCLAY, New York; from Camp Greene, Capt. R. M. JONES, New York; from Camp Jackson, Major R. H. McCON-

NELL, New York; from Camp Meade, Capt. F. COONLEY, Staten Island; from Camp Sevier, Capt. W. E. BOWEN, Rochester; from Fort Douglas, Lieut. A. E. GORDIN, New York; from Fort Oglethorpe, Major H. L. K. SHAW, Albany; Capt. A. H. RODGERS, Corning; from New Haven, Capt. W. H. VEEDER, Rochester; from Syracuse, Lieut. D. BRUMBERG, Buffalo; from Williamsbridge, Major D. D. ROBERTS, Brooklyn; Capt. C. C. CORYELL, New York. Evacuation hospital, from Camp Lee, Lieut. I. J. RUSSELL, Setauket. Mobile hospital, from Camp Greene, Lieut. W. L. MUN-

SON, Granville; from Fort Oglethorpe, Lieut. B. HUGHES, New York. Surgical group, from New York, Capt. E. A. KING, New York.

To Camp Custer, Mich., base hospital, from Camp Jackson, Capt. C. EGGERS, New York.

To Camp Devens, Mass., base hospital, from Camp Jackson, Lieut. H. R. MINSELL, New York.

To Camp Dix, N. J., base hospital, from Long Island City, Capt. A. L. BENEDICT, Buffalo. Base hospital, for instruction, Lieut. J. M. SCHAFFER, New York.

To Camp Gordon, Ga., base hospital, for instruction, from Camp Zachary Taylor, Capt. B. G. BLACKMAR, Brooklyn.

To Camp Greene, N. C., base hospital, from Camp Hancock, Capt. H. D. FURNISS, New York.

To Camp Hancock, Ga., from Lakewood, Lieut. P. J. WHITE, JR., Green Ridge.

To Camp Jackson, S. C., to examine the command for nervous and mental diseases, from New York, Lieut. J. MARSHACK, New York.

To Camp Joseph E. Johnston, Fla., base hospital, from Camp Shelby, Capt. R. S. TAYLOR, Buffalo.

To Camp Lee, Va., from Fort Slocum, Major W. C. McKNIGHT, New York.

To Camp McClellan, Ala., base hospital, for instruction, from Fort Oglethorpe, Capt. C. E. ELKINS, Massena.

To Camp Meade, Md., from the Surgeon-General's Office, Capt. L. L. ROOS, New York. As camp surgeon, from Camp Benning, Major E. A. SOUTHALL, Buffalo.

To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Lieut. R. G. HAYS, Brooklyn.

To Camp Shelby, Miss., base hospital, from Fort Oglethorpe, Lieuts. M. H. BARSKY, M. SOLETSKY, New York. To examine drafted men for nervous and mental diseases, from Washington, Capt. W. R. WOODBURY, Rochester.

To Camp Sheridan, Ala., Capt. A. J. HAMBROOK, Troy; from Fort Oglethorpe, Capt. A. MARK, Elmira; Lieut. F. M. CHAFFEE, Middlesex.

To Camp Travis, Texas, base hospital, for instruction, from Fort Oglethorpe, Capt. M. L. HAVILAND, Glen Falls.

To Camp Upton, N. Y., base hospital, Lieut. H. H. BAUCKUS, Buffalo; from Camp Custer, Capt. T. F. FOLEY, Elmira; from Fort Oglethorpe, Capt. G. R. CRITCHLOW, Buffalo; from New York, Major H. S. BAKETEL, New York. Base hospital, for instruction, from Hoboken, Capt. J. E. GOLDING, Brooklyn.

To Camp Wadsworth, S. C., base hospital, from Camp Greene, Lieut. R. C. SCHLEUSSNER, New York; from Fort Oglethorpe, Capt. G. H. DILL, Utica; Lieut. H. M. COX, New York. To examine the troops for cardiovascular diseases, from Camp Gordon, Lieut. M. J. RADIN, New York.

To Camp Wheeler, Ga., as division surgeon, Major H. R. GAYLORD, Buffalo. Base hospital, from Fort Oglethorpe, Lieut. A. C. FREEMAN, New York.

To Camp Zachary Taylor, Ky., from Army Medical School, Lieut. F. L. GATES, New York.

To Cape May, N. J., base hospital, from Camp Sherman, Lieut. J. G. MORRESSEY, Yonkers; from Fort Oglethorpe, Lieut. J. G. J. GRIMLEY, New York.

To Denver, Colo., from Camp Dix, Lieut. C. R. MILLER, Ogdensburg.

To Eastern Department, from Camp Upton, Capt. F. O. HUNTER, Fort Totten.

To East Norfolk, Mass., from Camp Devens, Lieut. E. M. POATE, New York.

To Fort Ethan Allen, Vt., from New Haven, Lieut. W. C. PENDILL, Huntington; from Syracuse, Capt. M. CAMPBELL, New York. Base hospital, from Camp Devens, Capt. F. W. SEYMOUR, Rochester; from Camp Dix, Capt. F. L. NELSON, New York; Lieut. J. T. FOWKES, Lafargeville.

To Fort McHenry, Md., from Camp Zachary Taylor, Major J. P. FISKE, New York.

To Fort Monroe, Va., from Fort Keough, Major J. B. COOKE, Cooperstown.

To Fort Oglethorpe, from Fort Porter, Lieut. A. B. FERGUSON, New York. Evacuation hospital, from Camp Jackson, Lieut. A. ROTH, Brooklyn; from Camp MacArthur, Lieut. I. E. SUMMER, Brooklyn. For instruction, Lieuts. E. L. FROST, Buffalo; W. D. EDWARDS, New York; from New Haven, Lieut. F. C. McCLELLAN, Canandaigua.

To Lakewood, N. J., from Fort Oglethorpe, Lieuts. J. BECKENSTEIN, Brooklyn; H. C. DORSEY, M. A. McIVER, New York. For instruction, from Army Medical School, Lieuts. R. A. CORBIN, New York; B. J. SLATER, Rochester.

To Lonoke, Ark., Eberts Field, as flight surgeon, from Rantoul, Capt. W. A. SCRUTON, New York.

To Mineola, N. Y., Hazelhurst Field, for instruction, from Austin, Capt. F. A. JOHNSON, Kingston; from Camp McClellan, Capt. J. J. KING, New York; from New York, Capt. J. D. RICHARDS, New York.

To New Haven, Conn., Yale Army Laboratory School, from Camp Custer, Major J. S. BILLINGS, New York; from Camp Dix, Major B. F. KNAUSE, Brooklyn. For instruction, from Lakewood, Lieut. H. T. HYMAN, New York.

To New York, Neurological Institute, for intensive training in neuro-psychiatry, Capt. J. R. HARDING, Elmira. To give instruction, from Plattsburg Barracks, Capt. W. TIMME, New York.

To report to the commanding general, Southeastern Department, from North Charleston, Lieut. M. E. GREGG, Mottville.

To Rockefeller Institute for instruction, from New Haven, Lieuts. L. J. STRONG, W. E. ZIELINSKI, Buffalo. For instruction in the treatment of infected wounds, and on completion to Camp Upton, N. Y., base hospital, from Fort Oglethorpe, Lieut. F. S. WETTERELL, Syracuse.

To Washington, D. C., Surgeon-General's Office, from Waynesville, N. C., Lieut.-Col. C. E. DAVIS, Albany.

To Waynesville, N. C., from Camp Grant, Capt. C. A. NEWCOMB, Newark.

To White Plains, N. Y., from Fort Sam Houston, Major J. I. RUSSELL, New York.

Honorably discharged on account of physical disability incurred in line of duty, Lieut. A. M. SARTORIUS, Brooklyn.

The following orders have been revoked: To Camp Fremont, Calif., base hospital, from Camp Lewis, Lieut. A. G. DESANCTIS, New York.

To San Antonio, Texas, Kelly Field, from Garden City, Lieut. M. GROLLMAN, Brooklyn.

North Carolina

To Camp Crane, Pa., surgical group, from Camp Wheeler, Major E. A. LOCKETT, Winston-Salem.

To Camp Jackson, S. C., base hospital, for instruction, from Fort Oglethorpe, Capt. N. D. ADAMS, Murphy.

To Camp Joseph E. Johnston, Fla., base hospital, from Camp Beauregard, Lieut. G. E. BOWDOIN, Wilmington.

To Camp Kendrick, N. J., from Camp Upton, Capt. L. D. FLOYD, Cerro Gordo.

To Rockefeller Institute for instruction, from New Haven, Capt. W. P. JACOBS, Elizabeth City.

North Dakota

To Camp Crane, Pa., base hospital, from Fort Douglas, Lieut. W. S. ANDERSON, Grand Forks.

To Fort Oglethorpe, evacuation hospital, from Camp Sheridan, Capt. W. A. GERRISH, Jamestown.

To Fort Snelling, Minn., for instruction, from Camp Grant, Lieut. W. H. WITHERSTINE, Grand Forks.

Ohio

To Army Medical School for instruction, from Fort Oglethorpe, Capt. E. A. KLEIN, Norwood.

To Atlanta, Ga., Armory Building, from Fort Clinton, Major F. E. ARTAUD, Columbus.

To Camp Cole, Pa., from Camp Upton, Lieut. C. H. HARALSON, Mount Vernon.

To Camp Crane, Pa., base hospital, from Camp Travis, Lieut. F. W. McNAMARA, Youngstown; from Fort Oglethorpe, Lieuts. H. H. LOWE, Leesburg; W. E. HIGGS, N. N. MEYER, Youngstown.

Evacuation hospital, from Camp Sherman, Capt. B. F. CURETON, Walhonding. Mobile hospital, from Fort Oglethorpe, Lieut. W. A. TEVELUWE, Cincinnati.

To Camp Custer, Mich., base hospital, for instruction, from Fort Oglethorpe, Lieut. E. R. MELLOTT, Toledo.

To Camp Grant, Ill., as assistant to camp surgeon, from Fort Oglethorpe, Lieut. G. A. MILLER, Hudson.

To Camp MacArthur, Texas, base hospital, for instruction, from Fort Oglethorpe, Capt. W. E. RANZ, Youngstown.

To Camp McClellan, Ala., base hospital, for instruction, from Fort Oglethorpe, Lieut. M. H. BOWERS, Perrysburg.

To Camp Meade, Md., from Camp Travis, Lieut. C. M. DOUTHITT, Athens.

To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Lieut. F. F. KRAMER, Cincinnati.

To Camp Sheridan, Ala., from Fort Oglethorpe, Lieut. K. C. EVANS, Payne.

To Camp Upton, N. Y., base hospital, from Camp Jackson, Capt. M. MILLIKIN, Hamilton.

To Camp Wheeler, Ga., to examine troops for cardiovascular diseases, from Camp Gordon, Lieut. H. B. WEISS, Cincinnati.

To Fort Benjamin Harrison, Ind., from Central Department, Lieut. W. B. KEATOR, Findlay; from Cincinnati, Lieut. E. D. HARPER, Guysville.

To Fort Ethan Allen, Vt., from Syracuse, Lieut. F. B. SNODGRASS, Kenton.

To Fort Oglethorpe, evacuation hospital, from Camp Zachary Taylor, Lieut. F. J. GALLAGHER, Cleveland. For instruction, Lieut. W. ADAIR, Lorain.

To Fort Ontario, N. Y., from Camp Gordon, Lieut. W. A. KOCIL, Bucyrus.

To Fort Sam Houston, Texas, from Camp Beauregard, Capt. C. A. HOWELL, Columbus.

To Fort Sheridan, Ill., base hospital, from Camp Grant, Capt. W. A. MEDLIN, Cleveland; from Fort Des Moines, Lieut. H. L. PRICE, Toledo; from Fort Riley, Lieut. R. R. KERKOW, Hacksville; from Fort Snelling, Major H. Z. SILVER, Eaton.

To Fort Sill, Okla., Post Field, from Bellevue, Ill., Lieut. A. J. SHOEMAKER, Columbus.

To Fort Slocum, N. Y., from Camp Sherman, Capt. A. L. STEINFELD, Toledo.

To Hoboken, N. J., from Fort Oglethorpe, Capt. L. A. BREWER, Toledo. Base hospital, from Fort Oglethorpe, Lieut. J. F. WRIGHT, Toledo.

To New Cumberland, Pa., from Erie, Pa., Lieut. O. P. ANDREWS, East Liverpool.

To New York, Columbia University, from Eastern Department, Lieut. C. S. CAVETT, North Baltimore.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Walter Reed General Hospital, D. C., for instruction, from Fort Oglethorpe, Capt. F. B. LIVERMORE, Barberton.

To Wilberforce, Ohio, Wilberforce University, Lieut. M. L. CRAWFORD, Cleveland.

The following orders have been revoked: To Fort Oglethorpe for instruction, Lieut. H. C. WHITE, Columbus. To New York, Bellevue Hospital, for instruction, and on completion to his proper station, from Walter Reed General Hospital, Capt. A. H. SMITH, Marietta. To San Antonio, Texas, Kelly Field, from Garden City, Lieuts. C. H. VEROVITZ, Cleveland; F. E. HALL, Springfield.

Oklahoma

To Camp Gordon, Ga., from Southern Department, Capt. F. L. WALTON, Muskogee.

To Camp Sheridan, Ala., base hospital, from Fort Oglethorpe, Lieut. R. E. WAGGONER, Pawnee.

To Camp Upton, N. Y., base hospital, from Fort Oglethorpe, Capt. G. A. KILPATRICK, McAlester.

To Cape May, N. J., base hospital, from Fort Sill, Lieut. T. J. NUNNERY, Granite.

To Fort Ethan Allen, Vt., from Camp Devens, Lieut. T. M. TOLER, Wirt.

To Fort Oglethorpe, evacuation hospital, from Camp Cody, Lieut. H. P. PRICE, Tulsa. For instruction, Lieut. C. M. BLOSS, Okemah.

To Richmond, Va., from Hampton, Lieut. M. H. EDENS, Anadarko.

Oregon

To Camp Crane, Pa., base hospital, from Camp Lewis, Capt. E. A. SOMMER, Portland.

To Camp Dodge, Iowa, base hospital, from San Francisco, Capt. R. H. WELLINGTON, Portland.

To Fort Oglethorpe, evacuation hospital, from Camp McClellan, Lieut. R. F. JAMES, Portland.

To San Francisco, Calif., Letterman General Hospital, for instruction, Lieut. W. R. ANDERSON, Portland; from Camp Lewis, Capt. M. K. HALL, Grand.

Pennsylvania

To Azalea, N. C., from Camp Wadsworth, Capt. F. A. BRIDGETT, Philadelphia.

To Boston, Mass., from Camp Hancock, Capt. J. A. BROOKE, Philadelphia; from Fort Oglethorpe, Lieut. J. S. LOGAN, Pittsburgh. For instruction, from Camp Lee, Capt. L. VAN HORN, Philadelphia.

To Camp Crane, Pa., base hospital, from Army Medical School, Capt. C. E. LLEWELLYN, Philadelphia; from Fort Benjamin Harrison, Lieut. C. W. ESPY, Wilkes-Barre; from Fort McPherson, Capt. H. C. UPDEGRAFF, Pittsburgh; from Fort Oglethorpe, Capt. W. J. BAILEY, Connellsville. Evacuation hospital, from Camp Greene, Lieut. W. E. BROWN, Homestead. Mobile hospital, from Camp Wheeler, Capt. C. B. NOECKER, Seranton; from Camp Zachary Taylor, Lieut. P. T. HOPE, Mercer.

To Camp Gordon, Ga., base hospital, for instruction, from Fort Oglethorpe, Capt. W. C. WILSON, Clearfield.

To Camp Greene, N. C., base hospital, from Camp Beauregard, Lieut. H. C. WINSLOW, Meadville; from Camp Gordon, Capt. J. E. GOTWALS, Phoenixville; from Camp Hancock, Lieut. A. H. JAHN, Pittsburgh; from Camp McClellan, Capt. H. S. FISH, Sayre.

To Camp Jackson, S. C., base hospital, for instruction, Lieut. D. RIESMAN, Philadelphia.

To Camp Joseph E. Johnston, Fla., as tuberculosis examiner, from New Haven, Lieut. M. DEPTA, Mount Pleasant. Base hospital, from Camp Jackson, Capt. W. T. PYLE, Swissvale. Base hospital, for instruction, from Fort Oglethorpe, Capt. P. R. CORNELL, Easton.

To Camp McClellan, Ala., base hospital, from Fort Oglethorpe, Capt. J. H. RORKE, Reading.

To Camp Sevier, S. C., base hospital, from Biltmore, N. C., Capt. W. S. LONG, Reading; from Camp Hancock, Lieut. A. H. MURRAY, Sayre.

To Camp Shelby, Miss., base hospital, from Fort Oglethorpe, Capt. W. F. COPE, Easton; A. COWAN, Philadelphia; Lieuts. W. E. HODGSON, Glassport; W. F. WHITE, Wellsboro.

To Camp Sheridan, Ala., from Camp Colt, Lieut. F. D. LOHR, Derry; from Fort Oglethorpe, Capt. W. S. WRAY, Philadelphia.

To Camp Travis, Texas, from Orangeburg, Lieut. S. W. REEVES, Fawn Grove.

To Camp Upton, N. Y., from Camp Meade, Capt. R. M. ALEXANDER, Reading. Base hospital, from Camp Meade, Capt. G. B. MORELAND, Pittsburgh; from Fort Oglethorpe, Lieut. G. M. SPROWLS, Imperial; from Hoboken, Lieut. G. W. CONRAD, Johnstown.

To Camp Wadsworth, S. C., base hospital, from Fort Oglethorpe, Lieuts. R. C. SEIPEL, Easton; E. S. HUBBS, Philadelphia.

To Camp Wheeler, Ga., base hospital, from Camp Bowie, Lieut. E. M. ELLSWORTH, Wilkes-Barre; from Camp Sheridan, Capt. R. F. RIDPATH, Philadelphia.

To Camp Zachary Taylor, Ky., from Army Medical School, Major J. H. AUSTIN, Ardmore.

To Cape May, N. J., base hospital, from Camp Lee, Capt. G. A. VAN LENNEP, Philadelphia; from Fort Douglas, Capt. H. A. SPANGLER, Carlisle; from Walter Reed General Hospital, Capt. C. R. PALMER, West Chester; Lieut. W. B. SWARTLEY, Philadelphia.

To Eastern Department, from Camp Upton, Capt. B. P. STEELE, McVeytown.

To Fort Caswell, N. C., from Fort Oglethorpe, Lieut. H. M. GANGLOFF, Pittsburgh.

To Fort McPherson, Ga., for instruction, from Camp Sheridan, Capt. J. W. DIXON, Wilkinsburg.

To Fort Oglethorpe, base hospital, Major W. PEPPER, Philadelphia. Evacuation hospital, from Camp Gordon, Lieut. C. W. McELHENRY, Greenville; from Camp Jackson, Capt. W. ANDERSON, Pittsburgh; from Camp Shelby, Lieut. M. PLATT, Philadelphia; from Fort Thomas, Capt. E. L. DICKEY, Oil City. For instruction, Lieut. A. LEVY, Philadelphia.

To Garden City, N. Y., to examine troops for cardiovascular diseases, from Lakewood, Lieut. L. N. GAY, Shamokin.

To Hampton, Va., Hampton Institute, Lieut. W. S. TAYLOR, Carlisle.

To Hoboken, N. J., from Camp Devens, Lieut. L. W. KOHN, Philadelphia; from the Surgeon-General's Office, Lieut.-Col. D. SILVER, Pittsburgh.

To Jefferson Barracks, Mo., from Camp Custer, Major J. D. MILLIGAN, Pittsburgh.

To Lakewood, N. J., from Fort Oglethorpe, Lieut. R. GOODMAN, Philadelphia.

To Lancaster, Pa., Franklin and Marshall College, from Camp Crane, Lieut. G. H. KIRKPATRICK, Wilkinsburg.

To Mineola, N. Y., Hazlehurst Field, for instruction, from Fort Oglethorpe, Capt. J. L. WAGNER, Reading.

To Rockefeller Institute, from Camp Upton, Capt. J. V. KLAUDER, Philadelphia. For instruction, from New Haven, Lieuts. J. A. COEN, Bristoria; L. W. WRIGHT, Williamsport.

To San Francisco, Calif., Letterman General Hospital, from Walter Reed General Hospital, Capt. R. J. HENDERSON, Bowmansville.

To South Bethlehem, Pa., Lehigh University, from Camp Crane, Lieut. L. L. PORCH, Johnstown.

To Washington, D. C., from Camp Meade, Lieut. W. J. CREIGHTON, Philadelphia. Surgeon-General's Office, from Walter Reed General Hospital, Capt. C. C. YOUNT, Philadelphia.

To Waynesville, N. C., as commanding officer, from Azalea, Major W. G. TURNBULL, Cresson.

To West Baden, Ind., from Lakewood, Major W. H. THOMAS, Philadelphia.

To Whipple Barracks, Ariz., from Fort Bayard, Major R. BEW, Gettysburg; from New Haven, Lieut. H. A. KIPP, Pittsburgh.

The following orders have been revoked: To Camp Wadsworth, S. C., base hospital, from Fort Oglethorpe, Lieut. J. J. SWEENEY, Heckscherville. To San Antonio, Texas, Kelly Field, from Garden City, Capt. W. L. SCOTT, Joffre.

Porto Rico

To Camp Las Casas, P. R., from Cayey, P. R., Capt. A. C. SMITH, Henry Barracks.

Rhode Island

To Camp Crane, Pa., mobile hospital, from Camp Sevier, Capt. C. E. HAWKES, Providence.

To East Norfolk, Mass., from Camp Devens, Lieut. C. H. GANNON, Howard.

To Fort McPherson, Ga., for instruction, from Fort Oglethorpe, Lieut. P. H. RUSHTON, Providence.

South Carolina

To Camp Bowie, Texas, base hospital, from Fort Oglethorpe, Lieut. W. H. PRICE, Charleston.

To Camp Sheridan, Ala., from Fort Oglethorpe, Lieut. B. D. CAUGHMAN, Columbia.

To Camp Upton, N. Y., base hospital, from Camp Custer, Capt. L. PETERS, Columbia.

To Corpus Christi, Texas, from Fort Oglethorpe, Lieut. B. T. SHARPTON, Clarks Hill.

To Fort Oglethorpe for instruction, Lieut. I. J. CAMPBELL, Clover.

To Fort Sill, Okla., base hospital, from Camp Custer, Lieut. D. V. MYERS, Spartanburg.

To Orangeburg, S. C., Lieut. S. C. CLOWNEY, Spartanburg.

South Dakota

To Fort Oglethorpe, evacuation hospital, from Camp Gordon, Capt. J. F. McKIE, Wessington.

To Fort Sheridan, Ill., base hospital, from Fort Riley, Lieut. W. P. COLLINS, Howard.

The following order has been revoked: To Camp Crane, Pa., surgical group, from Camp Grant, Lieut. B. H. SPRAGUE, Huron.

Tennessee

To Camp Abraham Eustis, Va., from Camp Sheridan, Lieut. B. F. LORING, Union City.

To Camp Crane, Pa., base hospital, from Camp Lee, Lieut. J. L. BRYAN, Nashville; from Camp Zachary Taylor, Lieut. J. B. BLUE, Memphis. Mobile hospital, from Fort Oglethorpe, Capt. L. A. HAUN, Lieut. J. V. HENDERSON, Knoxville.

To Camp Greene, N. C., base hospital, from Camp Hancock, Lieut. N. H. GOLDBERG, Nashville.

To Camp McClellan, Ala., as sanitary inspector, Capt. J. M. LEE, Nashville. Base hospital, from Fort Oglethorpe, Lieut. S. BURCHART, Memphis.

To Camp Shelby, Miss., base hospital, from Camp McClellan, Lieut. R. M. YOUNG, Knoxville; from Fort Oglethorpe, Lieut. C. M. CHILTON, Memphis.

To Camp Sheridan, Ala., from Fort Oglethorpe, Lieut. J. D. CARLTON, Union City. Base hospital, from Fort Oglethorpe, Lieut. W. N. LYNN, Knoxville.

To Camp Zachary Taylor, Ky., base hospital, for instruction, from Jefferson Barracks, Major G. M. ELLIS, Chattanooga.

To Dansville, N. Y., from New Haven, Lieut. R. H. DENHAM, Lynnville.

To Fort Oglethorpe, evacuation hospital, from Camp Pike, Lieut. D. D. MONCRIEF, Chapel Hill.

To Mineola, N. Y., Hazelhurst Field, for instruction, from Fort Riley, Lieut. P. H. WOOD, Memphis.

To Pine Bluff, Ark., Branch Normal School, Lieut. J. M. GILL, Brownsville.

To Rockefeller Institute for instruction, from New Haven, Lieut. C. L. DAVIDSON, Lexington. For instruction in the treatment of infected wounds, and on completion to his proper station, from Fort Crockett, Lieut. J. E. BLAYDES, Nashville.

To Camp Abraham Eustis, Va., from Camp Custer, Lieut. L. PEN-ROD, Gonzales; from Fort Oglethorpe, Lieut. G. A. PAGENSTECHER, San Antonio.

To Camp Bowie, Texas, Capt. J. A. KYLE, Houston. As sanitary inspector, Capt. T. R. BURNETT, Carrollton.

To Camp Custer, Mich., for instruction, from Fort Oglethorpe, Major G. HAMILTON, Houston.

To Camp Jackson, S. C., from Camp Custer, Lieut. J. H. McCOY, Tahoka; from Fort Oglethorpe, Capt. E. C. FOSTER, Whitt.

To Camp Logan, Texas, to examine drafted men, and on completion to base hospital, from Fort Oglethorpe, Lieut. R. W. DUNLAP, Palestine.

To Camp McClellan, Ala., base hospital, from Camp Bowie, Capt. W. W. FITZPATRICK, Paris.

To Camp Shelby, Miss., base hospital, from Camp Bowie, Lieut. C. H. BROOKS, Waco; from Camp MacArthur, Lieuts. E. W. RHEINHEIMER, El Paso; J. C. FALVEY, Humble.

To Camp Travis, Texas, base hospital, from Fort Oglethorpe, Lieut. J. O. BUTLER, Bandera.

To Camp Wheeler, Ga., base hospital, from Camp Shelby, Lieut. J. V. HOPKINS, Victoria.

To Cape May, N. J., base hospital, from Camp Hancock, Lieut. W. L. ASKEW, Amarillo.

To Charleston, S. C., from Camp Travis, Capt. J. M. F. GILL, Austin.

To Fort Bayard, N. M., from Denver, Capt. J. T. BERNARD, Dallas.

To Fort Monroe, Va., from Camp Bowie, Capt. R. E. BLEDSOE, Taylor.

To Fort Oglethorpe, evacuation hospital, from Camp Travis, Capt. T. D. FRIZZELL, Quanah. For instruction, Capt. W. B. HUNTER, Aransas Pass; from Corpus Christi, Lieut. J. D. CARROLL, Uvalde.

To Madison Barracks, N. Y., from Fort Oglethorpe, Lieut. R. E. HILBURN, Antelope.

To Mineola, N. Y., for instruction, from Fort Worth, Lieut. J. W. ELLIS, Killeen.

To New Haven, Conn., Yale Army Laboratory School, for instruction, from duty as a contract surgeon, Lieut. M. D. LEVY, Galveston.

To Rockefeller Institute for instruction, from New Haven, Capt. H. BUCHANAN-KINGSBURY, Fort Worth. For instruction in the treatment of infected wounds, and on completion to Camp Wadsworth, S. C., base hospital, from Fort Oglethorpe, Capt. J. R. KIGHT, San Angelo.

To Tuskegee, Ala., Tuskegee Institute, Lieut. F. D. RAMSEY, Paris.

To Walter Reed General Hospital, Washington, D. C., from Camp A. A. Humphreys, Capt. H. E. REECE, Thayer.

Utah

To Camp Bowie, Texas, as assistant to the division surgeon, Capt. G. W. CLARKE, Springfield.

To Camp Crane, Pa., mobile hospital, from Camp Cody, Capt. C. E. DORLAND, Devils Slide.

To Cape May, N. J., base hospital, from Camp Fremont, Capt. A. R. IRVINE, Salt Lake City.

To Fort Riley for instruction, Lieut. W. T. HASLER, Provo.

To Fort Sheridan, Ill., base hospital, from Camp Cody, Lieut. R. M. BROWN, Ogden.

To report to the commanding general, Southeastern Department, from North Charleston, Capt. W. J. BARDSLEY, Park City.

To Rockefeller Institute for instruction, from New Haven, Lieut. P. S. HAGEMAN, Bingham Canyon.

Vermont

To Camp Jackson, S. C., from Greensboro, Lieut. B. D. COLBY, Sudbury.

To Camp Shelby, Miss., base hospital, from Fort Oglethorpe, Lieut. F. E. STEEL, JR., Waterbury.

To Fort Ethan Allen, Vt., base hospital, from Camp Devens, Capt. F. E. CLARK, Burlington.

To Rockefeller Institute for instruction, from New Haven, Capt. G. H. PARMENTER, Montpelier.

Virginia

To Camp Bowie, Texas, base hospital, for instruction, from Fort Oglethorpe, Capt. A. L. TYNES, Staunton.

To Camp Crane, Pa., base hospital, from Fort Oglethorpe, Capt. J. C. MOTLEY, Abingdon.

To Camp Sheridan, Ala., from Fort Oglethorpe, Lieut. E. D. WELLS, Clifton Forge.

To Fort Oglethorpe for instruction, Lieut. R. H. BROCKWELL, Barnetts.

To Garden City, N. Y., from Atlanta, Capt. G. ROBERTS, Clarendon.

To Greensboro, N. C., Lieut. J. Q. A. WEBB, Norfolk.

To Rockefeller Institute for instruction, from New Haven, Lieut. C. H. IDEN, Berryville.

Washington

To Boston, Mass., from Camp Custer, Capt. H. A. MOUNT, Waitsburg.

To Camp Fremont, Calif., base hospital, from Camp Lewis, Capt. W. E. JOINER, Seattle.

To Camp Lewis, Wash., Lieut. L. D. LONG, Seattle.

To San Francisco, Calif., Letterman General Hospital, for instruction, from Camp Lewis, Capt. W. S. DURAND, Everett; L. W. RENFRO, Seattle.

West Virginia

To Boston, Mass., for instruction, from Camp Lee, Lieut. R. J. WILKINSON, Huntington; from Camp Zachary Taylor, Lieut. J. C. SCHULTZ, Huntington.

To Camp Crane, Pa., from Fort Oglethorpe, Lieut. H. H. ESKER, Clarksburg. Surgical group, from Camp Beauregard, Lieut. R. U. DRINKARD, Wheeling.

To Camp Dix, N. J., base hospital, from Fort Oglethorpe, Capt. W. L. VAN SANT, Hinton.

To Camp Greene, N. C., base hospital, from Camp Wadsworth, Capt. M. B. KELLY, Wheeling.

To Camp McClellan, Ala., base hospital, from Camp Mills, Lieut. C. P. BURKE, Follansbee.

To Camp Sheridan, Ala., base hospital, from Camp Gordon, Capt. H. H. YOUNG, Charleston.

To Camp Upton, N. Y., base hospital, from Fort Oglethorpe, Capt. J. D. SCHMIED, New Martinsville.

To Fort Ethan Allen, Vt., base hospital, from Camp Dix, Major L. C. COVINGTON, Charleston.

To Fort Oglethorpe for instruction, Capt. L. K. CRACRAFT, Wheeling.

Wisconsin

To Boston, Mass., from Camp Custer, Lieut. J. M. MECUM, Bagley.

To Camp Crane, Pa., base hospital, from Camp Dodge, Capt. E. L. MASON, Eau Claire; from Edgewood, Md., Lieut. W. P. MILLER, Milwaukee. Mobile hospital, from New Haven, Lieut. O. E. ISHMAEL, Mount Horeb.

To Camp Custer, Mich., base hospital, for instruction, from Fort Sheridan, Lieut. T. W. NUZUM, Janesville.

To Camp Fremont, Calif., as assistant to camp surgeon, from Camp MacArthur, Capt. C. M. MEYER, Milladore.

To Camp Joseph E. Johnston, Fla., base hospital, from Camp Jackson, Capt. S. G. PAKE, Hayward.

To Camp Shelby, Miss., base hospital, from Camp Custer, Lieut. R. E. FLYNN, La Crosse.

To Fairfield, Ohio, Wilbur Wright Field, from Mount Clemens, Capt. E. G. FESTERLING, Reedsville.

To Garden City, N. Y., from Americus, Ga., Capt. C. J. ROLLEFSON, Superior.

To San Antonio, Texas, Brooks Field, from San Diego, Capt. F. W. POPE, Racine.

CORRECTION

In THE JOURNAL for November 16, under "Commissions Offered and Orders to Duty on Acceptance," the name of E. J. MAIRS of Laredo, Mo., was incorrectly given as E. J. Hairs.

ORDERS TO OFFICERS OF THE UNITED STATES PUBLIC HEALTH SERVICE

Asst. Surg.-Gen. R. H. CREEL, proceed to Boston, Mass., and Portland, Maine, to investigate administration of quarantine service at those ports.

Asst. Surg.-Gen. H. R. CARTER, proceed to Galveston and Port Arthur, Texas, and New Orleans, to investigate the prevalence of disease in those places.

Surg. J. H. OAKLEY, proceed to Wyandotte, Mich., to investigate the public health value of a contemplated improvement.

Surg. J. W. KERR, return to Las Vegas, N. M., and on completion of work, rejoin station at Ellis Island.

Surg. G. M. CORPUT, proceed to Port Arthur, Texas, to investigate suspected case of yellow fever.

Surg. E. A. SWEET, en route to Washington, stop at Wyandotte, Mich., and Warren, Ohio, to investigate public health value of contemplated improvements.

P. A. Surg. H. F. SMITH, proceed to Washington, D. C., for duty in investigations of the epidemiology of the recent influenza epidemic.

Asst. Surg. H. S. MUSTARD, proceed to Philadelphia for duty with the Emergency Fleet Corporation.

Asst. Surg. R. P. SANDIDGE, proceed from Boston, Mass., to Hartford, Conn., via Fall River, Mass., and to Harrisburg, Pa., for duty in the suppression of the epidemic of influenza.

Asst. Surg. J. S. S. GARDNER, proceed to Warren, Ohio, to investigate the public health value of contemplated improvement.

Asst. Surg. H. E. SETTLE, relieved at Washington, D. C., proceed to Newport News, Va., for temporary duty in relief work.

Asst. Surg. C. E. GIBBS, report at the Hygienic Laboratory for duty in connection with investigations relative to the etiology, transmission and treatment of influenza.

Acting Asst. Surg. J. A. McDONALD, proceed to Houston, Texas, for duty in extracantonment sanitation.

Acting Asst. Surg. BYRON PARKER, proceed to West Point, Ga., for duty with children's bureau in physical examination of adolescent boys.

Acting Asst. Surg. ARTHUR R. PILLSBURY, proceed to Nova Scotia, New Brunswick and Prince Edward Island for the purpose of giving lectures on venereal disease control.

Physiological Pathologist C. W. HOOPER, proceed to Penniman, Va., for duty in investigations of T. N. T. poisoning.

Asst. Epidemiologist J. C. GEIGER, proceed from Washington to New York City for conference, thence to Little Rock, Ark., for duty in cooperation with the state board of health.

Asst. Director Educational Work N. P. GREEN, proceed to New York for conference with various advertising organizations in regard to venereal disease control.

Scientific Asst. GEORGE C. PECK, proceed to Delhi, N. Y., to investigate a dried milk product to ascertain its suitability for use in the manufacture of reconstructed milk.

Scientific Asst. SAMUEL SAUNDERS, proceed to Raleigh, N. C., for duty in rural sanitation in Wake and Durham counties, N. C.

who were sent into the state to help combat influenza. It was said that conditions had not sufficiently improved to justify their withdrawal. There was general improvement, but a few communities were still asking for assistance. The total number of cases reported to the state board to the date mentioned was 146,023, and 1,761 cases were reported on that date. In San Francisco it was announced by the health officer that the situation would warrant the abolishment of the masks in about a week. There had been 23,409 cases in the city and 1,927 deaths.

COLORADO

Personal.—Dr. J. Wylie Jones, who has been in active service for more than a year and was seriously wounded, is now recovered and returned to duty.

Municipal Sanatorium for Denver.—A communication proposing a municipal sanatorium with a capacity of 100 beds, for Denver, was presented to the mayor and city council by the Denver Anti-Tuberculosis Society, November 12. The communication was referred to the committee on health for investigation. It states that there were in the city in 1917, 645 deaths from tuberculosis; 118 of these were contracted there, and that there were about 3,000 persons in Denver who were suffering from tuberculosis, who were financially unable to secure necessary treatment.

CONNECTICUT

Transfer Feeble-minded.—Dr. Charles T. LaMoure, superintendent of the Mansfield State Training School and Hospital, has transferred to that institution the inmates of the former Connecticut School for Feeble-Minded at Lakeville.

State Society Meeting.—The eleventh semiannual meeting of the Connecticut State Medical Society was held at New London, October 3, in connection with the semiannual meeting of the New London County Medical Society. Among the subjects brought up for discussion were: Child Welfare Work and The Tuberculosis Problem in the Army.

Personal.—Dr. Louis J. Pons, Milford, has been appointed medical examiner (coroner) of New Haven County, to succeed Dr. William J. H. Fischer, Milford, who has entered the military service.—Dr. Julius G. Henry, New Haven, has been appointed city epidemiologist.—Dr. Arthur S. McQueen, Branford, has been appointed medical examiner (coroner) for the district, to succeed Dr. Charles W. Gaylord, deceased.

GEORGIA

Personal.—Dr. Lorick T. Pattilo, Moultrie, county health commissioner of Colquitt County, has resigned.

Legislation on Public Health Subjects.—At the last session of the legislature four important health measures were passed. Two of these relate to the prevention of venereal disease, one to the prevention of ophthalmia neonatorum and one to the establishment of sanatoriums for tuberculosis patients in small cities, and jointly by small cities and counties. The first law is entitled "An act to penalize those who solicit for the purpose of prostitution," etc., and makes it a misdemeanor to make any such solicitation by any means whatever or to convey by automobile or otherwise any person in connection with such solicitation. Any one convicted under the act who is operating an automobile or other conveyance for hire immediately forfeits his license for such conveyance, and no license to operate a public vehicle can thereafter be obtained. The second law names syphilis, gonorrhea and chancroid as venereal diseases, declares them infectious, communicable and dangerous to public health, and is entitled "an act relating to venereal diseases, to require the reporting of cases thereof, to penalize those who expose others to infection, to authorize the examination, treatment and isolation of persons infected therewith, to give the health authorities certain power over jails and prisons in connection therewith, to authorize the state board of health to promulgate rules and regulations relating thereto and to declare a penalty for the violation of the provisions of this act, or any rules or regulations prescribed thereunder or any rule or regulation passed and promulgated by the state board of health under the authority of this or any other act." Law No. 3 declares it a misdemeanor for any person attending a new-born infant to fail to provide prophylactic treatment against gonorrheal infection. The law states that: "it shall be the duty of any person who shall be in attendance on any childbirth to apply to the child such prophylactic treatment as may be prescribed by the state board of health to prevent blindness from gonococcus infection, and that any person who shall nurse or attend any

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARKANSAS

Meeting Deferred.—The officers of the Third District Medical Society have decided to postpone their meeting for this year on account of the disturbed condition of the profession.

Personal.—Dr. James W. Smith, who shot and killed his brother-in-law, Danny Shannon, October 16, was acquitted after four hours' deliberation, November 16, by a jury in Montgomery County, where the case was taken on a change of venue.—Dr. Robert B. Corney, Tucker, for three years penitentiary physician at the state farm, has resigned to enter the military service.

CALIFORNIA

Personal.—Dr. Manzanito B. Bolton, Quincy, has been appointed county physician of Plumas County.—Dr. Ralph L. Larsen, San Francisco, sustained a severe scalp wound and bruises in the overturning of his automobile near Rodeo.

Chinese Herb Man Sentenced.—Tom Shee Binn, whose activities as a practitioner in herbs without the formality of a drug license and who has been brought into police courts many times, is said to have been sentenced to a fine of \$350 and to imprisonment for 180 days in jail, November 15. A part of the evidence in which the conviction was made was to the effect that he charged J. A. Dunn \$780 for herbs to prevent Spanish influenza, and that Dunn, notwithstanding, died from the disease.

Ask That Physician Be Allowed to Remain.—November 15, the California State Board of Health telegraphed to the Surgeon-General of the Public Health Service protesting against the recall of the physicians attached to the service

infant shall report any inflammation of the eyes of said child that shall develop within two weeks after birth to the local health officer or to a licensed physician." The law in reference to tuberculosis provides that: "Any cities in Georgia which have a population of not less than 15,000 inhabitants, or any cities of not less than 5,000 inhabitants located in a county which has a population of not less than 25,000 inhabitants, to establish and maintain, either alone or in connection with the county authorities of the county in which such city may be located, may jointly build sanatoriums for the treatment of this disease." The law was greatly needed to encourage the fight against tuberculosis in smaller cities as practically none of these now have means of treating tuberculosis patients locally. The management of the State Tuberculosis Sanatorium at Alto was given to the state board of health instead of to the board of managers originally constituted by the law establishing the institution.

INDIANA

Influenza.—November 20, it was announced that forty-two counties of the state had reported a total of 1,506 new cases of influenza, the largest number reported for twenty-four hours for two weeks. Among the cities reporting a recrudescence of the disease, in some of which the ban either had not been removed or was restored, were Gary, Greensburg, Brookville, Richmond, Logansport, Yorktown, Muncie and West Muncie, South Bend, Anderson, Fort Wayne, Columbia City, Bloomington, Terre Haute, Owensville, Bluffton, Goshen, Berne, Wabash, Fairmount and Indianapolis. In a few places improvement is noted.

IOWA

County Election.—At the annual meeting of the Scott County Medical Association, held November 5, in Davenport, Dr. Roscoe P. Carney was elected president; Dr. Thomas D. Starbuck, vice president; Dr. Robert E. Jameson, secretary, and Dr. Sidney G. Hands, treasurer, all of Davenport.

Personal.—Dr. Elizabeth Speers-Gillette, Marshalltown, is reported to have been adjudged insane and committed to the State Hospital at Independence.—Lieut. Milo O. Brush, Shenandoah, when about to sail for France, fell in New York fracturing his clavicle and is under treatment at the base hospital, Camp Upton.

KENTUCKY

Personal.—Dr. Louis W. Eckels, Jr., has been appointed medical inspector for the health department of Louisville.—J. C. Gilbert, Paducah, has been appointed a member of the state board of pharmacy, succeeding Dr. J. H. Martin, Winchester.

Senior Student Dies.—Kline V. Menefee, a senior student at Ohio-Miami Medical College, Cincinnati, aged 23, who had been working in Cincinnati during the recent epidemic of influenza, died at his home in Covington, November 4, from pneumonia, following influenza.

MARYLAND

Night Clinics at Hopkins.—Cooperating with medical officials of the United States government, night clinics have been inaugurated at the Johns Hopkins Hospital in the interest of social diseases. Tuesday and Thursday are set aside for women, and Wednesday and Friday for men.

Personal.—Dr. Homer E. Tabler, Hancock, is reported to be seriously ill with pneumonia.—At a meeting of the Hagerstown Medical Society, November 14, Dr. William D. Campbell, Hagerstown, was appointed a committee to urge on the mayor and city council the establishment of a thoroughly modern board of health.

Influenza Reappearing.—During the past week, new cases of influenza have made their appearance in Baltimore, in several instances death resulting from pneumonia. However, the number is so far not alarming and has not caused the officials at the health department to feel that there will be a fresh outbreak in the city. They are carefully keeping in touch with the situation to be ready to act in any emergency.

MASSACHUSETTS

Medical Student Dies.—William H. Moynihan, Jacksonville, Fla., a student at the University of Maryland, Baltimore, aged 31, formerly medical superintendent of the department of correction, New York City, and later a resident of Jacksonville, Fla., died in that city, October 15, from pneumonia.

Personal.—Dr. Charles E. Donlan, Boston, was reinstated as superintendent of the Long Island Hospital, November 14, by order of Judge Murley of the East Boston Court, who found that Dr. Donlan had been removed illegally by the infirmity trustees, June 21.—Dr. Anna E. Steffen has been appointed resident physician at the Long Island Hospital, to succeed Dr. Llewellyn H. Rockwell, Boston, resigned to enter the military service.—Dr. William B. T. Smith, Bondsville, sustained a fracture of the skull and internal injuries when his automobile plunged over a 20-foot embankment, near Palmer, November 9. He is under treatment in the Springfield Hospital.

Child Conservation.—The September-October, 1918, number of *The Commonwealth*, the monthly bulletin of the Massachusetts State Department of Health, is a child conservation number. It contains a series of interesting articles on various phases of child care, including the report of the first year's work of the committee on child conservation of the department, by William J. Gallivan, M.D.; the report of the secretary, Richard M. Smith, M.D.; the report of the child welfare supervisors, by Pansy V. Besom, chief; the report of the child welfare department of the woman's committee of the Massachusetts Council of National Defense, by Gertrude W. Peabody, vice chairman, and the following articles: *The Part Good Obstetrics Plays in Child Welfare*, by Robert L. DeNormandie, M.D.; *Infant Feeding*, by Richard M. Smith, M.D.; *Diet of Older Children*, by Fritz B. Talbot, M.D.; *The Care and Development of Children*, by J. Herbert Young, M.D.; *The Importance of School Hygiene in the Scheme of Child Conservation*, by Taliaferro Clark, M.D.; *Mental Hygiene for Children*, by L. F. Emerson, Ph.D.; *The Cost of a Well Baby*, by Mary Beard, R.N., besides editorial matter and the usual information about communicable diseases, including venereal diseases, vital statistics, etc.

MONTANA

Chiropractor Convicted.—L. J. Certain, Miles City, charged with practicing osteopathy under and by the name of chiropractic, is said to have been found guilty and fined \$200. It was brought out in the trial that the defendant had been given instruction and warning, and had been given every opportunity to obtain a license, but had continued to practice without a license.

Hospital News.—An emergency hospital for the reception of influenza patients was opened in the school house in East Helena, November 9. Nursing is under the care of the local Red Cross officials.—Dr. W. Lynn DuBois has purchased a house in Conrad, which has been remodeled and equipped for a private hospital.—Kalispell has secured the Crescent Hotel as a hospital for influenza cases.—Plans have been drafted by the officials of the state university for the erection of a permanent hospital on the campus at Missoula, with accommodation for fifty patients.

Influenza.—November 18, the secretary of the state board of health reported that there were about 8,000 cases of influenza in the state. The situation was such in some districts that the secretary requested the Surgeon-General to allow to remain the physicians of the service sent to the state to aid in combating the epidemic. The Surgeon-General answered that the physicians might remain until December 1 if necessary. Among the places where the situation was bad was Saco, to which place the secretary of the state board went on the date named to take charge. Butte, Missoula, Malta, Geyser, where a physician was needed, and Helena.

NEW JERSEY

Personal.—Lieut. Joseph Watson Martindale, M. C., son of Joseph Martindale, a Camden physician, was wounded during the offensive at Soisson and is convalescing at the Cape May base hospital.

NEW MEXICO

Public Health Administration.—Under department orders of Sept. 16, 1918, Surgeon J. W. Kerr of the Public Health Service began a survey of sanitary organization and administration in the state with the idea of promoting health matters during the war. In his report in *Public Health Reports*, Nov. 15, 1918, a summary is given of the health laws of the state which shows that while the state board of health was organized and given powers of a character to insure an effective administration of health matters within the state, owing to an absence of appropriations to carry out any health regulations the matter has been entirely neglected, the only work of the state board being the atten-

tion given to enforcing the medical practice act. All efforts to enforce sanitary regulations throughout the state, therefore, depend on the local authorities. The report states: Little additional legislation is required except that the laws requiring the reporting of births and deaths should be amended somewhat. As a means of defraying the expenses of keeping these records he suggests that fees for marriage licenses be increased and set aside for this purpose. In a long list of recommendations submitted to meet the urgent need of improved health conditions in New Mexico, the chief features are that the present state board of health and medical examiners be designated in law as a state board of medical examiners and that its duties relate to the enforcement of acts to regulate the practice of medicine; that a state department of health be created to exercise all the powers and perform all the duties in respect to health imposed by law on the present board; that the department of health consist of a commissioner of health and a public health council, the commissioner to be paid an adequate salary and devote his whole time to the work.

- NEW YORK

Personal.—Dr. William G. Bissell of Buffalo has been chosen president of the New York State Board of Medical Examiners.

OHIO

Personal.—Dr. R. E. Bushong, for eight years assistant superintendent of the State Hospital, Athens, has been appointed acting superintendent of the Dayton State Hospital, to succeed Dr. Erl A. Baber, Dayton, who has been granted an indefinite leave of absence.—Dr. Amon E. Canfield, Toledo, has been appointed local surgeon for the New York Central Lines at Air Line Junction.

Sanitary Unit Plan Urged.—The state board of health has proposed a method of achieving a rapid improvement of sanitary conditions in crowded industrial localities by the organization of sanitary districts, through which the various units now acting independently may adjust their conditions and proceed with a comprehensive program in which the interests of all will be safeguarded. This plan is especially proposed for the lower Mahoning Valley.

Typhoid Fever in the State.—The reported cases of typhoid fever in Ohio, in October, were 324 as compared with 344 in October, 1917, and 757 in October, 1916. The September total for this year was nearly 150 cases greater than for September, 1917. The state health officials consider the educational campaign, to reduce the prevalence of typhoid fever in 1918, practically over. There are now being compiled statistics which will give an accurate report on what has been accomplished.

Influenza.—Recurrent outbreaks of influenza throughout the state, chiefly in the rural districts and smaller places, are attributed by the state health officials to premature relaxation of local closing regulations. These outbreaks after conditions had apparently been restored to normal are delaying the final extinction of the epidemic, which caused, up to November 25, an estimated total of 600,000 cases and 12,000 deaths in Ohio. Among places reporting a recrudescence of the disease in greater or less degree are Portsmouth, Newark, Columbus, Cincinnati, Bellaire and New Philadelphia. At Youngstown and Lima the disease was reported to be abating. Out of 1,000 inmates in the state hospital at Lima there were 217 cases and only seven deaths. In this connection the state health department says the epidemic shows up the weakness of health organization in Ohio. There are too many separate health organizations and not enough cooperation and general supervision. Many small communities, town and country, have health boards and health officers, but are too small to support adequate and efficient health departments. Thus, eighty cities, 700 villages and nearly 1,400 townships have their own health officers, but have no adequate supervision by the state. The remedy is to group small districts into larger ones capable of maintaining adequate health service. In the present epidemic this has caused additional work for the state authorities, with consequent delay, and perhaps needless loss of life.

OREGON

Personal.—Dr. James D. Plamondon, staff physician of the Oregon State Hospital for the Insane, Salem, has been appointed superintendent of the Eastern Oregon Hospital for the Insane, Pendleton.

Academy Meeting.—At the meeting of the Portland Academy of Medicine held, November 14, the system which has made possible the examination of 73,238 drafted men with 504 rejections for tuberculosis was described by Major James Matson, M. C., U. S. Army, of the tuberculosis examination board of Camp Lewis, Washington, D. C. The following officers were elected: president, Dr. Edward P. Geary; vice presidents, Drs. George Ainslie and Albert E. MacKay; secretary, Dr. J. Earle Else, and treasurer, Dr. J. C. Elliott King.

PENNSYLVANIA

Personal.—Dr. Charles M. Rickert, Millersburg, has resigned as assistant chief medical inspector.

State Hospital at Selinsgrove.—A new \$1,000,000 state hospital will be erected in Selinsgrove in the spring. The state commission has decided on the immediate purchase of lands held under option for this purpose. Dr. Charles S. Aitkens is chairman of the commission.

Influenza Increasing.—The state department of health, November 21, announced that numerous flare-up cases of influenza have been reported in the last two days and an increased number of deaths have occurred in Erie, Johnstown, New Castle, Uniontown, Wilkes-Barre and Allentown. Steps have been taken to reimpose closing orders. The total number of deaths from influenza and pneumonia since October 1 throughout the state is 42,635.

Personal.—Lieut. Frederick B. Shaffer, Somerset, has been reported wounded in the head.—Lieut. Charles C. Ryan, Republic, Fayette County, has been reported as slightly wounded.—Lieut. William Edwin Park, New Milford, Susquehanna County, has been reported wounded, degree undetermined.—Dr. Charles M. Rickert, Millersburg, has been appointed assistant chief medical inspector of the state department of health, to succeed Dr. John J. Muldowney.—Dr. Silas D. Molyneux, Sayre, began his duties as surgeon-in-chief of the Cottage State Hospital, Blossburg, succeeding Dr. William A. DeWitt, Blossburg, deceased.—Capt. Thomas R. Cagion, M. C., Wilkes-Barre, who was wounded in the knee during the Marne fighting, is returning home and will not be able to resume duty in the war zone for some time.—Dr. Mariam E. K. Frisbie, South Williamsport, has been appointed medical supervisor of the state hospital at Somerset to succeed Dr. John S. Marian, who resigned to enter military service.

Philadelphia

Jefferson Students Drop Barracks.—Acting under permission from the authorities of the War Department, Jefferson Medical College will abandon the barracks program and permit the students to lodge at their fraternity houses and dwellings.

Work of the Pennsylvania Hospital Unit.—The Pennsylvania Base Hospital, Unit No. 10, organized in this city as soon as the United States entered the war and sailed overseas, May 18, 1917, with a personnel of 265 physicians, nurses, attendants and orderlies, has been stationed at Tra- porte, and has treated 78,000 wounded men with a mortality of only 300.

Personal.—Lieut.-Col. James Reid Martin, M. R. C., with the One Hundred and Ninth Infantry Medical Corps, and a former chief resident physician of Jefferson Hospital, was severely burned about the eyes by mustard gas, September 9, during the defense at Chateau Thierry.—Dr. Cornelius T. McCarthy, first lieutenant, Medical Corps, attached to the British army, is recovering from epidemic influenza, in London, England. He was the first American physician to be honored with the British military cross and has been cited twice by the British government. The second time he received a bar to be attached to the cross. He contracted influenza while taking charge of the base hospital in France.—Dr. Bernard Kohn has qualified before the Civil Service Board for director of Public School Medical Inspectors of the Board of Health.—Lieut.-Col. Richard H. Harte, M. R. C., director of the Pennsylvania Base Hospital, Unit No. 10, one of the first American surgical organizations to arrive in France, has just returned home.—Lieut. Andrew Knox, M. R. C., U. S. Army, has been awarded the military cross for attending wounded under heavy machine gun and artillery fire, during the taking of the city of Lille. Lieutenant Knox was attached to the One Hundred and Fifteenth London Regiment, civil service rifle British Expeditionary Forces, although he was a member of the American Army.

SOUTH CAROLINA

Work on Hospital Building Begun.—Work on the addition to the Greenville City Hospital has been commenced. The building when completed will have cost about \$125,000.

SOUTH DAKOTA

District Association.—The Third (Madison) District Medical Society of South Dakota, which was organized, July 31, at Ramona, held its annual meeting at Madison, October 16, and elected Dr. Henry H. Frudenberg, Madison, president, Dr. Blake S. Allison, Madison, vice president, and Dr. John C. Baker, Ramona, secretary-treasurer.

WASHINGTON

To Fight Influenza in Alaska.—The steamer *Spokane* left Seattle, November 19, bearing ten physicians, also nurses and medical supplies for the Alaskans suffering from Spanish influenza. Surg. Emil Krulish, U. S. P. H. S., is in command of the party.

Physicians for Alaska.—November 12, a call was issued to the officers of county medical societies throughout the state for volunteer physicians to go to Alaska to help in caring for influenza patients. The call came from the state commissioner of health and the United States Public Health Service.

Personal.—Dr. Charles S. Bumgarner, Davenport, has been appointed health officer of Lincoln County, to succeed Dr. Orville L. Adams, who has resigned to enter the military service. Dr. Adams is at present ill with influenza at the Deaconess Hospital, Spokane.—Dr. Wilson A. Olds, Jr., Addy, is reported to be critically ill with pneumonia.—Drs. Edward P. M. Condon and J. P. Driscoll, Pasco, who have been ill with pneumonia, are reported to be convalescent.—Dr. James H. Ragsdale, health officer of Wapato, has resigned.

Hospital Allowed to Increase Charges.—As the result of an investigation of facilities for handling industrial accident cases in Seattle and Tacoma, the state medical aid board has ordered a radical readjustment of hospital fees under the first aid law. Instead of the \$14 a week formerly allowed hospitals for the state industrial accident cases, the medical aid board is now allowing a charge of \$18 a week, and has furthermore authorized the chairman of the board to allow this additional fee in hospital in any other locality operating under similar conditions.

WEST VIRGINIA

Arrests for Narcotic Act Violations.—Dr. Thomas L. Nutter and Chesley R. Peck, Clarksburg, and W. A. Dosman, a druggist, are reported to have been arrested at Clarksburg charged with selling narcotics to addicts. After a preliminary examination they were held under individual bonds of \$5,000, before the federal grand jury at the coming term at Philippi.—A physician and druggist of Grafton have also been arrested charged with violation of the narcotic act.

Personal.—Dr. S. Marion Steele has been appointed health officer of Moundsville, to succeed Dr. John H. Luikart, who has resigned to enter the military service.—Dr. John W. Ruckman, Rosbys Rock, is reported to be seriously ill with spinal meningitis following influenza.—Drs. William J. Judy and Claude M. Keever, Belleville, are reported to be seriously ill.—Dr. Herbert E. Sloan, Clarksburg, has been appointed a member of the West Virginia State Health Council, to succeed Dr. Floyd F. Farnsworth, Frenchton, resigned to accept the position of director of the division of venereal diseases in the state department of health.

CANADA

The National Sanitarium Association.—At the beginning of the war the daily average number of patients in the institutions of the National Sanitarium Association of Canada was 485. Today it is 688. The expenditure for maintenance has advanced from \$275,000 annually to \$510,000; and the cost for the present hospital year will probably amount to \$585,000. The per capita cost in the free hospitals in Muskoka and Weston has jumped from \$10.50 per week to \$14.52 per week.

Personal.—Dr. Malcolm M. Crawford has returned from overseas to Toronto, where he will reengage in private practice.—Col. John T. Clarke of the permanent medical service in Canada has gone to Siberia.—Prof. D. Fraser Harris has completed the history of the medical aspect of the great disaster in Halifax, N. S., Dec. 6, 1917.—Dr. John R.

Shannon has been elected surgeon-in-chief of the Manhattan Eye and Ear Hospital, New York. He was formerly of Kingston, Ont.—Dr. C. Denton Holmes, Victoria, B. C., medical officer of the Saanich School Board, British Columbia, has tendered his resignation owing to pressure of work in connection with the Invalided Soldiers' Commission.—Lieut.-Col. Donald McGillivray, Toronto, has resumed private practice. He was latterly on the board of consultants. Lieut.-Col. Harold C. Parsons, Toronto, has succeeded him.—Dr. J. Mair Robertson has ceased to be a member of the Medical Board Center, Vancouver, B. C.—Major Horace W. Coates, C. A. M. C., has severed his connection with the Vancouver Military Hospital and has been appointed sanitary officer for the Vancouver military area.—Lieut.-Col. Cameron A. Warren, Toronto, is in command of the Sixteenth Canadian Field Ambulance with the Canadian Siberian Force.—Capt. Harry Whytock, C. A. M. C., was invested with the Military Cross at Buckingham Palace recently by His Majesty, King George.—The Military Cross has been awarded to Capt. John Gagen Lee, Toronto, now with the Imperial Army, but formerly with the C. A. M. C.

GENERAL

Medical Society Meeting Postponed.—Major James L. Andrews, M. C., U. S. Army, formerly chief of the department of health of Memphis, Tenn., announces that the annual meeting of the Tri-State Medical Society of Arkansas, Mississippi and Tennessee will not be held this year, owing to the war conditions and the outbreak of influenza.

Bequests and Donations.—The following bequests and donations have recently been announced:

The New York Hospital, \$25,000 as a memorial to his father, by the will of Gerard Beekman.

Post-Graduate Medical School and Hospital, New York City, \$25,000 by the will of Frederick Mead.

The Public Health Association and Influenza.—The American Public Health Association has made exhaustive studies of influenza, fearing the recurrence of the epidemic, and bearing in mind that during the original influenza epidemic from 1890 to 1893, the disease was more severe in the second year than in the first. At the coming annual meeting of the American Public Health Association, to be held in Chicago, December 9 to 12, with headquarters in Hotel Morrison, every effort will be made to bring out all the available information regarding the management of epidemic influenza. Among the papers to be presented at this meeting are the following:

Etiology of Influenza, Major William H. Welch, Baltimore; Dr. William H. Park, New York City; Lieutenant-Commander Kegan, and others.

Mobilization of Medical and Nursing Forces, Asst. Surg.-Gen. Joseph W. Scherschewsky, Pittsburgh; Dr. William C. Woodward, Boston, and others.

Influenza and Pneumonia Vaccines, Dr. Edward C. Rosenow, Rochester; Dr. George W. McCoy, Washington, D. C.; Dr. Timothy Leary, Boston, and others.

The Use of Serums in Influenza, Drs. McGuire and Redden; Dr. Herman E. Hasseltine, Washington, D. C., and Dr. Joseph Goldberger, Washington, D. C.

The Face Mask, Col. Charles Lynch, M. C., U. S. Army, and Dr. George H. Weaver, Chicago.

The Value of Open-Air Treatment, Surg.-Gen. William A. Brooks, Boston, Massachusetts State Guard.

Organization of State and Federal Forces in Epidemics, Asst. Surg.-Gen. Albert W. McLaughlin, Chicago, and Dr. Eugene R. Kelley, Boston.

History and Statistics of the Epidemic, Asst. Surg.-Gen. Benjamin S. Warren, Washington, D. C.; Dr. William H. Guilfoyle, Dr. W. H. Davis, Dr. Lee K. Frankel, New York City, and others.

Reference committees will be appointed who will report on the various phases of epidemic influenza both at the annual meeting and during the year 1919. While extensively devoted to influenza, the program also contains papers on other aspects of public health; mental hygiene, industrial hygiene, social problems, sanitary engineering, etc.

Child Labor Day.—Child Labor Day will be observed throughout the United States, January 25, in synagogues; January 26, in the churches, and January 27, in the schools, according to a bulletin of the National Child Labor Committee. The Children's Bureau of the Department of Labor is arranging to have reports from its field workers available for programs in churches, schools, clubs and other organizations. In this connection the Children's Bureau has issued a bulletin announcing a Back-to-School Drive, the object of which is to return to the schools and keep there the children who have deserted the schools for industry during

the war. The actual work of the drive, it is said, will be done through the Child Conservation Section of the Council of National Defense. Committees are now being formed whose duty will be first to study child labor and school attendance laws, and then get accurate lists of the children who have not returned to school. When the child has been compelled for pecuniary reasons to work, an attempt will be made to provide scholarships averaging about \$120 a year, and by other methods funds will be provided to enable the children to continue their school courses. It has been the policy of the federal government to refuse to allow the employment of children under 14 in war work, or children between 14 and 16 on war work for more than eight hours a day and six days a week, or between 7 p. m. and 6 a. m. It is believed they should not be allowed to work in the less essential industries. Inquiries made by the Children's Bureau show that in many of the large cities of the country the percentage of children asking for permits to work has largely increased. In Washington this increase has amounted to 295 per cent., and in Wilmington, 61 per cent.

Third Resuscitation Commission Makes Report.—The third Resuscitation Commission, under the auspices of the Committee on Safety Rules and Accident Prevention of the National Electric Light Association met in New York, May 17, 1918, and has just issued its report. There were present P. A. Surg. E. F. Dubois, U. S. N. R. F.; Mr. W. C. L. Eglin, chairman of the committee of the N. E. L. A.; Drs. D. L. Edsall, Yandell Henderson, Joseph Schereschewsky, U. S. P. H. S., William H. Howell, Reid Hunt, secretary of the commission, and S. J. Meltzer, chairman of the commission; Prof. A. E. Kennelly, professor of electric engineering at Harvard and the Massachusetts Institute of Technology; Prof. G. N. Stewart; Lieut.-Col. E. B. Vedder, U. S. Army; Major F. G. Young, Ordnance Department, U. S. Army; Dr. C. A. Lauffer, medical director of the Westinghouse Company; Prof. E. Thomson of the General Electric Company, and conferees from various other interested organizations. Demonstrations of various methods of resuscitation were given and special devices exhibited.

STATEMENT OF IMPORTANT FACTS

In the discussion following the presentation of methods and evidence to the commission the following important facts were emphasized:

1. That in most accident cases no resuscitation apparatus is at hand for immediate use.
2. That reliance on the use of special apparatus diminishes greatly the tendency to train persons in the manual methods and discourages the prompt and persevering use of such methods.
3. That police officers or physicians often interfere with the proper execution of manual methods, in that they direct that the patient be removed in an ambulance to some hospital, thus interrupting the continuance of artificial respiration.
4. That in many hospitals the members of the staff are not all acquainted with the methods of artificial respiration.
5. That in medical schools instruction is not properly provided for students in the manual methods of artificial respiration.

RESOLUTIONS ADOPTED BY THE COMMISSION

In view of these facts the following resolutions were adopted by the commission.

1. The prone-pressure or Schäfer method of resuscitation is preferable to any of the other manual methods.
2. Medical schools, hospitals, fire and police departments, the Army and Navy, first aid associations, and industrial establishments in general, should be urged to give instruction in the use of the prone-pressure method of resuscitation.
3. Individuals who, from accident or any other cause, are in need of artificial respiration, should be given manual treatment by the prone-pressure method immediately on the spot where they are found. It is all important that this aid be rendered at once. The delay incident to removal to a hospital or elsewhere may be fatal, and is justifiable only where there is no one at hand competent to give artificial respiration. If complications exist or arise, which require hospital treatment, artificial respiration should be maintained in transit, and after arrival at the hospital, until spontaneous respirations begin.
4. Persons receiving artificial respiration should, as much as possible, be kept warm and the artificial respiration should be maintained till spontaneous breathing has been permanently restored, or as long as signs of life are present. Even in cases where there is no sign of returning animation, artificial respiration should be kept up for an hour or more.

5. A brief return of spontaneous respiration is not a certain indication for terminating the treatment. Not infrequently the patient after a temporary recovery of respiration stops breathing again. The patient must be watched and if normal breathing stops, the artificial respiration should be resumed at once.

6. Artificial respiration is required only when natural respiration has ceased. In cases of simple unconsciousness from any cause in which natural respiration continues, artificial respiration should not be employed without medical advice.

7. The commission recommends that in cases of gas asphyxiation, artificial respiration, whether given by a manual method or by special apparatus, should be combined when possible with the inhalation of oxygen from properly constructed apparatus.

8. With regard to the employment of mechanical devices for artificial respiration the commission feels that it ought not at present take a definite stand, either for or against any particular form of apparatus. However, the commission recommends, that the use and installation of apparatus should be confined, for the present, to properly equipped institutions under medical direction. The commission recognizes the great need of simple devices capable of performing artificial respiration reliably and efficiently. It therefore recommends a careful study of the problem, directed toward *the development of a reliable method appropriate for general adoption*. Such studies can best be carried on in properly equipped hospitals and laboratories which offer opportunities and facilities for critical observation and experimentation.

The commission consists of fifteen members. Fourteen approved the foregoing report without qualifications. The fifteenth member, Dr. Yandell Henderson, wishes to qualify his vote by a special statement:

STATEMENT OF DR. YANDELL HENDERSON

"While I concur in a considerable part of the report of the Resuscitation Commission I dissent from the statement in Resolution 8 recognizing 'the great need of simple devices capable of performing artificial respiration reliably and efficiently.'

"Devices which are excellent from the mechanical standpoint are now available and widely sold; but the evidence regarding them indicates clearly, I believe, that even if these devices were on the spot where several gassings or electrocutions occurred, and if all the victims were treated with them, except one who was given manual (prone pressure) treatment, this one would have much the best chance of recovery. In actual practice the apparatus is seldom right on the spot adjusted and ready. Critical time is lost, and thus in the above supposititious cases, as they actually occur, the only victim with any considerable chance of resuscitation, (aside from those who recover spontaneously and are credited to the apparatus) is the one treated manually.

"Even more important is the fact, demonstrated now by universal experience, that when apparatus is known to be obtainable, it is sent for and the manual method neglected. Thus today the apparatus in public use is on the whole contributing very materially to decrease the saving of life."

The committee voted to continue its existence, electing as president, Dr. L. J. Meltzer; vice president, Dr. Yandell Henderson; secretary, Dr. Reid Hunt; treasurer, Mr. W. C. Eglin.

FOREIGN

Ether Day in London.—Ten years ago the trustees of the Massachusetts General Hospital set apart October 16 as "Ether Day" in commemoration of the first public demonstration and practical introduction of anesthesia in surgery. This year the day was celebrated in London by about twenty of the old house physicians and surgeons of the Massachusetts General Hospital who are attached to the various American base hospitals in England. Colonel Washburn, now in charge of American hospitals in England, presided as chairman, and General Winters and Sir William Osler were the guests of honor. Dr. Osler told the story of the introduction of surgical anesthesia. The original papers of Bigelow and Warren and those of William T. G. Morton were exhibited.

Pekelharing Souvenir Volume.—The fiftieth professional anniversary of Prof. C. A. Pekelharing, of the chair of physiologic chemistry and histology at the University of Utrecht, has been celebrated by the issuance of a *livre jubilaire* as the bulky fourth number of the second volume of the *Archives Néerlandaises de Physiologie de l'homme et des animaux*. There are nearly forty articles in the number, most of them

reporting results of original research, including Einthoven's "Sur les phénomènes électriques du tonus musculaire," Magnus' article on the muscular reflexes in decerebrated monkeys (in German); De Waard's "Ultrafiltration de petites quantités de liquide par la force centrifuge"; Halliburton's "The Role of Fats in Diet"; Beijerinck's report on a new biologic reaction with iron, "Chromogenic Yeasts," and De Haan's "Influence of Calcium Salts on Phagocytosis" (in French).

Fees for Medical Advice by Telephone.—A Netherlands medical journal announces that the physicians of Utrecht have decided to charge half the rates for an ordinary medical call for advice by telephone. The journal insists that this remuneration is not sufficient. The applicant—usually well to do, with his private telephone—is spared the trouble of a call at the doctor's office and waiting in the anteroom, and yet he gets the advice desired. It surely should be left to the physician, it remarks, whether he shall charge according to the service rendered, the half or the full amount of the ordinary office fee. The *Nederlandsch Tijdschrift* comments that however the matter is decided, the discussion will have an educational effect on the public, allowing it to be understood that a telephone call, compelling the physician to get up from his meal, his book, his repose, or his work is not a gratuitous extra but something that has to be paid for. The Prussian tariff recently promulgated provides for fees from about 40 cents to \$1.25 for telephone advice.

Professor Henkel Acquitted.—The cable dispatches last August related that Prof. Max Henkel, of the chair of gynecology and obstetrics at the University of Jena, was being tried for the death of a woman on whom he had operated although warned by the nurses that the woman had not been prepared for an operation. He is said to have hastened the operation because a visitor was present, Prince Bernhard of Lippe, a layman, who likes to watch gynecologic operations. The *Nederlandsch Tijdschrift* now announces that the sentence acquitting Professor Henkel stated further "The admittance of lay persons interested in science to witness operations is to a certain degree customary and is not a matter for scandal." The medical faculty at Munich had published a statement taking the opposite view.

Municipal Milk Supply.—According to *Commerce Reports*, owing to the difficulty of securing a sufficient quantity of pure milk at a reasonable price at Wellington, New Zealand, steps have been taken by the city council to handle milk as a municipal undertaking. The council has obtained authority to make the milk business a monopoly in the city. The move is being observed with interest by the dairymen and by other municipalities.

PARIS LETTER

PARIS, Oct. 31, 1918.

The Fight Against Influenza

In view of a decided recrudescence of grip of grave degree with bronchopulmonary complications, the minister of the interior has asked the Académie de médecine to appoint a commission which will devise ways and means to combat the existing epidemic of this disease. This commission consists of Professors Netter, Bezançon, Achard, Vincent and Chauffard.

M. Albert Favre, undersecretary of state of the ministry of the interior has sent instructions to all prefects as to the best means for combating the grip. These instructions require that physicians must report cases of grip—a new regulation. If the epidemic continues to progress, all meetings or gatherings of large numbers of people, as in theaters, market places, movies, etc., must be interdicted. But, such measures are not to be taken until consultation is had with the Conseil départemental d'hygiène.

Influenza in Switzerland

Word has been received that the epidemic of so-called "Spanish" grip has broken out with renewed severity at Geneva. Therefore, the Commission d'hygiène has asked the Conseil d'Etat de Genève to close all theaters and movies, and to stop all public gatherings. A certain number of schools have already been closed and several other measures of a general nature have been ordered.

Sanatoriums in the Mountains

In various regions of France great activity has been displayed in the establishment of sanatoria in the mountains for the treatment of tuberculous soldiers. An interesting meeting was held recently in Dauphiné of representatives of several of these zones, on the suggestion of Dr. Perret. The medical profession, the universities and industry were repre-

sented at this meeting. The consensus of opinion was that in France locations for sanatoriums may be found that are far more desirable than the mountains of Switzerland (which are too humid), especially the region of the Hautes Alpes in southeastern France. High altitudes are available; the climate is exceptional, dry and sunshiny, like the Mediterranean climate. The commission selected several locations at 1,800 meters altitude.

Announcement is also made of the establishment of a sanatorium at a lower altitude on the plateau of Petites Roches, near Saint Hilaire on the outskirts of Grenoble. This establishment, located at an altitude of 1,100 meters, will be given over for the use of the Association métallurgique et minière contre la tuberculose, an association created under the auspices of the Comité des Forges de France. Mme. la baronne M. de Rothschild has founded at Mégève (département de la Haute-Savoie) a *station de cure* with several hotels, treatment and rest rooms and a *collège sportif* (gymnasium).

French Orthopedic Society

The Société française d'orthopédie has been organized. The president is Dr. Kirmisson, professor of clinical surgery and diseases of children on the Paris medical faculty, and the vice presidents are Dr. Auguste Broca, professor of operative surgery in the Paris medical faculty and Dr. Dénucé, associate professor in the Bordeaux medical faculty. The secretary-general is Dr. Nové-Josserand, associate professor in the Lyon medical faculty; the treasurer is Dr. Estor, clinical professor of surgery of children and of orthopedics in the Montpellier medical faculty. The first annual meeting of the society will be held in October, 1919, in the buildings of the Paris medical faculty at the same time as the Congrès de chirurgie. The following subjects will be discussed: (1) amputations in relation to subsequent prostheses; (2) spondylitis during the war; (3) treatment of pseudarthroses.

American Red Cross Activities

The American Red Cross has opened a new *Exposition de l'enfance* at Toulouse. At the opening exercises, the mayor of Toulouse, in the name of the city, extended thanks to the United States, and particularly to the American Red Cross which is continuing its beneficent work in France.

Extraction of Intrathoracic Projectiles

So far as intrapleural projectiles are concerned, there is general agreement that they should, as a rule, be extracted, and this rule is practically without exceptions. The discussion held at the recent Congrès français de chirurgie made it clear that this rule does not apply to intrapulmonary projectiles.

Dr. R. Grégoire of Paris extracts all intrapulmonary projectiles because of the complications which they may entail, sooner or later, anatomicopathologic examinations having shown that these foreign bodies are rarely aseptic. On the other hand, Dr. Duvergey of Bordeaux says that some exceptions must be made, depending on the gravity of the general condition of the patient. Dr. Viannay of Saint Etienne is in favor of immediate intervention; he operates as soon as the patient can be made ready, except when the projectile is small, because such do not give rise to any functional disturbance.

Dr. Petit de la Villéon of Bordeaux advises to refrain from operating at advanced stations. He says that surgery of the lung is surgery for base hospitals. Operative procedures at the front should be confined to the toilet of the chest wall, excision of dead tissues and structures, removal of pieces of clothing, excision of the tract of the projectile, reserving the invasion of the lung for a later period, the operation à froid being very benign as compared to operation à chaud. The conditions are practically the same as in the case of appendicitis—operating not at the height of the attack but during the interval. Whenever the general condition of the patient is not grave, he should be evacuated to the rear. When he arrives at the rear, is it necessary to extract all intrapulmonary foreign bodies? Petit de la Villéon says that the gravity and danger of the operation itself must be considered; all projectiles which can be removed with forceps with the aid of fluoroscopy should be removed. Whenever thoracopneumotomy is required, it is necessary to decide whether, under the circumstances, it is better to operate or to refrain from doing so. Dr. Rocher stated that it is always difficult to decide on intervention when the intrapulmonary foreign body is small and occasions only slight symptoms, such as dyspnea on effort, or chest pains. If these pains are due to a chronic pleuritis or an intercostal neuralgia, then the extraction of the foreign body will, in all probability, leave the situation unchanged.

Bombardment of Hospitals by the Germans

In a letter addressed to M. Margaine, deputy from the département de la Marne, M. Clemenceau confirms the report that on October 1 a German aeroplane bombarded the hospitals of Châlons. This was not the first time that the enemy had broken the conventions which until then had been observed by all civilized nations, carrying death and destruction into the midst of hospital formations.

In connection with these facts it is interesting to note what was said recently by Mr. Orlando, the Italian premier, in the Italian chamber of deputies, to the effect that during the victorious naval operations at Durrazzo, the Austrian hospital ship had been respected and carefully protected.

Women Physicians Affiliated with the Medical Department of the French Army

Hereafter all French women who possess a medical diploma are eligible to appointment as "doctresses adjointes au Service de Santé militaire," and will receive the pay, perquisites and allowances of an *aide-major* of the second class—a sublieutenant. Women medical students who have received twelve inscriptions may be appointed "assistantes du Service de Santé militaire," and receive the pay and allowances of a *médecin auxiliaire*. The minimum length of service will be six months, and these appointees will serve under the *médecins-chefs* of their formation, the directors of the Service de Santé militaire, and the superiors of the Service de Santé des armées.

International Scientific Representation

On the initiative of the Royal Society of London, delegates from the scientific academies of the allied countries will soon meet in London for the purpose of outlining the course to be pursued in the future with reference to the cooperation of subjects of the Central Powers in international scientific activities after the war. France will be represented at this conference by MM. Picard and Lacroix, permanent secretaries of the Académie des Sciences, and by MM. Bigourdan, Bailland, Haller, Lallemand and Moureu, members of the same academy.

Establishing a Chair of American Literature at the Sorbonne

In France American literature has been taught by the chair of English literature, never as a separate entity. Now, however, by decree of the minister of public instruction, a separate chair of American literature will be established at the Sorbonne under the professorship of M. Cestre, professor in the University of Bordeaux, and a former student of Harvard University, where he served during the session of 1917-1918 as exchange professor.

French Congress of Surgery

The twenty-seventh Congrès de l'Association française de chirurgie was opened, October 7, under the presidency of Dr. G. Maunoury, surgeon on the staff of the Hôtel Dieu de Chartres. The opening session was presided over by Dr. Louis Mourier, under-secretary of state of the Service de Santé militaire. In his opening address Dr. Mourier thanked the medical corps for its devoted services during the war.

LONDON LETTER

LONDON, Oct. 31, 1918.

A New Medical Department for Dealing with Disabled Soldiers

The number of disabled soldiers discharged from the army under treatment directed by the ministry of pensions now amounts to 30,000. It has been decided to establish a new medical department for the purpose, and Sir John Collie has been appointed medical director. The first step taken by the newly formed department was to complete arrangements with all existing general hospitals that could spare accommodation to provide treatment of the character required. It soon became obvious that this accommodation was insufficient. There are also certain disorders from which the discharged men suffer for which little, if any, accommodation existed. To deal with them it has been necessary to provide and arrange for special institutions. Six homes of recovery for men suffering from neurasthenia and shell shock have already been opened, and three more are being rapidly prepared. These institutions are under the care of specialists on nervous disorders, and every opportunity is given for effecting complete cure. It has been decided that

special arrangements must be made for the large number of paralyzed men. For obvious reasons it is undesirable that cases of this sort should be dealt with in general hospitals. Steps, therefore, are being taken to establish in each country, in connection with hospitals, separate institutions where these men will be readily accessible to their friends. It would be an addition to their already grievous plight if they were segregated in one large institution and cut off from personal contact with their friends and relations. These cases require exceptional treatment, and it is hoped, in addition to what the medical department can do in the way of service and allowances, to enlist the sympathies of special committees of influential people who will take a personal interest in providing amusements, entertainments, and the various little luxuries and attention that mean so much to men in this condition. The capitation grants sanctioned by the treasury will cover only the actual cost of the treatment and nursing, which in these cases is very expensive. Special arrangements have been made at most of the spas for the treatment of rheumatic patients, and hostels have been provided and are in the course of provision to accommodate the men. The large number of orthopedic cases (which embrace practically all injuries to limbs) has also necessitated special arrangements. Orthopedic surgery has greatly developed during the war. A scheme is on foot for setting up annexes in connection with the special military surgical hospitals. The treatment of the discharged man in these annexes will be kept entirely distinct from that of the serving soldier, but the supervision of the treatment and the decisions as to operations will be undertaken by the specially skilled staff at the disposal of the War Office. In addition, outpatient clinics for orthopedic treatment of discharged men will be established as occasion requires. It is expected that in each large town of 50,000 inhabitants or more a clinic will be established which will be supervised by surgeons from the special military surgical hospitals. Special aural boards have been established in London and the provinces to regulate the award of pensions and determine the treatment and training to be given men discharged on account of deafness and the various forms of ear disease. Special aural clinics have also been established for giving treatment of this character when it cannot be obtained at hospitals, and classes have been formed to give instruction in lip reading to those who are totally deaf.

Physicians' Action Against the British Medical Association

An important libel action has been decided against the British Medical Association. It was brought by four physicians who claimed damages for conspiracy to injure them in their profession and to libel and slander them. They had been medical officers of the Coventry Provident Dispensary, an approved institution under the national health insurance act of 1911. The members paid a small subscription and in return received from the dispensary medical attendance during illness. The dispensary was begun in 1831, and in 1888 it had 20,000 members. In 1906 the British Medical Association became very hostile to the dispensary on the grounds that canvassing of the public for patients by a collector paid by commission was improper, that the management was too exclusively in lay hands, and that there was no proper wage limit for the subscribers. As a result, five of the medical staff resigned, a new medical club was started under the auspices of the British Medical Association, and an attempt was made to prevent the dispensary obtaining medical service. However, four physicians continued in the employment of the dispensary. The Coventry division of the British Medical Association, supported by the central organization, then endeavored to make things unpleasant for them. Members of the Association were forbidden to enter into professional relations with the medical officers of the dispensary. Thus if the opinion of a consultant was required in a case, the patient had first to discharge the dispensary physician and place himself under an outside one before he could obtain this.

Mr. Justice McCardie delivered a long judgment occupying four hours. He said that it was clear that the aim of the defendants was to inflict professional ruin on any physician who broke the rules of the local body or any rule that might be made by the head body itself. That grave power was used not only against the members of the defendant association but also against those who had never belonged to it. The defendants claimed to enforce by boycott their own standard of medical honor and interest throughout the country. That point was momentous; it touched the vital interests of every physician. He might be exposed to degradation

and dishonor at the will of a body that was void of the slightest statutory authority. Such authority was conferred on the General Medical Council, a body of physicians appointed for disciplinary purposes. But the British Medical Association had taken to itself a jurisdiction more far-reaching, and perhaps, more potent than that of the General Medical Council. It entrusted to a large extent the standard of "the honor and interest" of the medical profession to a number of scattered bodies throughout the country, which varied in numbers, inclination, views and self-interest. A branch or division might make a rule to suit its own local pecuniary interest. If such a rule should be broken by a physician, were he a member of the Association or not, he became subject to a declaration that he had acted against the honor and interests of the medical profession. On that declaration there followed a local condemnation, and on that local condemnation there might result a merciless boycott and ruin. What had the plaintiffs done? They had merely accepted posts as the medical officers of a highly respectable and ably managed dispensary on terms that gave them ample remuneration of some \$3,000 or \$3,500 a year, a full opportunity of private practice, and adequate leisure. Their only fault lay in the fact that this acceptance prevented the local physicians from achieving their wish of either capturing or destroying the Coventry dispensary. The alleged sin was a financial rather than a moral one. The pecuniary interests of the Coventry physicians lay at the root of the matter. The question of ethics—medical or otherwise—had nothing to do with the case; and the assertion that the plaintiffs had been guilty of conduct against the "honor" of the profession could not, in his view, be supported. The honor of the medical profession was amply protected by the wide powers entrusted to the General Medical Council by Parliament. He could not view with favor the assumption by the British Medical Association of a coordinate jurisdiction and the enforcing of the varying views of medical honor with weapons of ostracism, intimidation and threat. The plaintiffs were boycotted and punished and pecuniarily damaged without just cause in law. The plaintiffs did not sin against the "honor" of the medical profession within any fair meaning of that word.

The judge next considered the question of motive and malice in relation to a cause of action based on the pecuniary injury inflicted by the employment of unlawful means. Actual malice was not necessary in such an action for molestation as the present, and it was only necessary to prove the use of illegal means, such as violence or threats. The motives, feelings and objects of the defendants were mixed. Their conduct was doubtless instigated to a large extent by the desire to protect the local pecuniary interests of the Coventry physicians, and the general interests of the profession. But, on the other hand, the defendants were angrily hostile to the plaintiffs. They sought every opportunity of inflicting humiliation, and they evidently wished to render the lives of the plaintiffs unbearable. They desired to do far more than merely to protect their interests. They desired to punish the plaintiffs as a separate end in itself, and they meant to make that punishment bitter to the last degree. The judge gave damages against the association in varying sums for the four plaintiffs aggregating \$14,000.

Marriages

CAPT. LAWRENCE LEWELLYN CRAVEN, M. C., U. S. Army, East Penn, Iowa, on duty at Kelly Field, San Antonio, Texas, to Miss Lena L. Newton of Kalamazoo, Mich., at San Antonio, November 14.

MAJOR ELMER ELLSWORTH HEG, M. C., U. S. Army, Seattle, on duty at Camp Jackson, S. C., to Miss Evelyn R. Sampson of White River Valley, Wash., at Seattle, October 14.

RAYFORD KENNEDY ADAMS, Raleigh, N. C., to Miss Mary Belle King, at Charlotte, N. C., November 2.

HARRY IRVING PARTRIDGE to Mrs. Josephine Houkins Jennings, both of Syracuse, N. Y., November 5.

ZACHARIAH BRAINERD, Hunnewell, Mo., to Miss Mona Alexander of Leesburg, Mo., September 13.

GEORGE ELLIOTT EBRIGHT to Miss Florence Braverman, both of San Francisco, November 7.

WILLIAM E. PARKE, to Miss Grace Woods, both of Philadelphia, November 12.

Deaths

Charles W. Brown, Washington, D. C.; Long Island College Hospital, Brooklyn, 1871; aged 72; a member of the Medical Society of the District of Columbia; lecturer on surgery to the Lucy Webb Hayes Training School, and surgeon to the Sibley Memorial Hospital; formerly physician to the Elmira (N. Y.) State Reformatory; health officer of Elmira for two terms; secretary and president of the Tioga County (Pa.) Medical Society; secretary of the Elmira Academy of Medicine; secretary and president of the Third District Branch of the New York State Medical Association; died at his home, November 10, from carcinoma of the stomach and aneurysm of the descending aorta.

Lieut. Ira Condict Whitehead, Jr. ♂ M. C., U. S. Army, Hoosick, N. Y.; Albany (N. Y.) Medical College, 1912; aged 32; who was on duty with the British Expeditionary Forces in Flanders in 1917, and was invalided from there to the Prince of Wales Hospital, London, thence to Osborne House on the Isle of Wight, and then to Netley Hospital, where he was found to be suffering from nerve shock and cholecystitis, and was returned to the United States and placed in the U. S. Army Hospital No. 1, Williamsridge, and honorably discharged on account of physical disability, Aug. 16, 1918; died at his home, October 27, from pneumonia.

Lieut. William Frederic Craig ♂ M. C., U. S. Army, Philadelphia; Medico-Chirurgical College of Philadelphia, 1897; aged 44; a specialist in neurology; for fifteen years professor of biology, anatomy and French in the Central High School; who entered the military service in May, 1917, and was on duty at Camp Oglethorpe, Ga., Camp Weir, and finally assigned to duty with the Three Hundred and Fifteenth Infantry at Camp Meade, Md., and went to France with the Seventy-Ninth Division; was killed, September 26, while caring for wounded soldiers northwest of Verdun, France.

Capt. Henry Guild Burton ♂ M. C., U. S. Army (retired), San Francisco; New York University, New York City, 1869; aged 71; formerly clinical assistant to the chair of ophthalmology in the San Francisco Polyclinic and the Medical Department of the University of California, and assistant surgeon to the Pacific Branch of the National Home for Disabled Volunteer Soldiers, Los Angeles; who entered the Army as assistant surgeon in 1876, and was retired Feb. 5, 1902, on account of disability in line of duty; died, recently, at his home.

Capt. James Frederick Munson ♂ M. C., U. S. Army, Sonyea, N. Y.; University of Michigan, Ann Arbor, 1904; aged 37; for twelve years pathologist at the Craig Colony for Epileptics, Sonyea, and for several years secretary of the National Society for the Study of Epilepsy; formerly assistant in hygiene in his alma mater; died at his station, Plattsburg, N. Y., October 25, from influenza.

George E. Spear, Lincoln, Neb.; University of Nebraska, Omaha, 1903; aged 45; formerly a member of the Nebraska State Medical Association; a member of the Association of Military Surgeons of the United States; a member of the staff of the Ingleside State Hospital from 1905 to 1907; who was shot by a nurse in Lincoln, November 11, died from his wounds, November 12.

Charles Ransom Johnson, Kansas City, Mo.; University Medical College, Kansas City, Mo., 1905; aged 55; assistant to the chair of practice of medicine and assistant demonstrator of anatomy in his alma mater; formerly superintendent of the Kansas City General Hospital and the Leeds Municipal Hospital; died in Grace Hospital, Kansas City, November 10.

Henry E. Jones, Portland, Ore.; Bellevue Hospital Medical College, 1869; aged 80; acting assistant surgeon, U. S. Army; emeritus professor of clinical gynecology in the University of Oregon, Portland; a veteran of the Civil War, in which he served as surgeon in the Confederate Service; died at his home, November 9, from heart disease.

George A. Stewart, Brookport, Ill.; Louisville (Ky.) Medical College, 1889; aged 55; a member of the Illinois State Medical Society; local surgeon to the St. Louis and East St. Louis Suburban Railroad Company; died in Centropolis, Ill., October 31, as the result of rupture of the gallbladder.

Frank Leland Mitchell ♂ Liberty, Ind.; Central College of Physicians and Surgeons, Indianapolis, 1903; aged 45; while driving in his automobile over the Chesapeake and Ohio tracks, at a grade crossing near Kitchell, Ohio, October 28, was struck by an engine and instantly killed.

Stanley W. Edwins, Ellwood, Ind.; Cincinnati College of Medicine and Surgery, 1870; aged 82; for several years local surgeon to the Panhandle System; from 1878 to 1882 a member of the state legislature; died at his home, November 16, from the effects of a gunshot wound of the head, self-inflicted, it is believed, with suicidal intent.

Louis N. Wilson, Baltimore; College of Physicians and Surgeons, Baltimore, 1876; aged 66; for thirty-three years a practitioner of Mardela Springs, Md.; formerly a member of the Medical and Chirurgical Faculty of Maryland; died at his home, November 14, from heart disease.

Putnam Dickinson, Des Arc, Ark.; Missouri Medical College, St. Louis, 1880; aged 69; formerly president of the Prairie County Board of Health and vice president of the Prairie County Medical Society; died at his home, November 9, from pneumonia following influenza.

Lieut.-Com. Frank Pennybacker White Hough ⚔ **P. A. Surg., U. S. Navy**; on duty on *U. S. S. Huron*; University of Virginia, Charlottesville, 1907; aged 34; who entered the Navy, April 11, 1908; died on board the *U. S. S. Huron*, October 27, from bronchial pneumonia.

Charles Pulford Forward, Dubuque, Iowa; Washington University, St. Louis, 1912; aged 29; a member of the Iowa State Medical Society; a specialist in pediatrics; died in Finley Hospital, Dubuque, November 11, from influenza.

Thomas Rutherford Savage, New York City; College of Physicians and Surgeons in the City of New York, 1874; aged 66; physician to the French and Presbyterian hospitals, and to the outpatient department to St. Luke's Hospital; died at his home, November 12.

John William Batte, Nashville, Tenn.; Jefferson Medical College, 1846; aged 95; for fifty-four years a practitioner of Pulaski, Tenn.; died in St. Thomas' Hospital, Nashville, from the effects of concussion of the brain sustained in a street car accident, October 21.

Frank E. Lewis Brecht ⚔ **Buffalo**; University of Buffalo, N. Y., 1872; aged 73; a member of the Buffalo Academy of Medicine; assistant health physician of Buffalo during the smallpox epidemic of 1872; died at his home, October 29, from influenza.

Lieut. Oscar Miller Klinglen ⚔ **M. C., U. S. Army**, Minneapolis; University of Minnesota, Minneapolis, 1916; aged 29; who went to France with Base Hospital No. 26, in June, 1918, died at his post, October 16, from pneumonia following influenza.

Isaac H. Lent, Middletown, N. Y.; Albany, (N. Y.) Medical College, 1873; aged 72; a member of the Medical Society of the state of New York; consulting ophthalmologist to Thrall Hospital, Middletown; died at his home, about October 20.

Lieut. Arthur Morgan Evans ⚔ **M. C., U. S. Army**, Chicago; University of Illinois, Chicago, 1916; aged 28; died in Evacuation Hospital No. 21, Camp Custer, Battle Creek, Mich., October 5, from cerebrospinal meningitis.

Julius H. Ruhl, Galveston, Texas; University of Texas, Galveston, 1899; aged 40; a member of the State Medical Association of Texas; demonstrator of obstetrics in his alma mater; died at his home, November 10.

Chadwick Evans Arnold, San Jacinto, Calif.; Cooper Medical College, San Francisco, 1901; aged 41; formerly in the United States Indian Service; died at his home, November 7, from pneumonia following influenza.

James Walter G. McLaughlin ⚔ **Georgetown University**, Washington, D. C., 1908; aged 35; director of the State Bank of Beaver Falls; died at his home, November 10, from pleuropneumonia following influenza.

Clifford F. Morell, Brainerd, Minn.; University of Minnesota, Minneapolis, 1914; aged 31; a member of the Minnesota State Medical Association; died at his home, November 13, from pneumonia following influenza.

Lieut. Francis Marion Burkhalter ⚔ **M. C., U. S. Army**, Ray City, Ga.; Atlanta (Ga.) School of Medicine, 1909;

aged 31; who arrived in France, July 20, died there on October 8, from lobar pneumonia.

David Q. Will, Moore's Store, Va.; Maryland Medical College, Baltimore, 1902; aged 40; a member of the Medical Society of Virginia; died at his home, November 13, from pneumonia following influenza.

Capt. Lawrence Edward Flannagan ⚔ **M. C., U. S. Army**, Charlottesville, Va.; University of Virginia, Charlottesville, 1884; aged 54; died at his home, about November 6, from pneumonia following influenza.

William Hampton Caldwell, Houston Heights, Texas; Baltimore (Md.) College, 1883; aged 60; a member of the staff of St. Luke's Hospital, Houston; died at his home, November 10, from pneumonia.

Pierre Leonard Couillard, Manchaug, Mass.; Montreal School of Medicine and Surgery, 1875; aged 68; a member of the Massachusetts Medical Society; died at his home, October 11, from pneumonia.

Edward A. Hudson, Edison, Neb.; Missouri Medical College, St. Louis, 1890; aged 51; a member of the Nebraska State Medical Association; died in Cambria, Neb., October 7, from cerebral hemorrhage.

Alfred Marius Wang ⚔ **Minneapolis**; Northwestern University Medical School, Chicago, 1886; aged 57; attending physician to St. Mary's Hospital, Minneapolis; died at his home, November 13.

Samuel Berlin, Brooklyn; Long Island College Hospital, Brooklyn, 1916; aged 26; a member of the staff of Fordham Hospital; died at Fort Slocum, N. Y., October 16, from bronchial pneumonia.

James Frankland Boyle, Edmonton, Alta.; University of Toronto, Ont., 1896; L.R.C.P., L.R.C.S., Edinburgh, L.R.F.P. and S., Glasgow, 1903; aged 46; died, recently, in Edmonton, from influenza.

Horace Charles Newbury, Chicago; University of Pennsylvania, Philadelphia, 1918; aged 24; an intern at the Ravenswood Hospital; died, November 19, from pneumonia following influenza.

Edward Everett Hamblen, Bedford, Mass.; Tufts College, Boston, 1898; aged 53; a member of the Massachusetts Medical Society; town physician of Bedford; died at his home, November 10.

C. A. Edwards, Doerun, Ga.; Atlanta (Ga.) Medical College, 1898; a member of the Medical Association of Georgia; died at his home, about November 8, from pneumonia following influenza.

William L. Creswell, Danbury, Iowa; State University of Iowa, Iowa City, 1903; aged 40; died in St. Vincent's Hospital, Sioux City, Iowa, October 22, from pneumonia following influenza.

Aaron Dudley French, Allendale, Ill.; Barnes Medical College, St. Louis, 1904; aged 42; a member of the Illinois State Medical Society; died at his home, October 17, from pneumonia.

Daniel W. Jones, Princess Anne, Md.; Jefferson Medical College, 1848; aged 95; for several years chief judge of the orphan's court of Somerset County; died at his home, November 12.

Nathan Kendall Mills ⚔ **Odanah, Wis.**; St. Louis University, 1911; aged 36; government physician at Odanah; died at that place, November 9, from pneumonia following influenza.

Dolphus L. Stevens ⚔ **Foreman, Ark.**; College of Physicians and Surgeons, Little Rock, Ark., 1910; aged 35; died at his home, October 24, from pneumonia following influenza.

Frederick William Cuyler Lockwood, Greenwich, Conn.; Eclectic Medical College of the City of New York, 1885; aged 62; also a druggist; died at his home, November 13.

Edward Kennedy Henderson, Haliburton, Ont.; University of Toronto, 1909; aged 30; medical officer of the Haliburton County Battalion; died at his home, about November 10.

James Todd Duncan ⚔ **Toledo, Ohio**; Northwestern University Medical School, Chicago, 1905; aged 41; died at his home, October 24, from pneumonia following influenza.



Died in the Service
LIEUT. WILLIAM H. BUFFUM, M. C.,
U. S. NAVY, 1877-1918
(See *The Journal*, last week, p. 1760)

William F. Holden, Winona, Minn. (license, exemption certificate, Minnesota, 1883); aged 67; a practitioner for forty-six years; also a druggist; died at his home, October 30, from organic heart disease.

John Galbraith Martin, Anton Chico, N. M.; Washington University, St. Louis, 1904; aged 35; a member of the New Mexico Medical Society; died, about November 10.

Sebastian Keller, Spokane, Wash.; University of Wurzburg, Germany, 1854; aged 88; for thirty-six years a practitioner of West Bend, Wis.; died at his home, November 3.

Charles Raymond Atzen, Omaha, Neb.; John A. Creighton Medical College, Omaha, 1915; aged 27; died at his home, November 2, from pneumonia following influenza.

Alva W. Wilder, Fort Smith, Ark.; Atlanta (Ga.) Medical College, 1884; aged 59; at one time a member of the Arkansas Medical Society; died at his home, November 14.

Walter Booker England ☉ Huntsville, Ala.; University of Tennessee, Nashville, 1904; aged 35; died at his home, October 12, from pneumonia following influenza.

Lucien Clyde Davis, Lakewood, Wis.; Ensworth Medical College, St. Joseph, Mo., 1903; aged 40; died at his home, about November 2, from lobar pneumonia.

Zachariah Brainerd, Hunnewell, Mo.; University of Missouri, Columbia, 1885; aged 57; died at his home, November 2, from pneumonia following influenza.

Charles Anthony Ordway ☉ Everett, Mass.; Dartmouth Medical School, Hanover, N. H., 1896; aged 44; died at his home, September 24, from influenza.

Henry James Brugge, Grass Range, Mont.; Rush Medical College, 1897; aged 42; a member of the Medical Association of Montana; died, about October 20.

Lieut. Arthur Hastings Wheeler ☉ M. C., U. S. Army, Albany, N. Y.; Albany (N. Y.) Medical College, 1912; aged 30; died in California, October 26.

Aurelius Augustine Lyon, Nashville, Tenn.; Washington University, St. Louis, 1861; aged 80; Confederate veteran; died at his home, November 6.

James Thomas Wadkins, Union City, Ga.; Chicago College of Medicine and Surgery, 1913; aged 36; died at his home, October 28, from influenza.

Charles A. Boyce, McLean, N. Y.; University of Syracuse, N. Y., 1879; aged 63; died in his home, November 12, from organic heart disease.

William H. Johnson, Barry, Ill.; Missouri Medical College, St. Louis, 1879; aged 63; died in Barry, November 7, from cerebral hemorrhage.

Theodore Lamkin ☉ Bellamy, Ala.; Birmingham, Ala., Medical College, 1910; aged 39; died in Selma, Ala., October 28, from pneumonia.

Charles Edgar Walker ☉ Charlotte, N. C.; University of Maryland, Baltimore, 1891; aged 51; died suddenly at his home, November 8.

Isaac W. Starr, Brownsville, Ore.; Willamette University, Salem, Ore., 1877; aged 64; died at his home, November 2, from heart disease.

Stanley Miller Martsof ☉ Westover, Pa.; University of Pittsburgh, 1902; aged 41; died in the Clearfield, Pa., Hospital, October 28.

Clifford Alfred Chance ☉ Madrid, Iowa; Drake University, Des Moines, Iowa, 1911; aged 38; died at his home, recently, from pneumonia.

Patrick Joseph McNulty, Glenlyon, Pa.; University of Louisville, Ky., 1907; aged 42; died at his home, October 28, from influenza.

William Bray Warner ☉ Red Bank, N. J.; New York University, New York City, 1882; aged 58; died at his home, September 1.

William Bowman, Marion, Ind. (license, Indiana, 1903); aged 70; died in a sanatorium in Indiana Harbor, Ind., November 6.

Howard H. Hopkins, New Market, Md.; University of Maryland, Baltimore, 1869; aged 70; died at his home, October 16.

Edgar L. Bay ☉ Eddyville, Iowa; Marion-Sims College of Medicine, 1899; aged 45; died at his home, October 31, from influenza.

Robert Reginald Krueger ☉ Vestaburg, Pa.; University of Pittsburgh, 1916; aged 29; died at his home, November 10.

James L. Brown ☉ Peoria, Ill.; Medical College of Ohio, 1868; aged 77; died at his home, November 8.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

BEER AND CANCER CURES

Did the Brewing Interests Advertise Autolysin?

Our readers may remember that an article appeared in this department of THE JOURNAL for July 6, 1918, under the title "Henry Smith Williams and 'Proteal Therapy.'" "Proteal Therapy" is a treatment exploited by Henry Smith Williams, M.D., of New York, for use in tuberculosis, cancer, rheumatism, etc. It is apparently a modification of the "Autolysin" cancer "cure" which Williams had previously puffed in *Hearst's Magazine*.

THE JOURNAL's article pointed out that Henry Smith Williams, although entitled to write "M.D." after his name, is essentially a journalist. He has written voluminously for some years in lay publications on various subjects, both under his own name and under his *nom de plume*, "Stoddard Goodhue, M.D." In addition, Williams runs a publishing concern called the Goodhue Company, which issues a number of books, many of them being reprints of Williams' own articles.

Closely associated with Henry Smith Williams is his brother, Edward Huntington Williams, who also is a prolific writer. THE JOURNAL's previous article called attention to the fact that there had been sent broadcast to physicians a neat little cloth-bound book, entitled, "Alcohol, Hygiene and Legislation." This book, which evidently cost somebody a good deal of money to distribute gratis, was published by the Goodhue Company, and was written by Edward Huntington Williams. Enclosed with the book was an advertising leaflet on the "Autolysin" cancer cure and also a letter from the Goodhue Company, asking physicians to accept it "with our compliments and the compliments of the author." The letter was chiefly devoted to calling attention to Henry Smith Williams' "new book, the Autolysin Treatment of Cancer." The last thirteen pages of the book "Alcohol, Hygiene and Legislation" contained advertisements of the Goodhue Company's publications, particular emphasis being placed on the "Autolysin Treatment of Cancer," by Henry Smith Williams.

So much by way of retrospect. Now comes information that may throw an interesting side-light on the matter just presented. There is at present being conducted by a committee of the United States Senate, an investigation relative to the purchase of a Washington (D. C.) newspaper with money alleged to have been furnished by those interested in the brewing industry.

At the opening hearing before the Senate Committee, Tuesday, November 19, the secretary of the United States Brewers' Association, after admitting that brewers' propaganda had been published in the *International Monthly*, edited by Viereck (of the *Fatherland*), also declared that the Publication Committee of the brewers' association employed writers to "write up certain subjects" relating to the brewers' trade. One of the writers mentioned in this connection was, according to the newspaper reports, "Dr. Edward H. Williams, author of articles published in medical and other journals."

With this fact before us, it seemed worth while to go through the book that had been distributed so lavishly to physicians with the compliments of the Goodhue Company and Dr. Edward Huntington Williams, in the exploitation of "Autolysin," and Henry Smith Williams' book on the subject.

The first chapter of "Alcohol, Hygiene and Legislation" consists of a reprint of an article from the *New York Medical Journal* of May 8, 1915. The article is a skilful presentation of the case for the defenders of the lighter alcoholic beverages, especially beer. This chapter and all succeeding chapters of the book attempt to discredit prohibitory legislation, and argue that prohibition drives the public to the use of the more ardent alcoholic beverages, while preventing

the use of the milder beverages, such as beer, which one is led to infer is not particularly harmful. Throughout the book, also, the state of Kansas is held up as an example of the harm done by prohibition, and the theme is developed that insanity and the use of cocaine and other habit-forming drugs follows in the wake of prohibition. The following extracts are from Chapter I:

The evil effects of beer and wine, for example, are greatly less than those produced by spirituous liquors. . . . [Italics ours.—Ed.]

If our theory of immunity is correct we should expect to find that the older beverages, such as beer and wine, which have been used for thousands of years, are less productive of alcoholic insanity, for example, than the spirituous liquors which are recent innovations. In point of fact we find this to be the case: the spirituous liquors are almost wholly responsible for all forms of alcoholic insanity. [Italics ours.—Ed.]

Chapter II is a reprint of an article that appeared in *Everybody's Magazine*, August, 1914, and deals with "Legislation from a Medical Viewpoint." It is to the effect that drug addictions and insanity, together with special forms of mental diseases directly attributable to alcoholism, seem to flourish best in prohibition territory.

Chapter III deals with "The Peace and War Footing of Alcohol," and is a reprint from the *Medical Record*, Aug. 7, 1915. It, too, sings the praises of the "lighter beverages," while deprecating the use of "ardent spirits." For instance:

An overwhelmingly large proportion of persons who develop alcoholic psychoses in America are drinkers of whisky, or some corresponding ardent spirit, whereas this condition is seldom seen in beer and wine drinkers. [Italics ours.—Ed.]

Thus we find the highest percentage of alcohol psychoses among the whisky-drinkers who come from western Europe, while the wine and beer drinking races of central and southern Europe show a distinctly lower percentage, in some instances only about one-fourth as many per thousand. [Italics ours.—Ed.]

Chapter IV deals with "Some Aspects of Liquor Legislation." Like Chapter II it is an indictment of prohibition, and the United States Census Bureau's reports are called on to sustain this thesis. Quotations, too, are made from the writings of Henry Smith Williams further to prove the point. "Dry" Kansas and "wet" Nebraska are frequently compared, to the detriment of the former. One who accepts the statements in this chapter will get the impression that Kansas has more lawlessness, illiteracy, pauperism, and insanity than Nebraska.

Chapter V deals with "The Problem of Legislation." It is based on the premise that "prohibition does not prevent the consumption of liquor," but on the contrary, "prohibitive legislation induces the consumption of the most harmful form of liquors." Stated in another way, it is equivalent to charging that prohibition is hard on the brewers, but beneficial to the distillers. In fact, E. H. Williams, in another book ("The Question of Alcohol"—Goodhue Co.) which also champions the case for the milder alcoholics, quotes Henry Smith Williams as saying, relative to prohibitory legislation: "In general, it would appear that, if our legislators of recent years had been in league with the distiller, they could not have served his purpose better."

Whether or not Edward H. Williams' or Henry Smith Williams' conception of the alcohol problem is good, bad or indifferent, need not at this time concern us. The medical profession, however, has a right to ask two questions: First, Is the Dr. Edward Huntington Williams who wrote "Alcohol, Hygiene and Legislation" the "Dr. Edward H. Williams" who was employed by the brewers to write propaganda favorable to the brewing interests? Second, Was the cloth-bound book, "Alcohol, Hygiene and Legislation," which was distributed by the Williams brothers, paid for, wholly or in part, by the United States Brewers' Association?

For those who wish to read Dr. Edward Huntington Williams' opinions on the alcohol question, the following bibliography may be of service:

- "Liquor Legislation and Insanity": *Medical Record*, 1913, lxxxiv, 791.
- "The Liquor Question in Medicine": *Medical Record*, 1914, lxxxv, 612.
- "Inebriety as a Medical Problem": *Post-Graduate*, 1914, xxix, 603.
- "The Problem of Inebriety": *N. Y. Medical Journal*, 1915, ci, 940.
- "Aspects of Inebriety in Alcohol": *British Journal of Inebriety*, 1915-1916, xiii, 9.
- "The Peace and War Footing of Alcohol": *Medical Record*, 1915, lxxxviii, 226.
- "Alcohol and Therapeutics": *Medical Record*, 1917, xcii, 666.

Correspondence

A PRELIMINARY REPORT OF A STUDY OF THE COAGULABILITY OF INFLUENZAL BLOOD

To the Editor:—During the recent influenza epidemic, one of the most striking symptoms was an almost constant occurrence of hemorrhage. Nosebleed was present nearly always in children, and often in adults. Some of the women had menorrhagia and metrorrhagia, and abortion was frequent. We observed one case with hemorrhage from the bladder and two with hemorrhage from the bowels. The cerebro-spinal fluid contained blood in two cases in which lumbar puncture was performed for a suspected meningitis. Bleeding from the gums was common, and several young patients developed hemorrhagic purpura. A majority of the so-called pneumonia patients coughed up bright red blood, some of them dying suddenly from asphyxiation due to active hemorrhage. Sudden death came to one convalescent patient from what was, clinically at least, a hemorrhage in the brain.

The regularity with which these various hemorrhages appeared suggested the possibility of there being a change in the blood itself, and accordingly we tested the coagulation time of blood taken from a large number of influenza and pneumonia patients. In every case tested, without a single exception, the coagulability of the blood was lessened, the increase in time required for coagulation varying from two and one-half to eight minutes more than the normal. Blood was tested as early as the second day of influenza, and as late as the twentieth day of convalescence from pneumonia, with the same results. A sufficient number of controls were tested to establish the normal coagulation time for the tests used. Several local physicians also tested blood from their patients, and, while our records are at this time necessarily incomplete, we have yet to receive a report of a case in which the time of coagulation was not prolonged.

With a view toward lessening the tendency to hemorrhage, we started the early use of large doses of calcium lactate, which apparently gave good results. There also seemed to be less bleeding in the pneumonia patients who took calcium iodid to control their cough. We arrived at our conclusions too late in the epidemic to try horse serum or similar coagulating agents, but we believe that in a certain type of pneumonia, or what would be better called hemorrhagic bronchitis, their use would have been justified.

We have no theory to account for the increased coagulation time of influenzal blood. Possibly the presence of *Streptococcus hemolyticus* may be responsible; but as the lessened coagulability appears early while the red cell count remains nearly normal, it would seem that the first change is in the serum rather than in the corpuscles.

We submit this incomplete report in the hope that others may be sufficiently interested in this apparently overlooked feature of influenza to check our findings.

A. W. ERSKINE, M.D., and B. L. KNIGHT, M.D.,

Cedar Rapids, Iowa.

ROENTGEN FINDINGS IN THE PNEUMONIAS FOLLOWING INFLUENZA

To the Editor:—The roentgen examination of the chests of influenza patients during the recent epidemic revealed some very interesting conditions. The cases were not selected to any great extent. The diagnosis of pneumonia, as a rule, was made clinically, and the roentgen ray was used only as corroborative evidence and to determine the extent of involvement. The striking feature was the apparent difference in opinion as to the type, whether lobar pneumonia or bronchopneumonia.

When seen early, the patients presented a rather marked peribronchial infiltration of the larger trunks, with a local or general mediastinitis. The lung structure appeared normal and the movements of the diaphragm were unimpaired. This pathologic condition either became stationary with a

corresponding improvement in the clinical symptoms or there was a rapid progression out into the lung structure with the development, as a rule, of a bronchopneumonia.

In a few instances, the pneumonia was lobar, being confined to one or more lobes. In some cases the infection was so severe that a general pulmonary edema developed with almost complete obliteration of the normal chest shadows. Associated with this severe pulmonary edema was an effusion into the pericardial sac. In examining these cases roentgenographically an attempt was made to follow the regular routine, which consisted of fluoroscopy first, and then the making of plates. Some patients were so very ill that only a minimum amount of observation could be attempted. On fluoroscopy in the mild cases one was struck with the density of the hilum shadows and the marked infiltration of the larger bronchi with an increase in the mediastinal density. In these cases the movements of the diaphragm were unimpaired. In the definite pneumonias the findings would be as above with a bronchopneumonia involving both lungs, as a rule, although a number of cases of unilateral bronchopneumonia were observed.

In these cases the movements of the diaphragm were unimpaired unless the infection was very extensive. These cases at times were so severe that the entire chest became involved, with here and there small islands of apparently normal lung tissues. It was remarkable to see these patients and wonder how they could possibly breathe. A great number of cases of lesser severity were noted. Those that were definitely lobar pneumonia showed involvement of one or more lobes, usually beginning in the lower right. They appeared to be less toxic and were easier to handle. The respiratory movements were always rapid, and the movements of the diaphragm on one or both sides were impaired, and frequently fluid was found in the pleural cavity.

This type of pneumonia was the exception. In these conditions the heart was of interest. In the severe cases of pulmonary edema the heart shadow was obscured, owing to the edema and the fluid in the pericardial sac. A number of hearts in the bronchopneumonia types appeared distinctly bottle shaped. On repeated observations this was found to be due, not to fluid in the pericardial sac, but to a degeneration of the heart muscle with dilatation. In the lobar pneumonias the heart was found, as a rule, enlarged, and was a striking feature along with the impairment of the movements of the diaphragm.

Multiple abscess formation in the lobular type and empyema in the lobar type were also observed, although the latter was not nearly so frequent as in the pneumonias of last fall. Another feature worthy of note was the apparent similarity of these bronchopneumonias to the findings in an acute pulmonary tuberculosis. It would be impossible from roentgen examination alone to differentiate these cases, even after apparent recovery from the pneumonia.

It is with a great deal of hesitancy that we should diagnose cases of tuberculosis in individuals who have had influenza or influenzal pneumonia, even months after apparent recovery. In a limited number of cases bronchiectasis was noted, nearly always unilateral and mostly confined to the lower right chest.

HARRY F. FRIEDMAN, M.D., Chelsea, Mass.
Lieutenant, Junior Grade, U. S. N. R. F.; Roentgenologist,
U. S. Naval Hospital.

"STUDIES OF ROENTGENOGRAMS OF THE ACCESSORY NASAL SINUSES"

To the Editor:—In THE JOURNAL, Nov. 9, 1918, p. 1555, Dr. Max Unger of New York, in a preliminary note, describes an alleged new method for the study of the nasal accessory sinuses with the roentgen rays.

As a matter of fact, this method was described very accurately by Dr. George E. Pfahler of Philadelphia, in an article published in the *Laryngoscope*, July, 1916. Every detail mentioned by Dr. Unger appears in Dr. Pfahler's original paper, with considerable enlargement. The only variation in the method consists in the exact size of the film that is used. Dr. Pfahler even described the possibility

of cocainization of the pharynx in some hypersensitive patients. He also mentioned the advantages of the method in studying the relations of the floor of the antrum to the neighboring teeth.

Since the publication of this method by Dr. Pfahler, it has been used very generally by roentgenologists throughout the country. I myself have employed it several times.

The method is mentioned on page 208 of Knox's "Radiography," second edition.

Dr. Unger states that his report is a preliminary one and deals only with the use of this method on the cadaver. Yet this is a method that has been in general use on living patients for some time.

ISAAC GERBER, M.D., Providence, R. I.

[A proof of the preceding was sent to Dr. Unger, who replies:]

To the Editor:—I wish to acknowledge with chagrin that Dr. Gerber is correct. My claim to originality was made in good faith since a roentgenologist with whom I discussed the method knew nothing of it and the literature consulted did not contain it. I missed the line in Knox's "Radiography" that mentions this method. May I congratulate Dr. Pfahler on devising such an excellent method.

MAX UNGER, M.D., New York.

SPENCER'S CHLORAMINE PASTILLES

To the Editor:—I notice on the market in local drug stores an article made by "John Wyeth & Son, Sole Proprietors, Philadelphia," labeled "Spencer's Chloramine Pastilles" and recommended for "influenza" and other (similar) conditions. It is further stated that "as the name indicates," these pastilles are made up of *ammonium chlorid* and other substances (which are named), and contain opium.

In view of the fact that "chloramin" is the accepted name of p-toluene sulphochloramid, and that this substance has been recommended for use as a throat spray in connection with the present epidemic of influenza, it seems as though the "chloramine pastilles" were likely to deceive the public, and result in greater, rather than less danger to the people who do not know the nature of these substances, or their relative value.

Should not this be called to the attention of the medical profession, and if possible, of the general public?

S. C. BROOKS, Boston.

[COMMENT.—The term "chloramin" is applied to a class of chemical compounds that contain group :NCl. The chloramin derivative sodium paratoluenesulphochloramid has been called chloramin-T, the "chloramin" indicating the characteristic NCl group, and the "T" the derivation from toluene. Sodium parabenzenesulphochloramid has been called chloramin-B, the "B" indicating its origin from benzene. Before chloramin-T and the related products came into use in medicine, John Wyeth and Brother had registered the term "chloramine" as a trademark for a pharmaceutical preparation which in no sense is a chloramin. This misuse of a chemical term is to be regretted and indicates the need for a revision of our trademark law which permitted the registration of this evidently misleading term.—ED.]

Native Customs and Cancer.—In parts of China where the head is shaved by public barbers, the razors used are often dull and full of nicks, and the irritation of this scraping often causes cancer. Chinese men suffer from cancer of the pharynx and esophagus due to their habit of eating very hot rice, which is thrown into the mouth forcibly with chop sticks. Chinese women eat after their lords and masters, when the rice is cold, and they never have this kind of cancer. In India much cancer is caused by the chewing of betel nut. In some parts of the country women do not chew the nut, and are free of cancer of the mouth. In Khurdistan, India, the natives wear baskets filled with hot coals across their abdomens to protect them from the cold, and more than 50 per cent. of all the cancer in that region forms in the abdomen and groin, while in other countries such cancers are very rare.—Major W. J. Mayo, War Department Lectures.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALABAMA: Montgomery, Jan. 14. Chairman, Dr. S. W. Welch, Montgomery.

ARIZONA: Phoenix, Jan. 7. Sec., Dr. Allen H. Williams, 219 Goodrich Bldg., Phoenix.

COLORADO: Denver, Jan. 7. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

DELAWARE: Wilmington, Dec. 10-12. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

DISTRICT OF COLUMBIA: Washington, Jan. 14-16. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

FLORIDA (E): Jacksonville, Dec. 16-17. Sec., Dr. G. A. Munch, 1806 Franklin St., Tampa.

FLORIDA (R.): Miami, Dec. 2-3. Sec., Dr. W. M. Rowlett, Citizens Bank Bldg., Tampa.

HAWAII: Honolulu, Jan. 6. Sec., Dr. J. R. Judd, Honolulu.

ILLINOIS: Chicago, Dec. 9-11. Mr. F. C. Dodds, Supt. of Registration, Springfield.

IOWA: Des Moines, Dec. 10-12. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.

LOUISIANA: New Orleans, Dec. 2-4. Sec., Dr. E. W. Mahler, 730 Audubon Bldg., New Orleans.

MINNESOTA: Minneapolis, Jan. 7-10. Sec., Dr. Thomas McDavitt, 741 Lowry Bldg., St. Paul.

NEW MEXICO: Sante Fe, Jan. 13. Sec., Dr. W. E. Kaser, East Las Vegas.

NORTH DAKOTA: Jan. 7. Sec., Dr. G. M. Williamson, 860 Belmont Ave., Grand Forks.

OHIO: Columbus, Dec. 3-5. Sec., Dr. H. M. Platter, State House, Columbus.

OKLAHOMA: Oklahoma City, Jan. 7-8. Sec., Dr. J. J. Williams, Weatherford.

OREGON: Portland, Jan. 7. Sec., Dr. H. S. Nichols, Corbett Bldg., Portland.

PENNSYLVANIA: Philadelphia, Jan. 7-9. Sec., Mr. Nathan C. Schaeffer, State Capitol, Harrisburg.

RHODE ISLAND: Providence, Jan. 2-3. Sec., Dr. B. U. Richards, State House, Providence.

SOUTH DAKOTA: Pierre, Jan. 14. Sec., Dr. P. B. Jenkins, Waubay.

UTAH: Salt Lake City, Jan. 6. Corres. Sec., Dr. G. F. Harding, 405 Templeton Bldg., Salt Lake City.

VIRGINIA: Richmond, Dec. 10-13. Sec., Dr. J. W. Preston, 215 S. Jefferson St., Roanoke.

WASHINGTON: Spokane, Jan. 5. Sec., Dr. C. N. Suttner, 415 Old Nat'l Bk. Bldg., Spokane.

WISCONSIN: Madison, Jan. 14. Sec., Dr. J. M. Dodd, 220 E. 2d St., Ashland.

California June Examination

Dr. C. B. Pinkham, secretary of the Board of Medical Examiners of the State of California, reports the written examination held at San Francisco, June 25-27, 1918. The examination covered 9 subjects and included 90 questions. An average of 75 per cent. was required to pass. Of the 166 candidates who took the physician's and surgeon's examination, 125, including 25 osteopaths, passed, and 41, including 32 osteopaths, failed. Two candidates were licensed on Army and Navy credentials. Fifty-two candidates were licensed through reciprocity and 3 candidates were granted osteopathic reciprocity licenses. Of the 9 drugless healers examined, 8 passed and 1 failed. Ten candidates were granted licenses to practice chiropody. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
California Eclectic Medical College.....	(1914)		75.2
College of Medical Evangelists (1918) 82.5, 83.2, 86, 86.9, 87.1, 87.8, 88.3, 88.5, 89.1, 89.2, 90.5, 91.5, 91.5, 91.7, 91.8, 92.5, 92.8, 93.5, 94.2, 94.8.			
College of Physicians and Surgeons, Los Angeles (1918) 75, 75, 75.3, 75.8, 76.3, 76.4, 79.2, 79.7, 80.5, 81, 81.2, 82.3, 83.1, 83.2, 84, 86.3, 86.9, 89.8, 89.9, 90.1, 90.1, 91.5, 94.2.			
College of Physicians and Surgeons of San Francisco (1915) 76.1; (1917) 82, (1918) 79.4, 80.7, 81, 82.7, 85.9, 86.3, 87.8, 88, 91.3, 91.9, 94.			
Hahnemann Medical College of the Pacific (1918) 76.3, 77.5, 80.7, 83, 90.5, 93.3.			
Leland Stanford Junior University (1916) 91.2; (1917)*; (1918) 88.5, 92			
Oakland College of Medicine and Surgery (1918) 85.2, 86, 90.3.			
University of California (1918) 84.1, 85, 87, 87.5, 89.4, 89.7, 89.8, 89.9, 89.9, 90.3, 90.3, 90.5, 92, 92.1, 92.1, 92.9, 92.9, 93.3, 94, 94.3, 95.3.			
Atlanta Medical College	(1916)		79.1
Chicago College of Medicine and Surgery	(1917)		87.9, 92.7
Rush Medical College	(1917)		92.2
Johns Hopkins University	(1918)		89
Harvard University	(1882)*; (1916) 92.8; (1918)		95.4
Jefferson Medical College.....	(1918)		90.5
Licentiate of the Royal College of Physicians, London, and a Member and Licentiate of the Royal College of Surgeons, England	(1914)		89.2

FAILED

College of Physicians and Surgeons, Los Angeles.....(1918) 67.7, 69.9
College of Physicians and Surgeons, San Francisco (1918) 63.2, 69, 71.9.
Hahnemann Medical College of the Pacific.....(1918) 67.9, 71.1
Medical College of Virginia (1917) | | 70.5 || Tohoku Imperial University Special Medical Dept. .. | (1915) | | 69.9 |

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
California Eclectic Medical College.....	(1903)	(1913)	Nevada
College of Physicians and Surgeons of San Francisco (1904)	(1911)		Nevada; (1916) Oregon.
Gross Medical College	(1899)		Colorado
George Washington University	(1916)		Nebraska
Bennett Medical College	(1914)		Missouri
College of Physicians and Surgeons, Chicago	(1904)		Iowa
Hahnemann Medical College and Hospital of Chicago (1896)			Illinois
Northwestern University Woman's Med. School....	(1893)		Wisconsin
Rush Medical College	(1868)	Minnesota; (1910)	Illinois
Woman's Medical College	(1889)		Illinois
Indiana Medical College (Purdue Univ.)	(1906)		Indiana
State College of Phys. and Surg., Indianapolis....	(1907)		Indiana
Drake University	(1912)		Iowa
Keokuk Medical College, Coll. of Phys. & Surg....	(1902)		Iowa
.....	(1908)		S. Dakota
State University of Iowa College of Medicine.....	(1910)		Iowa
Kentucky University	(1903)		Iowa
Louisville National Medical College.....	(1898)		Indiana
Johns Hopkins University	(1912)		Washington
University of Maryland	(1909)		N. Carolina
Harvard University	(1915)	Massachusetts; (1915)	New York
Michigan College of Medicine	(1884)		Michigan
Hamline University	(1902)		Minnesota
American Medical College	(1890)		Nebraska
Beaumont Hospital Medical College	(1897)		New Mexico
Ensworth Medical College	(1910)		Nebraska
Kansas City College of Medicine and Surgery	(1917)		Arkansas
Marion-Sims Beaumont Medical College	(1901)		Ohio
St. Louis College of Physicians and Surgeons.....	(1910)		Missouri
St. Louis University	(1904)		Washington
Washington University	(1905)	(1911)	Missouri
Columbia College in the City of New York.....	(1896)		New York
Toledo Medical College	(1912)		Ohio
Hahnemann Med. Coll. and Hosp. of Philadelphia..	(1902)		New York
Jefferson Medical College ...	(1883)	Pennsylvania; (1905)	Minnesota
University of Pittsburgh	(1909)		Penna.
Woman's Medical College of Pennsylvania	(1901)		Virginia
Meharry Medical College	(1916)		Tennessee
University of Nashville	(1901)		Indiana
Marquette University	(1909)		Wisconsin
Wisconsin College of Physicians and Surgeons....	(1912)		Oklahoma
University of Toronto	(1888)	Illinois; (1908)	Washington
University of Turin	(1914)		New York
Kumanota Special Medical School	(1909)		Arizona

* No grade given.

Iowa September Examination

Dr. G. H. Sumner, secretary of the Iowa State Board of Medical Examiners, reports the written examination held at Des Moines, Sept. 10-12, 1918. The examination covered 8 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 9 candidates examined, 8 passed and 1 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Howard University	(1918)		77.1
Bennett Medical College	(1914)		88.6
Northwestern University	(1918)	79.2,	86.2
Rush Medical College	(1918)		91.1
University of Illinois	(1918)		88.2
Albany Medical College	(1895)		87.2
Columbia University	(1901)		92.9

FAILED

College of Physicians and Surgeons, Keokuk(1880) 39.9

Dr. Sumner also reports that 6 candidates were licensed through reciprocity at the meeting held Sept. 8, 1918. The following colleges were represented:

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Yale University	(1909)		Missouri
Chicago College of Medicine and Surgery	(1911)		Illinois
Chicago Homeopathic Medical College	(1903)		Illinois
Ensworth Medical College	(1902)		Nebraska
Miami Medical College	(1893)		Missouri
University College of Medicine	(1896)		Virginia

Nebraska June Examination

Dr. J. J. Hompes, secretary of the Nebraska State Board of Medical Examiners, reports the oral, practical and written examination held at Lincoln, June 3-5, 1918. The examination covered 14 subjects. An average of 75 per cent. was required to pass. Of the 45 candidates examined, 44 passed and 1 failed. Twenty-one candidates were licensed through

reciprocity. Four candidates were granted reregistration certificates. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery	(1917)	81	
John A. Creighton Medical College	(1918) 77, 77, 80, 80, 80, 81, 82, 82, 83, 86, 86, 88, 88, 90, 90.		
University of Nebraska	(1918) 80, 80, 81, 81, 83, 83, 83, 83, 84, 85, 85, 85, 86, 86, 86, 87, 88, 89, 89, 89, 89, 90, 90, 94.		
Eclectic Medical College	(1918)	81	

College	FAILED	Year Grad.	Per Cent.
Loyola University	(1917)	59	

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Bennett College of Eccl. Med. and Surg.	(1905)	Illinois	
Bennett Medical College	(1915)	Illinois	
Chicago College of Med. and Surg.	(1912) Illinois; (1913)	Iowa	
Chicago Physio-Medical College	(1891)	S. Dakota	
College of Phys. and Surg., Chicago	(1908) Iowa; (1910)	Kansas	
University of Illinois	(1914)	Illinois	
Keokuk Medical College	(1894)	Missouri	
Tulane University	(1898)	Georgia	
St. Louis College of Physicians and Surgeons	(1898)	Missouri	
Washington University	(1906) Iowa; (1911)	Missouri	
John A. Creighton Medical College	(1901) Iowa; (1917)	U. S. Navy	
Columbia University	(1903)	New York	
Cornell University	(1917)	U. S. Navy	
Cleveland Homeopathic Medical College	(1908)	Ohio	
University of Cincinnati	(1915)	Kansas	
Medico-Chirurgical College of Philadelphia	(1897)	Penna.	
University of Pennsylvania	(1915)	N. B. M. Ex.	

Oklahoma July Examination

Dr. J. J. Williams, secretary of the Oklahoma State Board of Medical Examiners, reports the written examination held at Oklahoma City, July 9-10, 1918. The examination covered 10 subjects and included 100 questions. An average of 70 per cent. was required to pass. Six candidates, including 1 osteopath, were examined, all of whom passed. Sixteen candidates, including 7 osteopaths, were licensed through reciprocity. Seven candidates were granted reregistration licenses. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
George Washington University	(1917)	83	
College of Physicians and Surgeons, Chicago	(1905)	89	
Rush Medical College	(1913)	84	
Maryland Medical College	(1910)	84	
Meharry Medical College	(1918)	71	

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Atlanta Medical College	(1895)	Texas	
Bennett Medical College	(1915)	W. Virginia	
Kentucky School of Medicine of Louisville	(1898)	Kentucky	
University of Louisville	(1908)	Arkansas	
National University of Arts and Sciences	(1918)	Missouri	
University Medical College of Kansas City	(1897)	Missouri	
John A. Creighton Medical College	(1913)	Nebraska	
New York University	(1896)	Missouri	
Memphis Hospital Medical College	(1894)	Texas	

Georgia October Examination

Dr. C. T. Nolan, secretary of the Georgia State Board of Medical Examiners, reports the written examination held at Atlanta, Oct. 8-9, 1918. The examination covered 10 subjects and included 100 questions. An average of 80 per cent. was required to pass. Of the 8 candidates examined, 7 passed and 1 failed. Nine candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Emory University	(1918) 88.6,	90.8	
Southern College of Medicine and Surgery	(1913)	82	
University of Illinois	(1916)	85.7	
Columbia University	(1917)	91.5	
Meharry Medical College	(1916) 82.5; (1918)	82.1	

College	FAILED	Year Grad.	Per Cent.
Southern College of Medicine and Surgery	(1913)	75.2	

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Birmingham Medical College	(1915)	Oklahoma	
University of Alabama	(1910)	Alabama	
Atlanta Medical College	(1892)	Alabama	
Louisville Medical College	(1886)	W. Virginia	
Baltimore Medical College	(1896)	Mass.	
Eclectic Medical Institute	(1888)	Indiana	
Vanderbilt University	(1917)	Tennessee	
University of Vermont	(1918)	Vermont	
University of Virginia	(1913)	New Jersey	

Book Notices

DISPENSARIES: THEIR MANAGEMENT AND DEVELOPMENT. A Book for Administrators, Public Health Workers, and All Interested in Better Medical Service for the People. By Michael M. Davis, Jr., Ph.D., Director of the Boston Dispensary, and Andrew R. Warner, M.D., Superintendent of Lakeside Hospital, Cleveland. Cloth. Price, \$2.25. Pp. 438. New York: The Macmillan Company, 1918.

The first dispensary in this country was started in 1786. What a difference between that primitive institution, managed entirely by one charitably inclined doctor dispensing drugs to perhaps sixty or seventy poor persons during the year, and the great modern dispensary with its scores of employees and its large medical staff, representing all departments of the science, and handling hundreds of patients daily. From a single little room, or perhaps only a desk, in the back of an apothecary shop, the dispensary has grown until it has become one of the largest and most important factors in present day social economics. How this growth has taken place and the various factors that have been instrumental in bringing the dispensaries up to their present high state of development have been most interestingly and instructively presented by the authors in this volume. They likewise discuss in a comprehensive manner the proper management of modern dispensaries, from the small dispensary handling only a few cases daily, or the special dispensary with but a single class of cases, to the great general dispensary, with its many clinics, handling 100,000 or more cases annually. Every phase of the subject, including the financing of such institutions, the question of free and pay patients, efficiency tests, the follow-up system, and social service in all its departments, is covered in a very thorough manner. Not only physicians but those laymen who are interested in the great problems of public health will find in this excellent volume much that is of interest and also of great value.

HYGIENE OF THE EYE. By William Campbell Posey, A.B., M.D., Ophthalmic Surgeon to the Wills and Howard Hospitals. Cloth. Price, \$4 net. Pp. 344, with 120 illustrations. Philadelphia: J. B. Lippincott Company, 1918.

This volume contains twenty chapters treating of the ocular structures; visual physiology; refraction and glasses; strabismus; the influence of diseased eyes on the body; school life; artificial and natural lighting; school architecture; the most noticeable diseases of the eye; wounds and injuries; the effects of drugs and beverages on the eyes; color blindness; what to do for the blind; conservation of vision, etc. It is well written and produced. The author's name is a sufficient guarantee of its scientific quality. In paper, printing, etc., it is a physical demonstration of how books may be produced and read with as little injury to the eye as possible. The volume is hardly written for specialists, but it will be found an exceedingly useful book for general practitioners who wish to review the subject and become familiar with facts they should know about the eye. It will also be an extremely valuable book for those members of the laity who desire to keep in touch with this important subject. It can be especially recommended to teachers, nurses, and those who direct hygienic conditions of shops, factories, etc.

GYMNASTIC TREATMENT FOR JOINT AND MUSCLE DISABILITIES. By Brevet Col. H. E. Deane, R. A. M. C. In Charge War Hospital, Croydon. With Preface by Temp. Colonel A. Carless, Army Medical Service and Brevet Lieut.-Col. F. W. Mott, F.R.S., R. A. M. C. (T.) Maudsley Hospital, Denmark Hill. Cloth. Price, \$2.50 Pp. 146, with illustrations. New York: Oxford University Press, 1918.

In this little book the author sketches his method of gymnastic treatment of joint and muscle disabilities among wounded soldiers, employing apparatus of the simplest sort, and having in view always the quickest possible return of the man to his military duties or, if permanently invalided, to the best possible working and earning condition. While giving due credit to massage, passive motion, either manual or mechanical, he deprecates the prolonged keeping of these patients under such treatment, and insists that much time is wasted; frequently the patient is hospitalized and allowed to deteriorate, when by proper gymnastic methods not only is he educated in the "will to do" for himself, but practical

and remarkable improvement is quickly arrived at by the method he teaches. Every detail of the gymnastic methods employed should be familiar to the one who attempts to apply them. They are simple but effective. The author says that "all the apparatus necessary to cultivate any movement which a soldier is likely to want, and on which work can be adjusted to suit any man fit for exercise at all, are a skipping rope, Indian clubs, dumb-bells, a beam, a slanting ladder, a sparred plank, parallel bars, wall bars, ropes and a nautical wheel," all of which apparatus in use are pictured in the book. The principle constantly emphasized is to have the patient do something for himself, employing the simple apparatus named, together with other calisthenic and gymnastic movements, games, etc., aiming at perfect anatomic results, but being satisfied with compensatory movements, in some cases, that are practically as good.

THE DOCTOR'S PART: WHAT HAPPENS TO THE WOUNDED IN WAR. By James Robb Church, A.M., M.D., Colonel, Medical Corps, U. S. Army. With Foreword by Major-General William C. Gorgas, Surgeon-General, U. S. Army. Boards. Price, \$1.50 net. Pp. 284, with illustrations. New York: D. Appleton and Company, 1918.

It is a pleasure at these times to read a book that describes the care of the wounded in France without emotion or sensationalism. Colonel Church is well prepared to write such a book. He has served for twenty years in the Army. In the war with Spain he was with the rough riders, and won the medal for gallantry under fire. He also served on the Mexican border. Early in 1915 he was sent to France as medical military observer. As such he was admitted to the inner medical circles everywhere, and was even able to get into the front trenches. He writes, therefore, as one who speaks with knowledge gained from actual observation and from personal experience. The work amounts to a description of the physician's part in the care of the wounded from the trench and battle field to the first-aid station on through the field, evacuation, base, general and special hospitals. One might suppose that such matter would make tedious reading; but Colonel Church has the happy faculty of making an interesting story out of what might ordinarily be regarded as a dry subject, especially by laymen. Interspersed all along are little incidents and stories of human interest, amusing episodes and withal glimpses of tragedies. His descriptions of conditions met with—of the hospitals, of the physician's life at the front, etc.—are graphic and illuminating. The book is written for the layman in nontechnical language, but certainly this does not detract from its interest for physicians. Colonel Church has a distinct literary touch of which few physicians can boast. Thus he has put life into a dry subject and the result is a book full of information of practical value that is as interesting to read as a novel.

THE AMERICAN HOSPITAL OF THE TWENTIETH CENTURY. A Treatise on the Development of Medical Institutions, Both in Europe and in America, Since the Beginning of the Present Century. By Edward F. Stevens, Architect. Cloth. Price, \$5. Pp. 274, with illustrations. New York: Architectural Record Publishing Company, 1918.

The author, an architect, devotes his time exclusively to hospital construction, and has compiled an interesting book showing the rapid developments in hospital planning and construction in this country. He pictures and describes many of the world's greatest hospitals abroad as well as hospitals of every size and specialty in this country, the final chapter being concerned with military hospitals of the present war. The book is profusely illustrated. In the period of construction and reconstruction that will now take place, works of this character should be of great service to those planning new medical institutions.

DISEASES OF THE HEART: THEIR DIAGNOSIS, PROGNOSIS, AND TREATMENT BY MODERN METHODS, WITH A CHAPTER ON THE ELECTRO-CARDIOGRAPH. By Frederick W. Price, M.D., F.R.S., Physician to the Great Northern Central Hospital, London. Cloth. Price, \$7.50. Pp. 472, with 246 illustrations. New York: Oxford University Press, 1918.

The object of this book as stated in the preface is to include information with regard to recent advances in the study of cardiac disorders, as well as an account of our knowledge prior to this; and by discussing both from the point of view of the clinician, to enable the medical practitioner to take the fullest possible advantage of modern methods in the diag-

nosis, prognosis and treatment of diseases of the heart. This purpose has been as well accomplished as could be expected in a volume of 436 pages of text. About one half is taken up with a consideration of the more modern aspects of cardiology, such as the newer conceptions of the irregularities, the polygraph and the electrocardiograph. An intimate familiarity with these subjects is revealed and the topics are well handled. The same may be said of the discussion of the so-called older or better known diseases of the heart, such as the valvular lesions, and diseases of the myocardium, pericardium, etc. The author has the knack of crowding a good many facts into small space so that the book is really a reliable condensed compendium of knowledge of heart disease. Many polygraphic and electrocardiographic tracings elucidate the text.

Social Medicine, Medical Economics and Miscellany

The Stimulating Effect of Nutrients

F. G. Benedict and T. M. Carpenter in Publication 261 of the Carnegie Institution of Washington (1917) give the results of an extensive series of observations with human subjects on the influence of the ingestion of food on metabolism, with special reference to the stimulating effect of nutrients. The conclusions drawn from the various groups of experiments have been stated by the authors in abstracts as follows: (1) The work of mastication, such as would be involved in chewing gum or a rubber stopper continuously, may require an increment in the heat production of approximately 17 per cent. (2) The ingestion of water with a temperature of either 22 C. or 55 C. produces no significant increment of the basal metabolism, if not over 500 gm. of water are taken. With larger amounts of cold water there may be an increase which, in certain instances, has been found to amount to 16 per cent. above the basal value. (3) Coffee, owing probably to its caffein content, acts as a stimulus to the metabolism. Approximately 325 gm. of coffee at a temperature of about 60 C. will produce an increment in the metabolism of 8 to 9 per cent. (4) Beef tea, taken either hot or cold, slightly increases the metabolism. (5) With carbohydrates the basal metabolism may be increased to an average maximum of approximately 25 per cent. by the ingestion of 100 gm. of any one of several sugars, although levulose and sucrose appear to exert a somewhat more powerful influence than the other sugars. This increment occurs inside of two hours and the metabolism has a tendency to return to the base line somewhat rapidly thereafter. (6) The ingestion of a diet containing a preponderance of fat produces a positive increment in the metabolism, although this increment is considerably less than that observed with an equivalent amount of energy in either carbohydrate or protein. (7) The ingestion of protein in almost any quantity invariably produces an increase over the basal heat production, which may be 25 per cent. for several hours, and for short periods may rise to 45 per cent. No definite mathematical relationship between the amount of protein ingested and the increment in the total metabolism could be established in these experiments. No clearly defined difference between the animal and vegetable proteins was found in their influence on the metabolism. (8) The experiments with mixed diets, especially those with excessive amounts of food, showed that it was possible by the ingestion of a large meal to stimulate the metabolism to 40 per cent. above the basal value for a number of hours, and to 20 per cent. for at least eight hours; indeed, there was every reason to believe that the stimulus to the metabolism would have been found to continue considerably longer than the experimental period of eight hours if the observation had been prolonged. The "cost of digestion," or the mathematical relationship between the fuel value of the intake and the increase in heat production due to the ingestion of food, is estimated with carbohydrates to be not far from 6 per cent. on the average; with fat the increase is about 2 per cent. of the fuel value of the intake, with a protein-rich diet approximately 12 per cent., and with mixed diets 6 per cent.

Medicolegal

Quarantine of Communicable Diseases *

A decision by the supreme court of the State of Washington, Aug. 27, 1918, in effect prohibits the release on habeas corpus of a person detained in quarantine by order of the boards of health of Seattle and the state. This person, arrested for disorderly conduct, had been examined by the health commissioner of Seattle in accordance with an ordinance, found to have syphilis, and sent, in accordance with another ordinance, to an isolation hospital for detention and treatment. He had appealed to the state board of health as provided by law, but the finding of the commissioner had been affirmed. He then petitioned the state supreme court for a writ of habeas corpus, and the superior court for King County was instructed by the latter to inquire into the time and cause of his detention. The superior court issued an order to have him examined before it, and thereupon the health commissioner applied to the supreme court for a writ restraining further proceedings on the ground, among others, that an order of the health commissioner could not be reviewed by the court.

The detained person contended that to deny him such a review was to suspend the writ of habeas corpus, and that the actions and findings of boards of health were open to judicial inquiry the same as other boards, institutions and officers. Bailey (Habeas Corpus, Sec. 106) was quoted to the effect that the determinations of such boards "are not final and conclusive; if they were, then the exercise of such summary power could not be upheld."

In its decision the supreme court states that to follow Bailey would be to make the exercise of the police power a judicial function and holds that:

A writ of habeas corpus is a writ of right, and is never to be denied in any case where the liberty of the subject is made the subject of inquiry. But it has always been held that a return showing a legal cause for the detention of a petitioner is enough to suspend the operation of the writ. . . . Where the police power is set in motion in its proper sphere, the courts have no jurisdiction to stay the arm of the legislative branch of the government, for it is operating in its own particular field, where even the courts are powerless to insist upon a procedure consistent with the forms of the common law. Some courts have held that the discretion and judgment of administrative officers, while very broad, is not absolutely and in all cases beyond judicial control, but the tendency is away from this doctrine, for, granting the right to question means and methods in one case, the questions of fact upon which the administrative order is based might be raised in every case, and the object of the law, which is to deal summarily, to the end that imminent peril to the public may be averted, would be wholly overcome. At any rate, a somewhat extended exploration of the books convinces the writer that a court should not inquire into the reasonableness of an ordinance sounding in the police power in any case where the legislative body has provided the means and methods of carrying it out.

In substantiation of this view, the court cites previous decisions by the Washington Supreme Court and a number of decisions by the United States Supreme Court in regard to the examination or quarantine of immigrants, one of the latter holding that:

Where a statute gives a discretionary power to an officer, to be exercised by him upon his own opinion of certain facts, he is made the sole and exclusive judge of the existence of those facts, and no other tribunal, unless expressly authorized by law to do so, is at liberty to reexamine or controvert the sufficiency of the evidence on which he acted.

Some additional points were raised by counsel in the case, notably the question of the constitutionality of the quarantine law, which leaves to the boards of health definitions and classification of diseases to be quarantined. In regard to this point the supreme court said:

This court has not heretofore considered similar laws as a delegation of legislative power or authority. The legislation is that of the legislative body, but it is not always practical to meet every phase of the necessity that has called for the law by the enactment of a general statute. . . . Nor is there any legal reason for denying the power to quarantine summarily, or to restrain for treatment, a citizen or subject because the authority may be abused or the law maladministered in a given case.

* Reported in 3 Washington Decisions 297. From Public Health Reports, Oct. 4, 1918, p. 679.

One of the points made by the commissioner was that he could not bring his ward into court for examination without subjecting himself to the penalties of the quarantine law; but the supreme court held that "if the court has jurisdiction to inquire into the cause of his detention, resort to examination and expert opinion by those skilled in the diagnosis of disease would not be a breaking of the quarantine."

The contention of the detained person, that the city of Seattle had no authority to pass health ordinances or to create the office of health commissioner, was overruled by the supreme court.

Presumption as to Fit Condition of Person to Use Bath

(*Warren v. Werther* (N. Y.), 169 N. Y. Supp. 709)

The Supreme Court of New York, Appellate Division, First Department, in reversing a judgment that was rendered in favor of the plaintiff for damages for burns sustained after he became unconscious in the hot room in taking a Turkish bath, but without any negligence on the part of the defendant being proved, holds that when a person apparently in good health and condition presents himself for the use of the accommodations provided in a public bath, the proprietor thereof is justified in believing that the patron is in fit condition to use the bath, knows what he is about, and can safely be permitted to make use of the bathing privileges as ordinarily conducted. The contention that the defendant was liable for failure to supply the plaintiff with medical attendance, after the accident, the court answers by saying that there was no proof in the case that the injuries were in any way aggravated by the tardiness of the medical attendance, nor in fact did the record justify even an inference that the plaintiff was not furnished with medical attendance as soon after he was removed from the hot room as was possible.

Representations of Physicians Making Releases Voidable

(*Althoff v. Torrison et al.* (Minn.), 167 N. W. R. 119)

The Supreme Court of Minnesota, in affirming an order denying a motion made by defendant Torrison for judgment or a new trial after a verdict had been rendered in favor of the plaintiff for damages for personal injuries from having been struck by an automobile belonging to the defendant and driven by one of his employees, holds that the plaintiff was not barred from maintaining this action by a release executed on what might be taken as mistaken and misleading representations by physicians.

The court says that if agents or physicians in the employ of the defendant procure a release by intentionally deceiving the plaintiff and causing him to believe that his injuries are trivial when they are known to be serious, the plaintiff is not bound by such release.

If the plaintiff executed the release in reliance on representations as to the character and extent of his injuries, made for the purpose of inducing a settlement by agents or physicians employed by the defendant, and such representations were not true, he may avoid the release although the representations were made in good faith and with no intent to deceive; for they had the effect of causing him to be deceived as to a present existing fact—the character and extent of his injury—and amounted to a fraud in law notwithstanding the good faith of those making them. But if the information given to the plaintiff concerning the nature and extent of his injuries was correct and he was not misled as to the consequences which ordinarily follow from such injuries, the fact that an opinion as to the duration of his disability, honestly given, turns out to have been erroneous is not a sufficient ground for avoiding the release.

There was no error in a charge of the trial court which permitted the jury to disregard the release and return a verdict for the plaintiff in this case if they found that she had been induced to execute the release by fraudulent misrepresentations concerning the injury to her leg, or if they found that she had sustained an injury to the sacro-iliac joint which by mutual mistake had not been taken into account when the settlement was made. Conceding that the physicians acted in good faith in stating that they found the leg normal except

for certain bruises, yet the evidence would justify the jury in finding that they were mistaken, and that the plaintiff had been misled by them into believing that the injuries to her leg consisted only of these bruises when in fact they included an injury to the nerves quite different in character and effect from what the bruises were represented to be. In other words, the evidence would justify a finding that they had not merely erred in an opinion as to the probable duration of the disability, but, although not intending to do so, had in fact misled the plaintiff as to the character and extent of the injury to the leg—an existing fact susceptible of knowledge.

The money received by the plaintiff having been expended in payment of doctor bills before she learned of the injury which caused her permanent disability, her failure to return it did not operate as a ratification of the settlement. The jury were properly instructed to apply it in reduction of damages if they found that she was entitled to recover them.

Construction of Law Giving Employer Right to Require Necropsy

(*Indianapolis Abattoir Co. v. Bryant* (Ind.), 119 N. E. R. 24)

The Appellate Court of Indiana, Division No. 2, says that this was the first case in that state, and no foreign case was called to the court's attention, and it found none, involving the construction of a similar statutory provision to that of Section 27 of the Indiana Workmen's Compensation Act, which reads, "The employer, or the industrial board, shall have the right in any case of death to require an autopsy at the expense of the party requiring same." The purpose of the lawmaking body in enacting such statute was, no doubt, for the protection of the employer, against unjust claims, particularly against the payment of compensation when death is due to natural causes instead of by accident. This court does not believe that it was the intention of the legislature that a necropsy could be demanded in every case of death. Such a construction would render the provision unreasonable when the cause of death is clearly apparent without it, when the cause of death is not uncertain and is not in dispute. The right to a necropsy is to be exercised with caution. It is one calculated under the most favorable circumstances to cause some distress of mind to the family of the deceased.

This was a proceeding under the workmen's compensation act to obtain compensation for the death of an employee of the abattoir company named Bryant, who left the claimant surviving him as his sole and only dependent. There was a dispute in this case as to the cause of the employee's death, and under the construction of the statute herein declared the employer had the right, if properly exercised, to have a necropsy performed. But when, as here, the legislature has not provided the procedure for its enforcement, that adopted must be reasonable both as to the time and the occasion for its exercise.

The court thinks that, when a representative of the company called on the claimant in the afternoon of the day following the death of the employee, after the body had been embalmed, and apparently without having with him any physician or any one to perform the work, and requested a necropsy, it could not be said that there was an unequivocal refusal to grant the right conferred by statute, because the claimant said she did not want a necropsy, unless it was absolutely necessary, but to have the man who sent the representative come and she would talk to him. The court also says that it will be observed that the statute in question makes no provision for making a necropsy further than the mere grant of the right, and provides no penalty or condition in case the claimant refuses to consent to it. Neither can it be implied from the statute as a whole that the legislature intended any penalty to follow a refusal. In the court's judgment, the refusal of a claimant to consent to a necropsy would not deprive the industrial board of jurisdiction to proceed to a final disposition of the case. Moreover, the right to demand a necropsy was a right that could be waived, and was waived by the employer's failure to follow up its request in some manner. Wherefore the award of the industrial board is affirmed.

Public Policy with Regard to Marriage of Epileptics

(*Kitzman v. Kitzman et al.* (Wis.), 166 N. W. R. 789)

The Supreme Court of Wisconsin holds that where, on Sept. 27, 1915, a man and a woman went from Wisconsin to St. Paul, Minn., there obtained a license to marry, and before a justice of the peace in the state of Minnesota had a marriage ceremony performed, receiving from the justice a marriage certificate in the proper form, and returning on the same day to Wisconsin, where they thereafter lived together as husband and wife, a judgment of a circuit court in Wisconsin confirming the marriage, in a suit brought therefor by the woman, must be reversed, with instructions to the circuit court to enter judgment declaring the marriage ceremony null and void, one of the findings of that court being that during the period of ten years preceding the trial the man had been subject to occasional attacks of epilepsy, which epileptic condition was caused by the excessive use of alcohol. The court says that the marriage in Minnesota was solemnized contrary to the express prohibition of the statutes of that state and contrary to its public policy. It was solemnized there after a fraud on the clerk of the district court, in his duty to ascertain and to be satisfied that there was no legal impediment to such marriage, had been perpetrated, either by the concealment by or false statement of the man as to his condition on a material and statutory requirement. It could not properly be held that the public policy of Minnesota, in prohibiting an epileptic from contracting a lawful marriage, was contrary or repugnant to the then public policy of the state of Wisconsin, inasmuch as this state then prohibited the marriage of insane persons and idiots; for, although there is a distinction both in the legal and medical sciences between epilepsy and insanity, yet the court may properly take judicial notice that epilepsy is a serious mental disease, and tends to weaken the power of the afflicted person and to injure his posterity. This court would be loath to declare, if not indeed prevented from declaring, that such a prohibition by Minnesota was contrary to the public policy of Wisconsin, in view of the fact that by Chapter 218, Laws of 1917, the legislature amended Section 2330 of the Wisconsin Statutes by inserting the word "epileptic" between the words "person" and "or," where the provision was made that "no insane person or idiot shall be capable of contracting marriage." The marriage ceremony, therefore, which the plaintiff asked the courts of Wisconsin to confirm in this action, was, where performed, contrary to public policy of the state resorted to by the plaintiff for the sole purpose of performing the ceremony, and this court will give it no higher value in Wisconsin than it had there. The mere fact that the unfortunate man, when examined as a witness in the court below, expressed himself as opposed to the action taken by his guardian in asking that the complaint be dismissed and the alleged marriage be declared void, and indicated his desire of having the marriage ceremony confirmed, and the relationship continued, did not alter the situation nor change the duty of the court in disposing of the case. The state has the right to control and regulate by reasonable laws the marriage relationship of its citizens, and the wishes and desires or even immediate welfare of the individual must yield to that of the public welfare as determined by the public policy of the state.

Insufficient Information Against Physician for Prescribing Liquor

(*State v. Bradford* (Mo.), 201 S. W. R. 913)

The Kansas City (Mo.) Court of Appeals, reversing a judgment of the circuit court, says that this was a prosecution, by information, of a physician for violation of the statute forbidding the issuance of a prescription for intoxicating liquor for other than medicinal purposes. But the information was not in the language of the statute and did not charge the physician with issuing the prescription for the purpose of enabling the liquor to be used otherwise than for medicinal purposes. In other words, the information did not connect the issuance of the prescription with the purpose of the use of the liquor. It was therefore insufficient.

Society Proceedings

COMING MEETINGS

American Assn. for S. & P. of Inf. Mort., Chicago, Dec. 5-7.
American Physiological Society, Baltimore, Dec. 30-Jan. 1.
American Public Health Association, Chicago, Dec. 9-12.
Medical Association of Porto Rico, Ponce, Dec. 14-15.
Society of American Bacteriologists, Boston, Dec. 30-Jan. 1.
Southern Surgical Association, Baltimore, Dec. 17-19.
Western Surgical Association, Chicago, Dec. 20-21.

INDIANA STATE MEDICAL ASSOCIATION

Annual Meeting, held at Indianapolis, Sept. 26-28, 1918

The President, DR. J. RILUS EASTMAN, in the Chair

Anorectal Fistula

DR. C. F. FLEMING, Elkhart: A careful and free opening of ischiorectal abscesses will prevent many fistulas. It is well to cut as few fibers of the external sphincter as possible. The cut should be a single transverse cut and not a dissection destroying the muscle substance. The most important part of the diagnosis is the demonstration of the internal opening. Those fistulas with a straight tract do well when simply incised and allowed to heal, and burrowing fistulas are best dissected out by some method that avoids destruction of sphincter muscles.

DISCUSSION

DR. C. C. TERRY, South Bend: Our poor results in this line of work are due to incorrect diagnosis rather than to poor technic. Our examinations must be more thorough if we are to have better results; and following thorough examination the important thing is early operation. Often a simple incision, under a local anesthetic, with a small drain, will give relief. When patients are operated on early, forty-eight hours of drainage is all that is necessary.

Study of the Anus, Rectum and Sigmoid

DR. H. H. WHEELER, Indianapolis: The anorectal line has a very important clinical significance in that it is the point at which the blood supply is differentiated. Above this line the blood is supplied by the superior hemorrhoidal artery, a branch of the inferior mesenteric, and returned through the portal circulation; below this line the blood supply is taken care of through the systemic circulation and returned through the inferior vena cava. The anorectal line also differentiates the lymphatic current and the nerve supply. The rectosigmoidal junction is the point of retention of effete matter, and also the most frequent site of malignancy. Spastic constipation occurs very often from a lower bowel disturbance that hinders the complete evacuation of the bowel.

DISCUSSION

DR. W. H. FOREMAN, Indianapolis: The anorectal line is most important in cases of constipation, because until the fecal matter has passed this line the entire act of defecation is beyond control. Beyond the anorectal line it becomes a conscious matter, a matter that we can to a certain degree help or retard—and here is the cause of so many cases of constipation, because instead of making an effort to expel the fecal contents, the activity is inhibited and the fecal contents remain in the rectum and, therefore, below the sympathetic rectal reflexes—the conscious rectal reflexes. Ninety-five per cent. of all constipation is spastic and is due to an accumulation of material in the sigmoid that Nature is unable to expel.

Syphilis as It Pertains to the Eye

DR. ALBERT E. BULSON, JR., Fort Wayne: A syphilitic basis for the ocular lesion is diagnosed not only by certain features of the lesion itself, but also by the presence of these lesions in other parts of the body, by physical characteristics, and by the results of the Wassermann test. However, one must not be led astray by a negative Wassermann.

In acquired syphilis, and especially in the early stages, arsphenamin and neo-arsphenamin have proved of value; but repeated administration of the remedy is usually required,

and the treatment should be supplemented by mercurial treatment. The iodids are reserved for lesions accompanied by an abundance of exudate. Syphilitic eye affections demand heroic treatment. Therefore, mercurials should be crowded just short of physiologic effects, and if potassium iodid is indicated at all it should be given in large doses. There are, however, no eye affections that yield any better results from prompt and energetic treatment than those of syphilitic origin, though, on the other hand, no lesions are more disastrous if not diagnosed early, and promptly and vigorously treated.

Factors of Safety in Hysterectomy

DR. DONALD GUTHRIE, Sayre, Pa.: The three most important factors of safety in this operation are: First, the preparation of the patient. I do not give any preoperative purge, believing it to be a harmful measure. Large amounts of fluid are lost in the purge, and a night that should have been spent in comfort and rest is a veritable nightmare. In case of nervous, excitable patients, or those suffering with insomnia, I advise a few days' rest in the hospital prior to operation. Second, the position of the patient during anesthesia. I advocate the Trendelenburg position when the patient is put to sleep. This means less handling of the intestine and consequently less trauma. Third, postoperative care. The patient should be made as comfortable as possible. Food is given early because it is the best stimulant for peristalsis. A catheter is used only when all other methods fail. I have had no postoperative hemorrhages. In 551 hysterectomies the mortality rate was 1.2 per cent.

Industrial Clinics and Welfare Work as an Industrial Asset

DR. M. A. AUSTIN, Anderson: As the necessity for making physical examination of employees has been shown to be desirable, the industrial clinic has been established. The average physician would be much surprised to visit some industrial plants and see the equipment provided for the welfare of employees. At one place in Chicago I found a hospital furnished with twenty beds, a surgery completely equipped for any kind of operation, a staff of seven doctors and twelve nurses, a laboratory equipped for roentgenographic work, and an expert in charge of the chemical and microscopic department, doing everything in the way of bacteriologic and serologic work. A Wassermann test was made in every fracture case and in every case in which there was delayed healing in a wound. In a conference with the heads of departments I asked as to the benefits, not only to the company but also to the employees, and they stated that it was the best investment the company had ever made. In former years many unjust claims were paid, which is largely obviated by this supervision of employees. This company, in common with many others all over the country, requires a physical examination of each employee, not only as a safety first measure, but also that each employee may be given the kind of work for which he is best fitted physically.

Infant Conservation

DR. ADA E. SCHWEITZER, Indianapolis: The multiplicity of agencies already at work indicates general interest. There is need, however, for organization and centralization of efforts. Effective infant conservation will depend primarily on the care the infant receives, and includes considerations of heredity, prenatal care, care at birth, and all conditions affecting postnatal and infant care. As means of securing proper care we suggest: (a) Special education and training of physicians, nurses, teachers, parents and children, each concerning the phase of the work in which he may best aid. (b) The provision of adequate service, medical, nursing and hospital facilities available to all. The administration of this division of public health work by special departments established in state boards of health. A nation-wide adaptation of the statistics and suggestions furnished by our national clearing house, the Children's Bureau, U. S. Department of Labor, in the formulation of plans for this work, that the most practical and efficient organization may be accomplished with the least waste of money, energy and time.

Prenatal Care

DR. C. O. McCORMICK, Indianapolis: Prenatal care is conserving the health and strength of the prospective mother; it is foresight and forehandedness during pregnancy; it is preventive medicine applied to obstetrics; it is an effort to prevent mistakes and mishaps to both mother and infant before and during childbirth; it is an effort to give mother and infant the greatest possible chance. The chief results of this work are that it lowers the infant death rate under one year; produces healthier babies; reduces the number of stillbirths and miscarriages; increases the number of normal births; reduces the number of toxemia and eclampsia cases; increases cases of maternal nursing; reduces maternal mortality; helps eliminate the midwife, and last, but not least, elevates the standard of obstetrics, making it a line of work attractive to the young physician.

DISCUSSION

DR. JANE KETCHAM, Indianapolis: We began last May to examine the children, and in this work we had the cooperation of the medical school, of the physicians, and also of the hospitals and the Public Health Nursing Association. We had in all 212 clinics in which 17,000 children were enrolled. Some were not examined, but many were. In the country districts the greatest cooperation was seen, the people being much interested. In the city we sometimes had no children at all, and at other times the clinics were overflowing. We are already seeing the benefit of the follow-up work. Children are being brought to the medical school clinics and to private offices to see if the defects that we pointed out can be remedied. I feel that this work has been of great advantage to the community, and it certainly is a stimulating field in which to work.

DR. LOUIS ROSS, Richmond: In Wayne County about half the children were registered, and we examined about half of those, so that we examined one fourth of the children under 6 years of age. We are undertaking follow-up work through our social service bureau and a group of volunteer visitors, and the results are very encouraging.

DR. W. A. FANKBONER, Marion: The success of this movement does not depend entirely on the physician. It depends on organization and publicity. If you give the American community a vision of the importance of this work, the people will come to the standard.

DR. N. BAINBRIDGE POWELL, Marion: This campaign for child welfare was very well carried out in our county, but the important thing now is the follow-up work. Our mothers are interested and are willing to do what they are told; but the agencies back of them—the grandmothers and all the talk that is brought to the home—is what we have to fight.

Clinical Significance of Blood in the Urine

DR. H. O. MERTZ, Laporte: Any urinary hemorrhage is an expression of a pathologic lesion along the urinary tract. No definite conclusion can be formed by simply studying the symptoms of hemorrhage, as a malignant process may cause so little bleeding that no anxiety is aroused in the mind of the patient. The most confusing and difficult case of urinary hemorrhage I have seen was due to a small papilloma of the urethra that I had repeatedly overlooked in my examinations. This growth was near the external urethral meatus, and at times a drop of bright red blood would pass from the resting urethra. At urination the first urine contained much blood, while the last showed only microscopic blood.

DISCUSSION

DR. M. JOSEPH BARRY, Indianapolis: The diagnosis of blood in the urine is easy, a microscopic examination of a fresh specimen of urine being all that is necessary; but once the condition has been diagnosed, it becomes of the utmost importance to determine the origin and cause, and this may be done in a majority of cases if we take advantage of the modern methods of diagnosis. After exhausting all of these methods with negative results, there is, however, a certain residue of cases that formerly were designated as "essential renal hematuria," "angioneurotic renal hematuria," "renal epistaxis" and "renal hemophilia." We are not justi-

fied in saying there is no lesion back of the hemorrhage because we cannot find it. The most careful observers who have studied the postoperative and postmortem material in these cases have been able to demonstrate evidence of minute foci of infection in the kidney substance; so we must not close our eyes to the possible gravity of the situation in any case in which blood appears in the urine.

DR. BERNHARD ERDMAN, Indianapolis: In the larger cities the commonest cause of gross as well as microscopic evidence of blood in the urine is gonorrheal infection.

DR. L. F. SCHMAUSS, Alexandria: We should not wait for blood in the urine to diagnose renal disease.

Infection and Toxemia in Relation to Glandular Organs

DR. HUGO PANTZER, Indianapolis: Removal of the focus or foci of infection wherever located in the entire body, removal of anatomic irregularities, and active eliminative treatment, medicinal, hydrotherapeutic and hygienic, will restore most cases to normal. The resort to organ therapy fails in many cases unless accompanied by active eliminating measures. Associated, the two do well in those cases in which, under like conditions of disease of the organs of digestion, we administer pepsin, trypsin, pancreatin, etc. In the many cases in which my efforts were limited to the surgical and eliminating measures mentioned, my experience was such that the organ products, as now understood and applied, are of little avail. However, relief from them comes most happily in those cases in which the effects of toxemia and bacteremia have routed all physiologic function for the time or permanently.

Cesarean Section and Obstetric Operations Under Nitrous Oxid-Oxygen Anesthesia

DR. I. McKESSON, Toledo, Ohio: If there is an ideal anesthetic for obstetric operations, it is nitrous oxid. Its transient effect when removed permits almost immediate resumption of normal labor; its lack of depression on uterine and other muscles when properly administered, its safety to mother and child, and the means at hand for perfusing the child with oxygen through the mother while the cord pulsates, are factors that should decrease fetal and maternal mortality and morbidity in operative obstetrics. The hope of reduction of morbidity and mortality in general rests in great measure on the disposition of the midwife, who delivers 50 per cent. of the parturients in the larger cities.

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA

Sixty-Eighth Annual Session, held at Philadelphia, Sept. 23-26, 1918

(Concluded from page 1771)

Intraspinal Auto-Aminized Serum Treatment of Cerebrospinal Syphilis

DR. B. A. THOMAS, Philadelphia: Arsphenamin therapy, either intravenously or intraspinally, cannot restore degenerated spinal cords. Intraspinal treatment accelerates the restoration of the spinal fluid to normal, arrests the degenerative process and insures greater permanency of therapeutic results. Intraspinal treatment by auto-arsphenaminized or arsphenaminized auto-arsphenaminized serum injections should supplement intensive intravenous therapy when necessary. Cases of endarteritis with vascular or circulatory disturbances and those with exudative gummatous meningitis, also many cases of tabes dorsalis, respond satisfactorily to intravenous therapy alone. Cases with marked tract or cortical degeneration offer little, if any, hope of improvement. Treatment in qualified cases should be continued until the findings in the spinal fluid, as well as the blood, are rendered negative, except globulins, which may persist positive in many cases irrespective of the amount of treatment. Mercury and the iodids continue to be indispensable supplementary therapeutic aids in the treatment of cerebrospinal syphilis.

DISCUSSION

DR. LORAIN L. SCHWARTS, Pittsburgh: Unless the general medical profession universally recognizes the necessity for

routine lumbar puncture in all cases of syphilis I believe we shall have in twenty years as many posterior sclerosis tabetics, paretics and cerebrospinal cases as we are having under the old treatment. Opportunities for better work in this field rests primarily with the physician having charge of the patient during the first six months of his infection. I do not in all cases delay exploration of the spinal canal until I am ready to discharge the case. If there is the slightest sign of central nervous involvement, resistance to therapy, or persistence of strong Wassermann within the first three months I have the spinal canal explored and in many of these cases I think we save the patients many intravenous doses of arsphenamin by starting the spinal treatment early. I am particularly in accord with the skeptical views held by many neurologists regarding the effect of treatment because when the patient reaches the neurologist the anatomic changes present render the case unpromising.

DR. JAY F. SCHAMBERG, Philadelphia: I am in full accord with the deductions drawn by Dr. Thomas on the intraspinal treatment of cerebrospinal syphilis. It is impossible to cure cases of parenchymatous diseases of the nervous system if degenerative changes have already taken place. The colloidal gold test warns us in advance of impending changes in the nervous system. It is essential that we examine the spinal fluid in all patients in whom a negative blood Wassermann is obtained. The time to cure paresis is before clinical evidences of the disease develop.

DR. ALFRED GORDON, Philadelphia: I have had an experience of several hundred cases of neurosyphilis, and in some brilliant results have attended the first or second administration of autoneo-arsphenaminized serum. I have also had some very regrettable results. Generally speaking, I find no parallelism between laboratory findings and clinical symptoms. While the old methods of treatment of neurosyphilis are good, the intraspinal method is an excellent adjunct.

DR. PAUL G. WESTON, Warren: In our hospital we divided our paretics into so many groups giving each a different treatment; one group was given no antisiphilitic treatment. We found practically no difference in the average length of life of the treated and the untreated patients. At necropsy the same changes were found in the brains of the treated and untreated.

Application of the Principles of Advanced Psychiatry

DR. J. ALLEN JACKSON, Philadelphia: The principles are expressed in the functions of mental hygiene, and combine the knowledge gained in custodial institutions with community forces. They are applicable to rural communities, municipalities, or states. In communities with a population over 500,000, community service would best be obtained through a municipal bureau of mental hygiene. To secure cooperation with outside organizations such a bureau should be under the supervision of a trained psychiatrist with subordinate district supervision. In such districts there would be designated definite psychiatric centers under the direction of an alienist assisted by a trained field worker. At these centers public education could be encouraged, early care and treatment with definite assignment to proper institutions, custodial psychopathic, preventorium, or general hospitals, could be made. The alienist in charge of the psychiatric center would bear the same relation to the custodial institution as the medical inspector of the bureau of health bears to the hospital for contagious diseases. The chief officer of such a bureau should be a conservatively progressive psychiatrist experienced in intramural and extramural psychiatry. The alienist assigned to each center should be a practical man of broad experience and training. The field workers should be graduate nurses with general hospital and psychiatric training and a keen insight of human nature. The immediate effect of such a bureau would be a temporary increase of custodial patients, counterbalanced, however, by the probability of an increased recovery rate. The effect on the indigent and permanently insane would be speculative. Early diagnosis and appropriate treatment would be assured. The interest of patients and their relatives would be safeguarded. The propagation of the mentally unfit would be checked, and the

cost to the municipality and state of the care of these unfortunates would be eliminated.

DISCUSSION

DR. JOHN A. LICHTY, Pittsburgh: I am in accord with Dr. Jackson's method of organization. Work of this kind means economy and efficiency, the saving of lives and bringing back to health many people now submerged.

DR. S. SOLIS COHEN, Philadelphia: I wish the same plan might be inaugurated in our dealing with tuberculosis. By our defective hygienic organizations we produce a large number of tuberculosis and insanity cases. Having produced them, we save a few in a half-hearted fashion and then allow them to lapse.

DR. E. E. MAYER, Pittsburgh: Unless physicians get away from the individualistic, they will lose their prerogative of the confidence of the community; social and vocational workers will take up the spheres of activity which should be, in part, those of the medical profession. Hygiene should deal with the social problem of the community as well as the mental. Until we have a plan by which these various agencies work with the medical profession I fear we shall accomplish but little. I trust that our state authorities and organizations may attack the problem from this standpoint.

PROF. NORBERT J. MELVILLE, Philadelphia: The Mental Hygiene Committee of the Public Charities Association is prepared to cooperate with physicians in any community who are ready to direct that type of cooperation. We are already working through welfare agencies to convince social workers that they ought to go to the specialist for direction in social psychiatry and that the social agencies ought to send some of their staff for a time to take a course in the principles of social psychiatry. It is the thought of the committee that with the organization of volunteer workers eventually the state may take over the work.

Serum Treatment of Epidemic Cerebrospinal Meningitis

DR. JOHN A. KOLMER, Philadelphia: The serum treatment of epidemic cerebrospinal meningitis by the intraspinal route of injection has reduced the gross mortality of 70 to 90 per cent. among patients not treated with serum to 30 per cent. or less. The problem is complicated because more than one type of meningococcus is capable of producing the disease, and by the fact that the micro-organism may be carried and disseminated by convalescents and by healthy carriers. It is highly important to employ a potent polyvalent serum in the treatment of meningococcus infections because at the present time type diagnoses and the employment of monovalent serums in treatment are not yet available as in the diagnosis and treatment of lobar pneumonia. Investigations in the Army and Navy have shown that the majority of cases of meningitis are due to previous contact with a patient or a healthy carrier of the coccus. During epidemics of the disease between 1 and 2 per cent. of persons are chronic carriers and these constitute the greatest source of danger. Treatment and management of the chronic carriers are as puzzling as of the healthy carriers of virulent diphtheria bacilli. The successful treatment of meningococcus meningitis with serum depends largely on early diagnosis and the proper administration of sufficient serum of high potency and polyvalency. With the least clinical suspicion of meningitis the physician should resort to spinal puncture without delay. The micro-organisms are regarded by Flexner as infecting the meninges by direct extension along the lymphatics of the olfactory nerves with their occasional presence in the blood stream; recent studies, particularly of Herrick and Baeslack indicate that the coccus may be present in the blood more frequently than heretofore thought and that this "meningococcus sepsis" may produce systemic symptoms. It is my custom to culture the blood routinely at the time of spinal puncture. If after two intraspinal injections of large doses of antiserum improvement is not shown clinically and in the analysis of the cerebrospinal fluid, I advise that the serum of a second manufacturer be substituted, hoping that the second serum may contain specific antibodies for the particular type of meningococcus producing the disease which were absent from the first serum. Our main interest in the serum therapy of

meningitis has been concerned with the influence of fresh normal serum alone and in combination with antimeningitis serum on virulent meningococci. On the basis of our experimental results we believe it is logical to complement the antimeningitis serum before intraspinal injection by the addition of at least one cubic centimeter of fresh human or guinea-pig serum to each 9 c.c. of antiserum, particularly in the treatment of serum-resistant cases. We have not yet been able to give this method clinical trial. It seems worthy of use in further efforts toward improving the results of the serum treatment of meningococcus-meningitis.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics

November, 1918, 78, No. 5

- 1 Hydatiform Degeneration: Study of Over One Hundred and Fifty New Cases. A. W. Meyer.—p. 641.
- 2 *Multiple Vascular Anomalies of Great Vessels in New-Born Child. E. H. Norris and L. M. Miller.—p. 668.
- 3 Relationship of Syphilis to Abortion, Miscarriage and Fetal Abnormalities. F. L. Adair.—p. 678.

2. Multiple Vascular Anomalies of Great Vessels.—In the case cited by Norris and Miller there was aplasia of the pulmonary arteries, dysplasia of the left sciatic and femoral arteries, with aplasia of the left common iliac, external iliac, and umbilical arteries, persistence of the left cardinal system with aplasia of the right superior vena cava.

American Journal of Orthopedic Surgery

November, 1918, 16, No. 11

- 4 *Transportation of Wounded; Application of Splints. N. Allison.—p. 389.
- 5 *Hemorrhagic Osteomyelitis and Sarcoma in Bone. G. Barrie.—p. 392.
- 6 Moving Picture as a Method of Teaching; Especially Adaptable to Postgraduates. R. T. Taylor.—p. 414.
- 7 *Symptoms Attributed to Lesions of Sacro-Iliac Joint. R. B. Cofield.—p. 418.
- 8 Pathologic Conditions of Peripheral Nerves. S. M. Cone.—p. 428.
- 9 The Draft Examination. A. O'Reilly.—p. 433.
- 10 Demonstrable Luxation of Sacro-Iliac Joints. E. T. Wentworth.—p. 443.
- 11 General Principles of Splinting for Paralyzes from Nerve Injuries: Special Application of These Principles in Median and Ulnar Nerve Paralyzes. M. Longworthy.—p. 445.

4. Transportation of Wounded.—Allison calls attention to the fact that an equipment of splints and surgical dressings and appliances has been described in a small volume called a "Manual of Splints and Appliances for the Medical Department, U. S. Army," issued to the Army under Special Order 73, Paragraph 17, and approved by the Commanding General of the Expeditionary Force. This volume has been distributed to the medical officers of the division in the field and to those in all hospitals in the Zone of Advance. The splints therein described have been demonstrated to all battalion and regimental surgeons, and to the commanders of all the ambulance companies and the enlisted personnel of the same. Practical drills have been held, and competition started to develop efficient, rapid and proper application of these splints, so that in the divisions already actively engaged a practical knowledge exists of the value of traction and fixation in the support of fractured bones and injured joints. The type of splints selected by the Splint Board has, so far as experience goes, met existing conditions in a most satisfactory manner; the splints are easily applied and give, in a simple and readily understood manner, the exact principles of treatment insisted on by the Division of Orthopedic Surgery.

5. Hemorrhagic Osteomyelitis and Sarcoma in Bone.—In this paper the attempt is made to differentiate the lesion termed "hemorrhagic osteomyelitis" from the true sarcoma found in bone, and to demonstrate that to group this affection

with the malignant bone neoplasms is not justified. Barrie is of the belief that a diagnosis of malignancy cannot and should not be made or based on the giant-cell content in such processes. A correct and confirmatory diagnosis rests on the variety and architectural arrangement of the other cells occupying the microscopic field. It is absolutely essential to recognize that giant cells, of the type commonly found in some of the low-grade malignant sarcomas, are also present in most of the noninfective low-grade inflammatory processes in bone, wherever destruction has occurred and regenerative and reconstructive effort is taking place; the latter being evidenced by the presence of vascular granulation tissue filling up destroyed areas or cavities. In true sarcoma, regardless of the degree of malignancy, there is never a resting stage; the increase in size of the neoplasm is progressive and constant. No apparent effort at regeneration or reconstruction of normal tissue occurs. In hemorrhagic osteomyelitis, increased bone destruction, following initial injury, is due to nutritional inhibition and necrosis of bony structure resulting from pressure of the proliferative granulation tissues. Hand in hand with destruction, efforts at regeneration and rebuilding of normal structure go on, evidence of which is seen in the formation of primary elemental granulation tissue. Eight cases are cited.

7. Symptoms Attributed to Lesions of Sacro-Iliac Joint.—

A thorough anatomic and clinical study of lesions of the sacro-iliac joint and of analogous conditions seen so frequently following injuries to joints elsewhere in the body leads Cofield to the belief that the lesions are none other than acute and chronic sprains of the sacro-iliac joint. The pain is doubtless due to the stretching or tearing of some of the fibers of the posterior ligament at the time of the injury, and it may continue for an indefinite time if efficient immobilization of the joint is neglected. The pain in the lumbo-sacral region and buttocks is to be explained by the excessively prolonged effort of the posterior musculature in guarding against joint movement, just as any other continued muscular action, unduly prolonged, will result in a severe aching pain. The sciatic pain is explained by the mechanical irritation of the nerve as it passes through the groove formed by the outer and inner hamstring muscles. These muscles being in a state of spasmodic contraction produce an irritation of the nerve, which causes pain which is referred to the distribution of its branches below the lesion. Further evidence which confirms this theory is furnished by the fact that these patients will almost invariably state that the sciatica appeared immediately following the manipulation. Cofield says that careful study of the anatomy and functions of the sacro-iliac joints precludes the possibility of subluxation or relaxation occurring, except in severe crushing injuries or possibly during the later stages of pregnancy, when all pelvic ligaments are in a state of temporary relaxation. The remarkable results achieved by bonesetters and osteopaths in the so-called "luxations" and "misplacements" of the lower spine or sacro-iliac joint may be attributed to their manipulation of the joint and massage of the muscles, which may modify or relieve the symptoms after one or many treatments, depending on how soon they give the patient the "proper twist."

American Journal of Public Health

September, 1918, 8, No. 9

- 12 Program of War Department Against Venereal Disease. W. F. Snow and W. A. Sawyer.—p. 639.
- 13 Protection Against Food Contamination. C. E. McCombs, New York City.—p. 644.
- 14 Ice Cream Epidemics and Model Regulations for Control. H. W. Hamilton.—p. 651.
- 15 Feeble-mindedness and Social Environment. P. H. Bryce.—p. 656.
- 16 Bacterial Examination of Green Vegetables. F. W. Kurk.—p. 660.
- 17 Public Health Instructor: New Type of Health Worker. E. V. Brumbaugh, Milwaukee.—p. 662.
- 18 Public Health Lessons of the War. E. C. Levy, New York City.—p. 664.
- 19 Bibliography of Field Water Supply. J. J. Hinman, Jr., Iowa City.—p. 668.
- 20 Charts and Maps as Used by Health Officers. G. T. Swarts, Jr., Providence, R. I.—p. 674.
- 21 Transport Sanitation. C. W. Berry.—p. 690.
- 22 Child's Ten Commandments to Parents. C. E. Turner.—p. 695.

Archives of Pediatrics

September, 1918, 35, No. 9

- 23 *Diphtheria Mortality and Treatment. A. L. Hoyne, Chicago.—p. 513.
 24 *Hemoptysis Following Exploratory Puncture of Chest. A. Caille.—p. 524.
 25 *Hemoptysis in Children. Five Cases. P. H. Pierson.—p. 527.
 26 Congenital Stricture of Duodenum. Operation. Death. H. M. McClanahan.—p. 533.
 27 Thomas Sydenham's Description of Measles, Scarlet Fever and Chorea. C. Herman.—p. 536.
 28 Story of Evian les Bains. R. B. Mixsell.—p. 541.

23. **Treatment of Diphtheria.**—Hoyne is convinced that far too much whisky is used in the treatment of diphtheria. Strychnin, he says, should only be given for a brief period to tide over some emergency. The indiscriminate giving of strychnin from the time a diagnosis of diphtheria is made until the disease has run its course is extremely likely to produce dire results. The chief requisite of the heart in diphtheria is rest. If stimulants must be given over a prolonged period, some form of digitalis, in Hoyne's experience, has usually produced the best results. The chief value of strychnin is as an emergency measure in case of collapse.

As to the dosage of antitoxin, while each case must be judged on its individual characteristics in arriving at the proper dosage, in Hoyne's experience the following scale has served as a fair guide: 1. Purely tonsillar cases, from 5,000 units to 10,000 units. 2. Laryngeal, 10,000 units to 15,000 units. 3. Pharyngeal (including tonsils), 15,000 units to 25,000 units. 4. Nasal or nasopharyngeal, 20,000 units to 50,000 units. The doses will vary somewhat according to the duration of the disease, and the possibility of more than a single type occurring in the same patient must not be overlooked. If possible, the maximum amount of antitoxin required for a given case should be administered as soon as determined. Nothing is to be gained by a division of the dose, that is, by repeated small doses. Hoyne favors the intramuscular injection into the outer side of the thigh.

24. **Hemoptysis Following Exploratory Puncture of Chest.**—Caillé urges that the clinician bear in mind that in acute cases in which a puncture seems indicated, the introduction of an exploratory needle into a thorax containing a highly congested lung is attended with some degree of risk when cyanosis, and other characteristic signs, point to cardiac or circulatory failure. In obscure, subacute and chronic conditions a roentgen-ray investigation should be made; it may obviate the necessity of a puncture. When exploratory puncture of the chest is performed for the purpose of eliciting the nature of an exudate or transudate, which otherwise reveals its presence by characteristic physical signs, including a bulging of an intercostal space during inspiration, the danger of an internal hemorrhage is practically nil.

25. **Hemoptysis in Children.**—In the five cases cited by Pierson, the hemoptysis was due to bronchial gland tuberculosis, pressure on, and erosion of, a vessel near the hilus by an enlarged gland.

California State Journal of Medicine

November, 1918, 16, No. 11

- 29 Syphilis of Thyroid. Report of Case. E. H. Schneider.—p. 484.
 30 Seminal Vesiculotomy in Treatment of Gonorrheal Rheumatism. Report of Cases. J. R. Dillon.—p. 485.
 31 Disease of Aorta as Shown by Fluoroscopic Study. S. E. Bailey.—p. 490.
 32 Treatment of Syphilis of Central Nervous System. R. W. Harvey.—p. 491.
 33 Conservation of Children. J. Crawford.—p. 493.
 34 Diverticula of Female Urethra. Report of Case of Congenital Type. J. C. Neel.—p. 494.
 35 Radium in Treatment of Uterine Cancer: Case Reports. R. Duncan.—p. 497.
 36 Roentgen Ray Treatment of Uterine Fibroids. H. J. Kreutzmann.—p. 501.
 37 Lung Reflexes in Pulmonary Tuberculosis. F. M. Pottenger.—p. 502.

Boston Medical and Surgical Journal

Nov. 7, 1918, 79, No. 19

- 38 Neuroses Among Returned Soldiers. C. B. Farrar.—p. 583. (To be continued.)

Iowa State Medical Society Journal, Des Moines

October, 1918, 8, No. 10

- 39 Medical Lessons of Present War. C. P. Howard, Iowa City.—p. 351.
 40 Perineal Prostatectomy. J. Crawford, Cedar Rapids.—p. 355.
 41 Foreign Proteids in Therapeutics. E. S. Evans, Grinnell.—p. 360.
 42 Injury to Face with Involvement of Maxillary Antrum. J. B. Naftzger, Sioux City.—p. 365.
 43 Plague in India. B. S. Jain.—p. 368.

Journal of Bacteriology

July, 1918, 3, No. 4

- 44 *Relationship Between *B. pertussis* and *B. bronchisepticus*. N. S. Ferry and H. C. Klix.—p. 309.
 45 Occurrence of Different Types of Colon-Aerogenes Group in Water. L. A. Rogers.—p. 313.
 46 *Elimination of Spurious Presumptive Tests for *B. Coli* in Water by Use of Gentian Violet. I. C. Hall and L. J. Ellefson.—p. 329.
 47 *Use of Gentian Violet in Presumptive Tests for *B. coli* in Milk with Reference to Sporulating Anaerobes. I. C. Hall and L. J. Ellefson.—p. 355.
 48 *Value of Petroleum-Ether Method for Isolation of *B. Typhosus* from Feces. L. A. Kohn and C. Krumwiede, Jr.—p. 361.
 49 *Bacterial Nutrition: Utilization of Protein and Non-Protein Nitrogen. N. Berman and L. F. Rettger.—p. 367.
 50 *Influence of Carbohydrate on Nitrogen Metabolism of Bacteria. N. Berman and L. F. Rettger.—p. 389.
 51 Classification and Nomenclature of Bacteria. Subgroups and Genera of Actinomycetales. R. E. Buchanan.—p. 403.
 52 Classification of Aciduric Bacteria. A. H. Rahe.—p. 407.
 53 *Germicidal Action of Freezing Temperatures on Bacteria. C. M. Hilliard and M. A. Davis.—p. 423.

44. **Differentiation Between *B. Pertussis* and *B. Bronchisepticus*.**—The value of the complement fixation tests in differentiating between these two organisms was made the subject of a study by Ferry and Klix. In a large majority of the tests, the *B. bronchisepticus* immune serum bound the complement in the presence of both the bronchisepticus and pertussis antigens, while the *B. pertussis* immune serum bound the complement in the presence of the homologous antigen and also the human and monkey strains of *B. bronchisepticus*. It did not bind the complement in the presence of a dog strain of *B. bronchisepticus*.

46. **Elimination of Spurious Presumptive Tests for *B. Coli* in Water by Use of Gentian Violet.**—Hall and Ellefson describe a method to prevent gas formation by anaerobic organisms, so that a greater proportion of positive tests is referable to coliform bacilli alone. This they propose to accomplish through selective inhibition by gentian violet. The gram-positive sporulating aerobes, among which occasional forms capable of giving positive presumptive tests occur, are also inhibited.

47. **Use of Gentian Violet in Presumptive Tests for *B. Coli* in Milk.**—While Hall and Ellefson do not feel justified as yet in claiming that the addition of gentian violet to lactose broth leads to the detection of *B. coli* in every case in which gas is formed, yet its use certainly does not interfere with the demonstration of *B. coli*; indeed, it distinctly favors such demonstration. Further, the use of 1 to 100,000 gentian violet in the litmus lactose agar plate does not interfere with the growth or acid producing properties of the organism; rather it eliminates to a large degree the masking of acid produced by *B. coli*, through the inhibition of alkali forming, proteolytic, nonlactolytic, gram-positive sporulating bacilli of the hay bacillus group and prevents spreading growths due to these organisms. Moreover, the inhibition of acidifying cocci is of distinct advantage in the search for *B. coli*.

48. **Petroleum-Ether Method for Isolation of *B. Typhosus* from Feces.**—Kohn and Krumwiede found that the petroleum ether method for the detection of *B. typhosus* has no advantage over direct plating on a medium which restrains the growth of the associated fecal types. With short periods of exposure it may be successful where direct plating on Endo's medium alone fails. There is a strong tendency to reduction of the number of *B. typhosus*, not necessarily associated with a greater reduction of the accompanying fecal bacteria. The danger of infection to those using the method, however, is sufficiently serious to warrant its condemnation, especially as it offers no advantage over direct plating on differential restraining mediums.

49. Bacterial Nutrition: Utilization of Protein and Non-protein Nitrogen.—The author's conclusions, summarized briefly, are: Bacteria are unable to decompose coagulated native protein when there is no other source of available nitrogen in the test medium. Purified proteose also is resistant to direct attack by bacteria. Gelatin-nonliquefying bacteria and some of the liquefiers are feeble in their action on Witte's peptone. The ability of an organism to liquefy gelatin is no sure indication of its proteolytic properties. Gelatin and casein resemble proteose in their resistance to bacterial attack.

50. Influence of Carbohydrate on Nitrogen Metabolism of Bacteria.—This investigation has shown conclusively that fermentable sugars, in moderate amounts, do not affect the nitrogen metabolism of bacteria, provided experimental conditions are favorably maintained, or, in other words, under conditions of favorable environment. The common belief in a so-called "sparing action" of sugars in a protein medium is untenable in the light of these experiments. There is a true sparing action, however, in the sense that the nitrogen is utilized merely for growth, and that the sugar furnishes the energy.

53. Germicidal Action of Freezing Temperatures on Bacteria.—Extensive experiments were made by Hilliard and Davis to determine the effect of cold on bacteria. He found that intermittent freezing of bacteria exerts a more effective germicidal action than continuous freezing. The reduction is much less in milk and cream than in pure tap water when freezing temperatures are applied, due, no doubt, to physical protection offered to the bacteria by the colloidal and solid matter in suspension. The degree of cold below freezing is not a very important factor in the destruction of bacteria. There is no critical temperature below freezing where the germicidal effect is greatly accelerated. The death rate of *B. coli* is much higher in mediums which are frozen solid than it is in the same mediums not solid and at a slightly lower temperature. It is suggested that crystallization, probably resulting in mechanical crushing, is an important germicidal factor in causing the death of bacteria at zero centigrade and below. The greatest reduction occurs promptly on freezing and refreezing, but is not caused so much by the sudden change in temperature as by this mechanical factor.

Journal of Cutaneous Diseases, Chicago

November, 1918, **36**, No. 11

- 54 Dermatitis Herpetiformis: Relationship to Bullous Diseases, Especially Erythema Multiforme and Pemphigus. M. B. Hartzell, Philadelphia.—p. 497.
- 55 Role of Vegetative Nervous System in Diseases of Skin. E. H. Reede, Washington, D. C.—p. 505.
- 56 Superinfection in Syphilis. Report of Cases. J. V. Klauder, Philadelphia.—p. 515.
- 57 Pathology of Mycosis Fungoides. H. Mackay, and W. Boyd, Winnipeg, Canada.—p. 521.
- 58 Etiology of Cancer of Lip. D. W. Montgomery, San Francisco.—p. 529.

Medical Record

Nov. 9, 1918, **94**, No. 19

- 59 *New Operation for Hallux Valgus. J. Torrance Rugh.—p. 793.
- 60 Effect of Selective Draft Law in Production of Psychoses. H. P. Hyder.—p. 806.
- 61 Treatment of Mental Defectives Through Physical and Medical Measures. E. B. McCready.—p. 809.
- 62 Personal Hygiene. How Old, Yet Ever New. D. E. Drake.—p. 811.

59. New Operation for Hallux Valgus.—In the operation done by Rugh the joint is exposed by a curved, longitudinal incision and the flap (base down) is dissected free to the lower edge of the joint. A tongue-shaped flap is then made (base backward as in the Mayo operation) and should include the bursa and the internal portion of the capsular ligament back of the base of the proximal phalanx of the great toe. This is turned backward and the lower end of the metatarsal is freed of ligamentous attachments. With a sharp osteotome or chisel, sufficient of the epiphysis of the metatarsal is then removed to allow straightening of the

great toe. This usually amounts to about one-fourth inch. This cut also is made slightly diagonal from within outward and from behind forward. The inner sharp and hypertrophied corner is next removed with the osteotome. The top and under parts of the epiphysis are then taken off to make a wedge-shaped end on the bone. The slant on the top can be made very much greater than underneath so as to leave as much weight-bearing surface as possible. There will also remain the supporting surfaces of the sesamoid bones on the under surface of the joint. The tongue-shaped flap is then passed across the end of the bone, covering in the wedge and secured with sutures if necessary. Sutures are then passed from the base of the tongue-shaped flap on the inner side to the base of the proximal phalanx, sewing back and forth to hold the toe toward the inner side. The skin incision is next closed and dressings applied to hold the toe inward. The bandage should make a figure-of-eight about the toe and foot and hold the toe horizontal and slightly adducted. In some cases a splint of wood or plaster may be advisable, but this is seldom necessary. After two weeks' time the use of the foot is permitted and weight bearing advised.

Minnesota Medicine, St. Paul

November, 1918, **1**, No. 11

- 63 Effects of Underfeeding and Refeeding on Growth of Systems and Organs of Body. C. M. Jackson and C. A. Stewart, Minneapolis.—p. 403.
- 64 Problems of Infection. C. H. Mayo, Rochester.—p. 414.
- 65 Rheumatoid Arthritis. J. L. Porter, Chicago.—p. 417.
- 66 Myocardial Degeneration. C. N. Hensel, St. Paul.—p. 422.
- 67 Ambulatory Treatment of Hemorrhoids. W. A. Fansler, Minneapolis.—p. 426.
- 68 Nurses in War Time. E. R. Wing, St. Paul.—p. 428.
- 69 "Chronic Simple Glaucoma." An Exceedingly Common Disease. E. J. Brown, Minneapolis.—p. 430.

New Orleans Medical and Surgical Journal

November, 1918, **71**, No. 5

- 70 Spanish Views on Spanish Influenza. L. Ambrose, New Orleans.—p. 222.
- 71 Inguinal Approach in Cure of Femoral Hernia. L. H. Landry, New Orleans.—p. 235.
- 72 Thyroidectomy Under Local Anesthesia. C. W. Allen, New Orleans.—p. 242.
- 73 Retro-Pharyngeal Abscess. M. P. Boelinger, New Orleans.—p. 249.

New York Medical Journal

Nov. 9, 1918, **108**, No. 19

- 74 Destruction of Physiologic Function After Operations on Nose and Throat. W. Freudenthal.—p. 797.
- 75 Diagnostic Value of Eye Ground Appearances in Nephritics. J. A. Kearney.—p. 803.
- 76 Acute Eczema Due to Faulty Metabolism of Food Elements. L. Fischer.—p. 804.
- 77 Nervous and Mental Disturbances of Influenza. S. E. Jelliffe.—p. 807.
- 78 Temperament a Synonym for Nervousness in Singers. J. J. Levbarg.—p. 811.
- 79 Confluent Suffocative Broncho-Pneumonia in Wake of Present Influenza Epidemic. F. A. Jones.—p. 811.
- 80 *Interesting Orthopedic Cases in First Surgical Division, Fordham Hospital. S. W. Boorstein.—p. 812.

80. Orthopedic Cases in First Surgical Division, Fordham Hospital.—Boorstein cites a case of bilateral pathologic dislocation of the hip joint, the patient being 6 years of age. The condition was the result of a septic arthritis, the sequel of an attack of scarlet fever. He also cites two cases of low lumbar backache due to enlarged transverse process of the last lumbar vertebra. The removal of this process relieved the patient completely of the pain. Another case was one of chondroma following trauma. The patient had received an injury to the dorsal surface of the right foot by pressure of a rocking chair. For three and a half years the patient was suffering from pain in the foot. A swelling the size of a hazel nut, over the external cuneiform, was removed. The pathologic diagnosis was chondroma. Patient made a perfect recovery and has never suffered since. Another patient developed a sarcoma of the trochanteric region of the femur following a fall on the hip. Evidence of metastases in the humerus and lungs were present.

Southern Medical Journal

November, 1918, 11, No. 2

- 81 Internal Diseases, Pediatrics, Neurology, Diagnostic Methods, Etc., Acidosis: T. D. Parke.—p. 721.
- 82 Tuberculosis Examination Methods in U. S. Army. I. S. Kahn.—p. 727.
- 83 Confluent Suffocative Bronchopneumonia Following Influenza. F. A. Jones.—p. 732.
- 84 *Dangers of Chenopodium Treatment of Uncinariasis. D. A. Roth.—p. 733.
- 85 Intestinal Obstruction Due to Ascaris Lumbricoides. M. D. Levy.—p. 734.
- 86 Mortality from Malaria Among Wage Earners; Malaria Mortality Experience of General Population. L. I. Dublin.—p. 736.
- 87 Intensive Community Work in Tennessee. E. L. Bishop.—p. 738.
- 88 Stem Pessary: An Instrument of Value in Certain Selected Gynecologic Conditions. C. E. Dowman.—p. 742.
- 89 Extreme Gastropexy Cured by Rovsing's Operation. J. T. Rogers.—p. 745.
- 90 Autoserotherapy: Experimental Work with Hydroceles: Report of Cases. E. P. Merritt.—p. 747.
- 91 Double, Recurrent and Bilateral Tubal Pregnancies—Analysis of Cases. A. P. Heineck.—p. 749.
- 92 Influenzal Pneumonia in Pregnancy. Five Cases. F. A. Lupton.—p. 754.
- 93 Diseases of Nasal Accessory Sinuses. J. W. Murphy.—p. 756.
- 94 Treatment of Acute Infection of Accessory Nasal Cavities and Relation of Pathologic Conditions in Oto-Rhinology to General Medicine and Surgery. J. A. Stucky.—p. 757.
- 95 Tonsillar Infections as a Source of Systemic Disease. J. J. King.—p. 763.

84. **Dangers of Chenopodium Treatment of Uncinariasis.**—The extensive use of the oil of chenopodium in the treatment of uncinariasis makes a study of its untoward effect of real importance. Roth details the joint experience of several men in the medical wards of Santo Tomas Hospital, Panama. One hundred and three patients were given the oil. Twenty-nine showed signs of reaction. Dizziness, nausea and vomiting, headache, deafness and general depression were the symptoms observed. Deafness is by far the most disagreeable after-effect of the chenopodium treatment. It occurs in 20 per cent. of all the cases, varied in intensity from very mild to a complete loss of hearing, and lasts anywhere from one week to several months. In four of the cases, some deafness still persists two years after the date of treatment. No such reaction was observed after the administration of thymol in similar doses. Roth advises that the oil should not be administered unless there be ample facilities for studying the cases before and after administration. This should include a careful determination of the percentage of hemoglobin. Chenopodium should not be administered to a patient suffering from a high grade of anemia, nor should the treatment be repeated within ten days.

Southwestern Medicine, El Paso, Texas

September, 1918, 2, No. 9

- 96 Homologous Corneal Transplant. A. Martin, Phoenix, Ariz.—p. 1.
- 97 Comparison of Ordinary Stomach Analysis and Fractional Method. M. Hilpert, Humboldt, Ariz.—p. 4.
- 98 Hospital Standardization. J. E. Bacon, Miami, Ariz.—p. 6.
- 99 Case of Removal of Epiglottis in Acute Tubercular Epiglottitis. M. Rodgers, Tucson, Ariz.—p. 10.
- 100 Importance of Laboratory as Aid to Correct Diagnosis. W. F. Chenoweth, Nogales, Ariz.—p. 11.
- 101 Argyrol Versus Bismuth Paste. H. Crouse, El Paso, Texas.—p. 14.

Surgery, Gynecology and Obstetrics, Chicago

November, 1918, 27, No. 5

- 102 Ankylosis of Jaw. Report of Cases. M. S. Henderson and G. B. New, Rochester, Minn.—p. 451.
- 103 *Rôle of Ascariasis in Gall-Bladder Disease. J. Aviles, San Juan, Porto Rico.—p. 459.
- 104 Diagnosis of Ureteral Calculi. Report of Cases. D. N. Eisen-drath, Chicago.—p. 461.
- 105 Subdiaphragmatic or Phrenic Abscess. Report of Case. E. Friend, Chicago.—p. 468.
- 106 *New Procedure for the Localization of Ureteral Stone. H. L. Kretschmer, Chicago.—p. 472.
- 107 *Loose Bodies in Abdominal Cavity. Report of Cases. M. Emmert, Omaha.—p. 474.
- 108 Development of Epiphysis. P. H. Kreuscher, Chicago.—p. 480.
- 109 Analysis of Work of Uterologist. R. L. Dickinson, Brooklyn.—p. 486.

- 110 Thirty Cases of Cesarean Section. K. C. McIlwraith, Toronto, Ontario.—p. 495.
- 111 *Studies in Paleopathology. R. L. Moodie, Chicago.—p. 498.
- 112 Mechanical Treatment of Peripheral Nerve Injuries. B. Stookey, Ann Arbor, Mich.—p. 510.
- 113 Need and Value of Biopathologic Standardization. W. C. Mac-Carty, Rochester, Minn.—p. 523.
- 114 *Suture of Blood-Vessel Injuries from Projectiles of War. C. Goodman, France.—p. 528.
- 115 *Safeguard in Inguinal Route Operations for Femoral Hernia. M. W. Ware, New York.—p. 530.
- 116 Autoplastic Nerve Transplantation in Repair of Gunshot Injuries. L. Mayer, New York.—p. 530.
- 117 *New Method for Relief of Lateral Tension in Cleft-Palate Operations. M. N. Federspiel, Milwaukee.—p. 532.
- 118 *Placental Tissue as Galactagogue. E. L. Cornell, Chicago.—p. 535.
- 119 Removal of Ureteral Stones by Aid of Operating Cystoscope; Report of Cases. E. P. Merritt, Atlanta, Ga.—p. 538.

103. **Rôle of Ascariasis in Gallbladder Disease.**—Aviles cites the case of a woman who for 26 years had been suffering from attacks of colic-like pain over the right upper quadrant of the abdomen, and occasionally she vomited stomach secretion mixed with bile. On some occasions she expelled round worms with the vomiting, and in one instance, the vomiting of an ascaris relieved the pain. A probable diagnosis of cholecystitis with calculi was made. Cholecystotomy was performed. The walls of the bladder were hypertrophied, but no rugosity of the mucosa was evident. Aviles did not find any calculus, but a big *Ascaris lumbricoides* about 8 inches in length, partially obstructing the cystic duct. The operation was completed by draining the gallbladder. The patient made an uneventful recovery and all the symptoms existing previous to the operation disappeared. Antihelminthic remedies were administered during the convalescent period.

Aviles points out that an individual who is seized with hepatic colic-like pain, accompanied with vomiting of *Ascarides lumbricoides*, has the syndrome necessary for suspecting that the case is one of migration of the parasite or parasites into the biliary ducts or gallbladder; and unless the symptoms subside, surgical intervention is indicated. Antihelminthic remedies must be administered as a prophylactic measure in those cases in which a history of ascariasis accompanies disorders of the gastrohepatoduodenal system. In those cases in which surgical intervention has been practiced, antihelminthic remedies must be given to avoid new serious complications.

106. **Localization of Ureteral Stone.**—The method described by Kretschmer was suggested by E. Ball. In a case in which a diagnosis has been made of possible ureteral stone, the shadowgraph catheter is passed in the usual way. A roentgen exposure is taken with the catheter in place. A second exposure is made on the same plate without changing the position of the patient or without changing the position of the plate, but by changing the position of the tube, so that a double exposure on one plate is obtained. This method is not new in radiography, as it has been employed in the localization of foreign bodies in various parts of the body.

107. **Loose Bodies in Abdominal Cavity.**—The loose body which was removed from the region to the right of the midline and anterior to the true pelvis in Emmert's case was almond-shaped, 3 cm. long, 2 cm. in breadth, and 1.5 cm. in thickness. It weighed 50 grains. It was light brown in color and covered with a grayish secretion. There was no evidence of a vestigial pedicle or adhesion. On one side was a calcified plaque occupying about one third of the surface. The consistency was rather firm. The body cut with a grating sensation and revealed a distinct capsule about 1 mm. thick enclosing a finely granular material of a yellowish brown color. Interspersed in this were several small particles of a hard, colorless material. No definite nucleus was seen. The contents of the capsule gave a very strong positive guaiac test for blood. Under the microscope it was seen to be composed of fat droplets, crystals, and blood corpuscles. The capsule was in such a state of disintegration as to prevent a diagnosis of the tissue.

111. **Studies in Paleopathology.**—A considerable number of intensely interesting as well as instructive references are given by Moodie to show that the remains of fossil man and

extinct animals show evidences of diseases which are comparable to recent lesions. Indications of disease are rare compared with the abundance of remains of ancient races. This may indicate that disease was not so prevalent in the past as at present, although it must be remembered that the evidence is all skeletal. Some of the lesions seen on fossil and subfossil remains are: osteoma, hemangioma, fractures, callus, osteoperiostitis, necrosis, caries, alveolar pyorrhea, hyperostoses, osteomalacia, spondylitis deformans. These and many other interesting lesions show that disease is no new thing but has been manifest in a diversity of forms for many millions of years.

114. Suture of Blood-Vessel Injuries from Projectiles of War.—According to the statistics gathered from various operators engaged in service in the front area with the British forces, Goodman says all seem agreed that gangrene follows the ligation of the popliteal artery in a very large percentage of cases. When gangrene does not supervene, however, the patient frequently suffers from the concomitant symptoms of an impaired circulation. In the five cases cited, wounds of the vessels (3 popliteal and 2 femoral) repaired by suture showed an early and satisfactory restoration of patency, and gangrene from an insufficient blood supply was thus warded off. Goodman suggests that the failures in many of the cases reported may have been due to neglect of one or more of the essential points of the operation, which are: 1. A high degree of asepsis. 2. The segment of vessel to be sutured must be freed from all macroscopic blood and properly protected from all contact during the suture. 3. The sutures must not be introduced under too great tension. 4. Thrombosis is favored by bacterial infection, and by the tissue juices with their ferments. The lumen of the vessel to be sutured should, therefore, be washed thoroughly with Ringer's or saline solution, followed by liquid paraffin. Sutures introduced under tension may cut out and induce hemorrhage. When a main artery is completely severed, a circular suture should not be attempted unless the severed ends can be approximated without tension. When this is not possible, a segment of vein can be transplanted, or when such a procedure is not practical a paraffined tube may bridge the gap and maintain the blood supply until an enlarged collateral circulation is established. The tube should then be removed.

115. Safeguard in Inguinal Route Operations for Femoral Hernia.—When the bowel is strangulated or incarcerated, Ware divides the constriction from within by means of a fine silk thread. This thread can be passed by means of a Deschamp needle or any needle sufficiently blunted, or by means of the eyelet of a fine silver probe. By gently whip-sawing the thread, a very exact and partial division of the fibers of Poupart may be executed, which can never injure the intestine, and sometimes the slightest excursion of the thread will be sufficient to reestablish the circulation of the intestinal contents and render the reduction of the intestine possible. The thread may even be used as a tractor during the reduction. Thereafter it is divided and withdrawn.

117. Relief of Lateral Tension in Cleft-Palate Operation.—In order to prevent the cutting of the suture through the soft tissue, Federspiel has devised a new tension plate which will prevent the suture from cutting out and at the same time relieves the tension as well as renders the palatal tissues inflexible. These plates are made from noncorrosive metal, B. I. B., American gage 22, in various sizes and types. In order to fit these plates, it is necessary to make a small incision near the gingival border of the last molar, being careful not to cut the palatine artery. The incision should be of sufficient length to permit the flange of the plate to enter and lie between the palatal bone and soft tissue. Previous to fitting these plates it is necessary to pass silver wire (American gage 24) through the mucoperiosteal flaps and then through the holes in the plates. The ends of the wire are then passed through perforated lead shot and made tense by pulling the wire and crushing the shot, after which the borders of the flaps can be approximated without tension. After this is done, Federspiel denudes the border of the

cleft and places and ties the coaptating sutures after the McCurdy method.

118. Placental Tissue as a Galactagogue.—The value of placental tissue as a galactagogue is endorsed by Cornell. He says that 87 per cent. of the babies whose mothers had received placental tissue began to gain on the fourth and fifth days, against 69 per cent. whose mothers did not receive the medication. Forty-four per cent. regained their birth weight before leaving the hospital against 24 plus per cent.

United States Naval Medical Bulletin

Hospital Corps Supplement, October, 1918, No. 7

- 120 Dental Anatomy. G. M. Damon.—p. 7.
- 121 Class of Instruction for Hospital Corps, Naval Reserve Force, First Naval District. J. F. Durkin.—p. 14.
- 122 Training School for Hospital Apprentices at the Boston City Hospital. J. A. Foley.—p. 15.
- 123 Shock. G. F. Cottle.—p. 25.
- 124 Pandemics. C. L. Fox.—p. 30.
- 125 Removal of Foreign Bodies from Cornea and Conjunctiva. A. H. Ceeha.—p. 31.
- 126 Revision of Supply Table of Medical Department, 1918. O. G. Ruge.—p. 35.
- 127 Statistical Reports. J. Holden.—p. 40.
- 128 Value of Form F Card and Form I in Compiling Statistics. J. T. Cassady.—p. 45.
- 129 Waste of Surgical Dressings. H. Rydeen.—p. 48.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Oct. 19, 1918, No. 3016

- 1 *Preventive and Curative Treatment of Gas Gangrene. By Mixed Serums. F. Ivens, London.—p. 425.
- 2 Treatment of Pneumonia. D. E. Dickson, Edin.—p. 427.
- 3 Lobar Pneumonia Complicated by Pleurisy Treated with Polyvalent Serum (Paue). A. C. Guthrie, Edin.—p. 428.
- 4 Ablation of Labyrinth in a Case with Ménière's Symptoms. C. Yorke, London.—p. 429.
- 5 Case of Acute Yellow Atrophy. A. C. Roxburgh.—p. 430.
- 6 Curative Effects of Kharsivan and Neo-Kharsivan in Diseases other than Syphilis. G. S. Taylor, Liverpool.—p. 431.
- 7 Adenoma of Small Intestine in an Infant, with Resulting Volvulus. J. S. Manson, Edin.—p. 432.
- 8 Work of a Venereal Disease Clinic. O. L. Rhys.—p. 432.

1. Treatment of Gas Gangrene by Mixed Serums.—Convinced by previous experience of the curative value of the antiperfringens serum prepared by Weinberg and Seguin at the Pasteur Institute, Ivens tested the preventive use of antigangrenous serum. From March 21 to September 6, 1918, 3,660 recently wounded received their first operative treatment in the hospitals under his care, and the results obtained are set forth in this paper. Ivens has employed in three series of cases: (a) the mixed serums antiperfringens, anti-vibrio septique, anti-oedematiens, prepared by Weinberg and Seguin. (b) the polyvalent serum of Leclainche and Vallee. (c) a combination of the two.

Antigangrenous serums were given preventively in 433 cases, all of a severe type, including nearly 300 fractures, many cases already presenting one or other of the clinical signs of gas gangrene, such as crepitation, discoloration of muscle, bronzing of skin, edema, and bad odor. A large number were cases of wounds of the lower limbs. Nearly all patients were received within the first twenty-four hours after being wounded. The serum, given subcutaneously in dilution, Ivens believes has averted the anaphylactic phenomena which have been observed in cases in which this method of procedure has not been followed. When the mixed serum was given at or before the first operation (222 cases), no patient died from gas gangrene, although there were nineteen deaths out of the number from the effects of shock, from multiple fractures, hemorrhage, meningitis, or streptococcal septicemia. In fourteen of these cases the serum was administered at the same time that amputation was performed for massive gas gangrene. Of these fourteen patients, twelve recovered. The two fatalities occurred at the end of a fortnight from streptococcal septicemia, all signs of gas gangrene having disappeared for more than a week. In a very large number of cases the administration of mixed

serums has permitted conservative treatment to be adopted instead of the amputation which would otherwise have been inevitable.

The value of this serum as a disintoxicating agent has been proved in several cases. Its administration has made it possible to wait for some hours until the condition of the patient has improved sufficiently to allow of surgical measures being employed. Infected cases, where mixed serum was omitted either by accident or from the meager supply, have not done as well as other cases in which the patients made a good recovery.

Polyvalent serum was used in 154 cases, nineteen were fatal, six of the deaths being due to gas gangrene; three had also a concurrent streptococcal septicemia. In fifteen of the 154 cases amputation was performed for massive gas gangrene, with eleven recoveries and four fatal results. Of these fatal cases, two were also associated with streptococcal septicemia. It was generally noticed during the period in which the polyvalent serum was given preventively that, except in gas gangrene, the cases seemed to run a straightforward course, without severe streptococcal infections, and that secondary operations on this score were infrequent. Among fifteen cases of streptococcal septicemia, only four had received preventive doses of this serum. Seven patients who had all been treated with fairly large doses of polyvalent serum recovered.

In a third series of cases (fifty-seven) 10 c.c. of polyvalent serum were added to the initial dose of 30 c.c. of mixed serum. Although in ten of these cases gangrene was already present in the form of cellulitis or abscess, in only one did massive gas gangrene develop, namely, after ligation of the external iliac artery, fifteen days after the preventive dose of mixed serum had been given. Two cases were fatal in this series. Although many of these patients had badly infected fractures of the lower limb, only three sustained amputations, one for streptococcal infection, two for secondary hemorrhage. Not only has it been possible in these cases to adopt conservative lines in fractures of the diaphysis, but, in addition, wounds involving the articulations—hip, knee, shoulder, ankle and tarsus—have run an unusually favorable course. In secondary operations, where latent microbes in sequestra so often cause a disappointing result (secondary suture, reamputation, etc.), a preventive dose of polyvalent serum and mixed serum has been found useful.

Glasgow Medical Journal

October, 1918, 8, No. 4

- 9 Lethargic Encephalitis: Report of Cases. L. Findlay, Glasgow.—p. 193.
- 10 Treatment and Prognosis of Nephritis. W. Watson, Glasgow.—p. 205.
- 11 Surgical Importance of Cerebellar Amygdale. W. J. Moore.—p. 216.

Journal of Tropical Medicine and Hygiene, London

Oct. 15, 1918, 21, No. 20

- 12 Frequency of Lactose Fermenters in Sierra Leone Waters. W. A. Young.—p. 205.
- 13 Susceptibility of Antiscorbutic Principle to Alkalinity. A. Harden.—p. 205.

Lancet, London

Oct. 19, 1918, 2, No. 4964

- 14 Gunshot Wounds of Joints. Part II. Treatment of Wounds of Individual Joints. J. Campbell, Liverpool.—p. 509.
- 15 Outbreak of Scurvy in South African Native Labor Corps. H. W. Dyke, Glasgow.—p. 513.
- 16 *Case of Absence of All Sensation. E. D. Roberts, Lausanne.—p. 515.
- 17 Prevention of Relapse of Hysterical Manifestations. T. A. Ross, Edin.—p. 516.
- 18 Abdominal Evacuation of Pregnant Uterus Before Viability. V. Bonney, London.—p. 518.
- 19 *What the War has Taught Us About Tetanus. L. Bazy.—p. 523.
- 20 *Tetanus Consecutive to Superficial Wounds and to Trench Foot. Prof. Raymond.—p. 526.

Oct. 26, 1918, 2, No. 4965

- 21 Harveian Oration: Doctrine of Consumption in Harvey's Time and To-Day. P. Kidd, London.—p. 543. (To be concluded.)
- 22 *Standardization of Wassermann Reaction. W. D'Este Emery, London.—p. 547.

- 23 *New Technic of Heart Massage: Case of Resuscitation. T. C. Bost and A. Neve.—p. 552.

- 24 Modification of Webster's Test for the Presence of T. N. T. in Urine. F. Tutin.—p. 554.

- 25 *"Acute Yellow Atrophy" (?) In a Munition Worker with a Pseudo T. N. T. Urine Reaction Due to Rhubarb. E. Glynn, London.—p. 555.

16. **Case of Absence of All Sensation.**—Roberts cites the case of a soldier, aged 37, far removed from the neurotic or hysterical type, whose family and personal history is negative, except for an attack of yellow fever at the age of 17. Since then he has noted absence of all sensation. There is complete absence of both superficial and deep tactile sense over the whole skin surface, and also over mucous membrane, where attainable. There is no consciousness of deep vibration. He does not feel the ground with his feet, and experiences difficulty when walking at night. He says that his inability to bring his heels together at the command "Attention" without controlling the movement with his eyes has frequently led him into trouble with his drill sergeant. There is complete inability to recognize objects placed in the hand when the eyes are shut. Sense of pain is completely absent. He underwent the radical cure of double inguinal hernia without anesthetic of any kind, being totally unconscious of any sensation either of pain or touch. He never suffers from headache, toothache, abdominal or other visceral pain of any description. The cornea shares in the general anesthesia. Thermal sensation is also absent. There is no perception of temperature in food or drink. There is insensibility to atmospheric changes of temperature.

The muscular sense appears to be completely absent. With the eyes closed, if asked to make any movement with his arms—the choice of movement being left to him—he is incapable of doing so, saying he cannot tell if his arms are moving or not, and all he can accomplish is a slight convulsive twitching of the hands and arms. On the other hand, if, when standing upright, with closed eyes, he be told to walk toward the observer he does so without trouble. He is a good swimmer. The sense of position is absent. He exhibits the phenomenon of the fixation of the limbs in the positions in which they are placed. Sense of taste is completely absent. The sense of smell is practically nonexistent. The fumes of the strong solution of ammonia and of pure hydrochloric acid produce a faint sensation of an odor which the patient remembered to have smelt in his youth.

The only response on both sides to plantar irritation is slight abduction of the little toe. The patellar reflexes were present and normal. The orbicularis palpebrarum muscles contracted on touching the cornea, though no sensation was evoked. The pupils reacted to light and accommodation. The bowels usually act regularly once a day. There is no conscious desire to defecate beyond what he describes as an occasional "rolling" in the abdomen. He never makes any effort, nor is there knowledge of the passage of the feces. Only when there is looseness of the bowels is there any incontinence. Micturition ordinarily occurs during action of the bowels once in twenty-four hours at about 8 o'clock in the morning. There is never a desire to micturate.

Finally, he seems to be without most of the common emotions. He is without family affection. He makes neither friends nor enemies. He has no love of country or home, but he is a smart and efficient soldier and takes a pride in it. The diagnosis of syringomyelia combined with hysteria is suggested as one which seems to meet the case.

19. **What War Has Taught Us About Tetanus.**—Bazy says that the war has shown that: 1. Antitetanic preventive serotherapy is efficacious in the immense majority of cases. 2. When it acts incompletely it so modifies the course of tetanus that it has created new forms of the disease, unknown before its use was general. 3. The study of the check to serotherapy ought to lead (a) to use the serum in a more rational way; and (b) to know how to complete its action by that of an antitetanic vaccination. The pathogenic medication is the injection of antitetanic serum. The intracerebral route, supported by Roux and Borrel, has been almost abandoned. The intrarachidian route seems of little practical use. Of all the methods it seems that one alone may be

sufficient and free from all criticism: that is the subcutaneous method. But, pathogenic medication, powerful though it is, has need of being completed by symptomatic medication, which is directed to the nervous phenomena. The alkaline persulphates possess in the highest degree the power of destroying the tetanic poisons. A solution of procain, 1.5 per cent., with the addition of a drop of epinephrin, 1:1,000, injected at the level of the brachial plexus for the upper limb, at the point of emergence of the sciatic for the lower limb, and in the vicinity of the nerve trunks controlling the groups of the contracted muscles, has given in all cases most encouraging results.

Bazy has employed as vaccine an iodized toxin, the same as is used at the Institut Pasteur to prepare the horses providing serum. The power of the toxin is such that 1/10,000 c.c. sufficed to kill a guinea-pig of 400 grams. On mixing this toxin with an iodized solution (iodin 1 gm., iodid of potassium 2 gm., distilled water 200 gm.), in the proportion of two thirds of toxin to one third of iodized solution, there is obtained a liquid neutral for the organism, but yet capable of vaccinating it. There can easily be injected the first time 4 c.c. of iodized toxin, the second time 8 c.c., and the third time 12 c.c. It is possible to increase further the number and dose of the vaccinal injections, which are remarkably well borne and provoke neither local nor general phenomena.

20. Tetanus Consecutive to Superficial Wounds and to Trench Foot.—Raymond cites two cases of tetanus consecutive to a very superficial wound, so superficial that the wounded man did not present himself for treatment, and consequently did not receive preventive injection of anti-tetanic serum. The treatment was based on: 1. Excision of the wound. This was carried out as in the case of a malignant tumor, by circumscribing very widely the whole region of the wound. The object was to remove the tetanogenic germs with the tissues which contained them, without causing the penetration, by way of the operation wound, of tetanic toxin into the circulation. 2. The excision of the wound having suppressed all new access of tetanic toxin, it only remained to combat the toxin already fixed in the tissues.

Serotherapy in high doses gave excellent results. The doses employed were 100 c.c. of serum each day by the subcutaneous route. The injections were continued until the infection was overcome, that is to say, from ten to fifteen days. Tetanus in trench foot is always grave, and almost all the cases have been fatal. If systematic amputation of the feet is avoided, as Raymond says it should be, it is of importance to comply with the following rules: 1. To make in all cases a prophylactic injection, as early as possible, of 20 c.c. of antitetanic serum. 2. To repeat this injection, in all the cases where there has been loss of substance of the integuments, phlyctenae or eschar, at the end of eight days. 3. Not to fear, in the grave forms with extensive gangrene, infective manifestations, to increase the doses and inject 30 c.c. and more. 4. To make an injection of 10 c.c., at the least, every eight days as long as there exist sphacelated tissues, necrosed or suppurating zones—in short, as long as the wound is not in the way of definite cicatrization. 5. Not to allow an interval of more than eight days between each injection of antitetanic serum, alike to assure the continuity of the antitoxic treatment and to avoid seric or anaphylactic accidents. Thanks to this practice Raymond has had only the two cases of tetanus among several hundred serious cases treated.

22. Standardization of Wassermann Reaction.—Emery suggests that the Wassermann reaction should be reported in terms of Wassermann "units," the figures given by each laboratory being the same whatever the technic, and such as will indicate the number of times the serum is stronger than the weakest serum which will just give definite proof that the patient has syphilis. He suggests also that until further experience is obtained the absorption of two clear units of complement, tested in the manner described in detail in his paper, shall be regarded as a standard unit.

23. New Technic of Heart Massage: Case of Resuscitation.—A horizontal incision behind the left costal margin is advocated by Bost and Nerve. The abdominal incision is

made 4 inches long in the median line, extending from above the umbilicus well up into the xiphosternal notch. The left costal cartilages are well retracted, bringing the anterior diaphragmatic insertion well into view. A 2 inch incision, beginning 1 inch to the left of the median line, carried outward behind the costal margin, cuts the fibers of the diaphragm near their insertion. A blunt instrument pushed in opens the pleural cavity, and the opening is rapidly dilated with two or three fingers of the right hand, so that the whole hand can then be passed into the thoracic cavity anterior to the pericardium. The hand is passed upward, the thumb behind the sternum and the fingers embracing the entire organ in the pericardium. The thumb compresses the right auricle and ventricle, and the base of the heart is effectively massaged. No vessels are injured in this incision, as the superior epigastric artery is internal to the incision and passes into the rectus muscle, and the musculophrenic branch enters the diaphragm through the cellular tissue behind the eighth or ninth costal cartilages and passes backwards, deeper than the incision. The liver and stomach, even if prominent, offer no obstruction to this route, nor is the pericardium in risk of being opened. During the massage the parts can be pressed round the wrist of the operator so that air is not sucked in, and there is no tendency to collapse of the lung.

25. "Acute Yellow Atrophy" (?) in a Munition Worker with a Pseudo T. N. T. Urine Reaction Due to Rhubarb.—Glynn cites the case of a young woman munition worker, previous health always good, died suddenly of acute toxic jaundice (?) nine months after leaving the T. N. T. filling room. The liver, however, was much larger, more fatty, and more necrotic than in T. N. T. poisoning, and regeneration was absent. Poisoning with phosphorus or arsenic was excluded; latent T. N. T. poisoning with or without bacterial infection was almost excluded; spirochetosis icterohemorrhagica was excluded. Death was therefore probably due to "acute yellow atrophy." The pseudo T. N. T. reaction in the patient's urine was evidently due to rhubarb, rhubarb and soda having been given the patient before Glynn saw her.

Medical Journal of Australia, Sydney

Sept. 21, 1918, 2, No. 12

- 26 Occurrence of Sparganum (Larval Cestode) in Subcutaneous Tissues of Man in Australia. J. B. Cleland, Sydney.—p. 239.
- 27 Clinical and Microscopic Appearances of Carcinomatous Tumors of the Breast. H. C. Rutherford-Darling.—p. 240.

Sept. 28, 1918, 2, No. 13

- 28 Significance of Stammering and Stuttering, with Corrective Measures. T. G. Leary, Edin.—p. 259.
- 29 Some Cases of Stammering from War Shock Treated by Psychotherapy. C. G. Godfrey, England.—p. 262.

Annales de Médecine, Paris

1918, 5, No. 4. Pub'd September, 1918

- 30 *Colloidal Nitrogen in Urine. M. Labbé and R. Dauphin.—p. 314.
- 31 *Lumbar Puncture in Nervous Shock. W. Mestrezat and others.—p. 327.
- 32 *Oculocardiac Reflex in Pleurisy. A. Mougeot and J. Colombe.—p. 345.
- 33 *Functional Tests of the Heart. C. Lian.—p. 358.
- 34 *Amebiasis on French Front. M. Bloch and C. Mattei.—p. 374.
- 35 *Suprarenal Treatment in Tuberculosis. R. Porak.—p. 404.

30. Colloidal Nitrogen in the Urine.—Labbé and Dauphin tabulate the findings from forty-one persons with various diseases and from six normal subjects. The normal average for the colloidal nitrogen was 0.128, and for the proportion of the colloidal to the total nitrogen, 1 per cent. Increase in the colloidal nitrogen is evidently an index of disturbance in nitrogen metabolism; it is pronounced in all forms of liver disease, and thus may serve in diagnosis of hepatic insufficiency. With cirrhosis of the liver, it sometimes reached 5.5 per cent. of the total nitrogen, and 6.6 with cancer of the liver. It was highest in some cases of severe diabetes, reaching 7 per cent. in one case with coma imminent.

31. Lumbar Puncture with Nervous Shock.—The lumbar puncture fluid was found abnormal in about 80 per cent. of fifty cases of shell concussion of the nervous system. The typical finding was the presence of from 0.35 to 1 gm. of albumin to the liter without other cell or chemical abnor-

malinity, except hypersecretion. This high albumin content appears in two or three days and does not subside for weeks or months or may persist indefinitely. It testifies to the organic injury from the concussion.

32. Oculocardiac Reflex with Pleurisy.—Study of 37 cases of serofibrinous pleurisy, three of hemorrhagic pleurisy, five of hemothorax, three of old cured pleurisy and two of pleurisy with mediastinal lesion, confirms that the pleurisy is liable to upset the balance between the vagus and sympathetic systems. The vagus is usually the one overpowered by the other system, and this opens the portal to various serious complications.

33. Functional Tests of the Heart.—Lian ascribes great importance to acceleration of the pulse after a brief effort, and the length of the interval before it returns to its former rate. A one-minute run, or gymnastic treading, two a second, on the same spot, may speed up the pulse to 120 or 130, but in the normal it returns to its former figure in one or two minutes. With the heart incompetent, the acceleration of the pulse is more pronounced, and it takes longer for it to subside. If this is observed on several repetitions of the test, the heart must be considered below par.

34. Amebiasis in France.—Bloch and Mattei emphasize the necessity for curing carriers of amebas in the encysted form in particular as they are a source of danger to themselves as well as to others. Emetin is the main reliance but it must be given in adequate doses, although not surpassing 1 gm. as the total dose. Arsphenamin preparations may likewise prove effectual. They have examined more than 500 men with amebiasis among the active troops in France, and all but 10 per cent. of the men had never been out of France. Most of the cases were encountered in 1916; the number has been progressively declining since then. Only about 30 per cent. of the cases presented the typical symptoms of dysentery; in the others the disease might have been overlooked or ascribed to other causes if it had not been for the systematic examination of the stools. About 70 per cent. of the cases were mild, but 5 per cent. were extremely serious and tenacious.

35. Suprarenal Treatment.—Porak discusses the action of the medulla of the suprarenal in contrast with that of the cortex, especially when applied in treatment of the tuberculous. In two cases described there did not seem to be any reason for connecting the low blood pressure with medullary suprarenal deficiency as necropsy failed to show abnormal conditions in the suprarenal medulla. In studying the effect of suprarenal treatment he urges that not only the immediate action but the curve of the arterial pressure from day to day over the entire period of treatment and for a time afterward should be recorded. In his clinical and experimental experience, continued suprarenal treatment seemed to induce a certain depression of the heart systole and spasm of the peripheral vessels (reduction of the differential pressure). A rise in the minimal pressure in the course of treatment with suprarenal medulla is a very important symptom, indicating that the treatment must be stopped. All the experiences to date confirm that the medulla and the cortex of the suprarenals are in reality two distinct organs. They also warn that the blood pressure-raising property of the suprarenal cortex may be maintained even in Addison's disease, so that the low blood pressure cannot be ascribed to cortex insufficiency as a matter of course.

Bulletin de l'Académie de Médecine, Paris

Sept. 24, 1918, 80, No. 38

36 *Certain Causes of Optical Illusions. Prompt.—p. 266.

37 *Welfare Work for Mothers and Infants. Chaptal.—p. 267.

38 *Overlooked Septicemias.—De Gauléjac and Nathan.—p. 269.

36. Physiology of Optical Illusions.—Prompt discusses the accommodation for perspective, the perception of objects in relief, of the acute angle, etc. His conclusions as to certain features of physiologic vision suggest an explanation for a number of optical illusions, including the "canals" on Mars.

37. Welfare Work in a Poor District in Paris.—The efforts described have reduced the infant mortality to 2.5 per cent. The total expense has ranged from less than \$300 the first

year (1901), to \$9,085 last year. There are over 79,000 inhabitants in the quarter, and 80 per cent. of the infants were artificially fed when the work was begun.

38. Overlooked Septicemias.—Summarized in Paris Letter, p. 1676.

Bulletins de la Société Médicale des Hôpitaux, Paris

July 19, 1918, 42, No. 26

39 *Meningococcus Purpura. A. Netter and M. Mozer.—p. 773.

40 *Case of Pulmonary Sporotrichosis. E. Schulmann and A. Masson.—p. 776.

41 Malaria plus Echinococcus Cysts in Liver. R. Porak.—p. 780.

42 *Polyneuritis Consecutive to Arsenobenzol Treatment. Variot and Bouquier.—p. 783.

43 *Dyspeptic Coma with Acidosis. M. Labbé.—p. 786.

44 *Alcohol in Cerebrospinal Fluid. E. Lenoble and F. Daniel.—p. 790; Id.—p. 793.

45 *Serodiagnosis of Syphilis. H. Eschbach and E. Duhot.—p. 794.

46 Liver Form of Spirochetosis. Manine.—p. 799.

47 *Folds and Fissures in Tongue. G. Railliet.—p. 802 and 804.

39. Meningococcus Purpura.—In a postscript to this article, Netter states that the culture features of the microbe cultivated from the infant's spinal fluid during life suggested the *Micrococcus crassus* rather than the meningococcus, and no appreciable signs of meningitis were detected at necropsy. The septicemia evidently preceded the invasion of the cerebrospinal fluid by the microbes, and such cases are becoming common, so that it is not unusual to encounter an apparently normal lumbar puncture fluid. He comments also on the increasing prevalence of purpura with meningococcus infections. In 181 cases of meningitis, 1908 to 1914, there were 2.7 per cent. with purpura, while the proportion has steadily increased since then to 29.7 per cent. in his latest series of 15 cases, out of the total 173.

40. Pulmonary Sporotrichosis.—The workman of 43 presented signs of pulmonary sporotrichosis seven years after apparently complete recovery under potassium iodid of a cutaneous mycosis. The cursory diagnosis had been pulmonary tuberculosis, but the right dullness suggested a pleural effusion. No fluid could be obtained by puncture, and radioscopy disclosed a large tumor in one lung with nodules elsewhere. The *Sporotrichum beurmanni* was cultivated from bloody fluid obtained by puncture in the tumor region. Schulmann and Masson know of only five cases of this disease in the lungs on record, and only in two of them was the sporotrichum cultivated direct from lung fluid. Its cultivation merely from the sputum in the other cases leaves a doubt as to the diagnosis.

42. Polyneuritis After Arsphenamin Treatment.—The child of 13 had been given intensive arsenobenzol treatment to ward off sympathetic ophthalmia after enucleation of one eye for glaucoma, with subsequent tumor formation in the orbit. He developed typical toxic polyneuritis and paralysis. Marie also reported the case of a girl of 13 with transverse myelitis after intensive arsenobenol treatment for manifestations of inherited syphilis.

43. Dyspeptic Coma.—Labbé's patient succumbed to fatal coma in the course of severe intestinal disease. There was pronounced acidosis, but this retrogressed toward the last. The reactions of acidosis were pronounced in the spinal fluid after they had disappeared from the urine. Inanition could not have been a factor as the man was getting adequate nourishment.

44. Alcohol in Cerebrospinal Fluid.—Lenoble and Daniel here present their third communication on this subject. It emphasizes that when alcohol gets into the cerebrospinal fluid it seems to persist there unmodified and indefinitely if aseptic conditions prevail. On the other hand, it promptly undergoes chemical modifications and rapidly disappears when asepsis is not observed, persisting at longest not over ten days. This has a medicolegal bearing in criminal cases. In a fourth communication they describe the precautions necessary for chemical examination of the fluid, and the effect on it of preceding administration of drugs.

45. Serodiagnosis of Syphilis.—Eschbach and Duhot advocate the use of fresh human serum, saturation of the hemolytic power, and control of the excess of alexin as indispen-

sable factors for precision in the Wassermann reaction or its modifications, as they explain in detail.

47. **Folds and Fissures in the Tongue.**—Railliet found that 188 of 308 soldiers had folds or fissures in their tongues, as also 10 of 41 children over 8. His findings suggest that ridges and grooves in the tongue may indicate the possibility of syphilis.

Journal de Médecine de Bordeaux

September, 1918, 89, No. 9

- 48 *Factitious Dermatoses. W. Dubreuilh.—p. 247.
49 *Urinary Spirochetosis. J. Carles.—p. 255.
50 Metal Prostheses for the Skull. Bercher.—p. 259.
51 Paratyphoid Infections. H. Mallié.—p. 260.
52 *Iodin Fumes in Treatment of Chancre. Petges, Gratiot and Cottu.—p. 263.
53 Iodoform-Petrolatum for Chancereulous Bubo. Id.—p. 264.
54 Organization and Work of the Service de Santé. Darbouet.—p. 266.

48. **Factitious Dermatoses.**—Dubreuilh warns among other things that even an apparently firmly dressed lesion may be artificially aggravated by a wire worked in beneath, or by some caustic injected from a hypodermic needle. He protects against the latter by introducing a sheet of zinc foil in the dressing over the lesion. The soldiers guilty of these practices are given a month or two in the guardhouse, but lately one was condemned to five years of hard labor, and the authorities are now reinvestigating some of the other cases.

49. **Urinary Spirochetosis.**—Carles relates that in some of the six typical cases described the clinical picture was that of acute nephritis; in others, hematuria was the only symptom of the urinary spirochetosis. Microscopic hematuria was the rule in all. The urine should be examined for spirochetes whenever hematuria is encountered. Urine containing red corpuscles is a favorable culture medium for spirochetes. He insisted on isolation whenever spirochetes were found in the urine. In one of the cases described, the man had apparently quite recovered from his attack and returned to duty, but hematuria returned after vaccination against typhoid, and the spirochetes appeared anew in the urine.

52. **Iodin Fumes in Treatment of Soft and Open Chancre.**—Petges and his co-workers have applied *enfumage iodé* in 236 cases of soft chancre; in eighty complicated with hard chancre. The method was described in THE JOURNAL, Aug. 25, 1917, p. 678, and elsewhere. The simple device they prefer is a flask in which a tablespoonful of iodoform is placed and heated. One of the fine tubes in the cork reaches nearly to the bottom of the flask and is connected with a rubber bulb. The other tube is short. The flask is heated over an alcohol lamp, and the fumes are blown through the second tube on the chancre, until its deepest crevices are stained with the rest and the skin around. The lesion should be cleared of pus and débris beforehand. The *enfumage* is repeated on alternate days until the ulceration is well on the way to healing. He dresses with iodoform likewise.

Paris Médical

August 31, 1918, 8, No. 35

- 55 *Present Status of Splenectomy. E. Chabrol and H. Bénard.—p. 165.
56 *Pains of the Dyspeptic. F. Ramond.—p. 171.
57 Tardy Nevus. H. Gougrot.—p. 174.
Sept. 14, 1918, 8, No. 37
58 *Anterior Pleurisy. Roubier.—p. 213.
59 *Radiotherapy of Cicatrices. A. Zimmern, P. Cottenot and A. Houdé.—p. 216.
60 Antisepsis for War Wounds. H. Lorin.—p. 220.

55. **Present Status of Splenectomy.**—The balance sheet for splenectomy in chronic splenomegalic jaundice shows only 10 per cent. mortality or, omitting the dubious cases, only 7 per cent. But time is demonstrating the frequency of inherited syphilis as a factor in this disease and also in splenic anemia, and the brilliant results of operative treatment should not cause this fact to be overlooked in treatment. In Banti's disease the mortality with splenectomy averages from 14 to 16 per cent.; before 1900 it was 44.4 and 31 per cent., and Chabrol cites American statistics that have brought it as low as 9.6 per cent. The splenectomies have thrown

light on the functions of the spleen. In many of the patients the red corpuscles afterward returned not only to their normal number, but they regained normal resisting power. This latter new fact, Chabrol reiterates, confirms his previous assertions in regard to the spleen's being responsible for the excessive fragility of the reds. When the spleen enlarges, with no other symptoms than gastro-intestinal hemorrhages, it is possible that spleno-thrombosis may have been the primary derangement, and the enlargement of the spleen the consequence, and not the cause, of the obliteration of the spleen. Gilbert warns that gastro-intestinal hemorrhage may be the forerunner sign of venous cirrhosis of the liver. To remove the spleen to cure recurring hematemesis, as has been done recently, is certainly, Chabrol remarks, one of the most original interventions of recent years.

56. **Pain with Dyspepsia.**—Ramond reviews the indications afforded by different varieties of radiating and fixed pain in dyspeptics. He discusses their correct interpretation and the information thus derived.

58. **Anterior Pleurisy.**—Roubier describes the differential points in a case of pleurisy with an encysted serofibrinous effusion in the anterior mediastinum.

59. **Radiotherapy of Cicatricial Retraction.**—Zimmern has previously published the excellent results obtained in treatment of neuralgia by radiotherapy applied to the root nerve. With painful scars, the action is different; the rays evidently disintegrate the fibrous tissue. The latter is a pathologic form of normal connective tissue and, especially when newly formed, is susceptible to the action of the rays, like other pathologic and embryologic tissues. Any nerve fibers included in the cicatrix are relieved of compression as the fibrous tissue softens up, and thus scars that pain are promptly relieved. Even deep trunk nerves feel the effect, and sensory, motor, and trophic disturbances may retrogress. Laborde has reported rapid return of nerve functioning under radium treatment of paralysis of peripheral nerves. Others have reported cures under roentgen treatment of painful neuritis with spastic conditions, in causalgia, etc., the electric reactions returning to normal. Operative treatment was out of the question in one case described in which the nerves in the shoulder were embedded in a huge cicatricial mass. Under six roentgen exposures, a total of 30 H units, the cicatrix had become supple and the nerves gradually recuperated their functions, with even a beginning faradic reaction in the ulnar nerve. The action of the rays is more pronounced the more recent the formation of the cicatricial tissue. In conclusion, the importance is emphasized of prophylactic postoperative radiotherapy, to supplement an operation for liberation of a trunk nerve. Or it may prove useful to prepare the field for the operation, softening up the scar tissue so the nerves can be dissected out more readily. This "radiosurgical" technic is proving extremely useful. It seems scarcely probable that the nerve tissue could suffer from the exposures to the doses applied, as the nerve tissue is scarcely at all susceptible to the roentgen rays.

Presse Médicale, Paris

Sept. 26, 1918, 26, No. 54

- 61 *Treatment of Purulent Pleural Effusions. T. Tuffier.—p. 497.
62 Albumin in Blood and Stools. M. Labbé and G. Canat.—p. 499.
63 Subjective Sequels After Concussion of the Brain. A. Mairet and H. Piéron.—p. 501.
64 Streptococcus Dermatitis Around Wounds. A. Desaux.—p. 501.
Oct. 17, 1918, 26, No. 58
65 *Comminuted Fractures. R. Leriche and A. Policard.—p. 533.
66 *Acute Hepato-Nephritis. J. Tapie.—p. 534.
67 *Reduction of Angular Displacement of Fractures. Gentil.—p. 536.
68 *Bacteriology of Influenza. G. Vitoux.—p. 537.
69 *War Wounds of Nerves. H. Delagenière and others.—p. 537.

61. **Purulent Pleural Effusions.**—Tuffier advocates a technic which permits the lung to resume functioning at once. Eight illustrations show the various steps. With a persisting fistula, seven or eight rubber tubes stiffened with silver wire are introduced into the cavity, one pushed up into the space above the lung. Under screen control they can be introduced into the remotest recesses of the cavity. Carrel's method of sterilization is then applied, with daily respiratory

exercises to promote expansion of the lung. The excursions of the lung can be gaged by the amount of fluid that can be injected into the pleural cavity during inspiration and during expiration. When only one microbe is found in four fields, the Carrel tubes are withdrawn and the false membrane forming a shell over the lung and its sheet of pleura is shelled off—Delorme's decortication—and the lung expands at once. He gives the details of the forty-seven cases in which these principles have been followed. There were seven medical cases, and thirty-seven chronic and three recent war wound cases. All were cured.

65. **Extensive Comminuted Fractures.**—Leriche and Policard advocate complete excision, ensuring asepsis in the focus. This is followed by repair of the soft parts by retarded primary suture the third day. Fifteen or twenty days later they proceed to whatever grafting or other operation on the bone is deemed necessary to restore the strength of the shaft. In their nine cases of the kind they did a grafting operation in four cases: forearm and tibia, and osteosynthesis, in five: humerus, tibia or radius—all successful. Comparison of the results in these cases with those under other technics has abundantly proved the benefits of this speedy triple intervention.

66. **Acute Massive Hepatonephritis.**—Intense azotemia, anuria and aberrant myeloid reaction distinguished this case of nephritis with jaundice. The man was in the hospital for three months but finally recovered after a neuritis and multiple superficial abscesses. No spirochetes were found in blood or urine at any time, but the clinical picture resembled that of exceptionally grave icterohemorrhagic spirochetosis.

67. **Screw Reduction of Fractures.**—Gentil passes a wire around the limb and then applies continuous traction on the wire, perpendicular to the limb, by means of a thumb-screw in a small frame. The traction can be spread over a large area by interposing a plaster partial cast or arranging plaster collars above and below the site. Depage has applied the same principle with a cable and weight for fractures of the femur, but Gentil shows how it can be applied to angular and overlapping fractures, etc. It usefully supplements continuous traction and immobilization, restoring normal static conditions.

68. **The Microbe of Influenza.**—Summarized in Paris Letter, p. 1676.

69. **War Wounds of Nerves.**—These addresses by Delagenière, Delorme, Walther and others were delivered at the recent French Surgical Congress at Paris.

Revue Médicale de la Suisse Romande, Geneva

September, 1918, 38, No. 9

70 *Restriction of Fluids in Cardiac Edema. J. Tchertkoff and F. Heim.—p. 509.

71 *Kaolin in Treatment of Cholera. V. Kuhne.—p. 555.

72 *Dyschondroplasia. E. Kummer.—p. 569.

70. **Reduction of Fluid Intake in Treatment of Cardiac Dropsy.**—This extensive report tells of fifty cases of cardiac dropsy systematically treated with reduction of fluid and of salt. This alone may restore conditions to clinically normal or, if not, it materially reenforces the action of heart and kidney tonics, restoring compensation except in the absolutely doomed cases. The Karell treatment is on the same principle, but it represents unnecessary deprivations. Tchertkoff and Heim gave a light nourishing diet of 2,000 calories but with only 700 or 900 gm. of fluid and no salt in the bread. The patients do not object to this diet for a week; after this it is modified to allow 1,500 or 1,800 gm. fluid and 2.5 gm. salt with 2,500 calories, but no meat. This fluid-poor and salt-poor diet is less distasteful the more pronounced the dropsy; that is, it is tolerated better, the more urgently it is needed. The weight, the daily diuresis, the rhythm and frequency of the pulse, the blood pressure and the refractometer findings in the blood were compared systematically in all the cases. All presented symptoms of edematous asystole, dyspnea, cyanosis, congestion in lungs and liver, oliguria and dilatation of the heart. In eighteen, no drugs were required, and clinical balance was restored within the week by the dry

diet and repose alone. The patients were from 30 to 80 years old. One lost 12 pounds in five days, and several voided 3,000 c.c. of urine in twenty-four hours, with an intake of fluid less than 600 or 800 c.c. All left the hospital with earning power restored. They report further three exceptionally severe cases in which the fatal outcome could not be warded off in this way, but improvement was marked even in these cases. In all the other cases, the dry diet had to be reenforced with drugs to act on heart and kidneys. They review the literature on the subject, and theorize to explain the efficacy of restriction of fluids. Salt has to be restricted likewise, to enable the patients to bear the reduction in fluids, and especially because the kidney functioning is usually below par in these cases. Repose is an important element in the treatment, perhaps the most important of all. The reason why this is not generally appreciated is because drugs are usually given at once, without waiting to watch the effects of repose and dieting alone. They make a point of refraining from drugs, even a purgative, during the first few days. If there is a tendency to uremia, the diet has to be poor in proteins.

71. **Cholera.**—Kuhne declares that with kaolin treatment the mortality of cholera was reduced from 45 or higher to 2 or 3 per cent. in his extensive experience in Serbia. All the other physicians had similarly favorable experiences, and the authorities provided large stores of kaolin for immediate use as occasion arose. This method of treating cholera, etc., by drinking large amounts of suspensions of kaolin was introduced by Stumpf several years ago, and has been repeatedly described in these columns. It is said to be entirely harmless, and given at the first symptoms cures in twenty-four hours. Kuhne reiterates that even apparently moribund cholera patients may be saved by it. If too weak to swallow, 3 liters of the constantly stirred suspension can be injected into the bowel. The kaolin is useful in all forms of diarrhea, so that even if the diagnosis has been incorrect, benefit will result. When skeptics protest against this *médication bolique*, Stumpf merely says: "When you have experienced what bolus alba is capable of, then you can talk, but not before."

72. **Ollier's Disease.**—Kummer gives a detailed illustrated report of a typical case of dyschondroplasia in a young woman.

Correspondenz-Blatt für Schweizer Aerzte, Basel

Sept. 28, 1918, 48, No. 39

73 *Superheated Air in Surgery. H. Iselin.—p. 1297.

74 Giant Blood Platelets. A. Fonio.—p. 1300.

75 Isolated Traumatic Paralysis of Suprascapular Nerve. J. Dubs.—p. 1305.

76 *The Swallowing Reflex from the Cornea. J. Strebel.—p. 1311.

73. **Superheated Air as Aid to Surgery.**—Iselin lauds the benefit from application of superheated air in treatment of acute inflammations, accidental wounds, and to promote drainage of the peritoneum. Applied at once after early surgical clearing out of the wound it wards off infection. He uses the ordinary hot air frame or cradle but has an electric device to heat the air.

76. **The Swallowing Reflex from the Cornea.**—Strebel has noticed that when the surface of the eye is bedrizzled with some indifferent fluid, such as saline, there is a reflex swallowing movement in addition to the reflex lid closing and the withdrawal movements. This swallowing reflex is apparent even in the newly born if cold water is used. He found it pronounced in 85 per cent. of 500 persons tested. Its absence indicates lack of sensibility in the cornea, and this was the case in eleven cases of herpes of the cornea in 1916 and also in a recent series of seventeen cases of influenzal herpes of the cornea. It was impossible to elicit the swallowing reflex in these cases.

Gazzetta degli Ospedali e delle Cliniche, Milan

July 18, 1918, 39, No. 57

77 *Determination of Nitrogen in Urine. E. Pittarelli.—p. 555.

July 21, 1918, 39, No. 58

78 *Traumatic Ankylosis of Jaw. A. Vecchi.—p. 563.

July 25, 1918, 39, No. 59

- 79 *Methylene Blue Reaction in the Urine. C. B. Farmachidis.—p. 574.
80 Treatment of War Wounds. G. B. Ricci.—p. 578.

77. **The Nitrogen in the Urine.**—Pittarelli describes an improvised apparatus with which it is possible to apply the Kjeldahl procedure to determine the "azoturic ratio," that is, the exact proportion of nitrogen eliminated in the urine in the form of urea.

78. **Ankylosis of Upper Jaw.**—Vecchi remarks that after a fall on the chin, temporomandibular ankylosis may develop on both sides, but with direct trauma it is unilateral, even when the jaw has been long immobilized. Forcible correction of the ankylosis is of little use as the ankylosis soon becomes established again. Even osteotomy does not give permanent results. He gives the details of a case to show the good and durable effect of resection with interposition of a muscle flap. Any operation of the kind should be done with everything ready for an emergency tracheotomy at need, but it is not necessary to make a preliminary tracheotomy if the tongue is fastened with forceps or a thread, so that the tongue cannot slip back into the throat. After the operation the jaw should be actively and passively exercised; a wooden wedge between the teeth is useful for this. These exercises have to be kept up for months and years as the tendency for exuberant callus production may long persist, especially in the young and vigorous.

79. **Methylene Blue Test for Bile Pigments in the Urine.**—Farmachidis states that methylene blue reveals the presence of bile pigments in the urine, by a change in tint to a grass green, on addition of 5 drops of a 1 per cent. solution of methylene blue to about 5 c.c. of the urine. If there is only urobilin present, the tint is more of an emerald green. With other substances in the urine the tint remains the unmodified blue.

Riforma Medica, Naples

August 17, 1918, 34, No. 33

- 81 *Genital Anomalies as Clue to Renal Anomalies. P. Guizzetti.—p. 646.
82 Suture after Cesarean Section. S. Delle Chiaje.—p. 649.
83 Hyphomycetes Develop in Wound Healing Under Carrel Treatment. L. Torraca.—p. 650.
84 Present Status of Puncture of the Brain. R. Falcone.—p. 655.
85 Histologic Findings after Pneumonia. G. Moscati.—p. 656.

Aug. 31, 1918, 34, No. 35

- 86 Present Status of Laryngeal Tuberculosis. V. Grazi.—p. 686.
87 Congenital High Scapula. C. Guarini.—p. 689.
88 Institutional Treatment of Psychoneuroses. A. Salerni.—p. 691.
89 Present Status of Cranioplasty. E. Aievoli.—p. 693.
90 The Significance of the Habitus Phthisicus. A. Ferrannini.—p. 694.

81. **Coexistence of Renal and Genital Anomalies.**—Guizzetti found congenital anomalies in the kidneys in 6 of 1,187 female cadavers and in 9 of 1,653 males. In 7 of the total 2,840 cadavers, one kidney was missing. In a previous series reported, one kidney was missing in 39 of 20,000 cadavers. In his last series, in one-third of the 15 cases of renal anomalies there were also anomalies in the genital sphere. This suggested the possibility that the discovery of genital anomalies might turn the scale in favor of the assumption of some renal deformity in dubious cases. In 14 cadavers he found that the vas deferens on one side was missing, and in 4 others it was defective. In these 4 the anomaly could not have been detected by clinical examination, but in the others the absence of the vas deferens could have been readily ascertained by palpation of the spermatic funiculus. In this group of 14, the kidney on one side was missing in 7; in one there was a horse-shoe kidney, and in the other 2 the kidney was not in its normal place; only in 4 were the kidneys apparently normal at birth. Among 12 instances of one missing kidney, therefore, the vas deferens on that side was missing likewise. Palpation of the spermatic cord would easily have revealed this during life. Especially with normal ureter openings in the bladder, the discovery of anomalies in the vas deferens might prove the warning signal to prevent nephrectomy when there is only one kidney. Anomalies of the kidneys seem to be more frequent in men than in women. By comparing the palpation findings on the two sides it is a simple matter to detect the absence of the vas.

Revista Ibero-Americana de Ciencias Medicas, Madrid

June, 1918, 39, No. 166

- 91 *History of Medicine in Spain. E. G. del Real.—p. 401.
92 *Treatment of Gastric Ulcer. R. Luis y Yague.—p. 423.
93 The Epiphysis of the Olecranon. Riosalido.—p. 437.
94 To Distinguish Inorganic Heart Murmurs. A. N. Blasco.—p. 441.
95 Present Status of Endocarditis. A. Mut.—p. 453.

91. **History of Medicine in Spain.**—In this instalment, del Real discusses the work of Arab, Spanish Jewish and Benedictine physicians in the early history of Spain.

92. **Gastric Ulcer with Hypochlorhydria.**—Luis comments on the difficulty of treatment in these cases as the usual measures to combat hypochlorhydria are contraindicated by the ulcer. Milk and bismuth can be relied on, and possibly olive oil, given an hour before eating. Cases with good motor functioning and tendency to constipation are the ones that benefit most from this.

Revista de Medicina y Cirugia, Havana

Sept. 25, 1918, 22, No. 18

- 96 *Empyema in Child. R. M. Orihuela.—p. 499.
97 Life Work of Carlos J. Finlay. J. Le-Roy.—p. 501. Concl'n.

96. **Empyema in Child.**—Orihuela reports the case of a boy under 6 with remittent fever suggesting typhoid and also bronchitis and cough, but with scarcely any dyspnea. The left side of the chest bulged, and two liters of greenish pus were withdrawn and the cavity drained with large tubes. The operation was done under local anesthesia, without resection of ribs, and complete recovery speedily followed.

Revista de Medicina y Cirugia Practicas, Madrid

Aug. 14, 1918, 120, No. 1518

- 98 Medical Aphorisms. S. V. de Castro.—p. 161.
99 Prenatal Hygiene or Intra-Uterine Puericulture. J. J. de la Mucla.—p. 163.

Vida Nueva, Havana

September, 1918, 10, No. 9

- 100 *Formation of Bone in Penis. A. G. Casariego.—p. 247.
101 Experiences with Laparotomies. E. R. Aragon.—p. 249.
102 *Anthrax Vaccine in Treatment of Leprosy. J. M. Campos.—p. 251.
103 Professional Ethics. O. Montoro.—p. 252.

100. **Formation of Bone in Penis.**—The man of 50 refuses to allow operative removal of the long narrow strip of bone tissue visible in roentgenoscopy. In another case there was induration of the corpora cavernosa but no actual bone formation; under roentgen treatment, the induration retrogressed. Neither of these men had had known venereal disease. In the following number A. Lutz relates that formation of bone in the penis is physiologic in certain species of monkeys, and cites considerable bibliography. He has never heard of a case in the human before.

102. **Treatment of Leprosy.**—Campos writes from Colombia to call attention to the "truly remarkable improvement" in two cases of leprosy in which an anti-anthrax vaccine was given systematically. The bacillus of lepra seems to be unable to survive the action of the toxins elaborated by the anthrax bacillus. He injected lepra patients with cultures of the anthrax bacilli. This seemed to modify the tissues in such a way that the lepra bacilli soon perished. The rapid improvement was paralleled by the disappearance of living bacilli from the field until no further active bacilli could be found in specimens of lymph and nasal secretions. Campos urges others to give this simple and inexpensive biologic treatment a trial. The dose each time was 0.5 c.c. of the liquid vaccine against bacterial anthrax, obtained from the Pasteur Institute.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

Aug. 17, 1918, 2, No. 7

- 104 *Glycolysis in the Blood. J. Hekman and A. van Meeteren.—p. 497.
105 Influenza. B. M. van Driel.—p. 513; J. J. van de Velde.—p. 517; G. F. Wesenhagen.—p. 521.
106 *Electric Reactions in Children. J. B. Stalling-Schwab.—p. 514.
107 Scarlatinal Ethmoiditis; Three Cases. W. Schilperoorn.—p. 522.

104. Glycolysis in the Blood.—Hekman and van Meeteren describe a micromethod with which it is possible to estimate the sugar-splitting property of the blood. Over sixteen pages are devoted to the history of the subject, description of their research, and the results realized. Their technic is based on Bang's method, using 0.5 gm. sugar, dissolved, on Bang filter paper, drying at 100 C., adding 0.1 c.c. of blood, and leaving it in contact with the sugar for two hours. The sugar content of the blood is known and the difference between the findings before and after the test shows the amount of sugar that has been split. The paper is placed in a cylindrical glass, open at both ends; this is placed in a test tube, the lower end resting on a marble in the tube. A minute amount of blood answers for the test, and the whole blood is used; the findings corresponded always with those of other tests and methods. In order to ensure greater precision they improvised a device to regulate the gas pressure for the Bang titration procedure, as they describe.

Among the practical results obtained was the demonstration that the glycolysis in the blood is no index of pancreas functioning. The sugar-splitting property of the blood kept abnormally high in a dog after removal of the pancreas. In diabetes, the glycolytic power was abnormally low in the graver cases. By dividing the figure representing the sugar content of the blood, with the figure representing the glycolysis, we obtain a quotient which represents the sugar-splitting coefficient of the blood. This coefficient varies very little in normal persons, never going above 1.5 or below 0.7 in their experience, so that 1 may be accepted as the normal. In diabetes, this coefficient runs up very high, to 6 or above. Comparison of series of coefficients shows that this increased glycolysis is a compensatory function which strives to get rid of the excess of sugar in the tissues (including the blood). But this compensating process is not complete; the glycolysis does not increase parallel to the increase in the sugar content of the blood. Especially in the graver cases, this compensating function is defective, and sometimes there is no sign of it, the glycolysis figure being actually below the normal figure. This of course is an unfavorable sign; if the glycolysis increases under treatment this modifies favorably the prognosis.

The findings in cases of defective or perverted functioning of the thyroid, parathyroids and pituitary body also suggested the possibility that this abnormal functioning might be an important factor in the pathogenesis of diabetes. When glycosuria without ketonuria is encountered, and the glycolytic power of the blood is found abnormally low, the possibility of a thyrogenous or pituitary origin should be borne in mind. They expect to continue research on the influence of thyroid treatment, of epinephrin, etc., on the glycolysis in the blood, but at present they merely report the facts they have established, for some of which they have no explanation as yet to offer.

106. Electric Tests on Children.—Stalling-Schwab reports from the Emma Children's Hospital at Amsterdam the findings with electric tests applied to thirty-nine children free from manifestations of spasmophilia, and to forty-eight who presented symptoms of tetany. She compares the findings with what others have reported in this line. They confirm that these two groups of children respond quite differently to electric tests, and also to treatment by dieting and calcium, phosphorus and cod liver oil.

Hospitalstidende, Copenhagen

Aug. 21, 1918, 61, No. 34

108 *Operative Treatment of Tuberculosis of the Spleen. E. Petersen.—p. 1105. Commenced in No. 33, p. 1073.

108. Tuberculosis of the Spleen.—Petersen insists on the necessity for removal of a tuberculous spleen at the earliest possible moment, even if there may be tuberculous lesions elsewhere. The tuberculous spleen leads inevitably to death unless it is removed in time, while a complete cure is possible after splenectomy if no other organs are involved. He devotes eleven pages to tabulation of the details in twenty-one operative cases, including one from his own experience.

The mortality was 25 per cent., but 60 per cent. were cured when last heard from. The findings are tabulated also from twenty-three cadavers with tuberculosis of the spleen. The differential diagnosis is based on the chronic course, the personal and family history, and the enlargement of the spleen with little if any tenderness, but there are about a dozen other diseases that have to be excluded first, from leukemia, hemolytic jaundice, polycythemia, and anemia to malaria, cysts and abscesses. The chief difficulty is in excluding pseudoleukemia and polycythemia. Banti's disease calls for splenectomy likewise. Even at the laparotomy, differentiation may be difficult. Hayden in one case merely curetted and drained, but this is permissible only when total splenectomy is impracticable. Quénu and Baudet in one case found a tuberculous abscess in the lower pole, and they were able to marsupialize it, suturing the spleen to the incision in the parietal peritoneum, so that the abscess could be incised and cleared out, all outside the peritoneum. Recovery was complete in four months. In the advanced necropsy cases, the spleen weighed up to 4 pounds, 3,780 gm., or measured 27 by 19 by 16 cm. in some of the cases.

Norsk Magazin for Lægevidenskaben, Christiania

September, 1918, 79, No. 9

109 *Insanity in Norway. M. Holmboe.—p. 977.

110 *Intracranial Sympathetic Paralysis. G. Ræder.—p. 999.

111 *Sanatorium North of Arctic Circle. T. Neumann.—p. 1017.

112 Public Health in Norway in 1740. J. Anderssen.—p. 1038.

109. Insanity and Feeble-mindedness in Norway.—This review of the 1910 census supplements Holmboe's two previous works of the kind on the census of 1890 and of 1900. In 1900 the insane numbered 2.63 per thousand inhabitants, and in 1910, 3.13 per thousand. He advocates compulsory registration of all the insane and feeble-minded.

110. Intracranial Sympathetic Paralysis.—Ræder's patient had a tumor between the internal carotid artery and the gasserian ganglion. Besides headache, vomiting and pains in the region innervated by the left trigeminal, there had been paresis of the left side of the palate, miosis, ptosis and reduced intra-ocular pressure, but there were no vasomotor or trophic disturbances and no enophthalmos.

111. Far Northern Sanatorium.—The Vensmoen institution described is within forty miles of the Arctic Ocean, thirty miles north of the Arctic circle. It is a state sanatorium, with accommodations for fifty-four tuberculous of each sex. Of the total 257 given treatment since it opened two years ago, a favorable result was evident in 72.77 per cent., although nearly 35 per cent. of the patients were in the third stage of tuberculosis. In winter the sun is above the horizon only for one hour and thirty-seven minutes; in summer the sun is below the horizon only for six hours.

Ugeskrift for Læger, Copenhagen

Sept. 12, 1918, 80, No. 37

113 *Congenital and Inherited Zonular Cataract. K. Lehmann.—p. 1443. Commenced in No. 36, p. 1407.

113. Inherited Cataract in Danish Family.—Lehman has been investigating the Volkmann family, tracing the tendency to zonular cataract through four generations. The cataract was bilateral in nearly all those affected. Its occurrence did not indicate that it was inherited as a mendelian dominant, but on the other hand there was nothing positive to disprove this. Epilepsy and idiocy were not unusually common in this family, but the poor eyesight reduces the level of the environment. Of the sixty children or young persons in the various branches of the family, twenty-five had cataract, and four of these had had convulsions and two rachitis. The color of the hair, eyes, the height, chest measure, etc., did not display any special inherited features paralleling the cataract. The best results in treatment were with repeated small discisions. In one, vision is 6/6 although two operations were done at 14 and 16 years of age. The danger of infection is minimal with this small intervention. The patients must be supervised to detect the first onset of glaucoma.

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OBSTETRIC SCIENCE AND ART IN THE SERVICE OF THE NATION*

EDWARD P. DAVIS, A.M., M.D.

Professor of Obstetrics, Jefferson Medical College

PHILADELPHIA

At the present time no medical problem in the United States is without its bearing on the winning of the war and the maintenance of the strength of our population. It is pertinent to ask, What has modern obstetric science and art to give to the nation, and how may it best be given and most efficiently used?

Among the recent advances in obstetrics there are measures which may be rightly called medical and others which are surgical.

MEDICAL ADVANCES IN OBSTETRICS

In the first, agencies to relieve pain during parturition and to prevent suffering and shock are easily of the first importance. The combination of the treatment by suggestion, discipline, morphin and scopolamin, known as the twilight sleep method, has largely collapsed in its gaseous elements, but we have a true knowledge gained by experience of its real value. Those who have used it most intelligently say that when a patient is in a hospital under the constant attention of an experienced physician and good nurses, during the first stage of labor and the early part of the second stage, morphin and scopolamin may be used to advantage. In highly nervous patients it is impossible to tell in advance whether this combination of drugs will excite or soothe the patient; there is some danger of producing asphyxia in the child, labor is prolonged, and the use of forceps rendered more often necessary. This method has elements of value within a narrow scope; we recognize in it a tried and familiar friend in morphin, which practitioners have used during the first stage of labor for many years, with success.

Nitrous oxid and oxygen are strongly recommended and have enthusiastic advocates, but observation and experience show that their use requires skill and experience, that some patients are partially asphyxiated and greatly irritated by these gases, and that they are not suitable for surgical procedures or prolonged anesthesia. They are of especial value for brief manipulations, such as the introduction of bougies or the inducing of labor, the use of dilating bags or the introduction or removal of gauze packing.

But these more recent attempts to mitigate the suffering of parturition have done much good because

they have directed the attention of physicians to this point and have resulted in a classification of our knowledge and a comparison of methods. We know that during the first stages of labor, morphin or codein with atropin is exceedingly useful in promoting dilatation with lessened suffering. When nervousness only is the complication, bromids are sometimes of value. During the actual second stage, nitrous oxid and oxygen are used successfully if properly given, and ether is exceedingly valuable when quickly inhaled in small quantities. By such use of ether the mother is rendered unconscious at the moment when the child is born, waking quickly and with no bad results. No woman should pass through labor without intelligent and careful effort to reduce her suffering to the lowest possible degree. In this regard the women in the United States have for years had better attention than is usually given to European women.

Pituitary solution was hailed as a substitute for forceps, the great time saver for the busy practitioner and a great remedy for delay in labor. Its unwise use has caused rupture of the uterus, severe lacerations in the mother and death of the fetus through pressure. It has a distinct and limited field of use. When the mother and child are proportionate in size and the head is low down in the pelvic cavity or on the pelvic floor, the cervix completely dilated and all that is needed is a few uterine contractions, then, and only then, should pituitary solution be given during labor. To cause the empty uterus to contract quickly, thus checking hemorrhage, pituitary solution is especially valuable: it may be used at cesarean section for that purpose or for the immediate stoppage of sudden and threatening bleeding. For hemorrhage it should always be followed by strychnin and ergot, as its effects are brief. In paralysis of the intestine following abdominal section or complicating the puerperal period, pituitary solution is often of value.

The treatment of puerperal septic infection by vaccines and serums is in line with modern advances in the treatment of other diseases. So far there has been no proved ground for the belief that vaccines and serums are of special value in combating puerperal septic infections. Antistreptococcic serum, to be effective, must be prepared for each case and given in doses so large that it may seriously depress the patient; vaccines have yet to prove their reliable effect. What is, however, of decided value and what can do no harm, is sterile horse serum, which in the toxemia of pregnancy and the puerperal state, may be given in doses of 20 c.c., with excellent result. This substance increases the mother's resisting power without producing depression.

The toxemia of pregnancy in its early stage of pernicious nausea and vomiting or in its later form of

* Read before the Tri-State Medical Association, Madison, Wis., Aug. 20, 1918.

eclampsia, with or without convulsions, remains an undiscovered country and an unconquered field for advance in obstetric science. It has been clearly shown that the indiscriminate delivery of eclamptic women by vaginal or abdominal section is worse than useless. The emptying of the uterus by no means ends the danger. That form of treatment which secures rapid and thorough elimination with the least shock is best. To be avoided are depressants, as narcotics in large doses. In rare cases prompt delivery by section is indicated. To put the matter more in detail, it is my habit in these cases to bleed, followed by intravenous saline transfusion; to irrigate thoroughly the stomach, leaving within it calomel and soda; to irrigate thoroughly and copiously the intestine, leaving salt solution for absorption; to cleanse the patient's skin and place her between blankets; to use no anesthetic; to give abundance of fresh air and if available, oxygen by inhalation; not to interfere with the uterus unless labor begins, and then if it delays, to empty the uterus in the most prompt and least disturbing manner.

Cesarean section, vaginal or abdominal, is most successful in fulminant toxemia before convulsions begin. When treatment by elimination has failed to improve the patient's condition, prompt delivery may turn the scale.

Convulsions are of minor importance; a woman may die without having a convulsion and another recover who has had a hundred. The prognosis of severe toxemia, whether in early or in late pregnancy, is absolutely uncertain. It resembles strongly the prognosis in pneumonia. In both diseases, death comes from toxemia, and one cannot accurately recognize or isolate the toxins.

ADVANCES IN OBSTETRIC SURGERY

Obstetric medicine, then, has gained in its ability to lessen pain and shock, to shorten tedious labor, to prevent sudden hemorrhage and rescue the mother from the dangers of toxemia; but obstetric surgery has shown more decided advances. Contracted pelvis is one of the least dangerous of obstetric complications when the patient is in good hands. A thorough knowledge of obstetrics will prevent postpartum hemorrhage in a great majority of cases. The immediate repair of lacerations of the cervix, anterior and posterior segments of the pelvic floor and perineum gives the patient a complete anatomic recovery from labor. The prompt performance of abdominal cesarean section will save the lives of mother and child in many cases of placenta praevia. Abdominal and pelvic tumors complicating pregnancy and labor are successfully removed; ectopic gestation and rupture of the uterus call for prompt and efficient obstetric surgery. The high application of forceps, prophylactic version in contracted pelvis, craniotomy on the living child, and violent methods of dilation and delivery in prolapse of the cord and shoulder presentation have been abandoned. In no branch of surgery has greater advance been made than in obstetric surgery.

And yet, when a general survey is made of the field of obstetric practice, a very striking fact becomes apparent. Parturition is today to the women of the United States only less dangerous than cancer and tuberculosis, and this extraordinary condition depends on the prevalence of puerperal septic infection. Among the civilized nations of the earth, the United States has an unenviable position in the occurrence of puer-

peral septic infection. Time need not be lost in stating statistics, but these facts are abundantly proved. What is their explanation? Unquestionably the best American obstetrics is the best in the world. In other words, when an American woman has the benefit of the best special practice in obstetrics during pregnancy and labor, she receives more careful, thorough and painstaking care than in any other country. Those who have watched foreign clinics and are familiar with the literature of these clinics have observed this fact.

The worst American obstetrics is probably the worst in the world, and the explanation of this condition lies in the fact that such practice is done by ignorant and often unscrupulous and careless physicians. In Europe the trained midwife is far safer than in this country the bad American doctor. We in America have no use for the midwife and do not desire a perpetuation of her species; we believe that the profession of this country should do its obstetric practice and do it well; but unquestionably a thoroughly trained European midwife is far more efficient and safe than the worst type of American doctor. What suggestion can be made to remedy this state of affairs?

American surgery has reached its present world pre-eminence through the native skill, ingenuity and originality of the surgeons of the United States. They have been greatly aided by the multiplication of hospitals and by securing from the community in which they are, abundant opportunity for surgical practice and research. Our people have become educated to demand the very highest grade of surgical skill; conditions calling for surgical treatment are well understood by the laity; people are familiar with hospitals and their advantages, and a surgical operation is neither uncommon nor fearful.

If we apply to obstetrics some of the same lines of development, we shall find that the multiplication of maternity hospitals will be of the greatest possible service to our people and to our profession. To these hospitals should be taken primiparous women and all others having complications. If this cannot be done, then the public should demand that the essentials of hospital care be given in the home of the patient; in other words, that in her home she has special obstetric skill, trained obstetric nursing, skilled anesthesia, and whatever apparatus or instruments are necessary for a competent surgical and aseptic management of her case. If the poor can be properly treated in the hospital, if those that are well-to-do can be properly accommodated in hospitals, and if those that are able to demand and afford competent obstetric care can secure it in their homes there will be a definite and great improvement. This will result in the better education of the profession in obstetrics, the better education of the laity, and improved training for nurses as well. The wear and tear of human life may be considerably prevented by such measures. Good roads and motor vehicles and a sufficient number of maternity hospitals will make it possible for the prompt transfer of complicated cases to receive proper attention.

Among the most interesting problems that engage the attention of the modern obstetrician is infection by the *Bacillus coli-communis*, complicating pregnancy and the puerperal state. This frequently manifests itself first in the appendix and with almost equal frequency in the gallbladder. During pregnancy the appendix should be removed as soon as it gives evi-

dence of disease; and the earlier in pregnancy this is done, the better. A gallbladder that is a constant source of suffering and danger should be drained or extirpated as early as possible in pregnancy. The obstetric surgeon is the best man to do this, because experience and observation will help him to detect signs of danger that others may pass unnoticed. A third form of this infection is that which attacks the pelvis of the kidney. Here in pronounced cases incision and drainage of the kidney are followed by the recovery of the patient without the interruption of pregnancy. This subject presents a most interesting and satisfactory field for further study by the obstetrician.

IMPORTANCE OF A CORRECT DIAGNOSIS

When, however, this subject is under discussion, the general practitioner asks where he comes in. He has been told that obstetrics is his specialty; he has long soothed his conscience and the minds of his patients by describing labor as a physiologic process, which therefore requires little or no supervision. This is a half truth more dangerous than a lie; labor is a physiologic process in the physiologic individual, but never in the pathologic person. How many sound, healthy women do we see in practice? How many sound, healthy men are married to these women? There is nothing so perfect as Nature's methods in pregnancy, labor and the puerperal state in a sound woman who is anatomically and physiologically perfect; but of such I have seen very few. There is for the general practitioner one of the most important, interesting and lucrative specialties in medicine. It is that of diagnosis. If people are not very sick and he can find it out, they need very little treatment and will recover. If they are very ill, they frequently require in the surgical way attention that he cannot give; but he is the one who first sees the patient. On his diagnosis may depend the life of the individual. A correct diagnosis promptly made calls for the prompt performance of the operation which is successful; a failure in diagnosis and delay lose the patient's life. Nothing is better appreciated by the laity than diagnostic ability on the part of their physician, and the general practitioner who is skilled in diagnosis becomes the honored and trusted adviser of the family. He may not treat its members for many of their disorders, but his verdict for the necessity of treatment is received without question. In obstetrics, diagnosis is of paramount importance; we are accustomed to tell our senior medical students at the Jefferson Medical College that we hope that a kind Providence will prevent many of them from performing major obstetric operations. But we expect and demand that all of them shall learn obstetric diagnosis, and that they shall learn to know when the head of the child has entered the pelvis and when it remains at or above the pelvic brim. To recognize the normal and equally to recognize the abnormal is no small achievement in any branch of medicine. The man with a large general practice cannot do much obstetric work and do it well without injuring his general medical practice; and many general practitioners do obstetrics to keep the medical practice of the family, a most unwise arrangement for physician and patient. The general practitioner may be tempted to yield to the pleas of his patient to undertake their obstetric care when he realizes that he has neither the time nor ability nor inclination to do the work well.

There will be no essential diminution in the mortality and morbidity of puerperal septic infection until complicated cases of obstetrics are considered as important, as dangerous and as imperative as appendicitis, infection of the gall bladder, or other acute and serious abdominal conditions. Then, and only then, will the general practitioner abstain from fruitless efforts to deliver, and a competent obstetrician will be summoned at the very first sign of danger during labor.

The maternity hospital will afford skilled attention, aseptic care to a large portion of the community, well-to-do and poor; and when our people are educated to the importance of the complicated confinement and the necessity for securing skilled attention for these cases, there will be a decided improvement.

RÔLE OF OBSTETRICS AFTER THE WAR

The present war has drawn attention to the importance of obstetric science and art. The French have gone very thoroughly into the question of what can be done to conserve the French nation. In this country the necessity of prenatal care is being manifested, and the enormous wastage of human life is drawing attention to the necessity for saving. Hitherto the value of a human life has been rated at its wage-earning capacity; hence the sentimental verdict of a jury which, to save the feelings of the parents, awarded damages of 39 cents for the life of a child run over and killed by a car.

When the present conflict of arms ceases there will follow a second struggle no less earnest, no less determined, no less important, no less vital; it will be a struggle among the nations of the earth for supremacy in commerce, manufacture, science and all essentials in the life of a great nation. That people which is strongest and most sound physically, mentally and morally will do best and win most; hence the United States needs a strong and most vigorous population for future developments.

There is another and deeper significance to this question: Death and destruction have been spread abroad throughout the world; many households have been permanently saddened. One recalls the famous utterance of John Bright in the House of Commons, "The Angel of Death is abroad among us, one can almost hear the beating of his wings." Casualty lists will grow longer in these United States, and there will be more gold stars before this war is over.

But the child in the world has always been the symbol of hope. Many a sorrow has been lessened by the love of children since the time when in the temple a Child was placed in the midst of the people. And so the children of our country may well become the silver lining to the present cloud.

250 South Twenty-First Street.

The Victory Over Rabies.—During the year 1916, according to a report recently issued, 1,008 persons from the district of Lyons received the antirabic treatment at the bacteriologic institute in that city. (Rochaix, A.: *Le traitement antirabique dans la region Lyonnaise* [1916], *Jour. de physiol.*, 1918, 17, 692.) A single death in this list places the mortality at 0.099 per cent. Since 1900 more than 9,000 persons have received antirabic inoculations at Lyons alone, with a total of nine deaths, or 0.09 per cent. The story has become an old one; but it will long bear repetition as an eloquent testimony of the blessing of intelligent scientific research.

OTOLARYNGOLOGY IN THE FIRST
YEAR OF THE WAR

AN INFORMAL REPORT *

HARRIS P. MOSHER, M.D. (BOSTON)

Lieutenant-Colonel, M. C., N. A.

WASHINGTON, D. C.

The subjects dealt with in this informal paper are: the medical problems of the base hospitals at the cantonments, and some gossip about the personnel at these hospitals; the present and future needs of otolaryngology as to personnel and finally a few comments on the character of the medical work in the Army, stating why I believe it a grown man's work and not, as it has been dubbed by a few of the present stay-at-homes, work to be done by boys.

My duty up to the present time has been largely in recruiting medical officers for otolaryngology. This naturally has aroused deep feeling, and the closing paragraphs, I am conscious, are at least reminiscent of this feeling.

THE MEDICAL PROBLEMS OF THE CANTONMENTS

The cantonments, as is well known, are small cities with a population of from 20,000 to 40,000. Although they were built in a few months, they have all the appointments of cities of years of growth, from churches to jails, and from libraries and theaters to fire engine houses. They are cities of youth; poverty and old age are never seen. Except for the nursing staff, women play but a minor part in them. In the normal cycle of a man's life, death alone is present.

At these cantonments there are sixteen base hospitals for the National Army and fifteen for the National Guard. Besides these there are scattered over the country general hospitals, post hospitals and special hospitals. One of the special hospitals is being fitted out as a hospital for head surgery. Reconstruction hospitals and hospitals for reeducation are soon to come. The number of beds in the cantonment base hospitals carries between 1,000 and 2,000, the beds in the general and post hospitals from 150 to 500. One special hospital for tuberculosis has 1,000 beds, and the hospital for head surgery has a maximum capacity of 500. Up to the present time the total number of beds planned for in this country is more than 70,000. I am not at liberty to give even approximate figures, such as the ones just given, for the hospitals contemplated and actually built abroad, but the American public can rest assured that there will be an adequate number.

The death rate is of course low, for the soldier citizens of these cantonments were chosen as physically fit before they took up residence there. The sick rate also should be low, and is low; but a curious fact, well known to all experienced medical men in the Army, soon became evident—namely, that the assembling of these apparently well young men was at once followed by epidemics of disease. The infectious diseases of childhood at once appeared and took a very virulent course. Pneumonia, the friend of the old, became the deadly enemy of youth. Cerebrospinal meningitis, which is relatively rare in civil life, became almost common.

An apparently well man is often a carrier of bacteria which he gives to his fellows. Men who have

long lived together, however, seem to acquire an immunity to each other's bacteria; but take men who are strangers and assemble them in large numbers, as they are today assembled in the cantonments, and infectious diseases at once appear in spite of the healthy mode of life. Infections borne by food and drink—for example, typhoid fever, have been practically stamped out. Breath-borne infections, the bacteria of which live in some part of the respiratory tract, preferably the nose and throat, are yet to be conquered.

There are no vaccines for most of these diseases. The fundamental point in dealing with them, therefore, is to prevent them by avoiding overcrowding and by providing adequate ventilation. Recurring epidemics of cerebrospinal meningitis which took place last year at the barracks of one of the most celebrated regiments in England were controlled by such measures. The sleeping huts, which previously contained thirty beds, had ten beds taken out so that the minimum distance between the beds was 2½ feet. In addition, half of the windows of each hut were opened at the top on a slant and nailed in this position and untouched regardless of the weather.

As the men come to the camps well, the problem is to find at once the soldiers who are carriers of disease and isolate them before they can infect their mates. This was accomplished in a dramatic fashion at one cantonment recently by having twenty-four teams of medical men meet the incoming troop trains and take cultures from the nose and throat of each recruit. Those who were found to be carriers were at once isolated and treated. Work of this kind means that the bacteriologists in this war are an overworked set of men.

The problem of the carrier is the acute medical problem of the cantonments. It is becoming evident that the nose and throat are the abode of choice of the streptococcus and probably of the organisms responsible for many of the infectious diseases. The prophylaxis of infections of the respiratory organs is a most pressing problem in this country and abroad. Striking results in the control of infectious diseases have been obtained in at least one cantonment by the use of gauze masks, and in measles the use of the gauze mask has been made compulsory. Only the surface of this problem has been scratched. Never before has such an opportunity been offered to solve it. If it can be solved it will be one of the great medical achievements of the war. The poisonous gas of the enemy can be seen. We take the elaborate masks which are used by the soldiers to protect themselves as a matter of course. The germ-laden breath of the soldier cannot be seen, but it is even more deadly than the gas.* It would cause a smile if every soldier on a transport was required to wear a gauze mask when below or between decks, or if a less novel measure was ordered, namely, that every soldier should carry a piece of gauze and be required to cough into it. Had either of these measures been a routine procedure on the transports last winter, my feeling is that instead of the men landing in France ill with acute or chronic pharyngitis, acute or chronic tonsillitis or acute or subacute bronchitis, which was the condition of things all through last winter, the percentage of such diseases would have been markedly reduced. I feel strongly on this point, and I am certain that I am not making a mountain out of a mole hill.

* Read before the Section on Laryngology, Otology and Rhinology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

In addition to the problem of the carrier at the base hospitals, there have come up for solution the control and prevention of venereal disease, the treatment of infectious diseases and of diseases of the respiratory tract, and the treatment of the surgical complications of these diseases, such as tonsillitis, mastoiditis and empyema. The otolaryngologist, the general medical men, and the bacteriologists have been by far the busiest medical officers. Waves of infection have passed over some of the cantonments, and the streptococcus has had a field day.

Only supposedly well men are chosen for the Army because its sole purpose is to fight. The chief purpose of the Medical Corps, therefore, is to keep the

OPERATIONS PERFORMED IN EAR, NOSE, AND THROAT
DEPARTMENT, HEAD SECTION, SURGICAL DIVISION,
BASE HOSPITAL, CAMP SHERMAN, OHIO,
IN APRIL, 1918

Name of Operation	Disease or Injury	Number of Cases *	Anesthetic					
			Cocain	C. M. P.	Ether	Procain	Chloroform	None
Incision of external canal	External otitis.....	1	..	1				
Scarification of edematous epiglottis	Acute edema of larynx	1	1					
Removal of sphenoid anterior wall	Sphenoiditis.....	1	1					
Enlargement of mastoid wound	Secondary operation, mastoiditis	4	..	..	2	1	..	1
Removal of polypi.....	Nasal polypi.....	3	3					
Paraentesis.....	Otitis media, acute..	48	3	29	..	..	..	16
Curettement of mastoid wound	Granulations.....	2	1	1				
Simple mastoidectomy.	Mastoiditis (acute, purulent)	13	..	..	7	3	3	
Radical mastoidectomy	Mastoiditis (chronic, purulent)	4	..	..	4			
Brain abscess.....	Brain abscess, temporosphenoidal	1	..	..	1			
Removal of distal portion of uvula	Elongated uvula....	1	..	..	..	..	..	1
Tonsillectomy and adenoidectomy	Hypertrophied tonsils; adenoids	81	81					
Opening abscess, nose, left and right	Abscess of nose....	1	..	..	..	..	..	1
Permanent opening, maxillary antrum (nasal)	Chronic empyema...	5	5					
Antrum puncture and washing	Acute sinusitis.....	25	25					
Opening ethmoid cells..	Chronic empyema...	2	2					
Removal of septal spur	Septal spur.....	1	1					
Secondary mastoid.....	Dissecting temporal abscess	2	2					
Incision and drainage..	Peritonsillar abscess	46	13	..	..	..	..	23
	Abscess of neck....	3	..	..	2	..	1	
	Furunculosis, ear...	1	..	..	..	..	..	1
Partial removal of turbinate	Hypertrophied middle turbinate, left, and pur. inf. sphenoid, left	1	1					
	Hyp. inferior turb.	1	1					
Total.....		248	140	31	16	4	4	53

* No operation has been other than successful.

soldier well. Unfortunately, it is not its sole purpose because well men get sick, and fighting men must be injured. Naturally, the most dramatic part of the medical officer's work in the Army is caring for the wounded, the most important part, however, is keeping the fighting men well. Preventive medicine, therefore, is the medical problem of the Army *par excellence*. Those who have the vision to engage in the solution of its problems have under their control in the Army an unparalleled human laboratory and the opportunity of a century. I feel that medical men do not as yet realize this.

If practice makes perfect, the otolaryngologists in the Army today should be experts in opening peritonsillar abscesses, in resecting the septum, in tonsillectomy and in mastoidectomy. They can never hope,

however, to catch up with the number of tonsils that are acting as foci of infection and thermostats for streptococci. The dentists can never hope to clean up all the teeth that are foci of infection, and the surgeons, operating as they do in some of the cantonments in from ten to twenty cases of hernia a day, can never see the end of their task. It is my belief that the soldiers who are to compose the standing army which is to maintain peace when it finally comes will never take their place in the ranks unless they have normal noses and throats, or have them made normal by operation.

The total number of treatments given in the head house of the base hospital at Camp Sherman, Chillicothe, Ohio, during the month of April, 1918, was 6,174. Of these, 1,755 were given in the eye section and 4,419 in the ear, nose and throat department. The report of the operations in the ear, nose and throat department of the head section is given in the accompanying table. Attention is called to the number of tonsillectomies and peritonsillar abscesses.

I am much concerned at present about the scientific results of this war in the medical line. Naturally, of course, I am interested first and chiefly in my own. My efforts must be largely confined to reminding the men in the hospitals that a great opportunity lies at their hand, and urging them to grasp it. In a great measure it is a matter of keeping adequate records. One hesitates to add more paper work than is already necessary in the Army. The initiative in this matter lies with the commanding officers of the base hospitals and the chiefs of the medical divisions. By means of the Army records, men can be traced for years to come. What better chance on a large scale has the medical profession ever had of settling the results of certain operative procedures—for example, tonsillectomy in chronic affections of the heart or of the joints—than is before it now? Practically every medical man serving in the Army wants to go abroad. I have been in France twice, but I can assure you that it is a great question in my mind whether there is not a fuller scientific opportunity in this country.

THE EQUIPMENT AT CANTONMENT BASE HOSPITALS:
PERSONAL NOTES

The equipment at the cantonment hospitals is nearing completion. At the beginning of the war it was found that 80 per cent. of the surgical instruments were of German make. The instrument firms of this country were at once lined up and asked for maximum output. For a time the men who were first at the hospitals had but little to work with except the instruments which they brought with them or had sent from their offices. Now it is only a question of asking for reasonable things and knowing how to ask for them and to have a vigorous commanding officer back up the request and repeat it if necessary, in order to get all essential instruments. Naturally the whim of every operator for special instruments cannot be granted. It is still good policy, however, to carry one's pet instruments. Then one operates at ease from the start. If the instruments wear out, this can be called part of one's contribution to the cause in place of buying more Liberty Bonds.

Speaking of being first on the ground reminds me that in the beginning days some of the men did not see why they were required to be on the ground so early, why they were not left at home until things were further along. They were sent because their

experience was needed to start things properly. In banks, clerks are not made directors. Of course in many cases the men first on the ground were uncomfortable. In the beginning some murmured a bit; now they brag of it. I have yet to talk with one of the pioneers who would have missed these beginning days. In many cases they made the hospital what it is at present even, like Day, taking part in the carpenter work. Where the men realized their job they saw to it that the head building was not pushed off the map, that it was not used for extra barracks, that it was well placed, that the original plan was even improved on. Take Holmes, for instance; he was put in charge of all the building by the commanding officer, and the result is no surprise to those that know him. The rest of the hospital had steam for its operating room. As a matter of course, Holmes soon had it for his building. He got not only steam but everything else that the Army allowed, and I suspect some things that were not allowed. In fact, he has one of the show places among the cantonment hospitals. He is an early bird if there ever was one, and always collects a large basket of worms wherever he goes. Pierce is happy at Grant now that he can keep his shoes and his clothes clean. Eagleton, at Dix, is still in a delirium of enthusiasm. Knowles has a fine place at Devens, and Skillern has developed a taste for administrative work and has aspirations to become a commanding officer. He also is much interested in his band. He has promised to embarrass me by meeting me with it when I next go there. Harris has gone to Oglethorpe to take charge of the teaching of otolaryngology. His worries have begun and mine have finished. Berens, Greene, Emerson and Fetterolf are just coming into the service. Wherever they go, the Surgeon-General's Office knows that things will run right. Levy got as far away as he could and is at Camp Lewis, American Lake, Washington. Wherever men of this stamp are placed there will be no more rumors of substandard work like Wild's incision for mastoiditis, and no suspicion of overoperating.

Haskins went early to West Point and is now professor of military hygiene. Friedberg is at Doniphan, and one of the men working under him says that being in the clinic there is better than any postgraduate course abroad.

During the year and since the entrance of this country into the war, Ingals has died. He took great pride in acting for the Surgeon-General's Office as state adviser, looking up the standing of applicants and furnishing the division of otolaryngology with their rating.

His figure comes back to me now as he stood last year by the dinner table after the banquet of the American Laryngological Society. He spoke about the war and said quietly but firmly, as was his custom, how he regretted that he could not take a more active part. He did his part, however, to the limit of his strength after the habit of his life. He suffered greatly, but lack of patriotism in a friend or acquaintance hurt him more than the pain of one of the cruellest diseases.

THE PROBLEMS OF THE SURGEON-GENERAL'S OFFICE

Naturally there have been many worrying problems for the Surgeon-General's Office to pass on. Of these, otolaryngology has had its share with the other departments. The first was the problem of consultants. Three or four consultants were appointed, but the

plan from the start worked poorly and the medical officers who held such positions had to be given the choice of taking full time duty or going on the inactive list. Part time service is considered by the man who is giving full time as an unjust discrimination against him. He holds that all men have an equal right to it, and they have. Not only does it carry an unjust discrimination, but it destroys military uniformity and control. These, of course, are simply other names for discipline, and discipline is the backbone of the military machine.

The commanding office of an army hospital naturally has pride in having a staff of medical men who can cope with all the cases that come to his hospital, however difficult. If he is not so fortunate in his personnel or if unusual cases occur, he is at liberty to call in the most available civilian physicians. This has been necessary in at least one hospital and may be necessary again, unless more of the experienced otolaryngologists of the country enter the service. There will be, of course, some men who cannot enter the service on account of physical disability, age, or some other sufficient and good reason. Let these men, if they want to be of use, make themselves known as standing ready to help as civilians; but they should be careful not to embarrass the government by trying to be both in uniform and out of it.

Service as contract surgeon has not been used in otolaryngology, although he has been employed in some of the other departments. Pressure is being continually brought to have the government use the civilian hospitals as a part of the war machinery. If I should give my own opinion in this matter, it would be that if the war is to continue three or four years more I can see how this may become necessary. At present, however, it brings up the old question of divided control and part time service. The Surgeon-General's Office, therefore, does not favor it.

The problem of the medical student has met a happier solution. Procuring a medical education is considered by Washington as preparation for the Medical Corps of the Army, and the medical student graduates by law into that corps. Those who are serving internships in hospitals have been allowed a year for such services. Naturally, however, many of the more ambitious and the most patriotic among our young men prefer to enter the Army at once and let the Army experience take the place of the internship.

As I look at it, it is axiomatic in a war of the magnitude of the present one that our hospitals are to be short handed, and that the medical schools must run on reduced personnel. Elaboration of courses must be eliminated for the time being and the schools come down to the three R's of medicine. Both hospitals and medical schools, however, can help themselves by doing away with the age limit and bringing back into service the men who have been retired. There is at present a committee in the Surgeon-General's Office which has this most important matter of teaching in the medical schools in charge for adjustment. There is every disposition to look on both sides of the question—England's mistake is well known. The Surgeon-General's Office has been fully reminded of it.

THE NEED FOR MEDICAL OFFICERS

I am continually asked if there is still need for medical men in the service. Sixteen thousand are now serving, but an imperative call has gone out for 5,000

more. In the general branches of the medical service, physicians of large hospital experience are badly needed. From all the cantonments the cry comes, Send us experienced men. Otolaryngology is better off than general medicine and surgery. However, when the base hospitals begin to go overseas in numbers there will not be enough experienced otolaryngologists to take their places. To make the department of otolaryngology what it ought to be, there should be on file, ready for instant use, the names of 200 otolaryngologists of ripe hospital experience. These men should be ready to take their physical examinations and send in their application papers on telegraphic notice. At present the available list is less than fifty. As things stand now, if your name was on such a list you might be used in six weeks or six months. However, by standing ready to apply for a commission, you have put yourself at the disposal of the government and have fulfilled your duty, at least as I see it.

If you take the combined membership of the American Otological Society, the American Laryngological Society, and the American Laryngological, Rhinological and Otological Association and omit the duplicate names and compute the percentage of the members who are in the service, it is found to be about 22 per cent. There are five lieutenant-colonels—Kopetsky and Imperatori in the field ambulance, Haskin, professor of military hygiene at West Point, and Richardson and Mosher in the Surgeon-General's Office. There are forty-one majors, twenty-six captains and eight lieutenants. The records also show that there are in active service 210 otolaryngologists and 232 ophthalmologists. Unfortunately, I do not have the figures for the special sections of the American Medical Association. Owing to the large size of these sections, I should imagine that the percentage would be somewhat less.

RETENTION IN A SPECIALTY

At the beginning of the war, the Surgeon-General, with his large grasp of affairs, made the statement that specialists would be used in their specialty as far as the exigencies of the military service permitted. No absolute promise could be made, and none was made. Naturally some men have tried to kill the goose that laid the golden egg by considering this statement a promise. This attitude has been especially true of the men just entering the specialty. No military organization could stand for a minute if so constructed. Full command is essential in order to meet changed conditions and emergencies. Up to lately the great majority of the specialists who came into the service have been used in their specialty. A few that have been found incompetent have been transferred to other lines of the medical service. I am aware also that a few men have escaped retention in their specialty, and these failures, I am also aware, will be talked about and made the most of to the end of the chapter. The fact remains, however, that never before in any war have the medical officers been assigned in accordance with their special training as they have in this war; and this is all due to the recognition of modern medicine by the present Surgeon-General.

Within the last month the shortage of medical officers has become so acute, the needs of the field service, without which the Army from the medical standpoint could not exist a day, have become so pressing that many of the medical men within the draft age, specially trained or not, have been released to field

service. This, of course, is essentially a young man's job and one that appeals to the right kind of young men. This emergency has made it difficult now to retain in his specialty any man under 40. How long this shortage of men in the field service will last depends in a great measure on how the medical men of the country respond to the recent appeal. It was this scarcity of medical men that made the last call of the Council of National Defense necessary. War has always been an affair of young men, inconceivably sad, of course, but, in a just cause, most glorious. This war, from a medical standpoint, has been an affair of older men.

It goes without saying that not all physicians are equally well trained; that not all have had the same hospital advantages. As not all the physicians entered the service at the start and at the same time, it follows that those who came in first will rank, for a time at least, those who came in last. It cannot be made fair any other way. The men who gave up a year ago—and what they gave up in many cases was all that they had—are not to be lightly pushed aside by those who took a year to arrange, bargain and decide. There is no game in civil life in which such a thing would be called fair. Why should it be asked for in entering the Medical Corps of the Army?

There are not enough men of operating experience to make the medical service in otolaryngology what it should be. Some of the best men I know are not in the service—best in one sense. These men are beginning to come in. In the year that has elapsed they have been able to keep their homes open and be with their families; yet in spite of having delayed, and in spite of having enjoyed these advantages, some of them ask on entering the service that they supplant the men already in the field. Not even a German would call this fair.

I am often asked where the young medical men are, what the matter is with them that there are not enough to do the commonplace work that makes up so large a part of the army medical officer's day. If they were all the sons of physicians I should say that they took after some of their fathers.

THE CHARACTER OF THE MEDICAL WORK

The opinion is often expressed that the highly trained physician is wasting his time in the Army, that he would be doing more good staying at home attending to the civilian population. At times this view expresses an honest conviction; occasionally, alas, it is used to drug an awakening sense of duty. As I see it, there is an abundance of worthy opportunity for the man able to grasp it.

It is true, of course, that commonplace work predominates; that there is plenty of boy's work, as some have called it; that for the moment at certain places there is plenty of no work at all—to use a Hibernianism—plenty of just staying on the job waiting and prepared, which, by the way, is a new thing for us. It is true, to repeat, that there are plenty of all these nonpicturesque and nonstimulating things; yet those who are making up their decision to serve or not, if they let the question rest here, miss the most vital point of all. In the last analysis, no one enters the service to do special medical work, to increase one's scientific reputation or to gain one. The basic idea is to help win this war in the shortest possible time, or, as the boys say, "to lick the Germans;" and nothing which contributes to this end, however tedious and

commonplace it may be, is beneath my dignity or, saving your grace, beneath yours.

It must be admitted that it is hard at times to hold true to this glorified view of the work, especially when one sees the inequality of sacrifice made by men even in the service, and when one learns that some of them are smugly adding to their substance even in war time and one knows that his own is lessening; but hold true to it one must. It is your guiding star in this lonely job of measuring up to your duty in your allotted place. If you think differently and stay out of the service when you should serve, you must be prepared some day to tell your daughter—it will not be necessary to tell her mother, for she will have it buried in her heart—that her girl chum's father, not her own father, kept the faith. It has made me heart-sick and weary beyond words to sit at my desk in the Surgeon-General's Office and read and hear this and the other threadbare excuse which medical men give for not joining the Army Medical Corps. As I look at it after a year of trying to do my bit, those who make these excuses have lost their American heritage of red blood.

ABSTRACT OF DISCUSSION

MAJOR CHARLES W. RICHARDSON, Washington, D. C.: I would like to have heard from some civilian doctor on this subject. It is a half-stated subject when it is stated from the military side only. I played the game from the beginning. First, as chairman of the subsection of otolaryngology in the Council of National Defense, then as chief of the otolaryngologic section, division of surgery of the head, Surgeon-General's Office, during the absence of Lieutenant-Colonel Mosher on temporary duty in France, through legislative work, and later in the organization of the section of defects of hearing and speech in the division of physical reconstruction. As to the assignment of service: It is Colonel Mosher's desire to keep all the men in otolaryngology accepted for that service. It is to his interest to do so, and he feels obligated to do it for you; but that will be prevalent largely in the case of men over 40. But there are times, as you know, when the general service is pressed—I mean the field service. They have had two or three such pressures and they have had to take the younger men and put them in the field service. In going over the cards in the personnel division last winter, when I was in the division of surgery of the head, I found six men prominent in otolaryngology who were in field service. I took the liberty of writing them a personal letter, not from the office, but from my home, and asking if they would like to go back into otolaryngology and be assigned there. I was very much surprised to receive a letter from each and every one of them telling me that they were delighted with their regimental service; that they were learning more there than they thought they would ever be able to learn in medicine, and they were more than willing to stay where they were. That was interesting to me. So, remember one thing, that the exemptions for you in otolaryngology will be maintained if it is possible to do it. For younger men, under 35, the exemption cannot be made, because these men are the men who have not gotten so far into laryngology; they have not gotten so far away from general medicine or general surgery, and they can be spared for field service. Always remember that when you put in your application for service you have Colonel Mosher as your guardian in the office, and he will take care of you.

CAPT. ROBERT H. FOWLER, New York: At Camp Mills last summer we were "first on the ground" in more senses than one, for the officers slept in open tents that had no floors. One week after we arrived, the pegs were placed, the poles up, and we had a hospital going with 400 men under tentage. The "head specialists," including the eye surgeons, were given one small room, and, with the whole Rainbow Division in an open camp to look after, we soon found that there were more cases of nose, throat and ear trouble than we could handle. Chronic

conditions had to be excluded, and those patients were given preference where treatment or operation promised to send soldiers quickly back into the line. Every tenth patient who reaches the hospital is referred to our section for treatment, and often there is need for ear and throat operations which, from the Army standpoint, are very much worth while; and which gain us the respect of the Regular Army officer in that they add strength to the fighting unit.

The chance to help an individual soldier "carry on" is frequently seen, and, in addition, it sometimes happens that there is opportunity to expedite matters for a whole unit in a pinch. At the Garden City Aviation Concentration Camp, in November, an epidemic of diphtheria threatened, as one or two cases had occurred. By making 300 cultures, and thus finding and isolating six "carriers," it was made possible for three squadrons to be moved to a distant assignment on schedule.

During the first two months of my assignment at the base hospital, Camp Shelby, in charge of the ear department, more than 100 cases of acute purulent mastoids were operated; thirty similar operations had been done during the two weeks preceding my arrival. This large number of acute mastoid infections in one camp during a space of three months was the more surprising in that there had been at the two other camps, where I had been stationed, during the preceding five months, only half a dozen cases altogether. The fact is that at Camp Shelby there was a streptococcus epidemic, following a measles epidemic, which had a specific tendency to attack such tissues as the mastoid cells. It has been suggested in one of the papers on "Contagion in Military Camps" that when an epidemic has assumed large proportions, the virulence of the organism becomes greater. Perhaps it is on this account that we found it imperative to act with the greatest promptness in these cases, since complicating mastoiditis followed more rapidly during this epidemic than in the sporadic type of mastoiditis seen ordinarily in civil life. Under the circumstances, we arranged to have the otitis cases reported early from the field hospitals and regimental infirmaries. Incision of the drum done promptly arrested the progress of a certain number of these cases, but in a surprisingly large proportion it was necessary to operate on the mastoid, and it is gratifying that nine out of ten of the soldiers who had the mastoid operation performed on them during the winter months at Camp Shelby, are already doing full duty. One point came out quite clearly, and my conviction on this is very firm, that the best results are obtained by immediate operation when there is evidence of acute purulent mastoiditis. Early operation is safe; danger lies in delay.

DR. H. W. LOEB, St. Louis: This war has made a new era in surgery, in war surgery, especially in this country, so far as it has established the validity of ophthalmology, otology and rhinology as essential elements of the organization. Last year we left this to a committee, and this committee has done its work, with the help of the ophthalmologic committee; but I think it should be known that it is through the agency of Colonel Lyster, Colonel Parker, Colonel Mosher, Colonel Richardson, Colonel Black, Colonel de Schweinitz, Colonel Bordley, Colonel Greenwood and also Colonel Wood that this plan contemplated a year ago has been established, and I do not believe that the time will ever come again when the United States Army Medical Service will be carried on without these great and important specialties being given their proper place.

CAPT. JOHN B. PORTS, Omaha: I had the pleasure of being associated with Captain Fowler for two months in Camp Shelby during the epidemic of mastoiditis which occurred at that time. When I went there—Captain Fowler preceded me by a month—I questioned whether it was necessary to do as many mastoid operations as were being done. Captain Fowler showed me his cases and we went over the histories. Previous to Captain Fowler's arrival they had attempted to wait two or three weeks for the ordinary mastoid to break down, or to decide whether it was absolutely necessary to operate, and their results had not been satisfactory. The percentage of cases that did badly was large—larger than it should have been; much larger than in civilian practice; larger than I have seen in epidemics. Captain Fowler was

convinced that he was dealing with an epidemic different from anything he had encountered before, and which required more radical measures in the sense that he would have to operate sooner—less radical in the sense that he would get drainage sooner. The result was very striking. From the time he began operations early the basilar meningitis and other complications practically stopped. He did not operate in every case. He had recourse to the roentgen ray, blood count, bacterial count and consultation with an internist, surrounding himself with every safeguard before operating. In the fulminating cases, operation was performed at once. I think the early operation saved many lives. It was simple, because many of these cases followed pneumonia and some measles. Complications occurred less often. One patient developed an endocarditis as a complication after the operation. The mastoid healed nicely, and there were no complications, but about three weeks after the operation, when the mastoid wound was apparently healed, the temperature rose again, because of an acute endocarditis. This quieted down and the man's temperature was normal for two days, and we thought he was going to get well; then his temperature rose again, but it was of an entirely different character, showing that he was developing a meningitis, which caused his death. The necropsy gave evidence of extension from the mastoid. I believe the meningitis was secondary to the endocarditis. In a case of scarlet fever we delayed operation until about the seventh or eighth day. The mastoid complications appeared several days before the temperature from the scarlet fever dropped. A paracentesis was done immediately so that we had drainage. About the second or third day after the paracentesis his temperature began to rise again, as high as 102 and 103 F. He was a very sick man; he had a great amount of pain. When the mastoid was opened the bone was almost black and very necrotic. On the second day after his operation his symptoms cleared up and he made an uneventful recovery. With such a rapid destruction of the mastoid it seems to me we were taking a great chance waiting as long as we did.

POLLAKIURIA AS A FUNCTIONAL DISTURBANCE DUE TO EYESTRAIN

CAUSES OF EXCESSIVE FREQUENCY OF MICTURATION *

W. W. KAHN, M.D.
DETROIT

It is a remarkable fact that in such a well systematized science as medicine, so perfectly obvious a fact as micturition has escaped a clear-cut definition of its various phenomena. The looseness of the terminology has engendered looseness of diagnosis and therapy. We are, therefore, daily encountering essays in our medical literature dealing with incontinence of urine which mean principally excessive frequency of urination. I was as much a sinner as the rest, as may be seen by one of my previous articles,¹ in which I reported sixty-four cases of pollakiuria under the false title of polyuria.

DEFINING THE SUBJECT

The trouble lies in choosing one term to describe two widely different phenomena. In a medical dictionary² we find, for instance, anuria defined as (1) retention of urine and (2) suppression of urine. The first means mechanical retention of urine in the bladder or pelvis of the kidney, while the second means a

suppression of excretion of urine. These phenomena are entirely different in causation, prognosis and treatment.

Oliguria is defined as an abnormally diminished discharge or secretion of urine—two widely different pathologic entities.

Incontinence of urine is defined as unconscious, involuntary dribbling of the urine, due to paralysis or inactivity of the sphincter vesicae or due to an overdistention of the bladder (*incontinentia urinae paradoxica*). This is a very good definition; however, many medical writers do not keep strictly to the meaning of the term, but include in their themes two other maladies, namely, the excessive frequency of micturition, or pollakiuria, and enuresis.

Enuresis has also two meanings, according to Foster's definitions: it may mean involuntary micturition, either diurnal or nocturnal, or it may mean incontinence of urine from all kinds of causes.

In order to bring clarity to my mind as to the symptomatology of micturition in relation to its frequency, but not the amount of urine, I classified it thus:

1. Anuria, absolute suppression of micturition.
2. Oliguria, abnormally diminished frequency of micturition.
3. Orthuria, normal frequency of urination.
4. Pollakiuria, excessive frequency of micturition.
5. Enuresis, diurnal or nocturnal involuntary discharge of urine.
6. *Incontinentia urinae*, constant and involuntary dribbling of the urine.

FREQUENCY OF MICTURITION

The only difficulty in this classification was to decide on the normal frequency of micturition. To find this norm of frequency I searched the textbooks on physiology in vain. I placed it, after numerous consultations with able general practitioners and urologists, at from three to five evacuations of the bladder during the waking hours. Any necessity of breaking one's sleep to void urine is pathologic, except when an abnormal amount of fluid has been taken before retiring. With from three to five evacuations of the bladder during the day as a norm, one evacuation a day would come under the head of oliguria, and six or more evacuations during the day, or those that wake a person from sleep to urinate, would come under the head of pollakiuria.

That the subject of disorders of micturition is very vital is proved by the great number of articles that have lately appeared in our medical journals.

One excellent article, written by Dr. H. G. Bugbee,³ has a nearly correct title, namely, "Frequency of Urination in Women." What he meant was excessive frequency of urination in women. In this essay he has gathered statistically the causes of too frequent micturition in a thousand women and girls, and finds that increased frequency is one of the most common disorders of urination; in his tabulated findings he comes to the conclusion that all except thirty-four cases show some local lesion, not only in the bladder, but anywhere in the urinary tract. The thirty-four cases not showing any pathologic change whatsoever, he classifies under the head of neurosis.

NEUROSIS AND MICTURITION

In spite of the small number of neurotic cases found, Bugbee seems to feel the "stigma" of not having any pathologic lesions in these thirty-four patients, and the

* Read before the Section on Ophthalmology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Kahn, W. W.: The Systemic Diseases Caused by Eyestrain, *Detroit Med. Jour.*, 1916, 16, 98.

2. Foster, F. D.: *Encyclopaedic Medical Dictionary*.

3. Bugbee, H. G.: Frequency of Urination in Women, *THE JOURNAL A. M. A.*, March 3, 1917, p. 693.

following physicians who discussed his paper seemed to agree with him fully.

John R. Caulk of St. Louis³ declares:

This class of cases, seen frequently in young women who have been stamped as neurasthenics and hysterics, we must be careful about. Urologists who use the cystoscope do not make such mistakes very often, but it is the commonest mistake for the general practitioner to make. These patients almost always have gone for years as neurasthenics. I recognize that there is a neurotic bladder, but we have to be very careful in eliminating every factor before diagnosing a neurotic bladder, because so many of these cases are due to pathologic conditions at the vesical neck.

Theodore Baker of Pittsburgh³ also was very suspicious about these thirty-four cases. He warns:

We should look with extreme suspicion on the diagnosis of a neurosis; because we cannot find any pathologic lesion, I think we should be very careful about calling it a pure neurosis. I want to call attention to syphilis as a cause of urinary disturbance.

James A. Gardner of Buffalo³ also coincides with Baker as to the probability of Bugbee's having overlooked organic lesions in the so-called neurosis cases. He says:

Most of those cases are called neuroses because we are faulty in our diagnosis; we are not able to find out just where the trouble lies.

A. B. Cecil of Los Angeles³ came the nearest to truth when he said:

It is the so-called neuroses in which we are interested. The gross causes of frequency of urination we all recognize; but when we speak of "frequency" in women it brings to the urologist's mind that type of case in which we are absolutely unable to find anything the matter with the patient. We do not see this type of cases among men. It would seem that, perhaps, there may be in women a hypersensibility, where even normal urine under slight pressure will produce the desire to urinate.

If we take into consideration the limitations of our present medical knowledge and the inaccessibility of many lesions to our senses, it stands to reason that the thirty-four patients out of a thousand, in whom Dr. Bugbee failed to find any local lesions, probably had these, but they were not demonstrable by our present methods of diagnosis.

If, however, Bugbee and the others are right, as they evidently are, in demonstrating pathologic changes in the urinary organs of all cases of pollakiuria, is there any room or need for a neurosis theory, and if so, what lessons in practical therapy can be derive from it?

Foster⁴ says:

It is a matter of common experience that we feel the desire to make water sometimes when a large quantity and sometimes when a small quantity of urine has accumulated in the bladder. We have evidence that the bladder possesses to a very high degree that obscure continuous contraction which we speak of as "tone"; and, further, that the amount of its tone is exceedingly variable, the organ, quite independently of distinct efforts at micturition, being at one time contracted and at another flaccid and distended. When it is in a contracted state, a small quantity of fluid may exert the same effect on the vesical walls as a larger quantity when the bladder is flaccid. Hence, while the determining cause of the desire to make water is the pressure of the urine upon the vesical walls, the quantity needed to produce the necessary fulness is dependent on the amount of tonic contraction of the muscular fibers existing at the time. And we have evidence that this tone is regulated by the nervous system.

The truth of this statement was brought home to me accidentally by a case I first saw July 2, 1915.

REPORT OF CASE

Mrs. J. K., aged 28, the wife of a working man, was a neurotic patient, if ever there was one. On account of her many ailments, she was unable to do her housework and had to go back to her parents. She complained of headache and a sensation of pressure over her eyebrows and of pain in her eyes. She vomited when the headache was severe. She also suffered from photophobia and asthenopia for near and distance. Her appetite was variable and her digestion poor. She was constipated and exceedingly nervous. Almost daily she was given to prolonged spells of crying and screaming, especially when somewhat irritated. Her sleep was exceedingly poor, disturbed by terrifying dreams, recurring regularly when she tried to doze off in the morning. She felt more or less constant pain in the legs and in both inguinal regions. Her hands and feet were always cold, with frequent tremors and numbness of the hands, which also felt excessively dry. Her menses were never regular; menstruations recurred about every two months and were scanty and painful. Riding on a street car made her feel sick and miserable. At the time of her visit she weighed only 93 pounds.

The status of her nervous system can be guessed from the fact that when asked to step into the next room so that I might learn how far she could see, she fell on her mother's neck, tearfully kissing her, and kept crying, "Goodbye, mother! Goodbye, mother!"

Her vision was fairly good ($20/20$). As a refraction under a mild cycloplegic of homatropin and cocain was unsuccessful, I ordered the instillation of atropin. For reasons of refraction, the use of atropin was kept up three weeks. The examination revealed her need for the correction:

R. E. Cylinder plus 0.25 axis 60 Vision 20/16
L. E. Sphere plus 0.12 with cyl. plus 0.25 axis 180 Vision 20/10—

July 24, after three weeks' use of atropin, without glasses, she felt stronger, her feet felt hot, and her hands were warm and moist. She had no more headaches, but her head felt "big." There was no pain in the eyes, only soreness on pressure. Her appetite was ravenous. She could hardly get enough to eat. Her digestion was excellent. She had no more vomiting nor crying spells. She slept better and had no nightmare, but still had pain in the legs and slight attacks of pain in the groins. She asserted that she was gaining in weight.

It was on this date that she told me that, whereas she used to pass water every fifteen minutes during the day and five or six times during a night, she did not have to break her sleep any more, and that she urinated only two or three times during a day. Also, whereas her urine used to smell bad and show "brick dust deposit," it was now clear and odorless.

July 31, she reported that she slept excellently, and that her bowel movements were freer. Her menstruation was for the first time in her life painless and lasted nearly a week. She had no pain in the legs or groins, and her hands did not feel numb.

August 14, she reported no constipation, and she weighed 104 pounds, but complained of supra-orbital pain on the right side. She accepted for reading:

R. E. plus 1.50 with plus 0.25 axis, 60
L. E. plus 1.75 with plus 0.25 axis, 180

the lenses were to be worn in bifocal form. This was a case of premature presbyopia.

Oct. 5, 1916, she reported that she felt perfectly well in every respect. She weighed 117 pounds and had again taken up housekeeping. Her menses were more frequent and more normal in amount, occurring about every six or seven weeks, and lasting from four to five days. They were somewhat painful before the flow.

POLLAKIURIA AS A SYMPTOM OF EYESTRAIN

While this case is well worth reporting, on account of the patient's manifold symptoms and prompt recovery, the important point in connection with my thesis

4. Foster, Michael: Textbook of Physiology, Ed. 4, New York, the Macmillan Company, p. 549.

is the fact that her pollakiuria disappeared during atropinization. Naturally, I jumped to the conventional explanation that the absorption of the atropin diminished the secretion of the urine and thereby remedied the all too frequent micturition, when one of the coincidences so frequent in the practice of medicine happened the same day, July 24, 1915.

A working man, aged about 35, came in to report the results of his refraction. Among other things, he told me that he did not have to micturate so frequently as before.

I had determined his refraction about three months before that day, using no atropin, and instilling only a few drops of homatropin as a cycloplegic. As the small amount of homatropin could not explain the permanent improvement, the only conclusion possible was that the relief of the nervous system from the irritation caused by eyestrain must have somehow influenced the frequency of micturition.

I had never heard of pollakiuria as a symptom of eyestrain, so I began a vain search in the medical literature for a previous mention of this form of neurosis in connection with the eye.

The Index Medicus for the last sixteen years does not give any citations of literature on pollakiuria as a symptom of eyestrain. Neither do the accessible books on diseases of the nervous system mention it.

Oppenheim⁵ speaks thus of the neurotic aspect of pollakiuria: "Pollakiuria (strangury with frequent evacuation of small quantities of urine [sic]) is occasionally observed." And then: "We often find abnormal irritability of the bladder due to neurasthenia, fear and abnormal introspection."

Of the textbooks on ophthalmology, not one mentions pollakiuria; neither does George M. Gould's⁶ storehouse of eyestrain lore give any record of its occurrence. Only Stephenson⁷ and Doyne⁸ mention a case of true polyuria as probably caused by eyestrain, but no mention was made of pollakiuria.

After having my attention drawn to that neurosis, I began a systematic inquiry as to the frequency of micturition in all my refraction cases, with results as set forth in the accompanying table.

RESULTS OF REFRACTION ON POLLAKIURIA

	Number of Cases	Reported	Recovered or Improved	No im- provement
Men	140	55	32	23
Women	176	71	53	18
	316	126	85 (65%)	41 (35%)

From July, 1915, to January, 1918, I determined the refraction in at least 1,500 new cases. Of these, 316 persons (140 men and 176 women), or about 20 per cent. of all cases, suffered from pollakiuria. For example, they urinated oftener than five or six times during the day, or had to get up from their beds to void urine, or both.

Of my 316 patients, 126 (55 men and 71 women) returned to report. Of these 126 cases, 85 (32 men and 53 women), or about 65 per cent., reported great improvement or recovery, while 41 (23 men and 18 women), or 35 per cent., were not improved at all in that particular symptom.

While the figures may seem startling, I do not attach much value to them. The number of cases is entirely too small to give us any valuable statistical figures. In an earlier essay¹ I had seventeen cases and reported seventeen cures, or 100 per cent. recoveries. They also depend greatly on the investigator's opinion as to what constitutes normal frequency of urination. But whether the percentages of recoveries are 65 or 25 or 20 or even 10 per cent. of the cases, the following conclusions stand out preeminently and are difficult to deny:

1. In my series of 316 cases, 140 patients were men. While their number was only slightly smaller than that of the women, the percentage of recoveries in women was twice as large as that of the men, a result very likely due to a greater nervous instability in the women.

2. The frequency of pollakiuria as a neurosis is immensely larger than we thought.

ORGANIC LESIONS AND NERVOUS IRRITABILITY

Bugbee and other urologists and gynecologists find some organic lesion in all, or nearly all, cases of pollakiuria. By experience they have learned that by treating the local lesions, they may bring the frequency of micturition back to normal. Although, in reply to a personal inquiry, Bugbee stated that he had no statistics ready on the results of the treatments, they must have been considerable or the profession would not unanimously connect this symptom with local lesions. These are facts not to be denied. On the other hand, we have here a series of some hundreds of cases of pollakiuria in which the patients were greatly benefited by refraction—a fact also not to be denied.

While I did not give a single one of my patients a physical examination, it is not likely that 100 per cent. of the eighty-five who improved, and of whom I have personal knowledge, had no local pathologic changes when an expert of Dr. Bugbee's caliber found less than 4 per cent. of all pollakiuria cases free from any visible lesions. So taking Dr. Bugbee's figures as correct, we must conclude that while nearly all the patients have some organic lesion, these lesions are only partial causes of the symptom, and that the general nervous system evidently has as much to do with it as the local abnormality has, if not more.

It is generally said that the practice of a specialty narrows the vision of the specialist, that in time every specialist comes to look at the entity of the body through the spectacles of his particular specialty, and that specialists claim they can cure the same diseases by the practice of their widely different methods.

Often the oculist, the proctologist, the gastrologist, the gynecologist and others pride themselves on having found and demonstrated the real cause of a certain malady and the cure of it by their own respective specialties.

It all sounds ridiculous enough, to be sure, but it is still more ludicrous to deny the claims of all these earnest and expert men. Their statements are absolutely true; they really cure their patients' ailments, and each one of us can bear witness to the truth of their contentions. How may this be explained? By what I have termed the phenomenon of multiple causation of symptoms. A symptom is only a local or general manifestation of more than one cause operating in the human body. The elimination of one or more of these causes makes the symptom disappear.

5. Oppenheim, H.: Diseases of the Nervous System, Philadelphia, J. B. Lippincott Company, 1904.

6. Gould, G. M.: Biographic Clinics, Philadelphia, P. Blakiston's Son & Co., 1903.

7. Stephenson, Sydney: Eye-Strain in Every-Day Practice, New York, Paul B. Hoeber, 1913.

8. Doyne, R. W.: Brit. Med. Jour., 1910, 2, 361.

In local manifestations, one of the dominant causes is always a local pathologic condition, while another is an irritated or weakened nervous system. As causes are different in values, a cure will mainly depend on the elimination of one or more of the dominant factors.

In my thesis on pollakiuria as a symptom of eyestrain there are at least two causes. One is the local pathologic change in one of the urinary organs, and the other is the hyperirritability of the nervous system caused by eyestrain. If the local lesion is dominant, no amount of correction of refraction will relieve the patient; only local treatment can do it. But when the local lesion is slight or negligible, the relief of the nervous system from the excess of nervous irritation will bring about a cure.

The disturbing cause in my series of cases was eyestrain, but that does not exclude malfunctions of other organs from having similar effects on the bladder.

CONCLUSIONS

1. Pollakiuria, or excessive frequency of micturition, must be strictly differentiated from polyuria and incontinence of urine.

2. In a great percentage of cases, pollakiuria is a neurosis, brought about by malfunction of a distant organ, especially the eye.

3. Contrary to the general medical opinion, pollakiuria is nearly as frequent in men as in women.

4. Before a surgical interference is tried, a careful refraction should be indicated in all cases of pollakiuria, except those in which it would have to be done for reasons other than the excessive frequency of urination.

ABSTRACT OF DISCUSSION

DR. ISAAC HARTSHORNE, New York: Dr. Kahn's differentiation of nomenclature is interesting and seems to be correct. In the first case cited, while evidently an eyestrain case, it would seem possible that the use of atropin for three weeks not only anesthetized accommodation but also reached the general circulation sufficiently to improve its tone together with some action on the smooth muscle fibers of the bladder wall. Dr. Kahn's relieved cases may be classified under functional disorder of the bladder from sympathetic irritation. At least three observers have reported cases of enuresis relieved by proper glasses.

The use of atropin by mouth not only produces cycloplegia but also diminishes the flow of urine by diminishing general glandular activity and by lessening the movements of the bladder wall.

Furthermore, if 1 per cent. atropin is used in the eye for cycloplegia, then approximately $\frac{1}{20}$ grain of atropin is instilled into the eye with each drop, or about $\frac{1}{60}$ grain in both eyes. Is it not probable that nearly as much of the drug is absorbed into the general circulation from the conjunctival sac as from the mouth and stomach, especially when the tear ducts are not held to prevent the passage of the drug to the nose? If this is so, then $\frac{1}{60}$ grain three times a day becomes a fairly large dose of atropin, and if continued after two or three days the alterations produced by large doses of atropin might well be expected. Atropin should not be used simply as a diagnostic test, but should be followed up by properly fitted glasses to reduce to a minimum the sympathetic reflex irritation. It is not the cycloplegia produced by atropin which tends to prove that eyestrain caused the bladder irritation, but the result obtained by correct lenses after the atropin has been stopped. It must be admitted that 65 per cent. of Dr. Kahn's cases were more or less permanently relieved; which doubtless would not have been the case had not proper glasses followed the use of one of the atropin group of drugs.

DR. W. W. KAHN, Detroit: I want to qualify Dr. Hartshorne's statement about the use of atropin. Some of the

patients received homatropin. A few drops of homatropin would not affect the nervous system as much as atropin would.

As to my method, it simply takes eyestrain symptoms from the domain of uncertainties and guesses and puts it in the domain of certainties. It makes things clear to you and your patients. You know that so many patients get better and so many do not. Arguments which are not based on facts are useless.

DISCIFORM KERATITIS*

JOHN E. WEEKS, M.D.

NEW YORK

This form of keratitis, first fully described by Fuchs, is fairly well known to us all. It is not, however, a common disease, and is not so familiar to the greater number of ophthalmologists that a review of its characteristics will be without value.

Disciform keratitis is characterized by the appearance of a small approximately circular area of infiltration at or near the center of the cornea, accompanied by irregularity of the epithelium covering the infiltrated area, and partial or complete loss of sensation over that area. The infiltration slowly increases. From one to three complete or incomplete concentric zones or rings of denser infiltration appear at varying distances from the center of the patch. About one third of the cornea is usually involved, but a smaller or a much larger area may be included. From one to three weeks after the infiltration begins, one, and sometimes two or three, small yellowish white spots develop in the substantia propria at or near the center of the infiltrated area, located sometimes near the surface of the cornea, sometimes deep in corneal tissues. In many of the cases, fine, fairly straight, grayish white lines are observed, usually radiating from the center of the infiltrated area. These, according to Fuchs, are due to a wrinkling of Descemet's membrane.

The affection continues to progress for a period of from two to four months, and then gradually subsides with a permanent and not very dense corneal opacity throughout the infiltrated area. A quiet condition is reached in from three to eight months after the onset.

The symptoms are not severe unless distressing complications arise. They consist of increased lacrimation, very little pain, photophobia of a mild character, and dimness of vision, the degree of which depends on the density and location of the infiltrated area. There is also some pericorneal injection.

The complications are anterior uveitis; iritis, which may be mild or severe; and increase in tension, which may be very slight, lasting but a day or two, or may be intense, amounting to a severe secondary glaucoma, necessitating operative measures for relief. Corneal ulceration seldom develops; when it does, it is of a superficial character. The etiology is unknown.

Until recently the usual treatment has been of little avail. Cleansing the eye with boric acid solution often enough to keep it free from the slight secretion, and using mild antiseptics, together with measures to prevent the formation of posterior synechiae and to control the symptoms arising from complications, are the only measures that appear to be of value locally. In addition, the general condition of the patient is made as good as possible.

* Read before the Section on Ophthalmology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

The prognosis is good so far as the integrity of the eye is concerned, provided destruction does not occur because of complications.

The following is a report of three cases I have observed.

REPORT OF CASES

CASE 1.—A. W. S., a man, aged 33, was referred to me by Dr. Henry W. Wandless. The patient had been under treatment by various ophthalmologists for an affection of the right eye for six weeks. A typical condition of disciform keratitis of a mild type was present, namely, a central whitish, opaque spot measuring about 5 mm. in diameter, and irregular in shape. It was situated in the substantia propria about one third of the thickness of the cornea below the anterior surface. It was surrounded by an approximately circular area of infiltrated cornea, consisting of alternating concentric zones of lesser and greater degrees of infiltration, the zones of greater infiltration being narrower than those of lesser infiltration. The zones or rings were not perfectly regular, but varied in thickness; nor was the infiltration of equal density throughout the zones. The epithelium over the infiltrated area was stippled, or slightly roughened, and at the center appeared depressed, on account of the loss of a part of the epithelial layer. There were a few narrow grayish lines radiating from the center of the area apparently at or near the posterior surface of the cornea. There was little irritation, slightly increased lacrimation and some photophobia. There was no pain of moment. The sensitiveness of the cornea was reduced over the affected area. There was a slight pericorneal injection below. The iris was a trifle less mobile than its fellow, but no evidence of exudation in the interior of the eye appeared. The tension was normal. The patient's general health was very good. The urine showed a slight excess of indican, but was otherwise normal. The Wassermann reaction was negative. There was no physical evidence of tuberculosis.

I made a diagnosis of disciform keratitis probably due to external infection, and was of the opinion that recovery would ensue in from six weeks to three months, leaving a pronounced thin opacity.

In regard to the treatment, I advised that a moderate dilatation of the iris be maintained so long as the process appeared to have any activity, provided an increase of tension did not develop. I also advised the bathing of the eye with a hot solution of boric acid twenty minutes three times daily and the introduction of an ointment of mercuric chlorid, 1:5,000, after each bathing. Meanwhile, the system was to be kept in the best possible condition. I advised the wearing of tinted glasses, if photophobia was annoying.

The symptoms of activity in this case gradually subsided, and the healing was complete in about five months from the onset of the affection. The patient's vision is now approximately one-half the normal.

CASE 2.—Mrs. A. L., aged 39, first noticed a slight blurring of the vision of the right eye, Sept. 7, 1917. There was no pain. September 11, the patient consulted Dr. John M. Wheeler,¹ who immediately admitted her to the New York Eye and Ear Infirmary. I was called in consultation, September 12. Dr. Wheeler had observed a faint infiltration of the cornea, had advised the patient to rest in bed, and had ordered the eye bathed one-half hour at a time with a hot solution of boric acid, and the instillation of atropin, 1 per cent., sufficiently often to keep the pupil dilated. September 12, there was a faint, almost circular uniform area of infiltration about 2 mm. in diameter over part of the pupillary area, slightly to the inner side and below the center of the cornea. It was a little more dense at the center than at the periphery. The epithelium over this area was very slightly roughened, that is, stippled. There was no pain. The iris reacted normally. The interior was normal. The vision was $\frac{20}{30}$ +. The vessels of the ocular conjunctive were

slightly increased in size and number. The patient's general condition was apparently excellent. The urine, the blood count and the Wassermann reaction were all negative. There was no history of trauma. Although at this stage there was no central distinctive spot and no concentric ring of denser infiltration, a diagnosis of corneal infiltration, probably disciform keratitis in its earliest stage, was made.

Examination with high magnification showed defects in the surface epithelium over the area corresponding to the infiltration. The infiltration consisted of minute isolated deposits apparently situated in the substantia propria immediately beneath Bowman's membrane, extending into only a few of the lamellae, being denser and deeper at the center and growing gradually less toward the periphery of the infiltrated area. The infiltration had the appearance of an aggregation of irregular granules. There was no distinctive central depression or opening which might have been regarded as the point of entrance of an infected foreign body. The cornea was less sensitive over the affected area. Other parts of the cornea, the conjunctiva, the lids, etc., were of normal sensitiveness.

In addition to the treatment advised by Dr. Wheeler, a mercurial was given internally and an ointment of mercuric chlorid and petrolatum, 1:5,000, was introduced into the eye after each bathing.

The granular infiltration apparently ceased to develop for forty-eight hours. Then there was an increase, which continued until a fully developed disciform keratitis was present about two weeks later.

September 15, a slight increase in tension was noticed when the atropin was discontinued. As the slight increase of tension persisted, September 16, pilocarpin, 1 per cent., was instilled twice daily. The anterior chamber was of moderate depth. The tension subsided in two or three days, and the pilocarpin was discontinued. The infiltration increased slowly but steadily. September 24, two partly formed concentric rings or zones of denser infiltration had formed; the limits of the infiltrated area were ill defined. There was no central opaque points or spot, nor was there any pain. The ocular conjunctiva was slightly congested. About September 26, Dr. May saw the patient and advised the use of a 10 per cent. solution of ethyl-morphin hydrochlorid (dionin) once daily. After the first instillation, the tension became high and the cornea steamy, and the patient suffered an attack of acute glaucoma, which lasted two to three days, but was controlled by use of physostigmin (eserin) and pilocarpin. The anterior chamber was deep. October 3, the iris was involved in a mild plastic iritis, with the formation of some posterior synechiae, particularly at the lower pupillary margin. There was no pain, the tension was normal, and the anterior chamber was considerably deeper than normal. The iris now took on a greenish hue. The aqueous was not appreciably turbid. There was a very small, central, deep-seated, yellowish white spot. In addition to general tonic treatment, mercury by inunction was advised, and the desirability of using tuberculin was considered and recommended. About October 22, Dr. May, who was in charge of the case, gave tuberculin T. O., 1 mg. hypodermically, and repeated the dose four or five days later, increasing the quantity. There was a mild local reaction, evidenced by increased flushing of the ocular conjunctiva after each injection, and a very slight general reaction after the last.

October 30, I saw the patient in consultation with Drs. May and Reese. There was then a decided involvement of the anterior portion of the uveal tract. The anterior chamber was deep. The pupil was irregular, because of posterior synechiae. Atropin had been withheld because of the history of increased tension, but it was now used vigorously without causing any increase in tension. Ethyl-morphin hydrochlorid had again been employed without causing any appreciable change in tension. It was suggested that tuberculin in therapeutic dose be given every four or five days, and that mercurial inunctions be continued and given regularly, precautions against ptialism being taken. The vision was $\frac{9}{200}$. The grayish white spot in the corneal tissue was about 1 mm. in diameter. This general line of treatment was continued. The patient was again seen in consultation with

1. In the absence of Dr. C. H. May from the city this patient first came under the care of Dr. John M. Wheeler for the treatment of this affection. Dr. Wheeler called me in consultation and I was privileged to see the case frequently at first, less frequently later up to November 27. By the courtesy of Dr. May, who has furnished me with subsequent data, I am enabled to report the case.

Drs. May and Reese, November 27. At this time it was very evident that a decided change for the better had taken place. The pericorneal injection had largely disappeared. The anterior chamber was not as deep as before. The iris was more nearly of a normal hue. The vision was improving. The central grayish white spot was smaller and less dense. The treatment consisted of tuberculin administered hypodermically. Mercurial inunctions and general tonic measures were administered systematically, also atropin, and ethyl-morphin hydrochlorid. The patient steadily continued to improve. About January 20, she was virtually well. There still remains a thin opacity of the cornea throughout almost the entire area of the infiltration. The central white spot is scarcely more dense than the surrounding opacity. There are still a few small synechiae showing little, if at all, when the pupil is contracted. The vision equals $\frac{20}{50}$.

A peculiar feature of the case is the almost entire absence of pain. The use of tuberculin and mercury appear to have been beneficial.

CASE 3.—Mr. D. F., aged 18, was brought to my office by Dr. A. J. Greenberger, Nov. 22, 1917. November 12, the patient observed that the left eye was watering and that his vision through it was poorer than through the right eye. He thought he had pink eye. There was no pain. He consulted an ophthalmologist, who made a diagnosis of erosion of the cornea.

When I saw him, there was an irregularly circular infiltration of the left cornea, slightly above and to the nasal side of the center of the cornea, as well as a few spots of infiltration extending downward and toward the nasal side. The epithelium was roughened over the circular area, and a circular zone of denser infiltration was disposed just inside the border of the circular patch of infiltration. The anterior chamber was deep and the tension normal. The cornea was sensitive over the infiltrated area. The iris reacted readily. The vision was $\frac{3}{200}$.

In addition to general tonic treatment, red mercuric iodid, $\frac{1}{30}$ grain, three times a day, was prescribed. Locally, bathing the eye with a hot solution of boric acid and sodium borate, the instillation of atropin, 0.5 per cent. solution, often enough to keep the pupil moderately dilated, and the introduction of an ointment of mercuric chlorid and petrolatum, 1:5,000, in small quantity, into the eye after each bathing.

December 3, there had been but little change. In addition to the foregoing I advised a diagnostic dose of tuberculin T. O., 1 mg., to be repeated four days later in a dose of 1.5 mg., if no reaction was observed after the first dose. The tuberculin was given, resulting in a mild general reaction and a slight increase in the flushing of the ocular conjunctiva of the affected eye.

December 13, the iris was slightly congested. The cornea was about the same, except that a very small yellowish white spot had become apparent near the lower inner part of the irregularly circular patch of infiltration, situated about half way between the anterior and posterior surfaces of the cornea. A faint inner zone of denser infiltration was beginning to appear. The ocular conjunctiva was slightly congested, and two small vessels extended from the margin of the cornea into the infiltrated area.

December 20, the area of infiltration was larger. The iris was widely dilated. The tension was normal. The vascularity of the cornea was slightly greater. I continued the use of tuberculin B. E. in doses of $\frac{1}{500}$ mg., injected every four or five days. The other features of the treatment remained the same.

December 31, there was a marked improvement.

Jan. 24, 1918, the eye continued to improve, vision being $\frac{20}{100}$.

February 7, the infiltration was less. Only one small vessel ran from the conjunctiva to the spot of infiltration. The patient suffered no inconvenience.

The treatment now consists of tuberculin B. E., $\frac{1}{500}$ mg., every four days, red mercuric iodid, $\frac{1}{30}$ grain three times a day, and a nutritious diet. Locally the eye is cleansed with boric acid solution twice daily, an ointment of mercuric chlorid and petrolatum, 1:5,000, twice a day is applied, and atropin, 0.5 per cent. solution, is occasionally administered

to provide against the possible formation of posterior synechiae.

February 28, the eye was quiet. A whitish, partly opaque patch occupied the site of the infiltration. The epithelium was intact and smooth. The vision was $\frac{20}{50}$. Local treatment was discontinued. I advised that the use of tuberculin be continued four weeks longer.

OPINIONS FROM MEDICAL LITERATURE

Under the name of abscessus siccus corneae, Arlt of Vienna described this affection of the cornea as early as 1870, according to Fuchs, and taught the peculiarities of disciform keratitis to his students. Vossius² gives a very good description of disciform keratitis, but mentions it as an abortive interstitial keratitis. Grünert³ reports seven cases, accepting Vossius' views of its proper classification. Fuchs⁴ reviews the literature up to 1901, and reports on twenty-eight cases. In the seventh edition of his textbook, p. 189, he had described this affection as abscessus siccus corneae, after the teaching of Arlt, employing the designation "disciform keratitis" in 1901. Fuchs has observed disciform keratitis only as a monocular affection. Zani⁵ reports three cases. In one case there is a history of a patient's having rubbed his eyes with hands contaminated with secretions from vaccine pustules.

Peters⁶ reports a number of cases. He attributes the affection to a necrobiosis of the tissues, the true nature of which is not fully understood, resulting probably from disturbed innervation; and consequently he attributes the affection to impairment of nutrition. Injury to the endothelial layer induced by the edema resulting from trauma is responsible for the opacity. Infection or an abscess is responsible for the disk only in exceptional cases. Hadano,⁷ working in Peters' clinic, examined tissues scooped from the center of the affected area in a case of disciform keratitis. He is of the opinion that he has confirmed Peters' contention, declaring, "A study of the tissue removed revealed no signs of inflammatory infiltration—only a few nuclei were found in the periphery and none in the central portion." No micro-organisms were found. Meller's⁸ observations were based on the histologic examination of an eye which presented clinically the appearance of parenchymatous keratitis with a disk-like opacity in the deeper layer of the corneae. Secondary glaucoma developed as a result of a complicating uveitis. A shallow corneal ulcer had formed at the center of the cornea, and the globe was enucleated.

Findings.—The center of the cornea was the seat of an infiltrated area which included the substantia propria from Bowman's to Descemet's membrane. The epithelium was infiltrated with free, small, round cells, and was reduced to several layers at the center of the cornea. Bowman's membrane was normal. Descemet's membrane was thrown into numerous folds. Closely adherent to Descemet's membrane posteriorly was a thick exudation of fibrin which had the form of a disk. Meller summarizes as follows:

"1. It consists of a well circumscribed disease focus, which undoubtedly is produced by an infection. The remainder of the cornea is healthy, with the exception of slight secondary changes.

2. Vossius: Berl. klin. Wchnschr., 1885, Nos. 43 and 44.

3. Grünert: Klin. Monatsbl. f. Augenh., 1900, 38, 10.

4. Fuchs: Klin. Monatsbl. f. Augenh., 1901, 39, 513.

5. Zani: Ann. di ottol., Pavia, 41, 756.

6. Peters: Arch. f. Ophth. (Graefe's), 1906, 57, 93.

7. Hadano: Ztschr. f. Augenh., October, 1905.

8. Meller: Klin. Monatsbl. f. Augenh., October, 1905.

"2. The condition consists of an inflammatory infiltration, which proceeds from a point of infection in the surface, uniformly in all directions into the surrounding parenchyma, and also into the depth of the cornea, and produces a disk-shaped lesion with more strongly saturated edges.

"3. This tendency to spread soon disappears, and a total necrosis of the infiltrate appears, which affects probably the cause of the process as well. Bacteriologic examination both *intra vitam* and in the sections was negative. This necrosis affects first the infiltrate, while the corneal lamellae remain intact, except where they are destroyed by the infiltration. The subsequent long-continuing inflammatory condition of the eye is the reaction of the healthy tissue against the dead tissue in the corneal parenchyma, a process of sequestration which in the avascular cornea is necessarily slow. The ultimate prognosis as to vision is poor because the tissue is infiltrated from the margin by cells, which finally produce scar tissue, and remain as a permanent opacity."

He believes that keratitis punctata superficialis is produced by the same pathologic changes.

Posey⁹ reports two cases. In one case both eyes were involved. Veasey¹⁰ reports one case. Zentmayer¹¹ reports three cases, one of which followed a variolus ulcer and one, herpes corneae. Landman¹² reports two cases, both of which followed doubtful injuries. There was no irritation in the one, and slight irritation in the other. He regards the condition as one of inflammatory infiltration. Monthus¹³ describes two cases, one of which was bilateral, coming on after articular rheumatism, with cardiac lesions, in a patient with inherited syphilis. Under the title "Disciform and Postvaccinal Keratitis," Schirmer¹⁴ reports seven cases resembling Fuchs' disciform keratitis, some of which were apparently due to infection with vaccine virus. He experimented with rabbits and apparently convinced himself that disciform keratitis in the human being is the result of infection with this virus. Erdmann¹⁵ observed three cases. Each had increased tension at some period of the disease, a symptom that he thinks is often overlooked. He regards the disease as a neuropathic affection, and believes that the tissue necrosis is not due to an unknown bacterium, as suggested by Fuchs, but rather to disturbed innervation—the view already advanced by Peters. E. V. L. Brown¹⁶ reports two cases, one in a boy with the stigmata of inherited syphilis. There were extensive posterior synechiae.

RESULTS OF OBSERVATIONS

In the seventy-two cases observed and collated, the youngest patient was 11 and the oldest 62 years of age. Disciform keratitis is a rare disease and with few exceptions is monocular.

Its period of activity varies from six weeks to five months. It may run a very mild course, or it may be accompanied by complications that may necessitate removal of the eyeball.

The etiology is not proved. The history of the cases and the changes observable at the onset of the affection make it evident that the first departure from the normal condition takes place in the very superficial parts of the cornea, such as the epithelium and outer lamellae, thus strongly supporting Fuchs' contention that the process is due to external infection. The clin-

ical picture is so different from that following other forms of tissue necrosis due to disturbances of innervation and consequent impairment of nutrition, and the histologic findings (Meller and Hadano) so indicative of local irritation, that the theory of Peters apparently cannot be accepted. The symptom that seems to support Peters' views is that of loss of sensibility, which occurs in many but not in all of the cases. The nature of this infection is yet to be determined.

Schirmer's suggestion, based on his experiments with vaccine virus does not carry conviction. None of us who has seen infection of human eyes with vaccine virus has observed a condition resembling disciform keratitis. Infection of the eye with vaccine virus usually involves the eyelids. It has been my fortune to see also involvement of the cornea in two cases. The infiltration was not accompanied by the formation of definite concentric rings of denser infiltration, nor was there a development of the usual whitish yellow spot or spots. In these cases the infiltration disappeared, leaving almost no trace, the process clearing up within three weeks. The behavior of the patients treated with tuberculin, as reported in the foregoing, together with the clinical manifestations of the disease, strongly suggests a tuberculous process, in spite of the fact that the histologic examination (Meller and Hadano) failed to disclose microorganisms.

While in other respects the affection does not present the ordinary clinical picture of tuberculosis of the cornea, the appearance of the yellowish white spot, after the disease has existed from ten days to three or four weeks, closely resembles the yellowish white foci observed in tuberculous keratitis. The apparent local reaction to diagnostic doses of tuberculin and the apparently favorable results from therapeutic doses of tuberculin are very suggestive of a tuberculous process. The effect of tuberculin in two cases is, of course, not enough to establish etiology, but it is enough to encourage the further use of tuberculin in these cases and the further observation of such cases with a possible tuberculous origin in view.

ABSTRACT OF DISCUSSION

DR. WILLIAM ZENTMAYER, Philadelphia: Disciform keratitis is a rare one, although it probably occurs with greater frequency than the literature would indicate. The number of reporters, most of them having observed several cases, is small, indicating that the disease is not generally recognized. It is, I believe, sometimes diagnosed wrongly, the presence of a disciform nebule, but lacking other features of the true affection, leading to the error. Knowing this mistake to have been made, I said in reporting a case of disciform keratitis some years ago, that the term, emphasizing as it does only one feature of the disease, led to the inclusion of corneal opacities presenting an annular form.

As Dr. Weeks points out, and as supported by one of his cases, anesthesia of the cornea over the affected area is not a constant feature. It has been present in only one half of the cases I have seen. The disk is often eccentrically located in the cornea. Occasionally, there is a development of superficial vessels at the limbus corresponding to the nearest approach of the disk to the corneal margin. I agree with Dr. Weeks that the etiology is unknown, and I am not willing to accept a neuropathic origin. Wagner reports a case occurring in a man 77 years of age. His conclusions are that disciform keratitis is characterized by a disklike part of strongly altered corneal tissue, lying deep; that it is caused by toxins produced by undiscovered microorganisms existing in the epithelium. The finding of giant cells in the exudate in the anterior chamber of an inoculated animal is significant.

9. Posey: *Ophthalmology*, 1906, 2, 434.

10. Veasey: *Medicine*, December, 1906.

11. Zentmayer: *Ophth. Rec.*, 24, 42.

12. Landman, O.: *Arch. Ophth.*, 1907, 36, 367.

13. Monthus, A.: *Arch. d'Ophth.*, 1906, 27, 105.

14. Schirmer: *Arch. f. Ophth. (Graefe's)*, 1908, 59, 133.

15. Erdmann: *Ztschr. f. Augenh.*, 1909, 24, 249.

16. Brown, E. V. L.: *Ophth. Rec.*, August, 1908, p. 418.

The differential diagnosis of disciform keratitis is of great interest and importance. The causes of this condition are numerous. Should we accept a tuberculous origin for this affection, could it not be explained in the same way as the cases of interstitial keratitis which we see develop in patients with inherited syphilis as the result of a trauma?

DR. JOHN GREEN, JR., St. Louis: Keratitis disciformis has generally been regarded as a self-limited disease, practically uninfluenced by any form of treatment and terminating in more or less opacity, due to the formation of scar tissue. Posey, who in 1904 recorded the first American case, remarks that "therapeusis is unavailing." This view is shared by most textbook writers, who content themselves with offering such therapeutic suggestions as would presumably be of benefit in any chronic corneal inflammation.

In a case I reported in 1913 prompt improvement and a rapid cure followed repeated subconjunctival injections of a 2 per cent. saline solution, after the failure of classical methods.

DR. ARTHUR G. BENNETT, Buffalo: I have seen three cases of this type. The treatment that I applied to two of these cases was very satisfactory, after I had tried all the classical methods for five or six weeks without getting any improvement. Under cocain anesthesia, I flooded the eye with fluorescein, opened up the area of infiltration with a knife and then with a sliver of wood I cauterized the necrotic area thoroughly with phenol. I discharged that patient cured in a week.

A young man, who had been in the care of a very competent oculist in another city for three months, was sent to me with a diagnosis of tuberculosis. I employed the treatment mentioned at once, and with the same good result. The necrotic area is stained with fluorescein immediately you open into it so that the exact limits of this area are delineated. Cauterizing that area with phenol destroys absolutely every part of the infiltration. I was gratified at having a perfect recovery within a week; and that man was accepted in the Officers' Reserve Corps within a month, and is now serving with the Army.

DR. WILL WALTER, Chicago: Improvement following the administration of tuberculin is not more than suggestive evidence of tuberculous infection. Observations are being made with increased frequency that antibody forming vaccines and neutralizing serums are more or less interactive. Antityphoid vaccine has occasionally cleared up staphylococcus infections, and antitoxic streptococcus serums have improved conditions due to other infections. Tuberculin often raises the white cell blood count. Sahli made this a diagnostic point in mild tuberculosis. I have employed staphylococcus vaccines in recurrent furunculosis, and with good effect, although often without raising the white cell count. In the few cases of ulcers of this type which I have observed and treated it has been used with this thought in mind and not with the idea that it was a tuberculous lesion, although it may be. The same therapy is employed as a routine in all forms of corneal ulcer whenever the white cell count is low.

It has always been used with measures which promote local resistance. Prominent among these are the high frequency current, with vacuum tubes, through the closed lids, and later the sinusoidal current; and last but not least heat, not as usually applied, but by the sanatorium method, which gives you a much greater degree of heat than by direct methods, and not persistently applied, but at intervals of two or three hours. The sinusoidal current is of value in this condition because its waves prevent scarring and stimulate the nerves to normal function. The results from this technic will surprise those who have not tried it. It certainly is very effective in shortening the duration of this disease, for my patients have not had the long period of suffering which the records tell us must be expected.

DR. EDGAR S. THOMSON, New York: I have seen two cases of disciform keratitis—the first I have ever seen. I do not see how there can be any other cause for the condition other than a low grade infection. The whole appearance and characteristics of the condition are infective.

I treated a young man, otherwise in perfectly good health, for six weeks without the slightest benefit, when it occurred to

me to destroy the infective material as Dr. Bennett described. I applied Shahan's thermaphore in this case, heated to 160 F., directly over the disciform spot, for one minute. He made a very rapid recovery. The eye began to whiten at once, the hypopyon absorbed, and he was out of the hospital in a week, the whole case having lasted a little over two months.

Another case was seen in consultation, and I did not have a chance to apply that treatment; but we have had very good success with the thermaphore in other cases of similar character.

DR. F. PARK LEWIS, Buffalo: I agree with Dr. Bennett that disciform keratitis is much more common than we realize. There are two reasons why it has not been recognized; first, because attention has not been called to it as definitely as it should have been, so that it escapes observation; and second, because in all probability it is endogenous rather than exogenous in its infection. Dr. Blaauw reported a case before the Ophthalmic Club of Buffalo. It had the typical characteristics which have been outlined. The patient was a strong, rugged, well nourished man, who gave no other evidence of illness. However, his mouth was as insanitary as one could imagine it to be. There were evidences of pyorrhea and root abscesses. Great improvement followed the extraction of the infected teeth and the treatment of the pyorrhea.

I believe in the use of protein toxins. Dr. H. Gideon Wells, who is now working on the subject of protein toxins, told me that Dr. Kessler has for the first time succeeded in isolating a sufficient quantity of the histidins to make experimentation practicable.

They have reached the conclusion that all proteins give off very easily absorbable toxins, which produce a wide range of symptoms. When a case of disciform keratitis occurs, it is of great importance to search for a focal nidus of infection.

DR. JOHN M. WHEELER, New York: Two things impressed me very definitely in Dr. Weeks' case, which I saw first. There was an entire absence of symptoms, except for impairment of vision. Two days before I saw her this patient noticed that she did not see well with her right eye. There were absolutely no other symptoms. There was no pain or discomfort or photophobia to indicate that there was anything wrong with the eye. The eye was treated with atropin and hot baths, and in the first few days was apparently absolutely quiet, except for this round area of infiltration. Ethylmorphin hydrochlorid was suggested, and on the fourth day a drop of a 2 per cent. solution was instilled into the eye. The eye had been absolutely quiet up to this time. Within a few hours after the instillation there was an attack of acute glaucoma. It is impossible for me to dissociate the use of the drug in this case from the acute glaucoma.

DR. RUDOLPH H. VON KOTSCH, Chicago: A few weeks ago a patient came to me who had been treated for two months by another doctor. He did not improve and became dissatisfied. Some friends suggested the use of argyrol; so he used that for four weeks, but the eye continued to grow worse. Then he was referred to me. I used the actual cautery, but very lightly. The following day the eye showed improvement. In about two weeks it cleared up entirely, and vision is now almost normal.

DR. JESSE S. WYLER, Cincinnati: Is it not possible that some of the men who have discussed this paper have confused true keratitis disciformis with deep corneal abscess and centralized interstitial keratitis? I have seen only two cases of disciform keratitis in the European clinics, and as I remember them, there was no stippling of the cornea above the lesion. There were no synechiae and no hypopyon. I also agree with Dr. Walter in the action of tuberculin, considering it merely a means of increasing leukocytosis according to the paraspecific theory advocated by Darier.

DR. JOHN E. WEEKS, New York: This is a microbic infection. The forms of treatment that have been successful in these cases point to the destruction of a causative agent, apparently a micro-organism. In regard to the possible endogenous nature of the infection, I do not think that theory is sound. In the cases which I have observed the disturbance is primarily a superficial one, never a deeply seated one, which it would be if it were metastatic. Secondly, it is advisable to

give patients with disciform keratitis diagnostic tuberculin injections and see if a local reaction is produced. The result will aid us to determine whether this affection is or is not due to infection with tubercle bacilli. Hypopyon and deep ulceration are extremely uncommon, and when they occur must be due to added infection by some other micro-organism.

THE EFFECT ON THE KIDNEY OF URETEROVESICAL ANASTOMOSIS

EXPERIMENTAL AND CLINICAL REPORT *

ANDERS PETERSON, M.D.

ROCHESTER, MINN.

Baker, in 1878, reported a successful implantation of the left ureter into the bladder by operation through the vagina, for the relief of incontinence due to the opening of the ureter into the anterior wall of the vagina. In 1889, McArthur reported a similar case, in which he operated successfully. Davenport, in 1890, implanted an anomalous ureter by the vaginal route, with good results. In 1894, Bazy reported two instances of ureterovaginal fistula. One patient had an infected hydronephrosis which improved after the implantation of the ureter. Bazy tied a small catheter into the implanted ureter and suggested the use of pelvic lavage with silver nitrate solution, 1:500 to 1:100, for infection of the kidney. He also mentions two cases of ureterovesical implantation performed by Novaro in 1892. Franz, in 1907, published a report of nine experiments on dogs, with excellent results following ureterovesical implantation; also seventeen clinical cases in which four patients were cystoscoped, and the implanted ureter functioned normally. Krönig, in the same year (1907), reported the cases of nine patients operated on for ureteral fistula, following hysterectomy for cancer. His assistant, Dr. Rauscher, cystoscoped these patients from five months to one and one-fourth years after the implantation. Good function of the kidney was found in five cases; two showed stenosis and slight hydronephrosis. In two cases of bilateral implantation there was hydronephrosis on the left side and good function on the right side in one, and normal function on both sides in the other.

TYPES OF TECHNIC

Coffey, in 1911, published a technic for implanting the ureter or the common duct into the intestine. This

consists of splitting the serous and muscular coats for three fourths of an inch and entering the lumen of the bowel through a small stab wound in the mucosa. The ureter is pulled well into the lumen by means of an anchoring suture placed through the split end of the ureter, and tied three fourths of an inch below its entrance. The serous and muscular layers are then approximated around the ureter, and one stay suture is placed one-fourth inch above the site of the anastomosis (Figs. 1 and 2).

Stiles' technic consists of entering the lumen of the bowel through a stab wound, and approximating the intestinal wall, without further dissection over the ureter. The wall of the ureter is also caught in these sutures. He omits the splitting of the ureter on one side, as well as the stay suture. These methods have been used with slight modifications in our work for implantation into the bladder (Figs. 3 and 4).

Furniss has recently published a simple method of ureterovesical anastomosis, consisting of the penetration of a double fold of the bladder wall with an artery forceps, and of the pulling of the severed ureter through both openings made by the forceps. The ureter is secured to the bladder wall by a few interrupted sutures at its lower entrance into the bladder, and the end is permitted to hang free in the cavity of the bladder. The anterior opening is then closed (Figs. 5 and 6).

A technic suggested by Mann of the Mayo Clinic, a report of which has not heretofore been published, has been used in a few of our experiments. Two parallel incisions, one-fourth inch in length and one-half inch apart, are made at right angles to

the long axis of the bladder, extending down to the mucosa. This seromuscular bridge is undermined, leaving the mucosa intact. A small stab wound is made through the mucosa at the site of the lower transverse incision. The severed ureter, having been split for one-fourth inch on its anterior surface and armed with No. 00 catgut, is pulled beneath the bridge from above downward and anchored to the inner surface of the wall of the bladder one-half inch below the opening. One or two interrupted sutures are made on each side of the ureter, approximating the transverse incision up to the ureter. No suture is placed into the ureter except the one put through the flap, for the purpose of securing it to the inner side of the wall of the bladder (Figs. 7 and 8).

In making the experimental and clinical observations described in this paper, it has been my purpose to evolve a technic for the reimplantation of the ureter into the bladder, and to study the effect of such operation on the kidney and ureter. Unilateral implantations

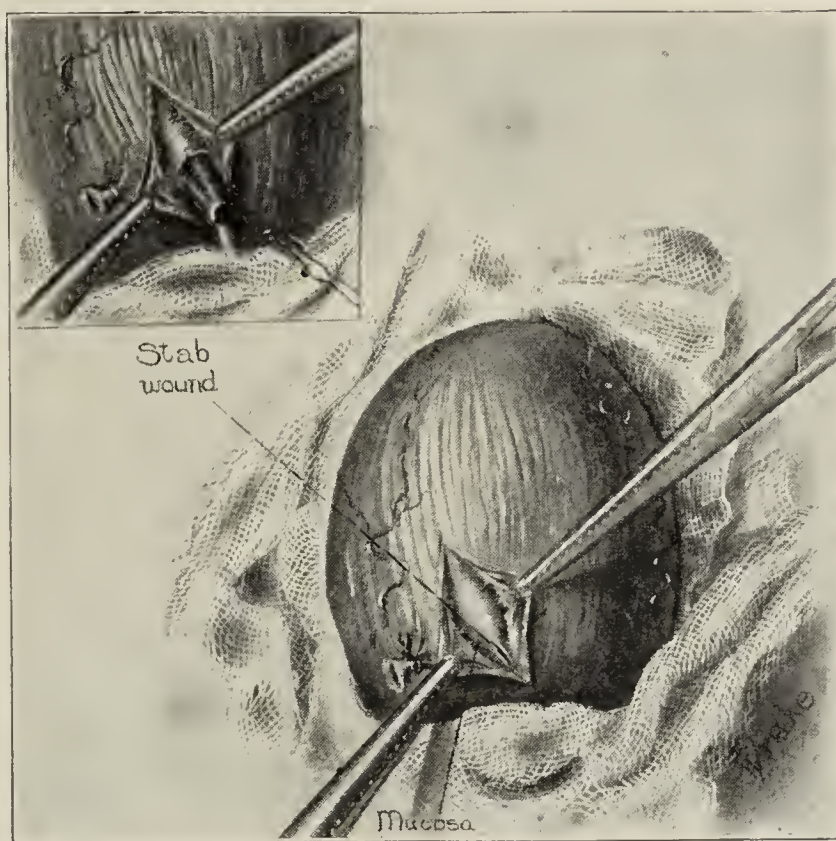


Fig. 1.—Coffey technic employed for implanting the ureter into the bladder; serous and muscular coat split and undermined for embedding of the ureter; (inset) split ureter pulled within the cavity of the bladder through the stab wound in the lower angle of the incision.

* From the Mayo Clinic.

* Read before the Section on Genito-Urinary Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article will appear in the Transactions of the Section and in the author's reprints.

were performed on eighteen dogs and bilateral implantations on three, giving a total of twenty-four observations.

Coffey's technic was used in eight cases. Observations of the end-results were made from one day to five and one-third months after operation. One animal died from peritonitis on the sixth day. The kidney



Fig. 2.—Coffey technic completed with bladder everted out of the abdomen.

showed slight hydronephrosis. It was possible to make the ureter leak at the site of anastomosis (Case 1). One death occurred at the end of twenty-four hours. Both ureter and pelvis were dilated, and miliary abscesses were found throughout the kidney. There was also a small localized abscess at the site of the implantation (Case 6). A third animal died from distemper on the tenth day. The pelvis and the ureter both showed a slight hydronephrosis (Case 8). Five animals were examined from three weeks to five and one-third months after operation, and showed an entirely normal kidney and ureter. Two observations on the technic were made:

1. In all instances the ureter was implanted on the posterior wall of the bladder a short distance toward the median line of the original insertion, with the bladder pulled well out of the pelvic cavity. It is convenient and natural to embed the ureter from below upward, but when this is done and the bladder is replaced into the pelvis, an acute angulation in the ureter occurs just at the site of the union with the bladder. If the implantation is reversed, that is, from above downward, the ureter will lie in a line with its entrance through the wall of the bladder. In order to have the open side of the ureter facing into the cavity of the bladder, the splitting of the ureter must be done in its anterior wall (Fig. 9).

2. After some observation the last stay suture, placed about one-fourth inch above the site of implantation, was omitted, as the implantation is performed with the bladder empty and in a state of acute contraction. When this viscus becomes distended a great disproportion occurs between this included section of the ureter and portion of the bladder, and the ureter may be acutely kinked and even pulled out of the wall of the bladder, as occurred in one of the cases (Case 11, Fig. 10).

Stiles' technic was carried out in eight cases, with the modification of splitting the anterior aspect of the wall of the ureter for about one-fourth inch. No suture, except the anchoring suture, was permitted to enter the wall of the ureter. Care was taken to avoid any injury to the proximal end of the severed ureter, and no forceps was placed over the end. A forceps was placed on the side of the bladder and the ureter cut with a thin scalpel about 1 cm. above this clamp. While the sutures infolding the ureter in the wall of

the bladder were being tied, a thyroid needle was used as a seeker in order to avoid any undue compression on the anastomosis (Fig. 4). There were six complete successes in this group of eight operations. In one case (Case 11) the ureter pulled out of the bladder. Here the additional stay suture had been used. One animal, sacrificed in a physiologic experiment one and one-third months after operation, showed an advanced pyonephrosis (Experiment 12, Fig. 17).

Five operations were done with the technic devised by Mann. Hydronephrosis resulted in one case four months after the operation. In four cases the kidneys and ureters were normal.

Three implantations were done by the method of Furniss, with normal results. One was a bilateral implantation done at one stage. The placing of a clamp over the proximal end of the ureter was, however, omitted. The small amount of urine leaking from the ureter in such cases will cause no disturbance unless there is previous infection of the kidney, and then a moist pack placed around the ureter will take care of the trouble.

In order to work out the technic, a cystoscopic examination was made under anesthesia in four normal female dogs and in four dogs whose ureters had been implanted. With the animal in the dorsal position, a small speculum was introduced into the vagina and sufficient traction exerted on the labia to bring the urinary meatus into view from its normal location behind the pubic arch. The cystoscope was then quite readily introduced. The ureters were catheterized with No. 4 or No. 5 ureteral catheters in the normal animals. There was obstruction to the catheter in two of the implanted cases; in two others no obstruction occurred.

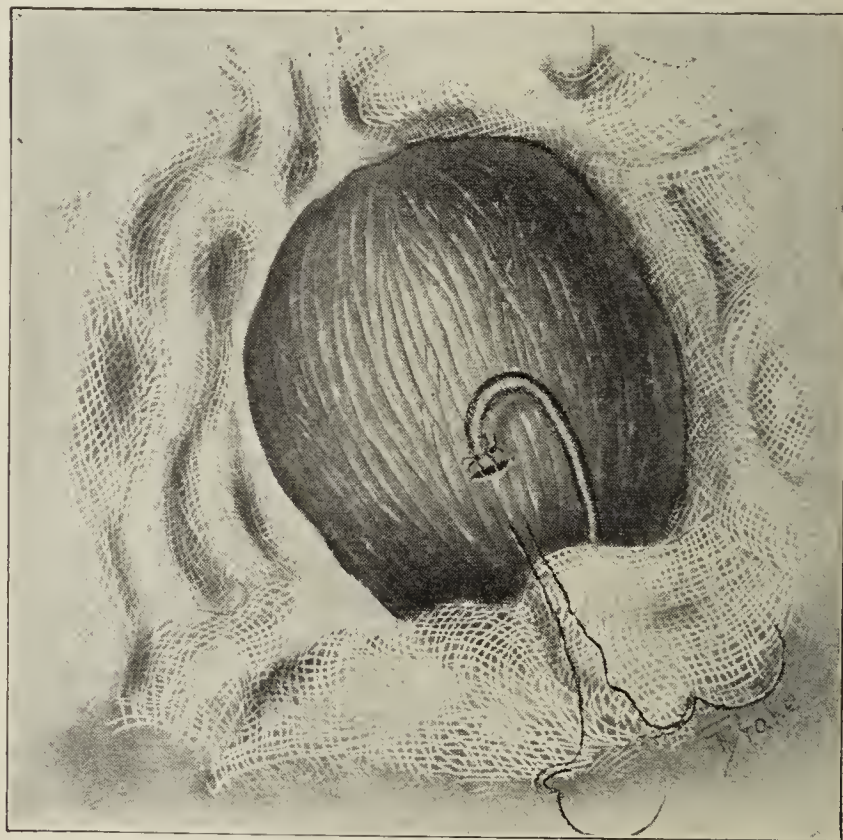


Fig. 3.—Stab wound through which the ureter is pulled within the cavity of the bladder.

In the review of the results of the twenty-four experiments, it was found that there were entirely normal kidneys and ureters in fifteen instances, slight hydronephrosis in two, marked hydronephrosis in one, miliary abscesses of the kidney in one, pyonephrosis in one, normal kidney and hypertrophied ureter in two,

and the ureter pulled out in two (Tables 1 and 2). Fifteen implantations (62.5 per cent.) were complete successes. Normally functioning kidneys, including two cases with a slight hydronephrosis, were found in nineteen (80 per cent.). There was complete failure from stenosis, infection and the pulling out of ureters in five cases (20 per cent.).

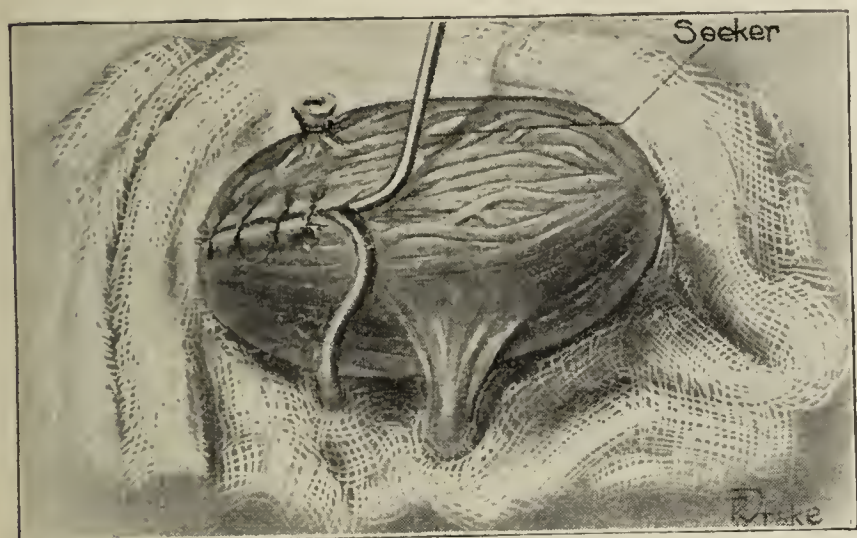


Fig. 4.—Enfolding of the wall of the bladder over the ureter, a seeker being used to avoid compression.

Early in these experiments, fine silk was used for suture material, and in several instances concretions formed around the sutures in the bladder. This did not occur when catgut alone was used.

It is of interest to note that in two cases (Cases 19 and 21) the kidneys were entirely normal, the ureter was hypertrophied and there was no evidence of dilatation. Partial stenosis takes place at the site of the

TABLE 2.—SUMMARY OF DOG CASES

Number of dogs used in experiment.....	21
Number of ureters transplanted	24
Coffey's technic of transplantation.....	8
Stiles' technic of transplantation.....	8
Mann's technic of transplantation.....	5
Furniss' technic of transplantation.....	3
Number of dogs cystoscoped.....	4
Obstruction to ureteral catheter.....	2
No obstruction to ureteral catheter.....	2
Death from peritonitis.....	1
Death from pulling out of ureter.....	2
Death from ascending kidney infection.....	1
Death from distemper.....	2
Killed in fight.....	1
Sacrificed in physiologic experiments.....	6
Nephro-ureterectomy	7
Exploratory operation for result.....	1
Time elapsing between operation and study of result....	1 day to 5½ mo.
Normal kidney and ureter.....	15
Slight hydronephrosis	2
Marked hydronephrosis	1
Pyonephrosis	1
Miliary abscess in kidney.....	1
Normal kidney and hypertrophy of ureter.....	2
Normally functioning kidneys including two with slight hydronephrosis (80%)	19
Failure from obstruction.....	1
Failures from infection (20%).....	2
Ureter pulled out.....	2
Complete successes (62.5%)	15

implantation and the muscularis of the ureter undergoes compensatory hypertrophy, consequently dilatation of the pelvis does not occur until this compensation is overbalanced.

Slight dilatation of the pelvis and ureter was found in two cases (Cases 1 and 8), six and ten days respectively after implantation. This was probably owing to edema of the lower end of the ureter and of the wall of the bladder caused by trauma, which subsided in a short time. The utmost care should be taken to minimize trauma during the operation.

In view of the end-results and the simplicity of the operation, the modification of Stiles' technic seems the

most suitable in ureterovesical anastomosis. The successful outcome of ureterovesical implantation depends entirely on the technic. This consists of: (1) rigid asepsis to prevent peritonitis and ascending renal infection, (2) a suitable mechanical scheme to establish waterproof anastomosis without causing compression of the ureter, (3) the avoidance of any suture that will enter the wall or lumen of the ureter other than the anchoring suture at its end, and (4) the avoidance of placing any clamp whatever across the extremity of the ureter used in the anastomosis.

CLINICAL REPORT

In twenty-one cases in the Mayo Clinic, the ureter has been implanted into the bladder and the effect on the kidney has been noted. Fifteen patients had exten-

TABLE 4.—SUMMARY OF RESULTS OF TRANSPLANTATIONS

Number of cases cystoscoped following transplantation.....	17
Length of time elapsing between transplantation and cystoscopic examination.....	18 days to 4½ years
Dilated meatus	9 (54%)
Meatus not seen.....	4 (23%)
Meatus normal	3 (18%)
Meatus contracted	1 (6%)
Contraction of transplanted meatus.....	7 (41%)
No obstruction to ureteral catheter.....	8 (47%)
Obstruction to catheter noted.....	3 (18%)
Infection of specimen from few pus cells to cloudy urine noted	6 (35%)
Normal function, phenolsulphonephthalein and normal pyelogram	5 (30%)
Small hydronephrosis; fair function.....	3 (18%)
Normal excretion of phenolsulphonephthalein.....	4 (23%)
Functionless kidney	5 (30%)
Dilatation of ureter noted at operation—Cases 10 and 16.....	2 (12%)
Ureter dissected from dense scar tissue—Cases 5, 12 and 15.....	3 (18%)
Kidneys showing normal function, 53%; fair function, 18%; functionless, 30%.	
Deducting Cases 5, 10, 12, 15 and 16 = normal kidneys, 75%; fair functioning kidneys, 25%.	

sive resections for tumor of the bladder, and implantation of one ureter; four had ureterovaginal fistula; in one the right ureter opened into the urethra, and in one the left ureter opened into a diverticulum.

The patients who were operated on for malignancy and returned for examination have been longest under

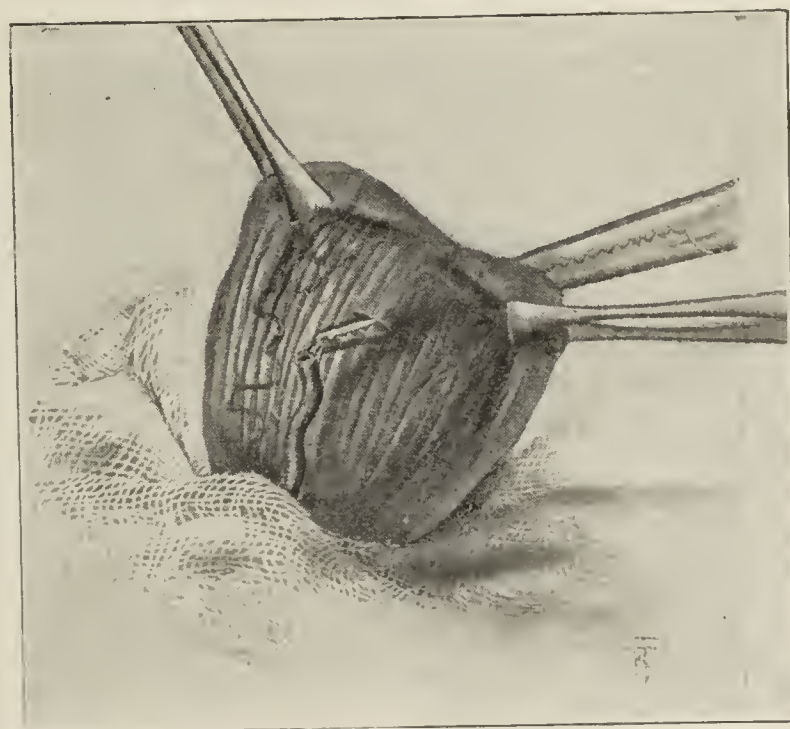


Fig. 5.—The Furniss technic for the implantation of the ureter into the bladder.

observation, three for four years and eight for from three months to one year. When implantation was done for conditions other than tumor of the bladder the time elapsing between the operation and the cystoscopic examination varied from eighteen days to four months. The cystoscopic examination consisted of a

careful inspection of the entire bladder. The condition of the implanted meatus as to size and contractions and the appearance of the excretion were noted. Whenever feasible, both ureters were catheterized and a differential functional test with phenolsulphonephthalein was done, followed with a pyelogram of the implanted side. In the cases in which the implanted

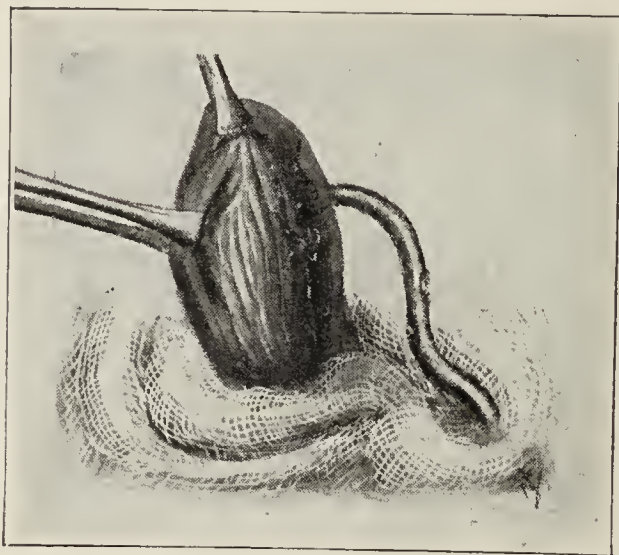


Fig. 6.—The end of the ureter lies free within the cavity of the bladder.

ureter could not be catheterized, a Garceau catheter was passed well up on the normal side, urine from the bladder was taken from the implanted side and a differential test made. When neither side was catheterized, indigocarmine was given intravenously, and the time of its appearance and the intensity of the color as it appeared at the meatus were noted (Tables 3 and 4).

Four patients died following resection of carcinoma of the bladder and implantation of one ureter. At necropsy, the cause of death and the result of the implantation were shown (Table 5).

Seventeen of the twenty-one patients were cystoscoped from eighteen days to four and one-half years after operation. The normal output of phenolsulphonephthalein and a normal pyelogram were obtained in five instances (30 per cent.); the normal phenolsulphonephthalein excretion was obtained in four (23 per cent.), and there was a small hydronephrosis with fair function in three (18 per cent.). Functionless kidneys were found in five instances (30 per cent.). In a review of the histories in the cases of functionless kidneys, two conditions are noted:

1. Marked dilatation of the ureter at the time of the implantation, due to the growth overlying the meatus and causing gradual obstruction in one case (Case 10). In one case (Case 16), in which the right ureter opened into the urethra, there was a dilated ureter.

2. Because of the necessity of resecting a portion of the ureter involved in the malignant growths, where there was very dense scar tissue in ureteral fistulas, the implantation was performed with considerable tension on the ureter (Cases 12 and 15).

In nine cases (53 per cent.) of the seventeen patients, the function of the kidney was entirely normal. There was fair function in three cases (18 per cent.), and functionless kidneys in five cases (30 per cent.). If we deduct those cases in which marked dilatation was noted at the time of operation, and in which the ureters were implanted under tension, normal kidney function occurred in 75 per cent. and fair function in 25 per cent.

Of the four patients who died from the fourth day to the second month after the operation, two showed slight dilatation on the implanted side; in one the pelvis was dilated to three times the normal size, and in one there was no evidence of obstruction.

In view of the fact that functionless kidneys result when the implantations are done with widely dilated ureters, and when it is necessary to put the ureter on tension in order to accomplish the anastomosis, in such cases ligation of the ureter is preferable to implantation.

If, on cystoscopic examination, a tumor of the bladder, which appears malignant, is found overlying one or the other meatus, or in close proximity to it, the opposite ureter should be catheterized to ascertain the functional capacity of the kidney. If, at the time of the operation, a widely dilated ureter is found, or if tension is necessary, the surgeon has definite information regarding the ability of the opposite kidney to carry on the urinary elimination. If, on account of hematuria, spasm of the bladder, spasm or anatomic obstruction, the opposite ureter cannot be catheterized, a combined phenolsulphonephthalein test should be done. If the combined output is normal, or nearly normal, and a widely dilated ureter is found, it is safe to assume that the normal phenolsulphonephthalein output is from the opposite side, and ligation of the ureter may be safely done.

In all cases in which advanced pathologic changes of the kidney and ureter have not occurred prior to surgical relief, and in which tension can be avoided,

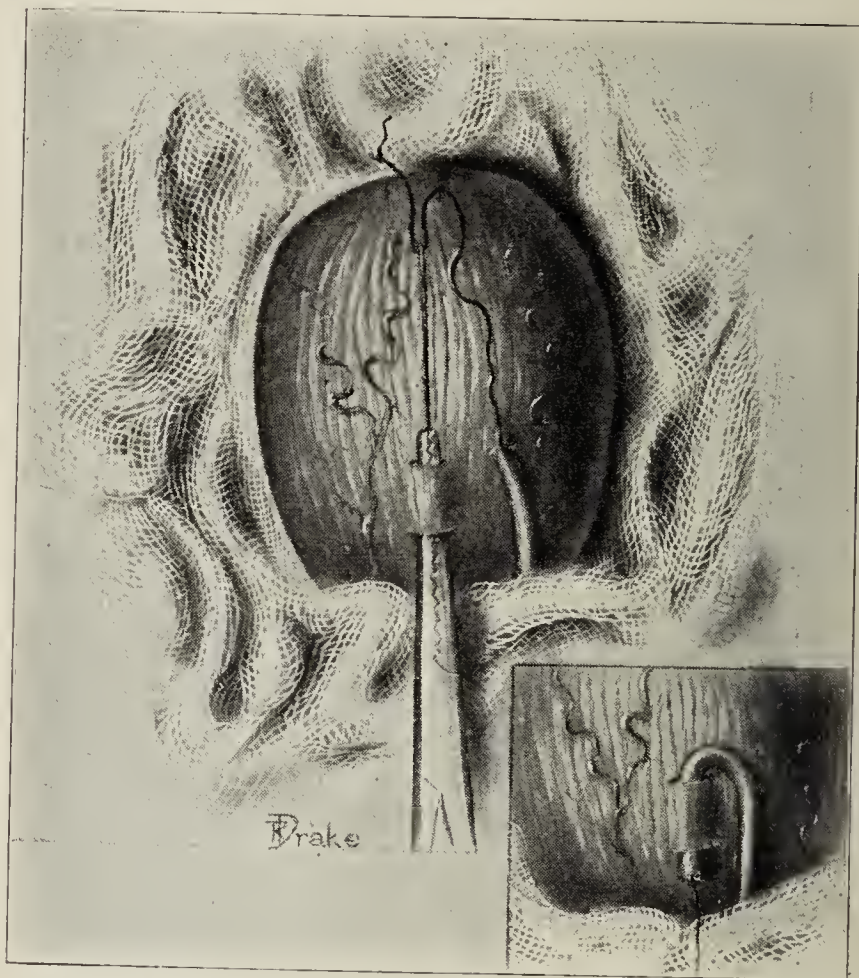


Fig. 7.—Mann's technic for implanting the ureter into the bladder. A seromuscular bridge is undermined and the ureter is pulled beneath this bridge from above downward.

the reimplantation of the ureter into the bladder should be done.

CONCLUSIONS

1. From experimental and clinical observations, it is obvious that a normal or almost normal kidney and ureter should result following the implantation of the ureter into the bladder.

2. The utmost care to minimize the operative trauma must be observed.

3. The placing of a forceps over the end of the uterer should be avoided.

4. No suture should enter the wall or lumen of the uterer other than the anchoring suture placed in the split extremity of the ureter; and the approximation

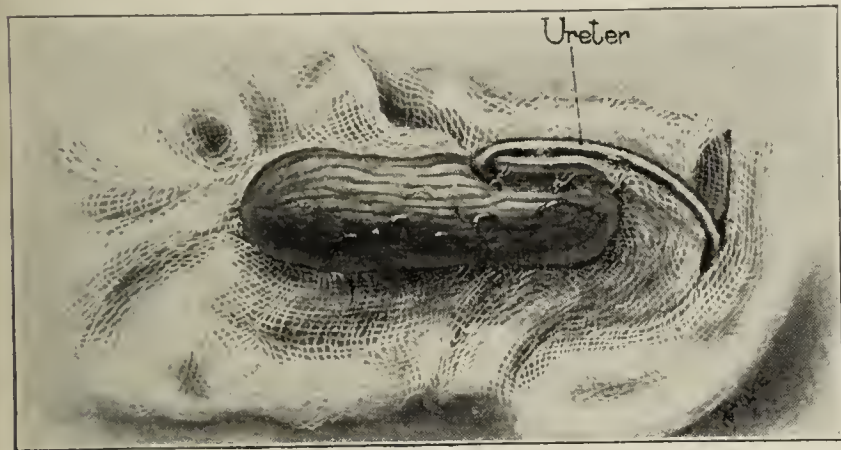


Fig. 8.—Mann's technic of implantation completed, showing the bladder empty and pulled well out of the abdomen.

of the wall of the bladder must be accomplished without undue compression.

5. When marked dilatation of the ureter has occurred prior to surgical interference, and when it is necessary to implant the ureter under tension, a successful result is very doubtful and ligation is preferable to any effort of implantation.

REPORT OF CASES

CASE 1 (No. 80914).—A woman, aged 40, was admitted to the clinic, March 4, 1913. A diagnosis was made of a broad, flat carcinoma extending over the base of the bladder and into the urethra. Aug. 6, 1913, excision and cautery of the base of the tumor and implantation of the right ureter was done. The patient returned each year for cystoscopic examination. There was no recurrence except a persistent caruncle of the urethra, which was cauterized. Microscopic examination showed it to be inflammatory. Oct. 26, 1917, four and one-fourth years after the resection of the growth, the left ureter was catheterized. The differential functional phenolsulphonephthalein test showed 15 per cent. from the ureter, and 17.5 per cent. from the bladder specimen in fifteen minutes after intravenous injection. Nov. 30, 1917, the right ureter was catheterized easily, and clear urine flowed normally through the catheter. A pyelogram made on this date showed no dilatation of the pelvis (Fig. 23). The patient is in good general condition.

CASE 2 (No. 86197).—A woman, aged 50, was admitted to the clinic, June 18, 1913. A diagnosis of malignant papilloma of the base of the bladder was made. June 25, 1913, suprapubic resection of the right quadrant and floor of the bladder with implantation of the right ureter was done. Cystoscopic examination in 1914, 1915, 1916, and 1917 showed no evidence of recurrence. Feb. 8, 1918, four years and seven and one-half months after the removal of the tumor, a dilated right meatus was found. The catheter could not be passed up the ureter. The left ureter was catheterized with a Garceau catheter. The intravenous phenolsulphonephthalein test showed 20 per cent. in the ureter, and 15 per cent. in the bladder in fifteen minutes. The patient's general health is good.

CASE 3 (No. 100111).—A man, aged 53, was admitted to the clinic, Feb. 4, 1914. A suprapubic resection of a tumor of the bladder had been done elsewhere, about six months previous to admission. A recurring tumor of the bladder was found, and, Feb. 7, 1914, resection and cautery of one half of the bladder with implantation of the right ureter was done. Nov. 5, 1914, cautery of the bladder for recurrence was again necessary. Cystoscopic examinations in 1915, 1916 and 1917

showed a small recurring growth at the site of the operation scar, which was fulgurated. Examination, December 4, 1917, showed a small reddened area in the old scar but no evidence of recurrence. The right ureter opening was widely dilated, and frequent spurts of urine came from the meatus. The secretion from the right ureter showed a few pus cells. The phenolsulphonephthalein test showed 4 per cent. in the right ureter, and 5 per cent. in the left in fifteen minutes. A pyelogram of the right kidney showed a small hydronephrosis. The patient is now in excellent health (Fig. 24).

CASE 4 (No. 163712).—A man, aged 69, was admitted to the clinic, June 23, 1916. A diagnosis was made of a papilloma of the bladder the size of a hen's egg, lying in the right base. July 11, 1916, excision of the tumor and implantation of the right ureter was done. Papillary epithelioma was diagnosed pathologically. A cystoscopic examination, Oct. 27, 1917, one year and three and one-half months after operation showed no recurrence. The catheter passed easily up the right ureter and negative urine was collected. Phenolsulphonephthalein output showed 15 per cent. in the right ureter, and 17.5 per cent. in the bladder. The pyelogram showed the right kidney to be normal. The general condition of the patient was good (Fig. 25).

CASE 5 (No. 185582).—A woman, aged 60, was admitted to the clinic, Feb. 13, 1917, and a diagnosis of carcinoma of the bladder was made. March 21, 1917, a suprapubic excision of one third of the wall of the bladder was done. One inch of the right ureter was removed and the left ureter was implanted into the base of the bladder. It was not possible satisfactorily to reconstruct the bladder. The involved portion of the urethra was removed also. Jan. 22, 1918, ten months after the operation, there was no evidence of recurrence of the tumor. The left meatus could not be seen; the right was normal. A catheter was passed well up the right ureter. The phenolsulphonephthalein output showed 12 per cent. in the right ureter, and a trace in the bladder in fifteen minutes. The left kidney was found to be functionless probably because of the tension on the ureter necessary for its implantation.

CASE 6 (No. 69825).—A man, aged 54, was admitted to the clinic, June 27, 1912. A carcinoma of the left base and wall of the bladder was found. July 6, 1912, suprapubic resection of one third of the bladder with cautery of the base, and implantation of the left ureter was done. Cystoscopic examination, March 8, 1913, showed no evidence of recurrence. The left meatus spurted urine normally. In answer to an inquiry in August, 1916, the patient stated that he was in good health and had no urinary inconvenience.

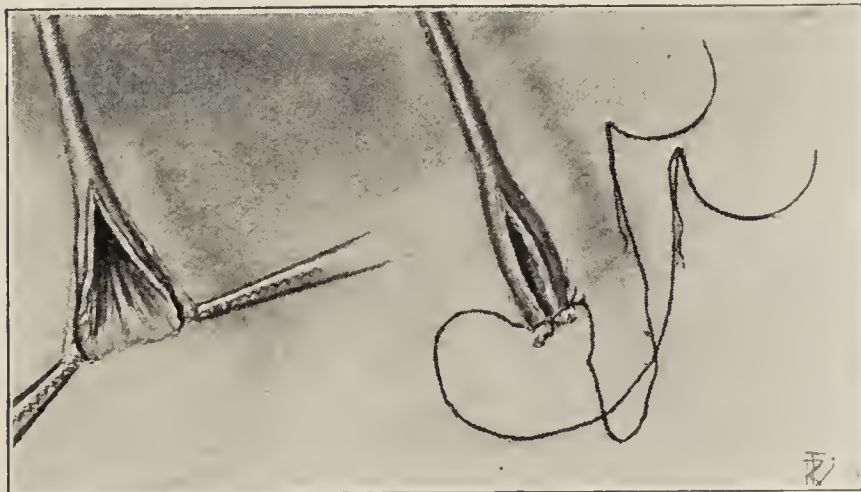


Fig. 9.—Preparation of the ureter for implantation into the bladder. Anterior wall split from one-fourth to one-half inch and anchoring sutures introduced.

CASE 7 (No. 186610).—A man, aged 54, was admitted to the clinic, Feb. 23, 1917. March 9, 1917, a suprapubic resection of one third of the left wall of the bladder and one-half inch of the left ureter, with implantation of the ureter was done for carcinoma. Oct. 18, 1917, cystoscopic examination showed no recurrence. The left meatus was widely open and spurted urine normally. A catheter passed easily and the specimen of urine showed a few pus cells. Intravenous phenolsul-

phonophthalein appeared in four minutes, from the left ureter 4 per cent. and from the bladder 20 per cent. The catheter drained poorly. The pyelogram showed a normal kidney and ureter (Fig. 26). The patient's health is good.

CASE 8 (No. 213632).—A man, aged 48, was admitted to the clinic, Nov. 20, 1917. A suprapubic excision with cautery was done at the base of the left wall of the bladder, and base of the left ureter for multiple papilloma. One large growth of the size of an orange was situated at the left meatus. Cystoscopic examination four months and twenty-two days after the operation showed no evidence of recurrence. The left meatus, which was located high up on the left wall of the bladder, was catheterized easily. Indigocarmin, dark blue in color, appeared in five minutes on both sides. The pyeloureterogram showed a normal pelvis and ureter throughout. Examination of urine from the left kidney was negative (Fig. 27). The patient has gained 8 pounds in weight and has no urinary inconvenience.

CASE 9 (No. 213837).—A man, aged 42, was admitted to the clinic, Nov. 11, 1917. A diagnosis of a large tumor of the bladder and marked secondary anemia was made. The hemoglobin was 37 per cent. A transfusion of 500 c.c. of blood was given eleven days before operation. Nov. 24, 1917, a suprapubic resection of the left one third of the bladder, extending the dissection close to the right ureter, was done. The left ureter was implanted and a small rubber catheter was inserted into it for a short distance, and brought out through the suprapubic wound. March 22, 1918, four months after the operation, the patient returned for cystoscopic observation. There was no recurrence. The capacity of the bladder was 4 ounces. The left ureter had probably been implanted in the dome. It was gaping, and no excretion was seen. A catheter could not be passed. The right meatus, which was normal, was catheterized. Phenolsulphonephthalein showed 25 per cent. in the right ureter, and 2 per cent. in the bladder in fifteen minutes. The left kidney was functionless. The patient's general condition was much better. The hemoglobin was 58 per cent.

CASE 10 (No. 213710).—A man, aged 59, was admitted to the clinic, Nov. 13, 1917. November 24, resection of one third of the bladder, right wall and base, including two-thirds of an inch of the right ureter, with implantation of the right ureter was done. A small catheter was passed four inches up into the implanted ureter. The ureter was dilated considerably, apparently from obstruction, the result of the growth. Cystoscopic examination March 21, 1918, nearly four months after the resection, showed no recurrence. The right meatus was gaping. Contractions were absent and the left meatus was normal. Indigocarmin injected intravenously appeared from the left side in three minutes, dark blue in color. None was seen from the right meatus in fifteen minutes. The catheter could not be passed up the implanted ureter. The right kidney was functionless.

CASE 11 (No. 204790).—A woman, aged 56, was admitted to the clinic, Aug. 15, 1917. The patient had complained of frequency of urination and hematuria for two months. Aug. 22, 1917, a suprapubic resection of one half the bladder and part of the vaginal wall with implantation of the left ureter was done. A diagnosis of epithelioma was made pathologically. Nov. 24, 1917, three months after the operation, there was no recurrence. The left meatus was not seen because of the

deformity of the bladder. A Garceau catheter was passed into the right ureter. The phenolsulphonephthalein test showed 12.5 per cent. in the right ureter, and 17.5 per cent. in the bladder in fifteen minutes. The patient's general health is much improved.

CASE 12 (No. 221950).—A woman, aged 33, was admitted to the clinic, Feb. 14, 1918. Following vaginal drainage for pelvic abscess, three years prior to admission, the patient developed incontinence. A left ureterovaginal fistula was found. Feb. 26, 1918, the lower eight inches of the left ureter was dissected out of very dense scar tissue and was reimplanted under tension. A small catheter was introduced into the implanted ureter and brought out through the urethra. A cystoscopic examination a month later showed granulation tissue in the left dome. No spurts of urine were seen from the left side. A Garceau catheter was passed into the right ureter, and the differential functional test showed 20 per cent. in the right ureter, and none in the bladder. The left kidney was functionless because of cicatricial contraction at the lower end of the left ureter.

CASE 13 (No. 214196).—A woman, aged 23, was admitted to the clinic, Nov. 17, 1917. Following instrumental delivery fourteen months previously, the patient had developed incontinence. A diagnosis of left ureterovaginal fistula and right uretero-uterine fistula was made. The left ureter was implanted, Dec. 3, 1917, and the right was implanted, Dec. 22, 1917. A cystoscopic examination seven weeks after the first operation showed the left meatus to be normal. Indigocarmin appeared in five minutes, dark blue in color. A No. 6 catheter was passed easily. The pyelogram showed normal outline. A specimen of the urine contained a large number of pus cells. Inflammatory reaction obscured the right meatus. There was a small uretero-abdominal postoperative fistula on the right (Fig. 28).

CASE 14 (No. 102891).—A woman, aged 41, was admitted to the clinic, March 24, 1914. The patient had developed a left ureterovaginal fistula following operation

for cancer of the uterus five months previously. An implantation of the left ureter was done, April 7, 1914. Eighteen days later, a ureteral catheter was passed easily, and cloudy urine, showing numerous pus cells, flowed rapidly for twenty minutes. Two ounces of urine were withdrawn, the specific gravity being 1.001. Before implantation could be accomplished, the lower end of the ureter had to be dissected out of dense scar tissue.

CASE 15 (No. 144658).—A woman, aged 42, was admitted to the clinic, Oct. 30, 1915. The patient had developed a right ureterovaginal fistula following hysterectomy done at the clinic. March 15, 1916, the right ureter was dissected free from the scar tissue and implanted into the bladder. A cystoscopic examination twenty days after the operation showed the end of the right ureter protruding into the bladder. It was not possible to catheterize on account of the obstruction. The left kidney was catheterized, and the differential functional test showed 13 per cent. in the left ureter, and 2 per cent. in the bladder in thirty minutes.

CASE 16 (No. 163923).—A woman, aged 21, was admitted to the clinic, June 27, 1916. The patient had suffered from incontinence since childhood. The right ureter was found opening into the urethra. Implantation of a widely dilated right ureter was done, April 25, 1917. The cystoscopic examination four months later showed an infected hydronephrosis con-

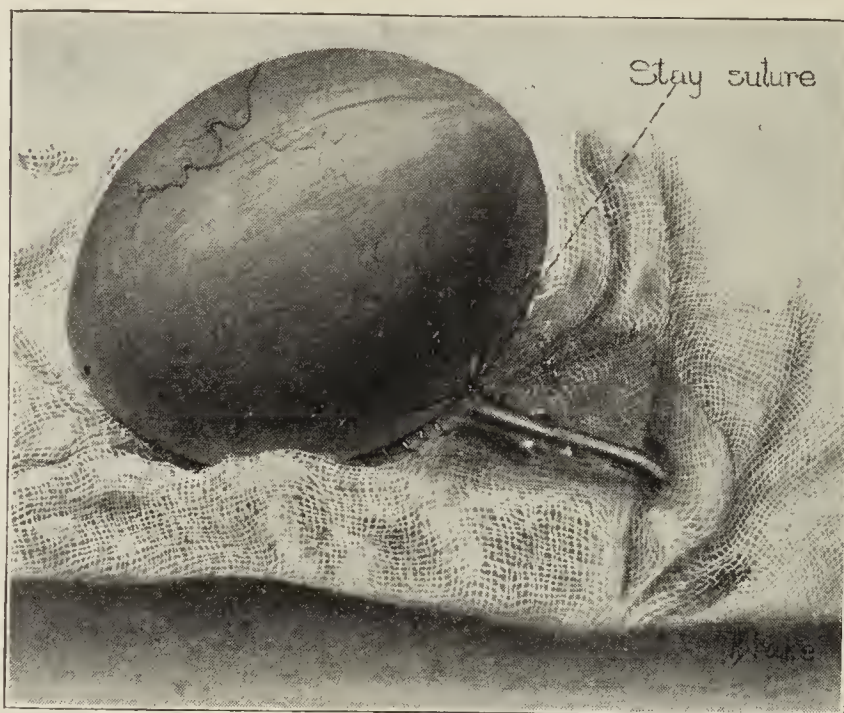


Fig. 10.—Showing tension of the stay suture when the bladder is distended.

taining more than 2 ounces of cloudy urine. The phenol-sulphonephthalein output showed 15 per cent. in the right ureter and 30 per cent. in the bladder in fifteen minutes.

CASE 17 (No. 215976).—A man, aged 32, was admitted to the clinic, Dec. 7, 1917. An operation for diverticulum of the bladder was done, Feb. 26, 1918. The left ureter was found opening into this pouch and was transplanted. On cystoscopic examination six weeks later, it was impossible to get a satisfactory view of the transplanted meatus. A No. 6 catheter was passed into the right ureter and a differential functional test done which showed 25 per cent. from the right ureter, and 12 per cent. from the bladder.

CASE 18 (No. 210877).—A man, aged 54, was admitted to the clinic, Oct. 15, 1917. Nov. 16, 1917, a suprapubic resection of one half of the bladder with implantation of the left ureter was done for cancer. The patient died in the hospital on the fourth day after the operation. Necropsy showed advanced myocardial changes and pulmonary edema. There were multiple small cortical abscesses in the left kidney and a slight hydronephrosis. The ureter was contracted at the site of the anastomosis and was dilated above this point (Fig. 29).

CASE 19 (No. 218877).—A man, aged 60, was admitted to the clinic, Jan. 12, 1918. Jan. 19, 1918, a suprapubic resection of the bladder and one and one-half inches of the right ureter, with reimplantation into the dome of the remaining portion of the bladder, was done for extensive cancer. A small catheter was passed into the implanted ureter and brought out through the suprapubic wound. The patient died on the twelfth day from bilateral pulmonary emboli. There was no obstruction at the site of implantation. Both kidneys showed arteriosclerotic changes with slight dilatation of the right kidney pelvis (Fig. 30).

CASE 20 (No. 101710).—A man, aged 45, was admitted to the clinic, Mar. 11, 1914. A part of the right wall and base of the bladder was excised, Dec. 14, 1917, with implantation of the right ureter into the base, for early epithelioma of the bladder. A small catheter was passed into the implanted ureter. The convalescence was uneventful for one month, when abdominal distention and coma developed, and the patient died. Necropsy showed a general peritonitis, with firm union of the implanted ureter and an old perivesical hematoma near the site of implantation (Fig. 31).

CASE 21 (No. 219087).—A man, aged 40, was admitted to the clinic, Jan. 14, 1918. Jan. 22, 1918, a resection of the base and the right one half of the bladder, with transplantation of the right ureter into the dome was done for extensive cancer. The ureter was dilated to the size of a finger. A catheter was passed into the ureter. The cancer had extended into the perivesical fat. The patient died two months after the operation. Necropsy showed a large bilateral psoas abscess, extensive metastasis to the liver, and carcinomatous extension into the perivesical area with marked sloughing of tissues. The site of anastomosis could not be made out, on account of the necrosis of the bladder, and the surrounding infiltration. There was marked bilateral dilatation of the ureters and kidneys (Fig. 32).

ABSTRACT OF DISCUSSION

DR. V. D. LESPINASSE, Chicago: The specimen that interested me most was the one which showed a dilatation of the ureter without dilatation of the kidney pelvis. In my work with dilatation of the ureter for the removal of stone, we found that when the ureter is obstructed a dilatation begins at that point and travels toward the kidney pelvis. These specimens show this phenomenon beautifully, and one in particular with a slight cicatricial contraction and consequent partial obstruction shows the dilatation progressing up to the kidney. The dilatation had just started to involve the kidney when the animal was sacrificed.

DR. ARTHUR L. CHUTE, Boston: I would like to call attention to two things. One is a sort of rough and ready method of replanting or transplanting the ureter which I have used in quite a number of dogs. I introduce from below in either a man or a woman a long uro-catheter of size 12,

making a little hole in the bladder anywhere that I can do it, and after I have slipped the ureter up 3 or 4 c.c., I then push the whole thing back into the bladder, and insert one or two stay sutures wherever I can get them. While it is not a very attractive technic it brings the result. I have not had any opportunity of catheterizing human ureters in that way, but on dogs it seems to be a very feasible method. At the same time, with a retention catheter you keep the bladder open and prevent the possibility of pulling out, while it does not add very much to the extent of the operation.

DR. CHARLES M. MCKENNA, Chicago: I can see from Dr. Peterson's slides that surgical repair is the important point which he intended to bring out. Too much cannot be said about surgical repair, either in genito-urinary surgery, or in general surgery. I do not quite understand why Dr. Peterson makes a second incision in the bladder to do the transplant. I should like to ask Dr. Peterson why it is not a good plan to transplant the ureter in the upper angle of the original incision. There will be less scar tissue to deal with there than there will be by making a new opening, and less danger of infection since you have only one incision. I have used this latter method in my own cases and am satisfied with the result.

DR. BERNARD ERDMAN, Indianapolis: What method of transplantation was used in the case of the bladder with one ureter, and one ureter transplanted into the bowel?

DR. ANDERS PETERSON: The Coffey technic was used for the bowel implantation and the Stiles technic for the implantation into the bladder.

DR. F. C. HERRICK, Cleveland: I think in the anastomoses which possibly may be in question, and also in preventing possible stricture from the swelling, a catheter is of very great value to be left in for from five to eight days—possibly seven days—and then bring it out. It comes out very readily, of course. Some use a solid bougie.

DR. ANDERS PETERSON, Rochester, Minn.: Dr. Chute has repeatedly placed in the ureters a small rubber catheter large enough to completely fill the ureter. It is brought out through the suprapubic wound that is used as drainage after the section, and drains the urine quite freely. We believe it is a good thing to do; but in animal experiments, of course, it is not feasible, and it does not seem to be necessary, since results may be obtained by careful methods of suturing. In man there is danger of stricture.

In answer to Dr. McKenna's question in regard to making the anastomosis in the upper angle of the incision. This can, and very often has been done. In operating on the bladder large resections have to be made. The method used is not of such great importance, but all efforts must be made not to damage the upper section of the ureter which you are going to use. The ureter does not stand manipulation. If that is borne in mind, I believe results may be obtained without catheters.

Pellagra.—Figures covering the death rate for pellagra in the United States among the policy holders of the Metropolitan Life Insurance Company showed a gratifying decrease during 1916. In 1911, according to a bulletin issued by the company, there were 277 deaths among its policyholders from pellagra; in 1915 the number had increased to 650, and the rate had increased from 3.6 per hundred thousand exposed persons to 6.7. In 1916 the deaths fell to 368, and the rate to 3.6 as in 1911, a drop of 46 per cent. in 1916 as compared with 1915. This drop was observed in many districts of the South where the company does business. It is suggested that the drop in the death rate from this disease coinciding with the greater prosperity of the agricultural portion of the South during the high prices incident to the war in a way confirms the tentative conclusion of some of the government experts that pellagra is a "deficiency" disease induced by insufficient, poorly balanced dietaries rather than an infectious disease. The statistics of the company further show that the disease is more prevalent among the colored than the white people, and more frequent in women than in men. It is also indicated that the incidence of the disease increases with age.

THE END-RESULTS OF OPERATIONS
FOR CANCER OF THE RECTUM

WITH SUGGESTIONS FOR IMPROVING THEM *

J. RAWSON PENNINGTON, M.D.

CHICAGO

The sole plan at present which offers any hope of cure of cancer, though often only temporary, is the knife.

Radium is of little avail in columnar-celled growths, that variety of malignant disease which principally affects the lower bowel. Morson¹ states that while we may expect retardation of the neoplasm and relief of pain, irradiation is often followed by fibrous stricture, especially if the exposure has been for more than twenty hours, and he strongly advocates colostomy before treatment with radium is carried out.

In 1913, 1914 and 1915, of fifty-one patients treated at the Radium Institute,² London, thirty-three improved, ten did not, and eight died; while fourteen more abandoned treatment, probably on account of not obtaining any relief. The latest results were not very brilliant either. In 1917, they "were not constant or uniform, but in some instances growths regarded as inoperable were so much improved . . . that they were removed and the patients remained free from recurrence. This, however, has not frequently happened, and in the majority of cases the most that can be hoped for is healing of ulceration, diminution of the rate of growing, checking of the hemorrhage and postponement of the date at which colostomy becomes imperative." In fairness, though, it must be stated that it is a rigid rule there to treat inoperable cases only, or cases in which the patients absolutely refuse intervention.

At the Manchester Radium Institute, Burrows and Luyton³ also found: "The improvement in cancer of the rectum was merely temporary."

On the other hand, Janeway⁴ states that both the anal as well as the rectal carcinomas, especially the latter, have shown a marked susceptibility to radioactivity. This statement is based on very insufficient evidence, it seems to me, for of thirty-four patients treated, two at the time of report showed no evidence of the disease, fourteen were improved and eighteen were unimproved.

OPERABLE AND INOPERABLE CASES, AND
MORTALITY

The operative mortality is high. As a rule, when patients are first seen, the disease is so far advanced that extensive dissections are necessary. Hence there is considerable shock. Another important factor is

sepsis; and Mayo places it at 39.8 per cent. Mummery⁵ of London, however, believes that with careful technic this should be avoided, and states he lost but one case in the previous three years, though but a year or so before he gave as his opinion that 90 per cent. of deaths following excision of the rectum "are due directly or indirectly to sepsis."

Hartmann⁶ collected for the "low" operation (that is, the perineal and sacral methods) statistics from seventeen clinics besides his own, a total of 1,665 operations with 264 deaths, or 15.8 per cent. In addition to his figures (260 cases) for the combined operation, I have gathered enough to bring the total up to 320 operations, with 129 deaths. While a few cases from the Mayo Clinic are included in the series, we learn from more recent papers by W. J. Mayo,⁷ that the total is now much larger. Up to Dec. 31, 1915, of

753 patients, radical operation was done in 430 cases, with an operative mortality of 15.5 per cent. Before 1910 it was 17.8, and remained about the same, 17 per cent., for the next three years, but for the period from 1913 to 1915, it was reduced to 12.5 per cent.—a splendid showing. Within the last few weeks, Lynch⁸ informs us that the mortality for his and Tuttle's cases was 16 per cent.

The proportion of cases judged suitable for operation, the operability in other words, has been steadily rising in that great center of surgical activity, the Mayo Clinic. From 1910 to 1913, it was 51 per cent., and in the period from 1913 to 1915 it was raised to 71.8, though, as just stated, the operative mortality fell from 17.8 to 12.5 per cent. Even so experienced a surgeon in rectal surgery as Mr. Cripps⁹ performed excision in only 108 cases of 445, or 25 per cent., 151 patients being subjected to colostomy, and 115 to palliative operations. In Tuttle and Lynch's experience during nineteen years, 153 out of 491 cases were deemed inoperable.

Extension of the cancerous process to the contiguous structures was, until recently, held to place the case in the inoperable class, but this no longer holds good for the Mayos. In six cases total hysterectomy was performed. In six more, a part of the posterior vesical wall was resected. The similar wall of the vagina was removed in twelve, and the whole of the prostate, or part only, with one or both seminal vesicles was removed in two, while on five occasions, one or more loops of small bowel as well were resected. As long ago as 1905, Mackenrodt¹⁰ showed that the parametrium and vagina are often invaded, and he excised them with the uterus itself, when necessary.

Not long ago, a three-year survival following operation for malignant disease was looked on as a suc-



Fig. 1.—Photograph of specimen removed by author. Cancer mass in anorectal region. Circular dot shows metastatic lymph node 10½ inches above anus.

* Read before the Section on Gastro-Enterology and Proctology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Morson, A. C.: Brit. Jour. Surg., 1914-1915, **2**, 354-363.

2. Radium Institute of London, Annual Reports, 1913-1917.

3. Burrows and Luyton: Arch. Radiol. and Electrotherap., 1917.

4. Janeway, H. H.: Radium Therapy in Cancer, New York, 1917.

5. Mummery, P. L.: Lancet, London, 1911, **2**, 1821; Ibid., 1913, **1**, 719.

6. Hartmann, Henri: Presse méd., 1909, **17**, 929; Jour. de chir., 1913, **11**, 693.

7. Mayo, W. J.: Ann. Surg., 1916, **64**, 304.

8. Lynch, J. M.: Ann. Surg., 1918, **67**, 504.

9. Cripps, Harrison: Brit. Med. Jour., 1912, **2**, 843.

10. Mackenrodt, W.: Ztschr. f. Geburtsh. u. Gynäk., 1905, **54**, 514.

cessful result. Of course, this is no longer deemed a "cure," and even the three-year survivals in cancer of the rectum are not especially notable from a numerical standpoint. I have collected 966 records of operations, 218 of these being three-year survivals. In addition to those of Tuttle and Lynch, they are from the clinics of Roux,¹¹ Kocher,¹² von Eiselsberg,¹³ and Hochenegg respectively. At the Mayo Clinic, of 364 patients, 37.8 per cent. lived three years or more, and 35.8 per cent., five years or more.

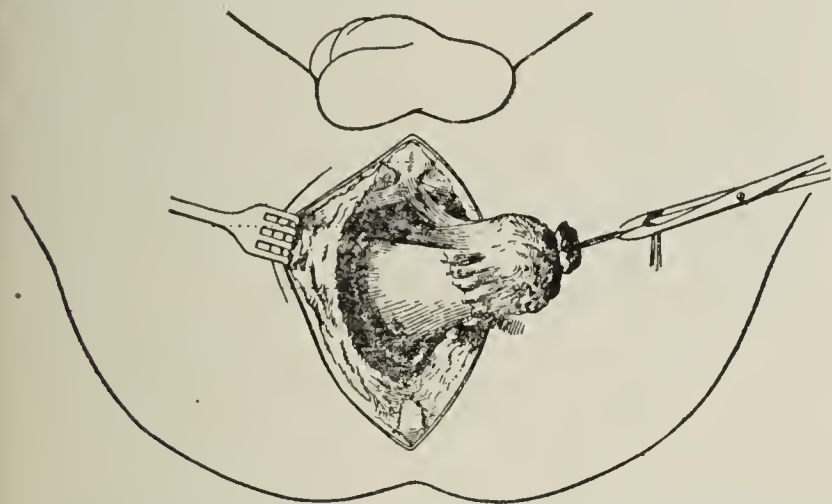


Fig. 2.—Removal of rectum by perineal route, showing impossibility of getting high enough up to reach lymph nodes (Quénu and Hartmann). The middle fasciculi of the levator have been divided, exposing the lateral surface of rectum, and in front the anterior fasciculi of the levator.

TYPE OF OPERATIONS

The perineal operation of Lisfranc (1826) now nearly a century old, strange as it may seem, occasionally furnished results as good as those obtained by more extensive procedures. Thus the late Mr. Dent¹⁴ of London, Nov. 9, 1882, operated on a man, aged 52, by the perineal route. The nodes were removed from the ischio-rectal fossa, the anus being left. The bowel could not be pulled down. As a result, there was good control of solid feces and partial of fluid feces. Jan. 29, 1904, the man was readmitted. The anus, which appeared perfectly healthy, was represented by a funnel-shaped depression. The point of union of the divided intestine was a sphincter-like constriction which admitted the index rather easily. Evidences were present of metastases to the liver, and the patient died, April 25.

Of fifty-eight operations done by Miles¹⁵ there was recurrence in fifty-five, and other things being equal, this route should be restricted for epitheliomas limited to the anal region.

Notwithstanding the unfavorable opinion respecting it entertained by many authors, Kraske's plan of sacral resection, judging by the figures from Hochenegg's clinic furnished by Bacharach,¹⁶ gives good results, namely, about 320 operations, with an operative mortality of 13.7 per cent. In 1,244 cases collected by Lusk¹⁷ from fourteen different continental clinics, the operative mortality varied from 6.4 (Poppert) to 32 per cent. (von Bergmann, Schede and Rotter, respectively).

Nevertheless, the method of choice is the combined or abdominoperineal route, which alone affords free

access and enables the surgeon to go well beyond the tumor mass, excising it with any extension to the regional nodes, and allowing the arteries to be ligated at a point where there is no danger of gangrene.

In regard to metastases, in the enormous number of necropsies on carcinoma in various parts of the body tabulated by the lamented Murphy,¹⁸ that is, 10,310, nearly 20 per cent. (or 19.7 to be exact) had no metastases. The proportion for the rectum separately was about the same (22.2 per cent). This accords with the usual experience that the types of cancer involving the rectum and anus—squamous and columnar-celled—frequently end fatally without any evidence of metastatic deposits.

Last year, Symmers¹⁹ studied a series of 298 metastases found in 5,155 necropsies at Bellevue Hospital in a decade, and observed that of the twenty-eight examples of carcinoma in the lower intestinal tract, no less than 15, or 53.5 per cent., were free from secondary growths. A striking contrast to the high degree of malignancy attending tumors of the upper bowel and stomach.

I have collected 997 necropsies on cancer of the rectum, and in about one third (324 cases) the regional nodes were affected. They would be beyond reach, as a rule, by the perineal or Kraske operations.

ABDOMINOPERINEAL OPERATION

To prevent cancerous material being forced into and along the lymphatics at the time of operation, it is a well recognized procedure in cancer of the mamma, for example, to begin the dissection from above and work down against the lymph current; and the same should hold good in excision of the rectum. Obviously this can be done only by the abdominoperineal route.

In regard to the distribution of the lymph vessels, for the present purpose and without going into detail this may be stated as ending in the inguinal nodes for

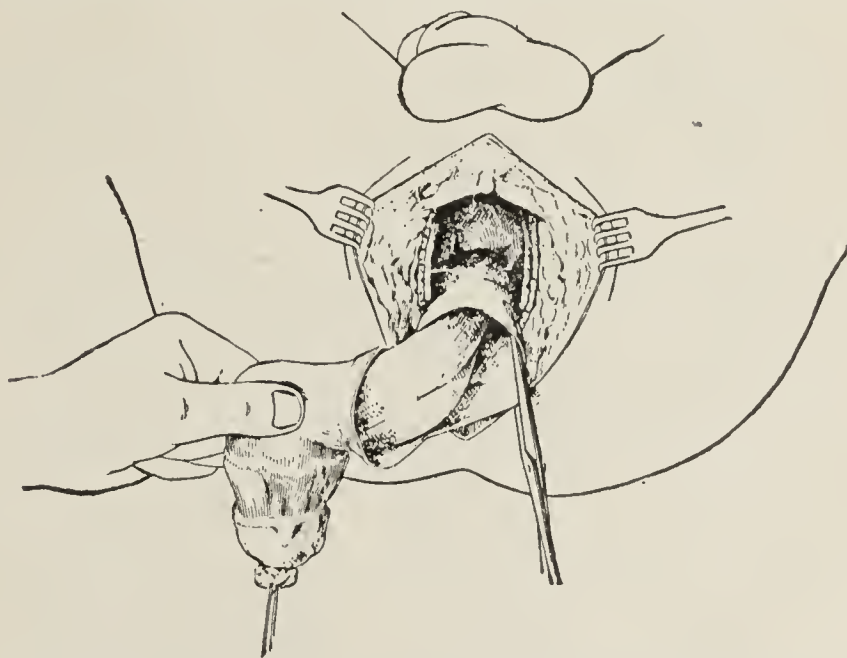


Fig. 3.—Same as Figure 2 (Quénu and Hartmann). Between the forceps and the wall of the rectum, which has been pulled to the right, is seen the left layer of the mesosigmoid forming a triangle, the anterior base of which is a free border.

the perianal collectors, and in the nodes of the mesosigmoid for the collectors from the rectum proper. Here again the latter would be out of reach in many instances if sought for by the "low" operation.

A frequent cause of death following operations by the perineal or sacral method is gangrene of the bowel,

11. Vuichoud, R. (Roux's Clinic): Thèse de Lausanne, quoted in *Jour. de chir.*, May, 1914, p. 649.

12. DuPan, Martin (Kocher's Clinic): *Rev. de chir.*, July, August, September, October, 1906, pp. 135, 258, 405, 489.

13. Korbl, H. (von Eiselsberg's Clinic): *Arch. f. klin. Chir.*, 1913, 101, 449.

14. Dent, C. T.: *Lancet*, London, 1904, 2, 596.

15. Miles, W. E.: *Glasgow Med. Jour.*, 1912, 77, 81.

16. Bacharach: *Jour. de chir.*, October, 1908 (Appendix, p. 21).

17. Lusk, W. C.: *Surg., Gynec. and Obst.*, 1908, 7, 119.

18. Murphy, J. B.: *General Surgery* (Practical Medicine Series), Chicago, 1916, p. 169.

19. Symmers, Douglas: *Am. Jour. Med. Sc.*, 1917, 154, 225.

either partial or complete. This is due to the fact that the superior hemorrhoidal arteries are end-arteries as shown by Sudeck²⁰ in 1907 and corroborated by Hartmann⁶ in 1909. The "critical point" of the former is at the junction of the superior hemorrhoidal with the lowest large anastomotic branch. When ligation is performed below this point, gangrene will probably follow, since the bowel does not receive adequate nourishment. Moreover, to get sufficiently high up to deal with this junction, one must go in from above. Hence, Sudeck suggested an intervention in two stages: 1. Through a laparotomy incision, the superior hemorrhoidal is ligated high up, and at the same time the bowel is partially loosened. Then, 2, the resection is completed by way of the perineum.

On two occasions, Hartmann, after bringing the bowel down through a perineal operation, found that gangrene had ensued; and in several others, while there was an apparently perfect operative cure, recurrence took place in the pelvic cellular tissue, although the

mesenteric had no effect on the circulation of the rectum, provided it was done between its origin and the last important collateral, which comes off two-fifths or three-fifths inch below the sacral promontory. 2. Ligation of the inferior mesenteric below this lowest collateral leads to almost complete suppression of the blood supply to the rectum and to the rectosigmoid junction. This suppression is all the more complete in that, during perineal amputation, the inferior portion of the bowel, being isolated from its peripheral connections, the branches of the middle hemorrhoidal as well are severed. 3. Ligation of the superior hemorrhoidal, right and left, shuts off the circulation in the corresponding sides of the bowel. After ligating above the last anastomotic arch, it is important to tie both ends of the vessel. By neglecting this precaution, Hartmann lost a case from hemorrhage at the lower end.

Hartmann's experience leads him to corroborate Sudeck's advice to perform a two-stage operation.

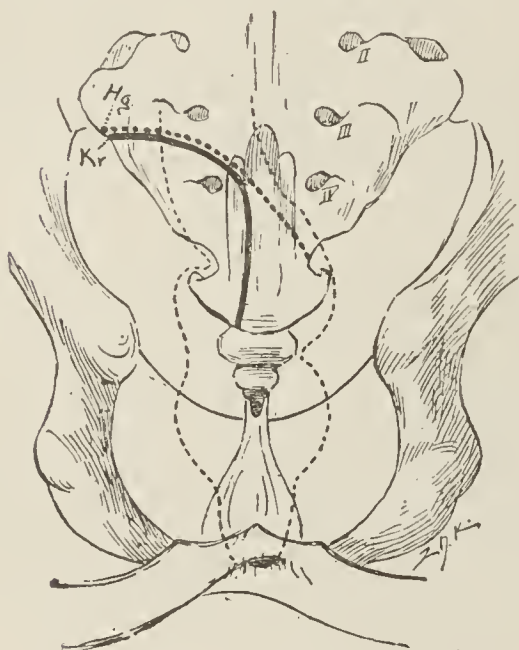


Fig. 4.—Portions of bone removed in Kraske method; also showing impossibility of getting high enough up to reach nodes (Quénu and Hartmann). Continuous line, Kraske's line for dividing bone; dotted line, Hochenegg's line.

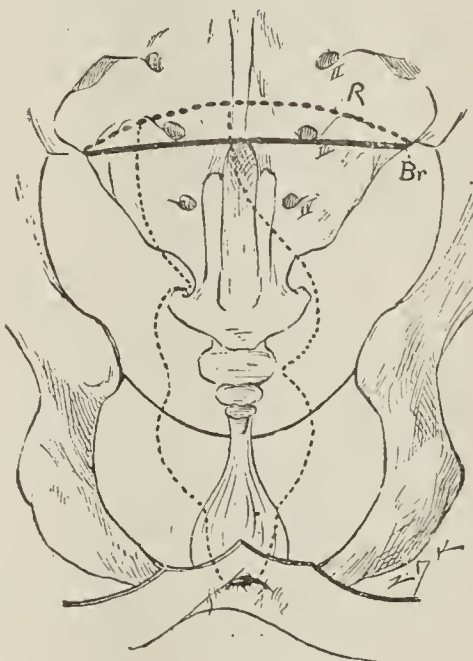


Fig. 5.—Same as Figure 4 (Quénu and Hartmann). Continuous line, Bardenheuer's line for dividing bone; dotted line, Rose's line.

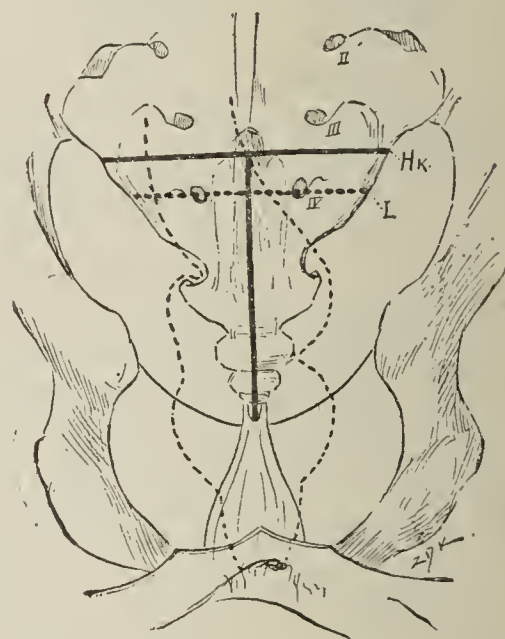


Fig. 6.—Same as Figures 4 and 5 (Quénu and Hartmann). Continuous line, Heinecke's line for dividing bone; dotted line, Levy's line.

mucosa itself remained free. Both the former instances concerned patients in whom it was necessary to divide the hemorrhoidal vessels rather high up, either because the carcinoma involved the upper ampulla, or because the tumor, though low down, had infiltrated the mesosigmoid. In such cases, he observed, once the rectovesical pouch is opened, it is not rare to find the rectosigmoid junction presenting and easily pulled down, while the rectum itself, and particularly its ampulla, remains fixed, held solidly by the superior hemorrhoidal arteries, which come down from the aorta almost in a straight line. Therefore these vessels must be divided in order to bring the rectum down, and while this enables the bowel to be pulled out, gangrene is apt to follow. This complication is readily understood by a study of the vascular relations. In other portions of the bowel, the arterial supply is by a series of anastomosing arches, while in the terminal portion, the hemorrhoidal arteries descend without giving off any anastomoses.

This arrangement is shown by a series of injections carried out by de Dieterichs under Hartmann's direction. The former found: 1. Ligation of the inferior

In the first, in addition to ligating the vessels, one is able to clean out the presacral tissues, lymph nodes, etc., which may be invaded by the cancerous process. The second-stage is excision through the perineum.

It seems to me no better argument for the combined operation may be made than the two cases referred to by Cole²¹: In one there was a deposit in the pericolic connective tissues 3 inches above the margin of the rectal growth, and he points out that if the latter had been excised together with one inch of normal bowel above, the line of incision would have passed close to the other deposit. In the other, a malignant ulcer was present on the posterior wall, and though small (0.75 inch wide), microscopic examination showed it had involved the whole thickness of the wall and spread freely into the connective tissue and nodes of the mesocolon.

Another argument for the abdominoperineal method is that the growth in the rectum may be secondary to one higher up, and the latter escape detection. Cole also narrates an example of this. At a laparotomy, the pelvic colon was found adherent to the anterior wall of the rectum at the bottom of Douglas'

20. Sudeck, P.: München. med. Wehnschr., 1907, 54, 1314.

21. Cole, P. P.: Brit. Med. Jour., 1913, 1, 431.

culdesac. It was thought unsafe to separate the uterus, so this organ as well was removed. Some 12 inches of bowel were excised and two growths found present, though only one had been diagnosed; both were in the bowel wall at the site of adhesions. The upper in the pelvic colon, of the whipcord type, had completely encircled the intestine, producing the symptoms of obstruction for which the patient sought advice. The lower growth in the rectum was a carcinomatous ulcer, affecting the anterior and left lateral walls. Cole found it difficult to escape the conclusion that the upper mass was the older, and that the lower one arose from contact.

Another reason for adopting the combined method is that the growth in the rectum may be secondary to one higher up, a "graft," in other words. This variety generally follows a tumor in the stomach, though it may also be due to one in the ovary, gall-bladder, or the intestines, especially the larger one (Oehler²²). Out of 463 cases, secondary nodules were found in the rectum in fifteen. In six isolated nodules above the growth, five below the mass, and in four multiple secondary nodules (Colwell and Woodman²³) were found. Laparotomy allows search for the other one to be made.

Attention may be here drawn to some interesting findings some years ago, of Ryall²⁴ and Moullin.²⁵ The former, who is surgeon to the London Cancer Hospital, reported twenty-five examples of what he calls "infection" of operative scars after cancer operations; these involved all parts of the body. I have time, however, to quote only one or two:

In a woman, aged 32, an exploratory operation was done for cancer of the upper rectum, which proved inoperable. Some time later she was readmitted and colostomy done. At this time, it was noted that a series of nodules were present in the laparotomy scar, and they all appeared to have arisen in the site of the sutures. A similar case is narrated in a woman, aged 26, with cancer of the sigmoid.

Ryall states:

Cancerous infection of wounds during operation is a real and exceedingly grave danger, and one which I regard of the utmost importance. Moreover, it is a danger that cannot be too carefully guarded against, and any failure to avoid it has an important bearing on cancer recurrence.

The following year, Moullin recorded a most interesting case from this standpoint:

In a man, aged 48, at operation for pyloric cancer, some disseminated nodules were found scattered over the gastric serosa. Gastro-enterostomy was done. Six months later, there was a double row of cancer nodules on either side of the laparotomy wound. Two rows of sutures had been inserted, one interrupted, of stout catgut, passing through all the layers of the wall, except the skin; the other continuous, of

fine gut, through skin only. Practically all the former points, though none of the continuous ones, were infected. It was evident cancer cells from the peritoneal cavity had invaded the wall wherever the parietal peritoneum had been pierced by a suture. The stitches had not carried the cancer germs in, for they had never been near the growth. But either by perforating the serous layer or by acting as irritants, they had helped the development of the invading germs to such an extent that each suture point had become a cancerous nodule. The immediate source of the infection, Moullin thought, was in all probability the nodules on the serosa, which were constantly rubbing against the anterior wall. The line of the laparotomy incision seemed intact between the two rows of nodules.

The same explanation holds good for cases in which cancer recurs at suture points in cancer of the mamma. Moullin points out that the cancer germs are not carried in by the needle or suture, but they are more widely distributed in the surrounding tissues than is apparent at the time, and only develop or perhaps develop first at those points where the resistance of the tissues is lowered by the presence of an irritant, such as a suture.

If, as our author believes, the germs are more widely distributed than seems to be the case, is not this additional argument for a wide excision, which can best be done with a free exposure of the parts, such as is only to be had by abdominal section?

CONCLUSION

I would repeat the suggestion I made several years ago, in a paper read before the American Proctologic Society,²⁶ which I believe still holds good. First of all, every person who has reached the so-called "cancerous age" should be examined periodically for evidence of commencing carcinoma, not necessarily of the rectum alone, but, in women for example, of the uterus and mamma also. Neither the patient nor the practitioner should allow his interest in these periodic examinations to slacken. In my paper, I refer to an instance in which such examinations were made at regular intervals after excision of a mammary carcinoma, and eighteen years elapsed before the search was rewarded by discovery of a recurrence in the scar.

The responsibility of the family physician is great, for he is usually the first one to be consulted. He must not content himself with a perfunctory diagnosis of "piles" without even inspecting the the anal region, and an equally perfunctory prescription of ointments.

Jones²⁷ states that of the patients entering the Massachusetts General Hospital with cancer of the rectum, 75 per cent. had been treated for a longer or shorter time for "hemorrhoid," and the remainder for

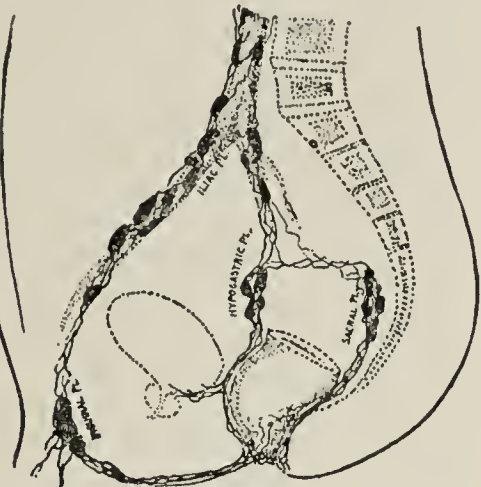


Fig. 7.—Lymphatics of rectum (Barnes). The lymphatics, as a rule, flow in the direction of the blood vessels. An exception is found in the lymphatics around the anus, which flow into the inguinal nodes.

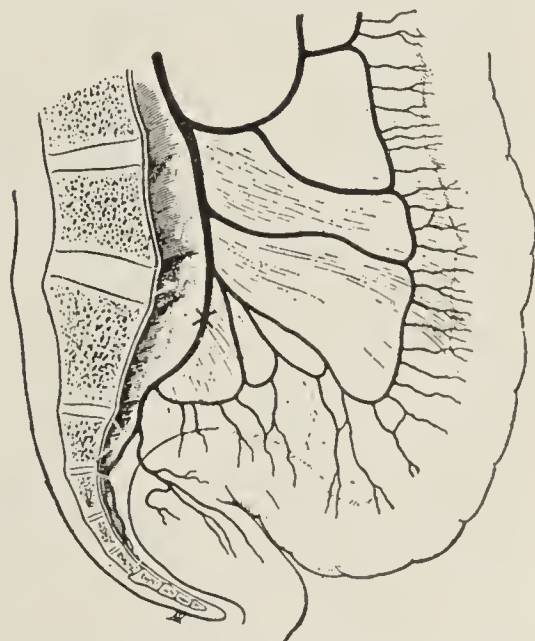


Fig. 8.—Blood supply of the mesosigmoid (Hartmann). The cross shows the location of the "critical point."

22. Oehler, J.: Beitr. z. klin. Chir., 1913, **87**, 593.

23. Colwell and Woodman: Arch. Middlesex Hosp., 1905, **56**, 141.

24. Ryall, Charles: Lancet, London, 1907, **2**, 1311.

25. Moullin C. W. M.: Lancet, London, 1908, **1**, 285.

26. Pennington, J. R.: Tr. Am. Proctol. Soc., 1908, p. 101.

27. Jones, D. F.: A Two-Stage Combined Abdominal-Sacral Operation for Carcinoma of the Rectum, THE JOURNAL A. M. A., Aug. 23, 1915, p. 757.

"diarrhea." Instead, the bowel must be inspected through the proctoscope. This calls for possession of the necessary armamentarium, and in turn the skill to interpret appearances visible through the instrument. In case of doubt, life should not be jeopardized by a procrastinating policy, but advantage taken of consultation with the specialist.

It has been shown of late years that a large proportion of malignant growths originate in scar tissue. Patients with rectal cancer often give a history of previous operations on the bowel. Does the cancer occur in the cicatricial tissue left from an operation done by one of the usual methods—ligature, clamp and cautery, or some other technic leaving much scar tissue, and sometimes stricture? May it not be occasionally grafted on the scar remaining after the common incision plan of operating for fistula? I have recently had such a case. All proctologists have seen large and ugly scars from time to time following this method. Here is a suggestion to be followed: Secure a smooth healing by resorting only to such procedures as leave a minimum of cicatricial tissue, and consequently the least possible nidus for future mischief.

ABSTRACT OF DISCUSSION

DR. DWIGHT HENDERSON MURRAY, Syracuse, N. Y.: I hope that when Dr. Pennington sums up he will tell us what determines the operability of a cancer, and at what point in the life of it, or what part of the extension of it. In my opinion, it is very difficult, even with the microscope and a good pathologist, to tell just where cancer tissue ends and normal tissue begins. Even beyond the point in the tissues where the microscope shows that changes have taken place, the tissues have really changed, and the microscope will not show it. My own experience forces me to the conclusion that in the majority of rectal cancer patients, if we will do a colostomy it will be a greater kindness to the patient than to try to extirpate the cancer by operation. The majority of these patients will live about as long as the operated ones.

DR. WILLIAM M. BEACH, Pittsburgh: It is exceedingly hard to believe many of the reports of end results in cancer of the rectum. The end results of my cases, and I have had over a hundred in the last ten years, is death. In the cases in which I operated, the longest period of life following operation was three years; and yet, while I am rather pessimistic of end results, I feel that there are certain cases in which we should intervene operatively. Now what are one or two of the signs that will lead us to select a case for operation? One is the hemoglobin percentage. If the patient has 45 or 50 per cent. hemoglobin, do not operate; if the hemoglobin percentage is nearly normal, 70 or 80 per cent., it offers a fair chance of success. The next point that will guide us in the selection of an operative case is the location of the neoplasm. If it is located low down, it offers the best chance for operation; if it is located in the loop of the sigmoid, it offers a fair chance. In operating in such a case we should resort to anociassociation. Many of these patients die from shock. Anociassociation helps wonderfully in tiding the patient over the crisis of the operation. Cure of cancer of the rectum, as spoken of by men who report cures, I believe, is a relative term. Very often they do not state the length of time the patient lives. If there is no recurrence, say after a year, it is reported cured. A surgeon near my city reported a case of absolute cure of cancer of the rectum, and it was cited far and wide. The patient was said to have lived out his natural life. I asked the surgeon whether he was sure of his diagnosis and he admitted that he was not. I believe that it was a case of syphilitic stricture. So that in reporting these optimistic results, the diagnosis should be positive. I operate on some of these patients, for I believe that if you can give a patient one year or two years or three years of life, that is much more comfortable than if you do not intervene. I never cured a case, and I never heard of anybody else that

did. I agree with Dr. Murray, that we should do the more rational thing, a colostomy, and then, if possible, apply radium. In a number of cases I tried following up a colostomy with radium. One patient is still living, after two years. He is not cured. Radium could readily be applied because the lumen of the rectum was not interfered with much. It was full of cancer nodules, and the radium is simply inhibiting the process of the growth. These patients are all anemic, and for that reason the powers of resistance are very low; hence a great deal of shock is connected with the operation.

DR. CHARLES J. DRUECK, Chicago: Dr. Pennington deserves a great deal of credit for teaching patients to come to us in the precancer stage, yet I have not seen any results from his efforts. Most all of these patients come when the cancer is well advanced. Such patients must have something done for them. In a case of almost complete obstruction I made an abdominal anus, and the patient is still living, a year and a half or more after operation. He is in very good physical condition. Although these patients come to us when they are anemic, still, after the abdominal anus is made, it is sometimes surprising how they will rebound. They regain almost, if not quite, all their former vigor. In the second stage of the combined abdominoperineal operation, when we do the perineal work, I think we are inclined to be urged by the patient to do the perineal section too soon. I have one case in which the combined operation was done, and the patient is alive, without any recurrence, over two years after operation. If we can tide these patients over and not submit to the second stage of the operation until they have rebounded as much as they are going to, I think we can get better results from our perineal work.

DR. GEORGE E. PFAHLER, Philadelphia: It has been shown that you can get a great deal of information in diagnosis, actual demonstration of the disease and locating the extent of it, by a careful roentgen study. Dr. Pennington dismissed the subject of roentgen therapy and radium therapy by mere mention. Now he is probably justified in doing that if it is a question of replacing the operation by the roentgen therapy or radium therapy, but there is no reason why all three cannot be used, or why they should not be used in every case. Operate if you can. Do all you can by operation. Use radium locally, and use deep roentgen therapy through the whole field of glandular extension that is likely to be involved, and I am sure that you will improve the results. Statistically, no one can say just how much can be done, because there have not been a sufficient number of these cases treated. I have treated only a few, because only a few cases have been left to me for postoperative treatment. Why this is I do not know. Those that have been left have given encouraging results generally, and the patients that have been left to me for treatment are those far beyond any operation. While I have obtained some improvement, some palliation even, in those cases, I have never had a patient I considered well. I have seen many convincing results of the disappearance of recurrent cancer. If you will just combine this additional force to what you are doing by surgery, and then introduce radium against the growth, thoroughly filtered, especially by the nonmetallic substance, and then use cross-fire deep roentgen therapy, I am sure you will accomplish more than in any other way.

DR. J. RAWSON PENNINGTON, Chicago: Formerly I used the roentgen ray in the treatment of cancer of the rectum. For the first few days the patients seemed to be greatly benefited, but later the disease appeared to advance more rapidly than if I had not used it. However, our knowledge of this agent today is in advance of what it was years ago. Concerning Dr. Murray's query, I cited the statistics of the Mayo Clinic. Do not think I am overoptimistic about curing cancer of the rectum. I am not; but one thing is very certain—if in 22 per cent. of the cases of cancer of the rectum the tumor is a local disease, we should cure a larger percentage than we do. The method of procedure has much to do with the end results. Among the various operations for cancer of the rectum, the radical abdominoperineal operation with left inguinal colostomy is the one most likely to eradicate the disease. It cannot be denied that by this procedure the

operator has the best opportunity to circumvent the disease, and is less likely to squeeze the infected material into the surrounding tissues.

DR. DWIGHT HENDERSON MURRAY, Syracuse: Dr. Pennington did not answer my question. I want to know what the physical findings are, and what the condition of the parts is that will show when a case is operable, and when it is not. I do not care anything about the statistics. A certain number of patients are operated on and a certain number are not, but when you examine a case, on what do you base your decision of operability?

DR. PENNINGTON: That question is decided on the physical findings. If the patient is very anemic, past 70 years of age, has much albumin in the urine, nodules in the liver, and other evidences of metastases, or if the condition of his heart is such as to question the advisability of giving an anesthetic, advise against an operation. If his condition is good, he is under 70, with little or no albumin in the urine, no recognized evidences of general spread or glandular enlargement, and the condition of the heart fairly good, operate.

DR. MURRAY: Suppose ten or even twenty out of a hundred get "well" for two or three years, as a result of operation, and that thirty out of a hundred die a year and a half or two years earlier because of the operation, what about that? How much is to be gained as the result of the operation?

DR. PENNINGTON: No man knows, nor can he foretell, the natural termination of human life.

TREATMENT OF COLON BACILLUS INFECTIONS OF KIDNEY AND BLADDER

BY SURGICAL MEASURES APPLIED TO THE
ASCENDING COLON *

GRANVILLE MacGOWAN, M.D.
LOS ANGELES

My frequent observation has been that colon bacillus infections of the kidneys and the bladder persisting and unyielding to treatment are invariably due to colonic stasis of the fecal current. This interruption is usually in the cecum and is due to adhesions of this organ to the surrounding structures immobilizing it. From the chronic stasis thereby induced, a constant supply of colon bacilli enter the circulation through the lymphatics in the kidney capsule or by the blood stream and primarily infect the kidney pelves on their way out, if there is any interruption to the free exit of urine, either in the ureters, at the neck of the bladder, or in the urethra. Once the infection is established, it is practically incurable until a normal condition in the large intestine or one approximately normal is restored by surgical measures.

REPORT OF CASES

CASE 1.—G. J., aged 46, railway engineer, Sept. 18, 1916, complained of prostatic trouble. Urine freshly passed into a sterile glass contained many motile bacilli and much pus. Material massaged from the prostate did not contain any pus or residual urine. The image of the bladder neck was normal. There were a few recent hemorrhagic spots on the superior bladder wall and two on the right lower wall, probably made by my assistant with the catheter. There was a mild cystitis of the bladder base. Polypi were visible in the posterior urethra. The patient gave a history of sexual strain. His condition was thought to be chargeable to these polypi, and they were removed in several sittings, with the electric cautery and silver nitrate fused on a probe. The bladder was irrigated daily with mixed potassium permanganate and silver nitrate solution.

October 5, the urine having become clear, the patient went back to work, but on the 18th of the same month, he came again with his urine very cloudy with pus and colon bacilli, and complained of slight pain in the right costovertebral triangle. He was treated in the same manner until November 20, when the urine was again perfectly clear and the prostate normal. He was then sent away, but returned, Jan. 4, 1917, complaining of pain in both sides in the neighborhood of the kidneys and with the urine loaded with colon bacilli and containing many pus corpuscles. Cystoscopy was again performed and the right ureter catheterized. This urine contained many colon bacilli, no pus, a few blood corpuscles and many epithelial cells, both small and large, some with fatty degeneration. Six c.c. of thorium solution were introduced and a pyelogram taken which was negative as to stone or to deformity of the kidney pelvis. On the 7th, the urine was macroscopically clear, but on the 8th, after a long automobile ride, it contained much pus and clouds of colon bacilli. On the 27th, the urine was clear again, and as the patient was feeling excellent he was sent back to work. In the interval between January 4 and January 27, he had pelvic lavage and treatment for the bladder and prostate with all the usual means for combating colon bacilli, including vaccines and the various balsams. I determined that if the disease recurred I would examine the intestine by the roentgen ray. When the patient returned, February 27, this was done. The plates showed intestinal stasis about the appendix and cecum, and the screen showed this part of the intestine to be immovable, containing barium more than forty-eight hours after ingestion of the meal.

March 30, after the bowels had been well emptied with castor oil and black draft for several days, Dr. Henry Howard and I performed a laparotomy. We found the omentum adherent to the top of the bladder, and also, in two places, to the anterior abdominal wall; the cecum was bound to the ileum and the side wall of the abdomen and doubled over in such a manner as to adhere to the ascending and transverse colon. The appendix was atrophied but unusually long and with its apex adherent to the liver; it was removed and the adhesions broken up. As much of the raw surface as was possible was covered with peritoneum and omental patches. About three weeks after his operation, the patient had great showers of calcium phosphate, followed by one of urates, mixed with indigo, which could be seen as a dark powder in the urine, the urate crystals were very abundant and sparkled like topazes when the urine stood in the sunlight.

Before he had entirely convalesced from his operation, the colon bacillus infection had disappeared from the urine and it has never returned. The chronic constipation has never been entirely corrected, but by the use of oxgall tablets and agar agar, he has been able to prevent stasis, and on the few occasions when he has been constipated there has been no return of the bacilluria.

CASE 2.—A. M., man, aged 47, came to me in March, 1915, complaining of uneasiness over the bladder. He had been treated for "uric acid" at Vichy, in France, and for stricture in Paris twelve years before. He had a residual of 10 c.c. with some blood in the urine. His trouble was attributed to stricture, as cystoscopic examination failed to reveal any lesions in the bladder. It was noticed that he had colon bacilli in the urine, but their presence was naturally attributed to the stricture. The urethra was dilated until we could pass a No. 28 Charrière sound without difficulty. The uneasiness over the bladder still remained and he still had bacteriuria.

A second cystoscopic examination, made with the Garringer instrument, showed that he had a posterior transverse bar just inside the bladder neck, and a small glandular prostatic tumor on the right side just outside the bladder neck; the bar was removed through a suprapubic incision by Young's punch, and the tumor by enucleation, July 9, 1915. Recovery was perfect. In September, however, he was still complaining of the uneasy feeling over the pubes, and he still had colon bacilli in the urine, together with great frequency. In December the urine continued cloudy, and the patient was again showing signs of slight but steadily increasing

* Read before the Section on Genito-Urinary Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

residual urine. In the meantime I had noticed distortion of the image of the neck on the left side of the bladder with the appearance of a tumor of the prostate on this side.

Under daily treatments with local antiseptics, phenol (carbolic acid), 1 per cent. in boric acid solution, and silver nitrate solutions and the use of the Kollman dilator, in February, 1917, there was no residual urine, but the urine still contained pus and swarmed with colon bacilli, and this condition continued steadily. In January, 1917, I began to place importance on the fact that the man was chronically constipated. Ureteral catheterizations showed that he had colon bacillus bacteriuria in the pelvis of both kidneys. I had the intestine examined with the roentgen ray and found that there was a stasis in the ascending colon with an old adhered appendix apparently attached to the top of the bladder. April 5, 1917, Dr. Rea Smith and I performed a laparotomy. We found the ascending colon twisted on itself. The deformity appeared to be prenatal more than inflammatory, but it was adherent to the transverse colon and to the omentum, almost its entire length. We broke up the adhesions, straightened out the intestine, and patched the raw places with mobilized omentum.

Recovery was very slow but complete, and on May 5 the patient was having natural bowel movements, a thing he had not had since boyhood. The urine was still full of colon bacilli. May 8, I performed a perineal prostatectomy and removed the growth on the left side, which I had suspected to be cancerous because of its rapid development after the suprapubic operation, and straightened out an adhered verumontanum. Thus I took away the nest from which the infection started and removed the obstruction to the exit of urine, which kept up the infection, and brought the man into a condition in which a cure could take place.

The result is that today he has no longer any uneasy feeling over the bladder, he lies in comfort all night, the urine is perfectly clear and free of colon bacilli, he passes it naturally, he has bowel passages without the use of laxatives, and he is to all appearances a perfectly normal and well person.

EPIDEMIC PNEUMONIA (SPANISH INFLUENZA) IN PREGNANCY

EFFECT IN ONE HUNDRED AND ONE CASES

WESLEY J. WOOLSTON, M.D.

Attending Gynecologist, Cook County and Wesley Hospitals; Assistant Professor of Gynecology and Surgery, University of Illinois College of Medicine

AND

D. O. CONLEY, A.B., M.D.

Resident Physician, Cook County Hospital

CHICAGO

During the recent epidemic of pneumonia, or so-called Spanish influenza, 2,154 patients were admitted to Cook County Hospital between Sept. 18 and Nov. 5, 1918. Of this number, 101 were pregnant women.

Of these 101 cases of pneumonia, complicated by pregnancy, fifty-two died, giving a mortality of 51.4 per cent., as compared with a mortality of 719, or 33.3 per cent., of the 2,154 patients admitted to the general hospital. This shows a relatively higher death rate by 18.1 per cent. in the pregnant women. These apparently high percentages of mortality may be explained in part by the condition of the average patient on entrance to this hospital.

The Cook County Hospital received by far the largest majority of the patients during this epidemic, all of whom were from the poorer classes of the population. The patients were all extremely ill on entrance, many dying in ambulances on the way to the hospital,

many in the examining room, and others while on the way to the wards. Of the fifty-two deaths occurring in the pregnant women observed, 53 per cent. died within the first twenty-four hours and 73 per cent. in the first forty-eight hours after admission.

Of the fifty-two deaths, in thirty-nine, or 75 per cent., an interruption of pregnancy occurred, and in a great majority of these cases this occurred within twenty-four hours preceding death. These figures include abortions, premature labor and labor at or about term. Interruption of pregnancy occurred with equal frequency, irrespective of the month of gestation.

Thirteen, or 25 per cent. of the patients remained pregnant at death, and practically all of these were in the fifth to seventh month of pregnancy. Seven of these were in the seventh month, three in the sixth month, two in the fifth month, and one in the third month of pregnancy.

Of the forty-nine patients discharged, twenty-one, or 42.7 per cent., aborted or went into labor prematurely. The remainder of these were pregnant at the time of discharge.

The cause of this frequency of interruption of pregnancy is uncertain. The fact that by far the greatest majority of abortions or premature labors occurred within twenty-four hours after death, at which time the patients were extremely toxic, would lead one to assume that probably this condition, associated perhaps with the lack of proper oxygenation of the fetal blood, was responsible for this frequency. The cough, which was a constant feature in these cases, undoubtedly played a part in the interruption of the pregnancy. The exertion incident to abortion or labor also tended to exert a harmful influence on the mother.

The most prominent feature noted during the clinical course of the disease was the apparent ease of abortion or premature labor, its rapidity and the apparent lack of pain incident to it. The mental state of the patient due to the toxemia may possibly have accounted for the freedom from pain. In term labors, the duration seemed to be no longer than that of normal labor.

The bleeding incident to labor, which would be equivalent to venesection (a therapeutic measure suggested when cyanosis appears) did not appear to affect the clinical course of the disease.

Complications were few in this series of cases. One case of empyema of the streptococcic type developed, the contents of the pleural cavity being a reddish-brown fluid. The empyema developed late, as has been characteristic of the cases following this type of pneumonia. Four patients developed suppurative otitis media.

Blood counts revealed the characteristic leukopenia, the degree of leukopenia varying with the severity of infection. The white cell count gradually increased as improvement occurred. Five patients, at the onset, gave a true leukocytosis of from 15,000 to 20,000. All of these patients recovered.

Of the twenty-two babies born, two developed definite symptoms of bronchial pneumonia within from eighteen to twenty-four hours after birth. This short interval after birth would make it difficult to say that infection did not occur in utero. Lung punctures of the stillborn gave negative cultures, however.

CONCLUSIONS

The death rate among pregnant women is materially higher than among nonpregnant women.

The frequency of the interruption of pregnancy in epidemic pneumonia is very high.

Abortion occurs with relative ease and lack of pain. In the majority of cases, death follows within twenty-four hours after emptying of the uterus.

The percentage of recoveries after interruption of pregnancy is small.

THE PROPHYLACTIC VALUE OF
LEARY'S VACCINE

HARRY LEE BARNES, M.D.
WALLUM LAKE, R. I.

As an institution offers unusual advantages for the study of an epidemic and the measures for its control, a record of our experience with influenza vaccine at the state sanatorium may not be without value. The institution had about 225 patients and ninety-four employees. During the last two weeks of September, 1918, four employees and five patients contracted influenza. These patients were all in one ward of the hospital and were apparently infected from a patient who visited Woonsocket. They were isolated in rooms and a cubicle of the ward, and the disease did not spread.

INCIDENCE OF INFLUENZA AMONG VACCINATED AND UNVACCINATED

Wards	Vaccinated			Unvaccinated		
	Number of Persons	Cases of Influenza		Number of Persons	Cases of Influenza	
		Num-ber	Per Cent.		Num-ber	Per Cent.
East.....	32	11	34	26	12	46
West.....	31	6	19	10	3	30
Hospital 1.....	16	0	0	24	1	4
Hospital 2.....	14	1	7	24	0	0
Children.....	32	0	0	1	0	0
Employees.....	27	7	26	28	7	25
Total.....	152	25	16	113	23	20

The four employees were isolated in their rooms. September 29, all patients and employees, with few exceptions, were forbidden to receive visitors or leave the institution. We were free from influenza, which was at the height of the epidemic in the surrounding country, until October 10, when a woman patient admitted on October 9 developed the disease. October 14, a patient who slept near this patient developed influenza. October 22, the first case developed in the men's ward of the sanatorium, and from there the disease spread to the employees, until there had been a total of eighty-two cases, or 25 per cent. of the total population. All of the 114 young adults, including some expatient employees sleeping in the east and west wards, were probably well exposed to the disease and furnish the best opportunity to estimate its morbidity. Counting all cases that occurred before and after vaccination, 45, or 40 per cent., developed influenza. October 22 and the few days succeeding, influenza vaccine furnished through the courtesy of Dr. Timothy Leary of the Tufts Medical School was given to 172 employees and patients. The doses were 400, 800 and 1,200 million at twenty-four hour intervals.

In computing the incidence of the disease for comparison between vaccinated and unvaccinated, no cases were counted that developed before the vaccine was given, and no patient has been counted as vaccinated unless he received the three doses. Before the arrival

of the vaccine, eight cases that terminated fatally had developed.

In estimating the value of the vaccine, it would seem clear that the children should be deducted from the total because they were quarantined and so far as known were not exposed to the disease. If the children are deducted, the influenza incidence was 20 per cent. among both vaccinated and unvaccinated. It would also appear preferable to deduct the two hospital wards which had only one case each which were so promptly isolated that the exposure probably was insufficient to test the vaccine. If these wards are deducted, ninety vaccinated persons furnished twenty-four cases, or an incidence of 26 per cent., while sixty-four unvaccinated persons furnished twenty-two cases, or an incidence of 34 per cent. In twenty-five influenza cases following vaccination, four patients, or 16 per cent., died. In fifty-seven influenza cases among the unvaccinated, the mortality was nine, or 15.8 per cent.

CONCLUSION

The morbidity was only slightly lower among the vaccinated, and the mortality among those who developed influenza was practically the same whether vaccinated or unvaccinated.

Military Medicine and Surgery

THE PANDEMIC IN THE ARMY CAMPS *

GEORGE A SOPER, PH.D., M.D.
Major, S. C., U. S. Army
WASHINGTON, D. C.

The pandemic in the Army camps was a part of the great outburst that swept over the United States in September and October, 1918. This, in turn, was a manifestation of the still larger visitation that was to cover most, if not all, of the world.

As soon as the pandemic appeared, each camp and other station of troops was required to keep the Surgeon-General informed of the appearance and progress of the disease. Daily and weekly telegraphic reports were sent in giving the number of new cases of influenza and pneumonia and other details. Most of the statistical data presented here are taken from these reports.

Were it not for the pulmonary complication which has accompanied it, few would doubt that the disease was influenza. Its epidemic character, its clinical aspects and its bacteriology, so far as they have been studied, all point to that disease. It will consequently be called influenza here.

As to the lung complication, that is a similar matter. Objection has been made to the use of the term "pneumonia" to describe it. As yet no other official designation has been given it. It may or may not be a part of the original disease. Pending further investigation, and since it must be given some name in this report, it will be called pneumonia here.

Had it not been for the pneumonia, the pandemic would not have attracted much attention. Epidemics of so-called "colds" and other respiratory diseases occur every fall, and if the typical influenza of today does not bear a close resemblance to these

* From the Division of Infectious Diseases and Laboratories, Medical Department, U. S. Army.

familiar infections, there have been many cases in which the difference was not discernible. It took the pneumonia with its high mortality to command attention. The pneumonia places this outbreak among the most striking pandemics of modern times.

Excluding the pneumonia, the influenza of September and October seems to be identical with the influenza that visited the Army training camps in the United States last March and April. That it attracted little notice then was due to its mild character.¹ The influenza which until recently has been reported from Europe appears to occupy a position between these two so far as severity is concerned.

Apparently there have been three visitations, or waves, each succeeding one being more severe, more widespread and more fatal than its predecessors. This fact may or may not have significance for the future. It is possible that there will be another wave. There may be one or more. It is equally possible that there will be none. There is no firm ground on which to base a prediction one way or the other. Considering the gravity of the matter, it would be unwise to assume that we are entirely done with the disease.

During the period from Sept. 12 to Nov. 1, 1918, inclusive, there were 306,719 cases of influenza reported among the troops in America. During the same time there were 48,079 cases of pneumonia and 19,429 deaths. The total strength of troops may be taken as one and a half million. Therefore it is approximately correct to say that about one in every five had influenza, that of these about one in six developed pneumonia, and that of the pneumonia patients about two out of five died.

The country as a whole suffered severely but not so greatly in proportion to the population as did the camps. Up to and including October 26, a total of 86,045 deaths from influenza and pneumonia had been reported to the United States Public Health Service. This figure is incomplete, since it includes no report from some states and only partial reports from others; in many states deaths for cities only were included.

In the forty-five principal cities for which statistics are available, 3.24 per thousand are reported to have died. There were 127,654 deaths from all causes. Had there been no epidemic of influenza-pneumonia, it is estimated that there would have been 47,967 deaths. The difference therefore represents the deaths due to the pandemic: 79,687. If this rate prevailed throughout the continental United States, there would have been 341,021 deaths. To this must be added the 19,429 in the camps, making a total of 360,450 deaths. These figures are not estimates—they are not even good guesses; but they serve to show the scale on which the pandemic operated.

I. THE STATISTICAL FACTS

THE OUTBREAK

The first report that a serious epidemic existed in any camp came from Devens, at Ayer, Mass. September 16, the camp sanitary inspector, reporting through the camp surgeon to the Surgeon-General of the Army, announced that an epidemic of so-called

"Spanish influenza" had broken out at Devens as a part of a general epidemic that had attacked Boston and the neighboring states and towns some weeks before.

The Devens epidemic is supposed to have commenced, Sept. 7, 1918, in D Company, Forty-Second Infantry. On that date a case of supposed meningitis was sent to the hospital from this company; on the following day twelve cases were sent for observation. These proved to be influenza. By the 16th, thirty-seven cases had gone from the same company. One death from pneumonia had occurred. Almost simultaneously, other cases appeared in other organizations. By September 12 the total number of patients that had been admitted was 599. The disease spread rapidly, in spite of the measures taken to check it. September 20, the epidemic reached its maximum intensity. On that day, 1,543 new cases were reported as having been admitted to sick report. After reaching this high point the number of new cases rapidly became less, so that by the end of the month there were less than 100 new cases reported per day.

Meanwhile, pneumonia had become a frequent and fatal accompaniment of the influenza. Fifty new cases were reported, September 19, less than two weeks after the influenza had been discovered. The number rapidly increased: September 24, there were 342 new cases. The number each day remained at about 200 for four days; then there was a decrease, until, before the end of the month, forty per day had been reached. By October 6, the incidence had fallen to ten or so a day. Through the rest of the month the number varied between three and seventeen per day. There was no return to large numbers.

TABLE 1.—THE RISE AND FALL OF THE EPIDEMIC AT CAMP DEVENS

	Duration, Days	Cases Influenza	Cases Pneumonia	Deaths
Rise (Sept. 12-19).....	8	3,283	43	16
Peak (Sept. 20-21).....	2	2,722	205	43
Rapid decline (Sept. 22-29)...	8	3,141	1,495	298
Slow decline (Sept. 30-Oct. 18)	19	571	571	310

The Devens outbreak, so far as may be understood from the records at hand, could be divided into four parts, as shown in Table 1. It will be observed that the rise of the epidemic covered a period of about eight days; the peak, two days; the rapid decline, eight days, and the slow decline, nineteen days. Half of the deaths and nearly three quarters of the pneumonia occurred within less than three weeks of the outbreak.

CHARACTERISTICS OF THE TYPICAL EPIDEMIC

The characteristics of the Devens epidemic have been described here because they represent what has occurred at many camps. The earliest cases have often escaped identification. They have sometimes been taken for cases of food poisoning, meningitis or one of the common exanthems. The disease, which is epidemic, bears little resemblance to the coryzas and other respiratory affections to which the term "influenza" has been generally applied for the last twenty years. The so-called influenzas of ordinary times seem to have no relation to the present disease. Yet with a knowledge that influenza was in the vicinity, it is probable that cases of other respiratory infections have often been reported as that disease.

1. A report by the present writer, on an influenza epidemic in the Oglethorpe camps in March, 1918, may be found in abstract in the *Journal of Laboratory and Clinical Medicine*, 1918, 3, 46-49, and the *Military Surgeon*, 1918, 43, 398-402.

The leading symptoms in the typical cases are severe headache, chills or chilliness, pains in the back and legs, temperature sometimes as high as 104, great prostration, and drowsiness. Occasionally there are nervous symptoms; sometimes, but not always, the eyes and the air passages of the nose and throat are affected; there may be gastro-intestinal disturbances. The onset is sudden.

The fact that an epidemic existed in a camp has been generally recognized when the number of new cases has amounted to 100 or more per day. The incidence then increases rapidly. Sometimes the records show a great number of cases at the start, and there are marked fluctuations in the daily incidence as the epidemic continues. Striking irregularities do not represent the way in which the disease occurs, but are to be accounted for by the stress and difficulty with which the returns are collected. The greatest number of new cases reported for any day has often considerably exceeded 1,500 in a camp. At Devens the maximum was 1,543, at Grant, 1,810 and at Custer, 1,764.

The principal camp outbreaks have been charted as a part of the routine work of watching the progress of the pandemic. In making these charts it has been found convenient to mark time along the horizontal scale, giving one fifth of an inch to a day. The daily incidence of cases has been measured vertically, one inch representing 100 cases. So charted there is much similarity among the curves and especially among the members of certain groups of them. The explosive character of the infection is plainly indicated in most, as are the short duration, large incidence and rapid subsidence. The curves are never smooth, but are jagged, with steep inclines between the peaks and valleys. Only in exceptional camps has there been a recurring wave of noteworthy proportions during the course of the epidemic.

In another series of charts, the daily incidence has been plotted as rates, thus making allowance for the changes in strength that have occurred. In a third series the jagged irregularities have been eliminated, and smooth curves trace the rise and fall of the influenza and pneumonia. This has been done for all the camps. These pictures show as clearly as the data permit how the disease has come and gone. The charts furnish an invaluable means of analyzing and comparing the several camp epidemics. They have made plain many instructive facts and have pointed the way to many useful conclusions. But to go into the question of the individual epidemics would carry this discussion beyond its proper bounds.

Stated briefly, the influenza has usually occurred as an explosion, probably showing irregularities in the reporting. The maximum effect has been felt within about ten days after the onset. The duration has been less than three weeks, in most instances.

Within about a week after the outbreak of the influenza, there occurs an ominous prevalence of pneumonia. The pneumonia does not exist as a separate epidemic, but is always a follower of influenza. How the two diseases are related is not positively known. It is clear that the influenza paves the way for the pneumonia, if it does not actually produce it. Most of the pneumonia is of the lobular type and presents various unusual aspects. The time of greatest incidence is usually about a week after the greatest incidence of influenza.

The curves of incidence of pneumonia, when plotted as has already been explained, and with the same scales, are wholly different from those of influenza. The pneumonia does not appear to have been explosive. The curves for the different camps do not resemble one another. One would say that the pneumonia bore no fixed relation whatever to the influenza, except that it followed it.

SPREAD OF THE PANDEMIC

The second camp to report an epidemic, following Devens, was Upton, on Long Island, N. Y.; the third was Lee, in Virginia. Dix, in New Jersey, and Jackson, in South Carolina, followed immediately. Hoboken, N. J., Syracuse, N. Y., Gordon, in Georgia, and Humphreys, in Virginia, all reported on the same day. Within a week from the start, nine large camps in widely separated parts of the country were attacked. Others followed in rapid succession. Table 2 gives the order, according to the daily telegraphic reports.

TABLE 2.—ORDER IN WHICH THE CAMPS WERE ATTACKED

Order	Date	Order	Date
1 Devens.....	Sept. 12	11 Greene.....	Sept. 26
2 Upton.....	Sept. 13	11 McClellan.....	Sept. 26
3 Lee.....	Sept. 17	12 Kearney.....	Sept. 27
4 Dix.....	Sept. 18	12 Bowie.....	Sept. 27
4 Jackson.....	Sept. 18	13 Johnston.....	Sept. 28
5 Hoboken.....	Sept. 19	13 Sheridan.....	Sept. 28
5 Syracuse.....	Sept. 19	13 Sherman.....	Sept. 28
5 Gordon.....	Sept. 19	14 Dodge.....	Sept. 29
5 Humphreys.....	Sept. 19	14 Shelby.....	Sept. 29
6 Logan.....	Sept. 20	15 Custer.....	Sept. 30
6 Funston.....	Sept. 20	15 Hancock.....	Sept. 30
6 Meade.....	Sept. 20	16 Travis.....	Oct. 1
7 Grant.....	Sept. 22	17 Cody.....	Oct. 3
7 Taylor.....	Sept. 22	18 Forrest.....	Oct. 6
8 Sevier.....	Sept. 23	19 MacArthur.....	Oct. 7
8 Lewis.....	Sept. 23	20 Fremont.....	Oct. 8
8 Newport News.....	Sept. 23	21 Wadsworth.....	Oct. 11
9 Pike.....	Sept. 24	21 Wheeler.....	Oct. 11
10 Beauregard.....	Sept. 25	21 Greenleaf.....	Oct. 11
10 Eustis.....	Sept. 25	22 Las Casas.....	Oct. 29

During this period, September 12 to 30, inclusive, thirty-one camps were attacked. The epidemics in this group had subsided in every case by November 1, with the exception of Hoboken, Kearney, Bowie and Shelby. Ten additional camps were attacked during October, completing the list of all the important camps in the United States. Las Casas, Porto Rico, which is last on the list, did not report cases until October 29, on which date an accumulation of 562 admissions was reported.

COMPARISON BETWEEN TENT AND BARRACK CAMPS

Of the thirty camps attacked during September, eighteen were barrack camps, eleven were tent camps, and two were ports of embarkation. During October, eight tent camps and two cantonments were attacked.

The appearance of the pandemic in the tent camps was apparently delayed by reason of their position. They were mostly in Southern states and not immediately adjacent to the seaboard. Speaking generally, the pandemic spread from the sea inland, and from the Northeast to the West and South. There is no reason to suppose that it traveled more rapidly than persons could travel. In cases in which it has appeared to do so, it is probable that infection has been established from foci before the latter were recognized, or from earlier outbreaks.

The pandemic appeared seven days later in the camps than in the cantonments, when these two kinds

of camps are compared as groups. Taking the barrack camps as one group and the tent camps as another, it appears that the disease spread rapidly in both—as rapidly in the one as in the other. There was, in fact, a remarkable similarity in the rate of spread in each kind of camp.

Interest attaches to a comparison between the relative severity with which the tent and barrack camps were attacked for a number of reasons. Among these is the fact that the tents afforded a greater separation of the men than did the barracks. The distribution of cases in cantonments and tent camps during the period of September 12 to October 31, inclusive, is given in Table 3.

TABLE 3.—DISTRIBUTION OF CASES IN CANTONMENTS AND TENT CAMPS, SEPTEMBER 12-OCTOBER 31

	Cantonments	Tent Camps
Camps attacked	20	19
Combined strength	748,632	313,362
Influenza	158,104	69,761
Pneumonia	30,099	9,740
Deaths	10,533	2,923
Per cent. having influenza.....	21.1	22.2
Per cent. having influenza and pneumonia.....	19.0	13.9
Case fatality of pneumonia.....	35.0	30.1

It should be noted that while the number of cases of influenza reported by the cantonments has been more than twice the number reported by the tent camps, the strength of the cantonments has been greater in almost the same proportion. When rates instead of cases are considered there appears to have been less difference in the severity of the pandemic than might be expected. But if there has been as much influenza in the one kind of camp as in the other, there has been no similarity in respect to the incidence or fatality of pneumonia.

The percentage of cases of influenza that developed pneumonia has been greater in the cantonments than in the tent camps; 9 per cent. in the one, against 13.9 in the other. The case fatality of pneumonia has also been greater in the cantonments than in the tent camps.

In order to study more carefully the progress of the pandemic in the cantonments and tent camps, Table 4 was prepared. Here the camps and cantonments are divided into two groups; the figures given are in the form of rates (annual per thousand). These show the suddenness with which the epidemic appeared, how rapidly it rose to its point of greatest intensity, and how it subsided.

TABLE 4.—PROGRESS OF THE INFLUENZA IN THE TENT AND BARRACK CAMPS

Cantonments	Annual Rates	Date	Annual Rates	Tent Camps
First report.....	255	Sept. 12		
	995	Sept. 19	73	First report
Peak.....	5,765	Oct. 4	1,850	
	2,220	Oct. 10	3,865	Peak
	180	Oct. 26	605	Lowest since peak
Lowest since peak..	140	Oct. 28	1,610	
Daily incidence.....	330	Oct. 31	915	Daily incidence

According to this table, the tent camps followed the barrack camps in point of time but not in violence of outbreak.

COMPARISON BETWEEN CAMPS ACCORDING TO THE PROPORTION OF MEN ATTACKED

So much for the comparison between the tent and barrack camps. Turning attention now to the camps with regard solely to the proportion of men attacked,

the camps may be thus divided into groups according to the proportion of men attacked with influenza: Group 1, from 30 to 50 per cent.; Group 2, from 20 to 30 per cent.; Group 3, from 10 to 20 per cent.; Group 4, less than 10 per cent.

Cody leads the first group with 49.8 per cent. of all troops attacked. Other camps in this group are Beauregard, 39.6 per cent.; Wadsworth, 38.6; Bowie, 38.1; Hoboken, 30.5, and Devens, 30.1.

Dodge has had 20 per cent. of all troops attacked and is the first in Group 2. Fourteen other camps fall in this group: Custer, MacArthur, Meade, Pike, Grant, Greene, Funston, Forrest, Travis, Logan, Lee, Hancock, Sheridan and Greenleaf.

Fifteen camps are contained in the third group. Fremont, Lewis and Wheeler, standing at the foot of the list, made up Group 4.

As to fatalities from pneumonia, Grant and Sherman are foremost. At Sherman, 61.3 per cent. of all pneumonia patients have died, and at Grant 45.7 per cent. While the case fatality has been still higher at Wadsworth, Forrest and Greenleaf, the total deaths reported by these camps have been but little more than one third of the total reported by Sherman alone. Special mention should be made of the situation at Wheeler. Only seventy cases of influenza have been reported, but a total of 361 cases of pneumonia and sixty-one deaths have occurred.

SEVERITY IN RELATION TO THE ORDER OF ATTACK

Some interesting facts are revealed when the camps are arranged according to the dates of attack, as shown in Table 5. In this table the camps have been arranged

TABLE 5.—CASES AND DEATHS AMONG TWENTY CAMPS ARRANGED ACCORDING TO THE CHRONOLOGICAL ORDER OF THEIR ATTACK

	Total Cases Infl.	Total Cases Pneu.	Total Deaths Pneu.	Per Cent. Attacked Infl.	Per Cent. Pneu. to Infl.	Per Cent. Deaths Pneu.
Five camps* attacked (Sept. 12-18).....	46,569	7,968	3,000	21.4	17.1	37.6
Five camps† attacked (Sept. 22-24).....	44,000	8,011	2,867	21.4	18.2	35.7
Five camps‡ attacked (Sept. 29-Oct. 1).....	36,044	7,387	2,484	23.8	21.8	31.7
Five camps§ attacked (Oct. 3-11).....	20,096	1,837	579	28.9	8.9	31.5

* Devens, Upton, Lee, Dix, Jackson.

† Grant, Taylor, Sevier, Pike, Newport News.

‡ Sherman, Dodge, Shelby, Custer, Travis.

§ Cody, Forrest, MacArthur, Wadsworth, Greenleaf.

in groups of five wherein are indicated camps reporting epidemics at about the same general stage of the pandemic. This table merits careful study.

It shows that the percentage attacked by influenza increased as the pandemic continued. This is most strikingly indicated in the group which was attacked from October 3 to 11. This group reported 28.9 per cent. of all troops stricken, as compared with 21.4 per cent. in the first group. The inference is that the disease increased in infectivity, or that as the pandemic spread it reached troops who were more susceptible. The latter is probably the fact.

The percentage of influenza cases that developed pneumonia increased as the pandemic proceeded, until the last group (attacked from October 3 to 11) was reached, when a notable drop from 21.8 to 8.9 per cent.

is indicated. This decrease is remarkable. It is probably due to the fact that all the cases of pneumonia that would occur had not yet developed in these camps. Cody, Forrest, Wadsworth and Greenleaf, all in the fourth group, were just passing the peak of influenza during the last four days of October.

It is noteworthy that the case fatality in pneumonia decreased with each successive group.

SEVERITY IN RELATION TO GEOGRAPHIC LOCATION

On considering the camps when grouped according to their location, it has been found that those in the Southwestern section, including the states of Texas, Arkansas, Louisiana and New Mexico, had relatively more men attacked by influenza than did any others. No camp in this group had less than 20 per cent. attacked, and three (Cody, Beauregard and Bowie) exceeded 30 per cent. For the period of the epidemic including October 31, Cody was first on the list of all camps, with 49.8 per cent. of all troops attacked. No explanation is offered for this remarkable fact.

An arrangement of the camps both according to their percentages of men attacked and geographic location is given in Table 6.

TABLE 6.—RELATIVE INCIDENCE OF INFLUENZA IN THE CAMPS, ARRANGED GEOGRAPHICALLY					
Per Cent. Attacked	South-western	Atlantic Coast	South-eastern	North Central	Pacific Coast
30 to 50	Beauregard Cody Bowie	Hoboken Devens	Wadsworth		
20 to 30	Dodge MacArthur Pike Travis Logan	Meade Lee	Greenleaf Hancock Sheridan	Custer Grant Funston	
10 to 20		Newport News Dix Upton Syracuse Eustis	McClellan Johnston Jackson Shelby Sevier Gordon	Taylor Sherman	Kearney

In the Atlantic Coast group, two camps had more than 30 per cent. attacked; two camps had from 20 to 30 per cent., and five had from 10 to 20. This group is second on the list when the prevalence of influenza is considered.

TABLE 7.—RELATIVE INCIDENCE OF PNEUMONIA FOLLOWING INFLUENZA IN THE CAMPS ARRANGED GEOGRAPHICALLY					
Per Cent. Attacked	South-western	Atlantic Coast	South-eastern	North Central	Pacific Coast
30 to 40				Sherman	Lewis
20 to 30	Travis	Meade	McClellan	Taylor Grant Custer	
10 to 20	Beauregard MacArthur Pike Logan	Upton Syracuse Hoboken Devens Lee Dix Newport News	Sevier Greene Hancock Sheridan Jackson Gordon Johnston	Dodge Funston	Fremont
Less than 10	Bowie	Eustis	Wadsworth Greenleaf Shelby		Kearney

One camp in the Southeastern group exceeded 30, and three had from 20 to 30 per cent. of all troops attacked. Of the seven remaining camps of the group, six had from 10 to 20 per cent., and one had less than

10 per cent. The North Central group had no camp that exceeded 30 per cent. Of the five camps considered in this group, three had from 20 to 30 per cent. of men attacked, and two had from 10 to 20. The influenza appears to have been least prevalent in the Pacific Coast group. One camp had from 10 to 20 per cent. attacked, and two had less than 10 per cent.

Pneumonia following influenza was most prevalent in the North Central group of camps. Sherman, in this group, had 35.7 per cent. of all influenza cases develop pneumonia. Three camps had from 20 to 30 per cent.

Lewis, the only other camp to exceed 30 per cent., is in the Pacific Coast group. Two other camps in this group reported less than 20 per cent. Lewis is farthest north. The Atlantic Coast group had one camp with from 20 to 30 per cent. of pneumonias; seven with from 10 to 20 per cent., and one with less than 10. Rates distributed in the Southeastern group were: from 20 to 30 per cent. at McClellan; from 10 to 20 per cent. in seven camps; less than 10 per cent. in three camps.

TABLE 8.—RELATIVE CASE FATALITY OF PNEUMONIA IN THE REGIONAL GROUPS OF CAMPS				
Group	More than 60 Per Cent.	40 to 60 Per Cent.	30 to 40 Per Cent.	Less than 30 Per Cent.
Southeastern.....	1*	2	4	5
North Central.....	1	1	2	2
Southwestern.....	1	1	1	3
Atlantic Coast.....	...	2	5	2
Pacific Coast.....	...	...	1	2

* Figures indicate number of camps.

The case fatality of pneumonia has been greater in the Southeastern, North Central and Southwestern groups than in the Atlantic and Pacific Coast groups.

TABLE 9.—AVERAGE PERIOD OF INCREASE, CREST AND RAPID DECLINE OF THE EPIDEMICS IN THE REGIONAL GROUPS OF CAMPS*			
Group	Increase (Days)	Crest (Days)	Decline (Days)
Atlantic Coast.....	7	7	5
Southeastern.....	6	9	6
North Central.....	6	4	6
Southwestern.....	5	6	6

* Twenty-five camps are considered in this tabulation.

The increase has been most rapid in the Southwestern group: five days. The Southeastern and North Central groups reached the high point in six days. The Atlantic Coast group was on the increase for seven days. The average period of very high incidence was nine days in the Southeastern group. The shortest period of high incidence was four days, in the North Central group. The period of rapid decline was five days in the Atlantic Coast group, and six days in all other groups.

CASES OF INFLUENZA AND PNEUMONIA AND DEATHS IN THIRTY-EIGHT OF THE LARGEST CAMPS

Table 10 gives for each large camp the number of cases of influenza and pneumonia, percentages of troops attacked, percentages of deaths and the length of the epidemic in days. The camps have been arranged in the order of the percentage of men attacked in each.

Next, in Table 11, is given the total number of cases of influenza and pneumonia and deaths week by week from the beginning of the pandemic to November 1,

for all troops in the United States. This table shows the remarkable activity of the influenza pandemic, considering the camps as a whole. Within these weeks it had reached its acme and had begun to decline. Its

TABLE 10.—INFLUENZA, PNEUMONIA AND DEATHS IN THE LARGE CAMPS, PERIOD SEPT. 12 TO OCT. 31, 1918, INCLUSIVE

	Cases Infl.	Cases Pneu.	Total Deaths	Per Cent. At-tacked Infl.	Per Cent. Pneu. to Infl.	Per Cent. Deaths Pneu.	Dura-tion Epi-demic in Days
Group 1							
Cody.....	2,337	252	46	49.8	10.8	18.2	28
Beauregard.....	5,252	1,007	422	39.6	19.2	41.9	36
Wadsworth.....	5,505	357	60	38.6	6.5	16.9	20
Bowie.....	4,052	119	104	38.1	2.9	89.8	32
Hoboken.....	13,563	2,280	794	30.5	16.9	34.9	42
Devens.....	13,398	2,288	794	30.1	17.1	34.9	49
Group 2							
Dodge.....	9,398	1,847	570	29.0	19.7	30.8	32
Custer.....	11,626	2,437	669	29.0	20.9	27.8	31
MaeArthur.....	6,010	852	188	28.1	14.1	20.4	24
Meade.....	11,449	2,013	796	27.8	25.3	27.4	41
Pike.....	13,273	1,379	455	26.7	10.3	32.7	37
Grant.....	10,717	2,335	1,068	25.8	21.8	45.7	39
Greene.....	4,200	626	258	25.8	14.9	41.8	30
Funston.....	13,526	2,328	888	24.9	17.2	37.4	41
Forrest.....	2,307	33	22	24.9	1.1	66.6	25
Travis.....	8,470	1,742	168	24.7	20.5	9.0	30
Logan.....	3,137	393	16	24.6	12.4	3.8	41
Lee.....	11,298	1,919	672	22.9	17.0	34.6	43
Hancock.....	7,715	1,209	462	22.2	15.8	37.4	31
Sheridan.....	4,758	521	132	20.4	10.3	24.6	28
Greenleaf.....	4,747	343	263	20.3	7.2	75.2	20
Group 3							
Taylor.....	11,587	2,800	830	19.2	24.2	29.0	39
Dix.....	9,283	1,673	829	19.0	17.9	49.8	44
Jackson.....	7,500	1,114	362	18.9	14.9	31.3	43
Shelby.....	1,761	94	19	18.8	5.3	24.8	28
Syracuse.....	2,031	401	164	18.4	19.8	40.6	42
Sevier.....	4,526	896	319	16.3	19.7	35.7	38
McClellan.....	4,718	993	218	16.1	20.2	21.3	28
Eustis.....	1,745	67	10	14.8	4.0	16.2	36
Newport News..	3 897	601	195	14.2	15.5	30.5	34
Upton.....	5 090	974	343	13.9	19.2	34.9	48
Sherman.....	4,789	1,717	1,058	13.5	35.7	61.3	32
Kearney.....	2,450	186	37	13.5	7.9	19.8	34
Gordon.....	4,155	626	192	11.3	14.8	30.4	42
Johnston.....	2,117	383	161	11.1	18.2	40.9	30
Group 4							
Fremont.....	2,347	392	132	9.8	16.1	31.2	23
Lewis.....	3,141	994	148	9.7	31.6	14.8	33
Wheeler.....	70	361	61	0.8	516.0	17.8	

subsidence was as rapid as its rise. In the space of less than two months it had come and gone, leaving only a few cases in some of the camps in its trail.

TABLE 11.—INFLUENZA AND PNEUMONIA CASES AND DEATHS REPORTED AMONG ALL TROOPS IN THE UNITED STATES FOR EACH WEEK DURING THE PERIOD FROM SEPTEMBER 12 TO OCTOBER 31, INCLUSIVE

Week Ended	Cases		Deaths	
	Influ.	Pneu.	Influ.	Pneu.
September 20.....	10,094	758	2	96
27.....	37,493	4 313	19	953
October 4.....	88,478	8,655	13	2,431
11.....	90,393	17,882	165	6,055
18.....	43,779	11 013	270	5,289
25.....	19,996	2,454	256	2,757
November 1.....	16,516	3,004	.....	1,173
Total.....	306,719	48,079	725	18,704

II. THE HANDLING OF THE EPIDEMIC
ACTION BY THE SURGEON-GENERAL'S OFFICE

The steps that were taken to combat the pandemic may be divided into those followed by the direction and guidance of the Surgeon-General's Office at Washington, and those that the camps themselves initiated. These steps may be collectively described as having fallen under three heads, (1) isolation, (2) sanitation and (3) education.

1. By isolation is meant any and all procedures by which infected could be separated from the suscep-

tible persons. Included in this list were steps for the prevention of crowding, quarantine, head to foot sleeping, the separation of heads at mess, and the use of cubicles and masks.

2. Under sanitation may be included the cleaning and airing of barracks and bedding, the oiling of floors to keep down the dust, the boiling of mess-kits and many other procedures.

3. Education, always a predominant motive in the Army, was applied as never before to the prevention of disease among troops. The medical officers were taught what to expect in the way of symptoms and what principles of prevention to put into effect. The men were taught something of the principles of disease transmission and how to carry out their part of the work of prevention. Orders were issued, lectures given, and examples shown. Throughout, the line gave cordial cooperation.

The following paragraphs give a summary of the action taken by the Surgeon-General's Office, and a brief account of what an inspector from that office saw when he visited one of the large camps.

Soon after the pandemic disclosed itself, a recommendation was made by the Acting Surgeon-General to the chief of staff that further increments of the draft be stopped and that all troop movements between infected and uninfected camps be checked. On recommendation, the Adjutant-General ordered the setting aside of buildings to supplement the base hospitals during the epidemic and the furnishing of all necessary unskilled labor for the hospital needs. On September 24, instructions were sent to all camp surgeons regarding the symptoms, epidemic aspects and methods of handling the disease. Large numbers of medical officers and nurses were hurried to the camps. Instructions were sent to buy locally any medical supplies not promptly obtainable through medical channels.

Special sanitary inspectors from the Surgeon-General's Office visited many of the camps with a view to investigating the situation and proposing any improvements that appeared possible in the methods of handling the situation. When thought necessary, camps were quarantined against the civil communities or vice versa, as appeared desirable to the Acting Surgeon-General in order to protect the troops or civilians or both. There was issued a set of a dozen rules on personal hygiene designed to aid the individual in maintaining health during the emergency.

REPORT OF AN INSPECTION OF A CAMP

Under date of September 30, there was sent to camp surgeons, surgeons of recruit depots and independent stations, department surgeons and officers in charge, Air Service Division, the report of a sanitary inspector from the Surgeon-General's Office to show the steps taken at one camp to handle the situation in a satisfactory manner and the recommendations for further improvement made by the inspector. The following abstract is taken from that report.

It should be stated that the policy of the Surgeon-General's Office has been to leave many of the details of camp management, so far as relates to sanitary and medical matters, to the camp authorities on the theory that they alone can be perfectly familiar with the local needs and resources, giving such aid in the way of recommendations as a general knowledge of the situation, and the correct principles to be observed, permit.

The inspection was made two weeks after the epidemic started. The epidemic was at its height: about one in ten of the command was sick with influenza. Of this number about a third were in hospital; the rest were in their quarters. There were 536 cases of pneumonia; there had been 253 deaths.

The report stated that there was no overcrowding. The barracks were marked with their maximum capacity on the basis of 45 square feet of floor space per man, and this was not exceeded. About one fourth of the entire number of troops was under canvas, five men to a tent. The men slept with head and feet alternating to increase the distance between heads as much as possible. In some of the barracks the "cubicle system" was contrived by means of shelter tents suspended between the beds in order to make the separation of the men more complete.

The heating arrangements were in operation in all the buildings, and the freest possible ventilation was enforced. Beds, bedding and clothing were kept outdoors all day, weather permitting. The tents were furled daily. All floors had been oiled once, and some twice, since the epidemic started. Overcoats and woolen underwear had been issued. There was ample bedding. The men who were not sick were kept outdoors all day. An officer was on duty in each barrack day and night.

The camp and barracks and messes were clean. Ample steps had been taken to eradicate flies. Dishes were boiled after each meal. When individual mess kits were used, they were washed in boiling water after each meal and actually boiled at intervals. There were no common drinking cups in use. Dust filled the air on the day of the inspector's visit and was very annoying.

Two thousand negroes who had arrived at camp from civil life between two and five days earlier had been put in an area by themselves and efficiently quarantined, the result being that no case of influenza had appeared among them.

THE HOSPITAL FACILITIES

The capacity of the base hospital had been increased by fitting up a group of eighteen company barracks, fortunately empty, and placing this annex under the base hospital administration. The annex was opened about ten days after the epidemic started, and had a capacity of 1,040 patients. It was described as in excellent condition. Each patient had 100 square feet of floor space; quartermaster cots were used with straw mattresses and the soldiers' own blankets. The Medical Department supplied sheets, pillows, pillow cases and pajamas. There were one female nurse and 186 enlisted men from the line on duty; 100 more nurses were expected. There were 977 patients; of these eighteen had pneumonia.

Ambulant cases, that is, influenza patients whose temperatures had been normal for from twenty-four to forty-eight hours, went out of their particular building to the nearest mess for meals. Men with abnormal temperatures were not allowed to go out to the lavatories. Influenza patients in hospital were being kept from seven to eight days; the rule was to keep them till the temperature had been normal four days.

The attendants wore masks, but cubicles had not been installed. The order and system were reported by the inspector as most commendable.

Further to supplement the base hospital, there was a second group of company barracks. These were run as field hospitals. Their capacity was 700 patients. The conditions here were not quite so good.

The base hospital was stated to be in excellent condition. There were 2,800 patients here, about 300 of whom were venereal and in tents; about 400 others were to be transferred to the annex three quarters of a mile away. There was only slight crowding. The porches were occupied by beds. All pneumonia patients in wards were cubicled, but not those on the porches, though the beds were close together. The influenza patients were not cubicled because of lack of sheets, but there was no serious shortage of supplies. At the outset the camp surgeon directed the camp supply officer to purchase whatever was necessary.

There was one ward full of sick nurses, of whom thirty were said to have pneumonia. One nurse, one dietitian, one medical officer and one dental officer had died. The patients were arranged heads and feet alternatively. The attendants were all masked. The ventilation was ample. The supply of medical officers, nurses, laboratory workers and enlisted men, Medical Department, was being increased. Numerous circulars relative to the prevention of influenza and its complications had been issued by the camp authorities, and these were very complete and satisfactory.

THE INSPECTOR'S RECOMMENDATIONS

In his reports to the Acting Surgeon-General and to the commanding general of the troops, the inspector described the whole situation as well handled. Nevertheless it was recommended among other things that no soldiers be returned to duty after influenza until at least ten days after their temperature had become normal; that all influenza patients should have at least 100 square feet of floor space and be screened from each other, the idea being to prevent pneumonia, and that no influenza patients be treated in barracks that were in part occupied by healthy soldiers.

It was recommended that both in barracks and tents the cubicle system be adopted for all healthy men by the use of the shelter tent supported at one corner of the bed by a stick or hung from the ceiling by wire, and that mess tables be so arranged that the men should sit either on one side of the table alone, or else that the occupants of the two sides of the table be separated by a screen of cheese cloth suspended above the middle of the table.

It was recommended that the quarantine of the camp against the surrounding country, and of the surrounding country against the camp, be continued and that no one be allowed to enter or leave the camp except the friends and relatives of the seriously ill; that as soon as the epidemic disappeared the population of the camp be reduced so as to be placed on the basis of 50 square feet per man; that improvised corridors covered with canvas be provided to connect the lavatories with the barracks which are used for hospital purposes; that steps be taken to prevent men from crowding together at post exchanges and about stoves in barracks; that the laying of dust in camps be expedited, and that great care be taken in disinfecting clinical thermometers.

Some of the recommendations made were already contemplated by the camp authorities or were under way, but not yet completed, the inspector stated, on account of lack of time or material.

III. THE CAUSE OF THE OUTBREAK

CHARACTER OF THE INFECTION

It is usually impossible accurately to trace the origin and paths of spread of a pandemic like the present one. The popular demand that this be done is natural but unreasonable. It rests on the supposition that disease can be run down like a criminal; that visible and recognizable traces are left by it. This is not always true. The pursuit is often so illusive that deductions stronger than inferences are not warranted regarding it. With a disease like influenza, the proof seldom amounts to complete demonstration. The routes of infection are generally hidden beneath a mass of imperfect observation, wrong theory and illogical deduction. Under the circumstances the best that can be done is to follow out the larger aspects of the question.

The present pandemic offers no exception to this rule. In the minds of thousands of persons the disease is hopelessly confused with minor respiratory diseases that have for years been loosely called influenza infections. Many do not know "Spanish influenza" when they see it, the symptoms being by no means easily recognized by those who have never had occasion to deal with it. And to the best informed there are many things about influenza that are shrouded in mystery. Consequently all that will be attempted here is the recording of some apparently well established facts and the drawing of some apparently safe inferences, leaving to others and especially to later investigators the task of interpreting the pandemic more fully.

These remarks seem to be called for by a demand for an explanation of the way in which the pandemic spread from one organization to another in a camp, from one camp to another, and from the camps to the towns and vice versa.

THE MEANS OF TRANSMISSION

First, it is necessary clearly to understand that the influenza to which attention is now called is a specific infective disease like cholera, typhoid, smallpox and others, and it has, at all times and in all places, shown a uniformity in its configuration and in its cause such as almost no other infectious disease has. These words were written nearly two generations ago by Hirsch, but they seem to have been forgotten. They were forgotten in England in 1889, when the pandemic of influenza broke out in that country and for some time failed of recognition. They were forgotten in the United States, where for nearly thirty years no sensational outbreak of the disease had occurred.

The disease is carried from place to place by persons, not things or by the general atmosphere, as was once supposed. Its rapidity of spread is due to its great infectivity, short period of incubation, missed cases, and absence of timely precautionary measures. An epidemic does not easily start, but once the flame is well kindled a conflagration occurs which cannot be stopped. The epidemics stop themselves. This they do either by an exhaustion of the susceptible material, by a reduction in the virulence of the causative agent, or both.

The disease has been taken into camps, from camp to camp, from camps to towns, and from towns to towns, by people. It cannot be said to have been proved that this is the only way in which it has been transmitted, but there seems no reason to look for

more probable ways—according to modern theories, all respiratory infections are conveyed by contact. The travel and mingling that occur under ordinary circumstances seem to be quite enough to account for the facts.

In theory and practice influenza is preventable, but it is very difficult to control under municipal and military conditions. It rarely happens that the necessary measures—chiefly based on the principle of isolation—are taken in time. In the present pandemic the disease, on more than one occasion, has been confined to certain wards of hospitals to the exclusion of others. It has visited some camps and some organizations more severely than others. It is not possible as yet to state to what extent it has been actually controlled in the camps.

The pandemic may truly be termed an epidemic of epidemics. Like all great outbreaks of this most infectious of communicable diseases, the epidemics have occurred with electric suddenness, and, acting like powerful, uncontrolled currents, have produced violent and eccentric effects. The disease never spreads slowly and insidiously. Wherever it occurs its presence is startling. A large proportion of the men in one company may be infected while those in the next company may entirely escape.

How far the pandemic will spread will apparently depend only on the epidemic vagaries of the disease and the amount of material on which it can feed. It is too early to foretell the end or to measure the damage that will be done before it disappears. Apparently it is destined to have a world wide distribution.

It is not improbable that the pandemic may disappear from the United States as rapidly as it came, although most persons hold the opinion that its final disappearance will be gradual, the extinction of the disease being postponed for many months. It is already practically gone in most army camps. It may or may not return. In the pandemics that sweep over the earth at long intervals, recurring waves of greater or less degree, separated by some months, commonly occur.

THE INFECTIVE AGENT

The causative agent is generally believed to be the bacillus of Pfeiffer; the means of transfer, droplets of moisture from the mouth and objects recently contaminated by the buccal and nasal secretions of those who harbor the virus. It is a fundamental assumption that influenza is produced when, and only when, material from the mouth or nose of infected persons gets into the mouth or nose of some one who is susceptible. As is plainly recognized in respect to intestinal infections, the hand probably plays an important part in the transmission of influenza. Coughing and sneezing help greatly to spread the infection.

It has long been known that interchanges of bacteria occur commonly from mouth to mouth under ordinary conditions of social intercourse. Most of these organisms are harmless under normal conditions of health. That their capacity for harm is sometimes increased, sometimes reduced, according to various circumstances, is highly probable. What these circumstances are is conjectural.

The Pfeiffer bacillus is no stranger to America; it was known to be rather commonly present in healthy persons before the pandemic. To account for the virulence that seems to be possessed by this organism now it has been suggested that (1) something must

have happened to increase its virulence, or (2) a new and more active strain of it appeared, or (3) the susceptibility of those attacked became reduced. Some persons hold that the causative agent has not been discovered and that the Pfeiffer bacillus is not really responsible for the disease. Some even go so far as to say that the disease is not influenza. With these disputed points it is not necessary to deal here. All three of the numbered propositions in this paragraph are accepted as probable by the present writer.

The conditions that govern susceptibility to influenza are not understood. Good general health, absence of fatigue and of cold and hunger are methods of prevention which have long been advocated by many and which in spite of scientific criticism still have much to recommend them. Whatever conduces to low bodily tone is believed by most persons to favor infection. Some, however, hold that specific immunity either does or does not exist and that wet feet, insufficient bedding, chill, hunger and fatigue have nothing to do with susceptibility.

Vaccination against pneumonia is practicable; but such preventive treatment is in the experimental stage as respects influenza. As to natural immunity, one attack is believed to protect against another, and some people seem to be immune without ever having experienced an attack.

The weather has always been supposed to exert an influence on influenza—the very name is derived from the effect which extraterrestrial conditions were supposed to exert on it. But although there has been a great deal of study of this matter from early times to the present, little is known concerning it. It is possible that the weather this fall has aggravated the influenza and contributed to the incidence of the pneumonia. The pandemic appeared after a very hot season had suddenly been succeeded by a very cold one. After the pandemic was well started, a particularly long period of fine weather occurred. More important, perhaps, the weather also precipitated a large amount of other respiratory infections, such as always become prevalent at this season. There is little doubt that many of these cases have been mistaken for influenza.

The epidemics which occurred in the spring of 1918 were like those that took place in the fall, except that the disease was milder and there was less pneumonia in the spring. Until the late summer the influenza reported from Europe was of a relatively mild type. It seems to have been as infectious there as it is here. Reports coming from all parts of Europe indicate that the percentage of persons attacked was about the same as in America.

IMPORTATIONS OF A VIRULENT STRAIN

The origin of the influenza pandemic now sweeping the world is usually attributed to Spain. It is doubtful, however, whether the disease was first seen in Spain or the United States. Some have held that it was brought to the Western hemisphere from China.

Early in the spring of 1918, a disease of unknown origin is reported to have appeared in Spain with the symptoms of sudden onset, severe headache, pain in the back, fatigue and perhaps nausea. After three or four days the patient recovered. Influenza appeared in America early in March, being reported from Fort Oglethorpe, March 18, and from some other parts of the United States much earlier.

In the latter part of March the disease appeared in the American Expeditionary Force, in the French and

British army, and in the civil population. About 25 per cent. of all who were exposed to the disease were attacked. The death rate was low. The first cases in Germany were among troops that fought with a (presumably infected) American regiment in July.

In September, the disease assumed a more serious character, being complicated with bronchopneumonia and septic pneumonia with a high mortality in some epidemics. The disease is said to have become more severe in Spain as the season advanced.

The first that was seen of the highly virulent infection in America was among shipping. During July and August a number of vessels plying between Europe and America experienced intense outbreaks of what was called "Spanish influenza." That patients with the disease were being brought into the country in this manner was stated in the daily press and in official reports in July.

Many patients were admitted to various ports of the United States from ships during June, July and August. The Navy has pointed out that the British steamship *Exeter*, which arrived from Liverpool, at Philadelphia, June 22, reported at quarantine that twenty-seven Lascars and an English quartermaster were ill with pneumonia. These patients, who were described as in a desperate condition, were removed to hospital. The opinion was reached that they had influenza.

July 7, the New York papers described an outbreak of "Spanish influenza" which had occurred on a troop ship returning to America. The vessel was compelled to put back into port, there not being enough of her crew left to handle her. This vessel was the Cunard Liner *Khiva*, which had left Liverpool, June 15. Six days later six of the crew were taken suddenly ill. Two days later the number was increased by fifteen. Next day there were fifteen more cases. The ship then, pursued by a submarine, put into Halifax. Ten days later it proceeded to New York. There were no deaths.

August 18 and subsequently, the New York papers described outbreaks of influenza on the *Rochambeau* and the *Nieuw Amsterdam*. On one of these vessels, twenty-one cases of influenza had occurred. Some of them developed pneumonia and were sent to St. Vincent's Hospital. According to the *New York Times* of July 18, 1918, influenza had been coming to New York on vessels since the early part of June.

According to a Navy bulletin, two steamships from Norway and one from another Scandinavian port arrived in New York, August 14 and 15, having a number of patients ill with influenza.

The Surgeon-General of the United States Public Health Service reported a sharp outbreak at Fort Morgan, near Mobile, Ala., during the month of August. At the same time a steamship arrived at Newport News with substantially the entire crew infected. The *Bergensford*, which arrived in New York, August 12, had during the voyage 200 cases of influenza.

The foregoing, which makes no claim to being a complete list, is sufficient to show that influenza was brought to the United States and to various ports on vessels from Europe through the whole summer. In some outbreaks there was a great deal of a fatal pneumonia.

The patients from the vessels were sent ashore and soon mingled with the civilian populations. There were thus scattered rather widely along the Atlantic seaboard sparks from which the pandemic not improb-

ably arose. How abrupt were the appearance and spread is not yet perfectly clear. In arriving at an understanding of this point it is necessary to distinguish between the sudden appearance of the disease and its sudden recognition.

There is another and less definite explanation of the pandemic offered. It is less an explanation than a guess. The same kind of guess probably has been made ever since epidemics first visited the earth. It is that the marked virulence noted in the recent pandemic is due to the weather. The supposition is that in some way not determined, the mild influenza of last spring became greatly intensified this fall.

That the disease appeared suddenly in the camps and ran a meteoric career is clear enough. Evidence presented in Table 12 indicates that its appearance and course in civil life was somewhat the same. This table, compiled partly from data supplied by the Census Bureau, shows the dates when marked increases occurred in the number of deaths from pneumonia in

It was two weeks later (week ended October 19) that the camps of the Pacific Coast group reported the first marked increase in deaths from pneumonia.

Table 13 gives the number of deaths from pneumonia reported in forty-six cities from September 14 to November 2. It shows the rise and progress of the pneumonia, and, so far as that disease is the shadow of the influenza, it affords evidence of the case incidence of the whole pandemic of the larger cities. No reliable evidence of the prevalence of influenza in the cities exists. This statistical table is based on figures contained in a special report of the Bureau of the Census, Washington, D. C., on deaths from pneumonia, and appended to the regular weekly report of that bureau for the week ended Nov. 2, 1918.

The special report covers the eight weeks period from September 8 to November 2, inclusive. Marked increases in the incidence of pneumonia deaths in the different cities are indicated by the totals for the week being printed in boldface. A weekly incidence which

TABLE 12.—MARKED INCREASES IN DEATHS FROM PNEUMONIA IN THE PRINCIPAL CITIES AND ARMY CAMPS IN THE UNITED STATES FOR THE PERIOD FROM SEPTEMBER 8 TO OCTOBER 25, INCLUSIVE

Date Week Ending	Atlantic Coast		North Central		Southeastern		Southwestern		Pacific Coast	
	Cities	Camps	Cities	Camps	Cities	Camps	Cities	Camps	Cities	Camps
Sept. 14	Boston									
Sept. 21	Lowell New York	Devens Dix								
Sept. 28	Cambridge Worcester Jersey City Philadelphia Providence Washington	Lee Upton Syracuse Humphreys	Pittsburgh Chicago Minneapolis							
Oct. 5	Baltimore Buffalo Fall River Newark Richmond Syracuse	Meade Hoboken Eustis Newport News	Cincinnati Indianapolis	Custer Funston Grant Sherman Taylor	Birmingham	Beauregard Sevier Logan Hancock Gordon	Denver	Pike	Los Angeles	
Oct. 12	Albany Rochester		Kansas City Louisville Milwaukee Omaha St. Paul St. Louis	Dodge	Atlanta New Orleans	Greene McClellan Wadsworth Jackson Johnston Greenleaf		Travis Bowie	Oakland Seattle	
Oct. 19	New Haven		Cleveland Columbus Dayton Toledo			Sheridan		MacArthur Cody	San Francisco Spokane Portland	Fremont Lewis

cities and camps in various parts of the country. From the table it would appear that the increase in the incidence of pneumonia among the principal cities of the United States preceded the increased incidence among the Army camps. If this is so, it is to be inferred that the camps derived their infection not from one another but from their immediate environment.

This table shows how the pandemic spread across the continent. Both cities and camps in the Atlantic Coast groups were included. The states of Massachusetts, New York, New Jersey, Maryland and Virginia were attacked first. The first record of the spread of the pandemic near this group was the increased pneumonia death rate at Pittsburgh, Chicago and Minneapolis, cities of the North Central group, during the week ended September 28.

During the following week (ended October 5) pronounced epidemics occurred in five of the Army camps of the North Central group (Custer, Funston, Grant, Sherman and Taylor). During this week epidemics were reported by both cities and camps in the Southeastern and Southwestern groups, and in the city of Los Angeles of the Pacific Coast group.

is more than double the average weekly figure for not less than two weeks preceding (when these figures are available) is considered a marked increase in this memorandum.

COMPARISON WITH OTHER PANDEMICS

It is interesting to compare the present pandemic with others, but the comparison cannot be close. It is impossible to say how severe were some of those which are recorded in history for the reason that statistical data concerning them are meager and imperfect. It is said that in 1889-1890 no less than 25 per cent. of the population was attacked in London; 33 per cent. in Antwerp; 39 in Massachusetts, and 50 in Paris. In 1823-1833 about 40 per cent. of the population of Paris is believed to have been affected. In 1872, three quarters of the population of London and some German cities were supposed to have suffered. The records of earlier visitations are more obscure.

In the 1918 pandemic, about 20 per cent. of the soldiers in the camps were attacked. This seems rather a large proportion for the whole country or, indeed, for the cities, and yet it may not be far amiss. By the

time the disease has finally disappeared, it will have spread somewhat beyond its present limit; and if the patients that recovered in the Army are added to those of the full pandemic, the proportion of the whole population affected during this year will be found to have been still greater.

The total number of deaths resulting from the present pandemic will never be known. Observers of pandemics in other years have pointed out that influenza is a more fatal disease than is commonly understood, the unsuspected excess being due chiefly to lung and heart complications that do not promptly manifest themselves. Thus, although the number of deaths directly attributed to influenza in England and Wales

TABLE 13.—DEATHS FROM PNEUMONIA REPORTED BY THE PRINCIPAL CITIES OF THE UNITED STATES FOR THE PERIOD SEPT. 8 TO NOV. 2, 1918, INCLUSIVE

City	Week Ended							
	September			October				Nov.
	14	21	28	5	12	19	26	
Albany.....	2	0	2	2	11	22	34	24
Atlanta.....	7	.....	4	7	25	42	86	
Baltimore.....	7	5	19	87	371	793	600	204
Birmingham.....	2	2	4	11	9	12	19	15
Boston.....	27	93	175	225	177	126	52	38
Buffalo.....	8	12	16	41	98	125	134	90
Cambridge.....	7	4	23	27	15	13	4	6
Chicago.....	15	24	74	246	476	863	826	456
Cincinnati.....	5	4	6	15	20	21	19	14
Cleveland.....	5	8	10	15	22	64	106	153
Columbus.....	1	4	6	10	13	28	21	9
Dayton.....	1	1	2	5	11	38	43	31
Denver.....	3	3	8	19	25	19	34	19
Fall River.....	0	5	6	11	9	23	10	
Grand Rapids.....	2	1	1	3	7	6	15	
Indianapolis.....	3	6	10	24	16	110	97	
Jersey City.....	2	6	21	50	144	225		
Kansas City, Mo.	5	.....	10	11	21	55	75	55
Los Angeles.....	9	.....	2	14	41	31	49	53
Louisville.....	3	9	4	14	77	154	157	60
Lowell.....	1	8	16	64	104	85	65	19
Memphis.....	.....	.....	.....	.....	67	152	127	60
Milwaukee.....	4	5	13	15	54	83	126	90
Minneapolis.....	2	.....	11	13	11	10	22	
Nashville.....	2	.....	3	5	29	47	27	13
Newark.....	0	6	6	22	70	126	137	138
New Haven.....	0	2	4	6	9	22	29	
New Orleans.....	5	.....	3	17	49	177	233	117
New York.....	74	98	145	434	1,142	2,099	2,251	1,855
Oakland.....	4	0	2	3	11	21	27	
Omaha.....	1	.....	2	7	22	22	7	
Philadelphia.....	20	32	76	307	938	1,644	1,182	467
Pittsburgh.....	12	17	33	57	102	161	457	537
Portland.....	4	.....	3	3	8	25	11	16
Providence.....	4	10	22	38	61	62	48	32
Richmond.....	4	2	3	20	42	73	43	
Rochester.....	1	1	7	6	22	25	28	33
St. Louis.....	12	13	20	25	46	76	75	87
St. Paul.....	3	.....	3	1	30	11	10	
San Francisco.....	6	14	15	15	19	42	58	59
Seattle.....	4	2	4	6	16	22	7	17
Spokane.....	2	.....	1	1	2	5		
Syracuse.....	0	.....	.....	14	3	50	32	
Toledo.....	2	0	5	3	7	19	43	41
Washington, D.C.	10	.....	17	57	101	96	61	36
Worcester.....	7	9	38	68	53	38	22	14

in 1890 was reported as 4,523 per million, the registrar general, by analysis of the vital statistics for the period, stated that the number of deaths directly or indirectly attributable was 27,074 per million, or nearly seven times the apparent rate. In London the general death rate was increased by more than 20 per cent., in Berlin by more than 60 per cent., and in Paris and Brussels by more than 100 per cent.

No records now available show that there has ever been so much immediately fatal pneumonia as in the present pandemic. If to the known deaths are added an allowance based on the registrar general's estimate quoted above, the magnitude of the catastrophe appears truly appalling. Both in and out of the camps there will have been fewer cases of influenza and far more deaths than the records indicate. The cases will be overestimated—the deaths will not all be told.

BARRACK LIFE AND RESPIRATORY DISEASE

SOME EPIDEMIOLOGIC OBSERVATIONS ON THE RECENT OUTBREAK OF INFLUENZA *

VICTOR G. HEISER, M.D.

NEW YORK

The influenza epidemic through which we are passing has been responsible for 17,000 deaths among our troops in this country, and the toll among the civil population already exceeds 200,000 lives. This is a far greater disaster than has befallen the United States in many decades. We have come to look on the war in Europe as one of the greatest destroyers of human life in the history of mankind. Yet in the brief space of a few weeks more deaths have been caused by an acute disease than have occurred on all the battlefields in any similar period, notwithstanding that millions on millions of soldiers have been involved.

Among the civil population of New York, 50 per cent. of all deaths occurred between the ages of 25 and 45. From figures obtained from Boston, Philadelphia, Baltimore and other sources, it can be predicted that similar percentages will probably obtain in many other communities. The deaths in cities among the sexes appear to be about equal, although there was a slight excess among females in Boston. Thus, 100,000 persons between the ages of 25 and 45 have succumbed to respiratory disease. This means that we have already lost among civilians 50,000 men in the prime of life. This is a serious drain on our man power.

Viewed from another standpoint, it is apparent that it is more dangerous to be a soldier in peaceful United States than to have been on the firing line in France. From the statistics so far available, the death rate in the military camps is higher than among the civil population, even in similar age groups. The mortality in New York and Chicago, for instance, shows that the death rate in the Army is more than double that of the civil population of the same age group. There is also the possibility that when allowances are made for the fact that defectives have been eliminated from the Army, and that these poor "risks" swell the civil death list, the corrected margin will be still further increased in favor of the civil population.

A study of the Students' Army Training Corps and of vocational students shows that as living conditions approach those in the Army, so does the death rate approach that of the Army. Further observation shows that with few exceptions the mortality rate from influenza and pneumonia bears a very close relationship to the number of persons housed and living under barrack conditions. That is, when large numbers of persons live, sleep and mess together in one room, the death rate is almost invariably higher than among similar groups living under civilian conditions. In other words, the more nearly the housing, eating and congregating conditions in the Students' Army Training Corps resembled those which obtain normally at colleges or such as exist in civil communities, the death rate was correspondingly lower. The death rate among college students living in their customary way was about the same as that of the towns in which they were located.

* The data assembled in this paper are based on reports to Nov. 9, 1918, but subsequent deaths are more likely to emphasize the difference between civil populations and "barrack" populations than otherwise.

Men in the military camps of the United States are housed in barracks with a capacity of from fifty to 150 men in a room. Assuming that the total number of troops did not reach over 1,500,000, and that 17,000 deaths have occurred, this gives a death rate of 11 per thousand for the period of the epidemic. For instance, in Boston, which is one of the cities hardest hit by the epidemic, 591 deaths are reported in the male age

TABLE 1.—DEATH RATES AMONG GROUPS OF INDIVIDUALS HOUSED UNDER BARRACK CONDITIONS

Organization	Population	Deaths	Rate per 1,000
Michigan Agricultural College	1,600	12	7.5
Wisconsin University vocational students:			
First group	600	6	10.0
Second group	550	6	10.9
Minnesota University:			
Fort Snelling group	4,985	54	10.8
Vocational group	4,000	72	18.0
Feeble-minded institution, Orient, Ohio	600	35	58.3

group of from 20 to 30. The United States Census Bureau estimates that in this age group there are 78,524 males. This would give a death rate of 7 per thousand. The death rate among all ages in Boston from the beginning of the epidemic until November 2 was 5 per thousand. Figures from Washington and Baltimore show that approximately the same proportion obtained. In the majority of Western cities the civil mortality has been very much lower than in the large Eastern cities. In Chicago the rate among the male age group of from 20 to 30 was 4 per thousand, or about a third of the Army rate. It will thus be seen that the death rate among the troops has been two or three times as great as that among civil populations of similar age groups. It is noteworthy that in many of the large Western cantonments the death rate was as high as in Eastern cantonments, and even higher, so that climatic influence does not explain why the Western cities suffered less than the Eastern cities.

The death rates at representative colleges where vocational students and the Students' Army Training Corps were housed in barracks are as follows: At the Michigan Agricultural College, which has 1,600 students, there were twelve deaths, or 7 per thousand. On the other hand, among 3,100 students at the University of Wisconsin, of whom only a small percentage were housed in barracks, the death rate was only 3.8

TABLE 2.—DEATH RATE AMONG SIMILAR AGE GROUPS IN CIVIL COMMUNITIES

City	Population Male Age Group 20 to 30	Deaths Influenza Pneumonia	Rate per Thousand
Philadelphia	176,137	1,558*	8.8
Baltimore	59,965	461*	7.7
Boston	78,524	591†	7.5
New York	573,749	2,420*	4.2
Chicago	259,668	1,035*	4.0
Milwaukee	56,685	61*	1.1
Army	1,500,000	17,000	11.0

* Number estimated from United States census returns up to Nov. 9, 1918.

† Boston City Health Department, up to Nov. 2, 1918.

per thousand. In the same university, however, among 600 vocational students who were housed in approved Army barracks, there were six deaths, or a rate of 10 per thousand. The same experience was repeated at Wisconsin in a second group of vocational students. At the University of Minnesota we have the Fort Snelling group, which consists of the students of the university, the hospital attendants, and the guards, the great majority of whom live under barrack conditions. In this group of 4,985 there were fifty-four deaths, or a rate of 10 per thousand. Among

the 4,000 students in the vocational group at the University of Minnesota there were seventy-two deaths, or a rate of 18 per thousand. These men were housed in a big automobile building of many stories, and they slept many hundreds in a room. In accordance with previously accepted standards of cubic air space, floor area and ventilation, the conditions were good. At the institution for the feeble-minded at Orient, Ohio, among 600 inmates who were housed from twenty-four to 160 in a room, there were thirty-five deaths, or a rate of 58 per thousand.

It is proper to mention that there were many Students' Army Training Corps at a number of the colleges where a large percentage of the students were housed in barracks, and either no deaths occurred or there was a very small percentage. But it is also true that in such instances pneumonia was usually not introduced. Similar conditions, of course, obtained among the Army camps. The rate varied from the very low rate at Camp Wheeler, for instance, to camps like Sherman, where the rate reached 30 per thousand, so that the conditions of comparison between the military and the civilian population in this respect still remains the same.

From the accompanying tables the lower rate among civilians will at once be apparent. It has long been recognized that quartering men in barracks involves

TABLE 3.—DEATHS AMONG ALL AGES IN A NUMBER OF TYPICAL CITIES

City	Population	Deaths* Influenza Pneumonia	Rate per Thousand
Milwaukee	453,381	614	1.4
Indianapolis	289,577	427	1.5
Los Angeles	568,495	1,214	2.1
Louisville	242,707	610	2.5
New York	5,737,492	19,357	3.4
Providence	263,613	994	3.8
Boston	785,245	4,355	5.5
Baltimore	599,653	3,685	6.1
Philadelphia	1,761,371	12,665	7.2

* United States Census Reports up to November 9, 1918.

considerable risk of a high mortality from respiratory diseases. Classical examples are those among the men quartered in barracks in Panama and among the miners similarly housed in South Africa. The 10,000 or more deaths that occurred from pneumonia among our troops last winter is further evidence. The high mortality rate in the Great Lakes Training Station furnishes another excellent example. Experience among the members of the Students' Army Training Corps who were quartered in barracks or under semi-barrack conditions in the recent epidemic of influenza shows a higher death rate. It is most interesting to observe that these high death rates occurred in barracks where the cubic air capacity and the square floor area approximated the standard set for approved barracks, namely, a minimum of 500 cubic feet of air space and 50 square feet of superficial floor area per person, and that on the whole the ventilation was good.

It is my purpose in this paper to note the mortality rates among groups of peoples housed under different conditions. No explanation will be attempted as to why death rates are higher among persons housed in barracks. However, it may do no harm to point out that experience based on laboratory investigations in our Army hospitals shows that in large wards the bacterial flora in the throats of the patients tended to become equal. In other words, when individuals were admitted who had different bacteria in their respiratory passages from those already in the ward, these organisms could soon be found in the others. The facts reveal a lower mortality among those housed one

or two in a room. However, there may be other factors involved. For instance, in large Philippine prisons it has been the custom for the past ten years to disinfect the mess kits and hands before eating, because there was much reason to believe that it reduced the disease incidence.

In view of the present high state of infectivity of respiratory diseases, it is not unreasonable to assume that unless better housing conditions are provided wherever men live in barracks, a morbidity and mortality rate will obtain approaching that of the Army quartered in barracks last winter. One might well be led to ask, Is there a military or other emergency that would justify so great a sacrifice of life? It must be remembered that in addition to the humanitarian consideration, a heavy economic loss will be encountered. The college man in the Students' Army Training Corps, for instance, represents the period of life at which the greatest outlay has been made, with scarcely any return on the investment of education. Soldiers and workmen are great financial assets. But there is even a more serious factor to be considered. Men living in barracks are widely scattered throughout the United States, and many groups are in intimate relationship with our large, populous centers, to which they will, unless corrected, transmit dangerous communicable diseases like pneumonia, cerebrospinal meningitis, septic sore throat, diphtheria and measles, thereby becoming a serious menace to the health of the civil community. Thus, much preventable and unnecessary disease would be caused. It would seem well to consider plans for "debarracking" aggregations of men throughout the United States. As matters stand, those responsible for retaining men in barracks are assuming a heavy responsibility.

SUMMARY

1. Experience in this country since the war began has shown that soldiers who live under barrack conditions have a high morbidity and a particularly high mortality rate from respiratory disease.

2. The mortality rate among the Students' Army Training Corps in the recent outbreak of so-called influenza was higher than among students who lived under prewar conditions.

3. Civilians throughout the country had a much lower mortality rate than soldiers in cantonments and students in barracks at colleges and universities.

4. Other conditions being equal, the mortality was higher among groups of men who slept many in a room. There may have been other factors responsible than sleeping in the same room, as, for instance, infection through close contact at meals, infected mess kits and hand infections.

5. The high infectivity from respiratory disease at the present time makes it justifiable to require men to live under barrack conditions only in cases of extreme emergency.

6. Patients with different respiratory infections should not be quartered in the same ward or room, even in the presence of heretofore accepted standards for ventilation. If emergency conditions make such a course necessary, patients and attendants should when practicable wear approved masks or be otherwise protected.

7. Finally, sanitary art has not arrived at the point at which it can adequately safeguard the lives of men against respiratory disease who live under barrack conditions.

MUSTARD (YELLOW CROSS) BURNS

LEONARD D. FRESCOLN, M.D. (PHILADELPHIA)

Major, M. C., U. S. Army

FRANCE

Recent attacks have shown that instead of the former gas cloud offensives being employed, the so-called "mustard gas" shells have been used to play an important part in annoying the enemy. A burn of either the first or the second degree with some of the retained irritant is produced. The liquid may be splashed on the part or the vapor reach the skin sufficiently to produce a redness and some hemorrhage. The real burn may be suspected but not appear until twenty-four hours.

This irritant is called in German literature by several names, and "yperite," or dichlor-ethyl-sulphid chemically. It vaporizes on the explosion of the shell and then does the damage to those exposed, but its effect is not much appreciated before four hours. Besides the skin manifestations there may be, after a day, vomiting, cough, hoarseness and pain. The eruption itself may appear as punctate, rose-red areas, simulating a vesicular eczema, or at times desquamation. The fluid contents may coagulate and become infected. Moreover, the fluid sometimes spreads, and there can be quite a large area of burning and itching. Ulcers sometimes form and persist for six weeks. As a rule, pigmentary changes result. Only rarely is there loss of hair; this is seen best in the lower animals.

Some individuals seem more susceptible to its severity than others. Occasionally a physician handling the patients will be infected from the contents of the blebs. Those who are sweating profusely are liable to suffer a nettle rash eruption. Furunculosis results at times. The chemical seems to be absorbed through the layers of the skin. A splash into the eye may destroy this organ, though this has occurred rarely, but the fumes merely inflame and at most cause linear scratches on the cornea made visible by 1 per cent. fluorescein.

Two things are important in combating this cruel weapon: First, to recognize early any suspicion of the irritant and protect against it, and second, to administer on the field first aid correction and prevent involvement of others. One should insist on the immediate application of masks, covering well exposed parts, and withdrawal from the immediate neighborhood, remembering to discard as much as possible all things contaminated. The best way to alleviate parts attacked is to have ready a 2 per cent. sodium bicarbonate solution for the eyes and throat and a 2 per cent. chlorinated lime preparation for the skin and neutralize quickly, for this cannot be used efficiently later any more than an acid burn can be thus treated long afterward. In fact, the lime will later irritate the exposed derm. Aromatic spirits of ammonia may be inhaled, or 2 per cent. sodium thiosulphate and 0.5 per cent. sodium bicarbonate (German method) used as a spray for treating the upper respiratory tract. Complete rest should be given in marked cases as in other gas cases, and plenty of ventilation provided. If severely affected patients have been brought from dirty holes or trenches, I would advise a dose of tetanus antitoxin. In emergencies a lather of soap is placed on exposed parts of the body. Further treatment is that of an ordinary burn, the aseptic opening of blebs, care being taken not to allow the contents to touch other parts

of the skin. Five per cent. sterile boric acid ointment is a good dressing covered by sterile gauze pad and bandage, or 10 per cent. sodium bicarbonate ointment. The eyes are washed with solution of boric acid and covered, and the lids protected for some time with bland yellow mercuric oxid ointment and fear of further injury dispelled. Later dusting powder of bismuth and zinc oxid, or of zinc stearate will prove satisfactory for abraded skin areas.

Dugouts and holes where a person is likely to sit are to be suspected and carefully evacuated by an attendant wearing oil canvas protection. Then chlorinated lime is scattered in places suspected. Articles of salvage and waste should always be held under suspicion of being contaminated. The clothing is soaked in several changes of water at 70 C. Instead of strong alkaline remedies, potassium permanganate, 0.05 per cent. solution, is recommended, or a 0.1 per cent. zinc chlorid, and between the fingers or folds of the scrotum, a weak silver nitrate solution. In advanced respiratory cases, oxygen inhalations are used.

Owing to the censorship, the photographic reproduction of many interesting cases is not permissible. These cases should be given careful attention, and after treatment one need not necessarily excuse patients with mild skin burns from duty.

EFFECTS OF THE INJECTION OF EPINEPHRIN IN SOLDIERS WITH "IRRITABLE HEART"

PRELIMINARY NOTE

FRANCIS W. PEABODY, M.D. (CAMBRIDGE, MASS.)
Major, M. C., U. S. Army

HARRY D. CLOUGH, M.D. (PROVIDENCE, R. I.)

CYRUS C. STURGIS, M.D. (PENDLETON, ORE.)

JOSEPH T. WEARN, M.D. (BOSTON)

First Lieutenants, M. C., U. S. Army

AND

EDNA H. TOMPKINS

LAKEWOOD, N. J.

On account of the general interest that has been aroused in the clinical syndrome originally described by Da Costa as the "irritable heart of soldiers," it has seemed to be advisable to present in the form of a preliminary note the observations recorded herein. No broad conclusions are as yet drawn from them. The investigations are being continued, and they will be published in detail later, when the work on the various sections is completed.

PHYSIOLOGIC ACTION OF EPINEPHRIN

In spite of the large amount of clinical and experimental work that has been done on the physiologic action of epinephrin, and on the effect of its injection into the human and animal body, our knowledge of the subject is still very far from complete. There are, indeed, not a few points on which rather fundamental differences of opinion exist among competent investigators. Nevertheless, one fact appears to be quite definitely established, and from the standpoint of the present study this is perhaps sufficient to provide a basis on which to interpret the results. Broadly speaking, epinephrin acts as a stimulant to the sympathetic nervous system.

METHOD

The method adopted was that devised by Goetsch¹ and used by him especially in the study of thyroid disease. The patient lies quietly on a bed for at least an hour. Observations are then made on the systolic and diastolic blood pressure, pulse rate and respiration rate. Notes are also made on the presence of and degree of tremor, sweating, temperature of hands, pulsation of vessels (peripheral and abdominal), and general nervousness. When the blood pressure, pulse and respiration rates are found to be constant for several observations made at five-minute intervals, an injection of 0.5 c.c. of 1:1,000 solution of epinephrin (Parke, Davis & Co. adrenalin tablets freshly prepared) is made into the deltoid muscle. Records are then taken of the systolic and diastolic blood pressure, pulse and respiration rates every two minutes for ten minutes; then every five minutes for one hour, and then every ten minutes for half an hour. At the same time any changes in the symptoms mentioned, or the appearance of new symptoms, is noted. The dosage of epinephrin appears to be well chosen. A large dose would probably produce symptoms in almost every one, but this small amount makes possible the differentiation of a group of persons who may be regarded as hypersusceptible to epinephrin.

A positive reaction to the epinephrin injection consists in the production of a rise in the systolic blood pressure or of the pulse rate of over ten or fifteen points, accompanied by the production of rather typical symptoms, such as flushing, sweating, increased vascular pulsation, increased tremor of the hands and often of the arms, restlessness, and more or less marked general nervousness. The blood pressure may rise 30 or 40 mm. in marked positive cases, and the tendency of the pulse is to follow the systolic blood pressure. Pulse pressure is characteristically increased. Respiration usually increases in depth but not in rate. A moderate rise of blood pressure or pulse rate alone, without the characteristic increase in symptoms, is not regarded as constituting a positive reaction. Slight symptoms may appear in many instances in which a definite reaction is not obtained, and it takes a little experience with positive and negative results to be able to differentiate between the two. The reaction usually begins about twelve minutes after the injection of epinephrin, reaches its climax on the average in thirty-two minutes and is finished in a little over an hour.

CONTROL AND CLINICAL OBSERVATIONS

Some difficulty was found in selecting suitable subjects for control observations. Persons merely in good health while leading a more or less normal life could hardly be used for comparison with a group of men who had developed symptoms while under nervous and physical strain, for one could never be sure exactly how the controls themselves would survive under similar circumstances. Thus, for instance, the hospital medical detachment could not be used, as it contains many men who are assigned to it for the very reason that they are not fitted for the strain of full duty. It seemed necessary, therefore, to look for controls in an organization that had been doing full duty for a considerable period. Such men were found in the 109th Sanitary Train, then at Camp Dix. This had been in active training for nearly two years, and

1. Goetsch: Personal communication to the authors.

the men were in the finest physical condition. With the permission of the division surgeon and the commanding officer, epinephrin tests were made on twenty-seven men picked at random from a group volunteering for the purpose. One man gave a slight suggestive reaction, but in no instance was a typical reaction observed.

The clinical observations to be reported at present comprise those made on a group of sixty-five soldiers representing what may be termed the "constitutionally inferior" type of patient with "irritable heart." Those in whom the symptoms date from a recent infection, and those in whom symptoms developed only after some unusual physical or nervous strain after they had done full duty in training for a considerable period, are excluded. There remains a group of patients giving a clinical picture which is essentially the same in all the cases. It is, moreover, a type of man that is being seen very commonly in the camps in this country at the present time. These patients usually give a history of being "weak" or "easily exhausted" for many years; of having always "favored" themselves, and having avoided "overexertion" often at the solicitation of relatives or on the advice of a physician. Often they have been told they have a "weak heart." They have always done "light" work, have usually "lost much time," and are fairly well contented in a low economic grade. Among their symptoms are nervousness, fainting, vertigo, dyspnea, palpitation and precordial pain on slight exertion. Perhaps the most fundamental symptom, however, is a tendency to become fatigued easily. They have little ambition or "push," and are usually without much self-confidence. They are often introspective or neurotic, and try to evade physical and mental exertion. In civil life many of them belong to the vague group of neurasthenics, but they get along fairly well for they are able to adapt their lives to themselves. When they are brought into the Army they are forced to adapt themselves to a wholly abnormal life—a life of physical and nervous strain—and they fail. Perhaps the most characteristic feature of the whole group is the fact that while the length of their Army service may be months, the period they have done full duty is usually measured by days. Under the strain of drill and hikes they fall out and report to the hospital with symptoms resembling those seen in organic heart disease. In spite of the fact that on physical examination, except for an instability of rate, the heart is normal, they are usually classed among cardiac patients, and the diagnosis "cardiac disease, functional" is made.

Of sixty-five patients in this group, the epinephrin test was positive in thirty-nine (60 per cent.), doubtful or suggestive in six (10 per cent.), and negative in nineteen (30 per cent.). In considering these results one must accept the fact that the clinical group dealt with does not necessarily represent one single clinical entity. There is no reason to suppose the etiology of the symptoms is in all cases the same. It is distinctly interesting, therefore, that so large a proportion should be hypersensitive to epinephrin, and one should at least consider carefully whether an unusually excitable sympathetic nervous system may not play a part in determining their condition. When one compares this group with its positive epinephrin reaction to the group of thoroughly trained soldiers in whom no definite reactions were obtained, the contrast is certainly striking.

BASAL METABOLISM

The effect of the injection of epinephrin on the basal metabolism has been studied in persons giving a positive reaction, and in others in whom no reaction was obtained. The expired air was collected for the periods of nine or ten minutes in a large Tissot spirometer, analyzed, and the heat production calculated from the oxygen consumption and respiratory quotient. The results were compared with the standards given by Du Bois and his associates at the Russell Sage Institute of Pathology. One or two periods were taken before the injection of epinephrin, and one, two or three periods following the injection. In six patients who did not give reactions to epinephrin, there was a rise of metabolism after the injection of epinephrin amounting to between 3 and 11 per cent. Following this there was a fall in metabolism to from 3 to 11 per cent. below the initial normal figure. In sixteen cases showing a positive reaction to epinephrin the rise in metabolism amounted to from 15 to 32 per cent. This was followed after the reaction was over by a fall in metabolism to a point from 3 to 5 per cent. below the initial metabolism before the epinephrin was injected. An injection of salt solution produced no increase in the metabolism in a patient who subsequently showed a rise of 29 per cent. after the injection of epinephrin. The epinephrin caused an increase in the metabolism of more than 20 per cent. in thirteen of the sixteen cases. Epinephrin seems to cause a rapid rise in metabolism, reaching its maximum at the height of the reaction and then falling off rather quickly. The rise in metabolism closely parallels the rise in blood pressure. In the majority the increase of metabolism was associated with a rise in the respiratory quotient.

BLOOD SUGAR DETERMINATIONS

In fifteen cases—seven sensitive to epinephrin and eight negative—blood sugar determinations were made. Three specimens of blood were obtained for analysis, one before the injection of epinephrin, a second from thirty to forty minutes later, an endeavor being made to obtain the blood at the height of the reaction if the patient was epinephrin-sensitive, and a third an hour and a half after the giving of the epinephrin. In each patient following the epinephrin injection the blood sugar was increased, the epinephrin-sensitive cases showing a greater increase than the negatives. The results so far are: Average blood sugar rise in seven epinephrin-sensitive cases, 0.044 per cent.; average blood sugar rise in eight epinephrin-negative cases, 0.028 per cent.

ELECTROCARDIOGRAMS

Electrocardiograms were taken in twelve cases before the injection of epinephrin, at approximately the height of the reaction and after the reaction was finished. At the height, ten of twelve patients noted symptoms, such as dizziness, blurred vision, palpitation and precordial pain, that bore a close resemblance to the symptoms prominent in their histories. The most constant change found in the electrocardiograms was a slight decrease of the height of the T-wave. This always occurred in one lead, usually in two leads, and sometimes in all three. It was most marked in the second lead. In individual cases other abnormalities were seen, as increase of a sinus arrhythmia; inversion of the P-wave; prolongation of the P-R interval, and partial heart block; inversion of the T-wave, and the production of ventricular extrasystoles.

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SATURDAY, DECEMBER 7, 1918

A SPANISH EDITION OF THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

In a communication to the Editor last March, President George E. Vincent of the Rockefeller Foundation suggested that the publication in Spanish of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION—thus making it available to our colleagues in Central and South America and elsewhere—would be a great achievement, for promoting both scientific medicine and better international relations. The subject was brought before the Board of Trustees of the American Medical Association at the meeting in Chicago last June. The Board gave the matter very favorable preliminary consideration, and ordered that an investigation be made and further facts presented, so that final action might be taken at a later meeting. The matter was again considered at a recent meeting of the Board, with the result that the publication of a Spanish edition of THE JOURNAL was authorized.

The question of establishing closer relationship with the Central and South American republics, Mexico, Cuba, the Philippine Islands, etc., has long been regarded as an important one. The Pan-American Union has been developing this spirit of friendship and cooperation for many years. While business and commercial relations have been developing very rapidly, thus far the scientific men of the United States do not seem to have appreciated the opportunities and the benefits that would result through mutual exchange of views and ideas and of the results of research and investigation. The medical problems of Latin America always have been essentially the same as ours; we have only to recall the comparatively recent epoch-making work of Finlay, Reed, Gorgas, Guiteras, Liceaga and Cruz on yellow fever, of Ashford on hookworm disease, and of Strong on verruca peruana to show how identical are our interests in this field, and how much is to be gained by making each other acquainted with what we are doing and what we have already done. Our colleagues to the south of us have been looking more to France and Germany than to this country for their medical literature, and their medical students were more likely to go to those countries than to this for their undergraduate and postgraduate work.

Some weeks ago letters were sent to about two thousand physicians in Central and South America, outlining the proposition of publishing a Spanish edition of THE JOURNAL, and asking their opinion as to whether such a journal would be welcome. There has not been time for replies except from Central America and the northern parts of South America; but all of these replies have been enthusiastically favorable to the proposition.

Preparations are now being made for the publication of the initial number early in January. For the time being the Spanish edition will be issued semi-monthly. It is proposed to include in it practically all of the scientific matter that appears in THE JOURNAL. Original articles and editorials that are of local or very ephemeral interest will not be included, nor will it include the medical news listed under states, marriages, deaths or matter of this character. In a word, everything that may be regarded as of general interest to the new readers, and especially all that is of permanent value, including, of course, the abstracts, Current Medical Literature, and foreign letters, will appear in the Spanish edition.

It needs no prophet to forecast the fact that the relations, always close, between the democracies of North and South America will with every succeeding day become closer and more advantageous on both sides. The better we know each other, the better friends we shall be. Nowhere can this friendship and close relationship be more fruitful than in the field of science, and especially in medical science. It is in this spirit of cooperation and confraternity that the American Medical Association is entering on this enterprise. It may be unnecessary to say that no financial gain is hoped for from this publication. If after several years it pays its own way, it will be doing all that can now be expected of it. Rather, it may be said that the enterprise is begun wholly with the spirit of fostering true internationalism and with purely altruistic motives.

THE FUTURE OF THE MEDICAL PROFESSION

Scarcely have we had time to realize that the great war is over when the numerous after-the-war problems present themselves. Reconstruction seems to be the word on every one's tongue, and the term is applied to almost every phase of human activity. There is reconstruction of the wounded, not only in a physical sense, but also in the sense of reeducating the partially disabled along lines that will enable them to become self-supporting; reconstruction of the industries to meet the new problems of finance, transportation, labor, foreign markets, etc.; in fact, conditions have changed so that readjustments along many lines have become necessary. Nor is the reconstruction idea limited to certain activities, for in some countries the funda-

mental principles of social existence are rapidly undergoing reconstruction. There is so much upheaval going on throughout the world that it is not surprising that the medical profession has received some attention.

The future of the medical profession in England was discussed by Sir Bertrand Dawson in the last Cavendish lecture.¹ It appears that the position of the physician in England is far from being an enviable one and that certain reforms are greatly needed. The physician is overworked and underpaid, and the influence of the profession as a whole in public affairs seems to be practically nil, even when they relate to matters with which the medical man should be the most competent to advise. This is indeed unfortunate, not only for the physician, but also for the community. The present condition of the profession is not the result of the war but the outgrowth of many antecedent conditions, not the least among which is the national health insurance law.

Many physicians who are doing panel work under this law, even with hard work, are unable to earn more than £30 (\$150) net a year. While it is admitted that the panels might be made larger and thus yield greater return, this simply reduces the practice of medicine to a question of physical endurance, without regard for brains and ability.

There is much food for thought in this situation for those who without due consideration are urging state health insurance in this country. Dawson's hope for the future of the profession in England lies in a modified form of state medicine. It contemplates the establishment and maintenance by the state of health centers, a health center to consist of a hospital with its out department, social service, etc. The physicians connected with each health center would receive a salary from the state, in return for which they would render medical service at state expense to those of the community who, under the regulations, are entitled to such service. The physicians would not be expected to give their whole time to state work, but would be permitted to have pay patients in the hospital as well as outside, and to receive for their services as the circumstances of the patient may admit, or as their reputation and skill may command.

In certain larger communities there would be so-called "teaching hospitals," with a paid staff, some of the members of which are to be full time, others part time; the younger members of the profession may receive instruction at these institutions, and medical research therein is to be encouraged. The plan contemplates a minister of health, with a council of medical men forming a great state health department.

The general idea of a health center has merit, but the best method of establishing and maintaining it is open to argument, particularly as to the extent to which

the state should contribute. The scheme as outlined by Dawson has for its purpose the betterment of the conditions under which the medical profession is laboring in England today. That the adoption of some such plan would be an improvement, at least for the time being, is perhaps correct. The chief criticism, however, which may be made of this scheme is that the betterment of the profession alone is considered; but no lasting improvement can be hoped for that does not take into consideration the community as a whole. It is a problem of society, not simply a problem of a class. The analysis of the deplorable conditions of the profession does not go deep enough into the causes, and unless the causes are recognized and remedied, little permanent improvement will result.

DEMOBILIZATION AND VENEREAL DISEASES

The prospect of demobilization of more than 4,000,000 troops presents a large sanitary problem, especially as regards the venereal diseases. The situation offers a unique opportunity for influencing the spread of these diseases in this country. If proper action can be taken so that every soldier with venereal disease can be rendered noninfectious before discharge from the Army, the future venereal disease condition of the country will be greatly benefited. If no successful effort can be carried out to render these men noninfectious before their demobilization, the result, on the contrary, must inevitably be a great increase in the incidence of these diseases. One of the greatest disasters of war is the spread of infections that occurs through the occupation of territory by troops, and even to a greater extent through the disbanding of troops at the close of war. Epidemics following wars have often caused far greater loss of life than have the actual casualties of war itself or diseases occurring among troops during the prosecution of war. This applies particularly to the venereal diseases.

It is clear, then, that a serious epidemic of venereal diseases may befall us if a thoroughgoing, vigorous policy is not pursued in demobilization. Fortunately, it would appear to be comparatively simple to outline a course of action which, successfully carried out, would minimize and probably eliminate this danger, and furthermore, would have an appreciable effect in diminishing the present incidence of venereal infections. The fundamental proposition is that soldiers should not be discharged from the Army as long as they are infectious with chancroid, syphilis or gonorrhea.

The problem of chancroid is a small one, since few cases of this condition or its sequelae occur that cannot be definitely rid of infectiousness in a few weeks.

The practical dangers of syphilis are from the chancre, from mucous patches in the mouth and about the genitals, and from condylomas. All of these can be disposed of in a few weeks under active treatment.

1. Dawson, B.: The Future of the Medical Profession, *Brit. Med. Jour.*, 1918, 2, 23, 56.

While there is always some danger of recurrence within the next few months, this danger rapidly diminishes as time elapses. In patients who have been treated vigorously with mercury or with mercury and arsphenamin, the danger from these lesions disappears in from four to eight weeks in most cases, and is almost eliminated within six months after the beginning of treatment. In active cases of syphilis, therefore, a great practical advantage would be gained by holding patients for two months, and their danger to the country would be practically eliminated by delaying their discharge for six months. Any remaining trace of danger could still further be reduced by impressing on all such patients the necessity for further treatment, which of course they should have for their own good.

The incidence of gonorrhea is so great, and its infection so insidious after the disease becomes chronic, that it presents the most important and the most difficult of these problems. There are, however, certain definite, well-recognized criteria by which the infected men may be judged to be free from subsequent danger of infectiousness. These criteria can be met by treatment in many cases in from three to six weeks, in most cases in from six to eight weeks, and the cases are rare that cannot be cleaned up by intelligent, vigorous treatment within six months. Patients with gonorrhea in the Army should not be discharged until they meet these criteria.¹

The practical difficulties of the general problem are (1) the trouble and expense of holding the infected men while undergoing treatment before discharge, and (2) the danger of these men becoming marked in the minds of their civil acquaintances as being venereally infected by reason of the delay in their discharge. The former is of small importance compared to the great advantage for the civil population which this policy would involve. To send these men back to civil life with their infections uncured would be a sanitary crime. The second of these difficulties would not seem hard to obviate because of the relatively short time necessary to carry out this policy. The American Army from Europe cannot be disbanded in a week after it reaches our shores. Some men will have to be retained in service for a few months. The same facts apply to the men in the various domestic camps. It ought, then, to be possible to detain the venereally infected without disclosing the reason for so doing.

According to newspaper reports, Surgeon-General Ireland proposes to detain men with infectious diseases, including venereal diseases, in accordance with a general policy. It is greatly to be hoped that no considerations of expediency will be interjected to interfere with this enlightened policy.

THE PRODUCTION OF DRUG PLANTS IN THE UNITED STATES

In the early days of the European war this country was brought to a realization of the extent to which it had become dependent on foreign sources for the supply of crude drugs. Much was written about the efforts that should be made to avert the threatened drug famine by seeking unanticipated sources of supply as well as by prompt stimulation of the cultivation of medicinal plants. It was easy for the untutored propagandist to recall "the good old days" when home gardens not infrequently contained a variety of herbs that enjoyed popularity as healing agents and when the fields and forests were recognized as sources of plants of reputed medicinal value. Two or three years ago much was even said about the patriotic duty of growing drug plants.

The existence of a drug crisis after the summer of 1914 need no longer be dwelt on. Now that the prospect of peace permits an unbiased if not unhampered survey of the situation, the medical profession cannot fail to have a serious interest in our prospect and our duty regarding the production of drug plant crops. Two facts of direct import in the matter have been emphasized by an expert of the Bureau of Plant Industry in the United States Department of Agriculture.¹ Owing to the great development of foreign commerce, which made it possible to obtain supplies of most crude drugs from sources where the cost of production was less than in this country, drug cultivation has never become an important branch of agriculture in the United States. In recent years it has been confined chiefly to the production of relatively small crops of plants yielding volatile oils which are in demand for industrial purposes as well as for medicinal use. Furthermore, the problem of marketing drug plants has never been seriously considered here. There are hazards and uncertainties that might lead an enthusiast into early difficulties. Hence, as Stockberger warns, unless closely supervised by some central authority, any extensive movement to grow drugs might easily result in the production of far larger quantities than are needed. This would involve a useless expenditure of effort which might accomplish much good if exerted in other ways.

Out of the large number of plants that yield useful drugs, the list of those suitable for cultivation in this country is not large. Many of them demand

1. The following test of cure of gonorrhea is taken from "The Venereal Diseases," American Medical Association, 1918, price 25 cents:

The man should take vigorous exercise on the day before the one on which the examination is to be made.

He should not urinate for two hours before the examination is made. Examination should show the following findings:

1. He should have no urethral discharge, or at most a mucopurulent drop at the meatus should be obtained on stripping the penis.

2. If such a drop is found, it must be free from gonococci.

3. In the two glass test, both Glass 1 and Glass 2 must be clear and free from pus shreds. Epithelial shreds free from gonococci may be disregarded.

4. The secretion obtained by massage of the prostate and seminal vesicles must show no gonococci and few leukocytes.

5. Examination with a bougie à boule should demonstrate the absence of stricture.

1. Stockberger, W. W.: Production of Drug Plant Crops in the United States, Yearbook, Dept. Agric., 1917, p. 169.

tropical or semitropical conditions; others require much experimentation to transfer them from wild states to those of commercial cultivation in new environments. Like so many other problems raised by the war, that of the successful and profitable production of drug plants clearly indicates the need of expert advice and scientific consideration. Peppermint, spearmint, wormwood, wormseed and tansy are now grown commercially, chiefly as a source of volatile oils. Cannabis is produced in the Southern states. The experiments in camphor growing have encountered financial obstacles owing to the large outlays involved. Digitalis is sufficiently abundant as a wild plant in the Western states to allay all danger of a serious shortage. The American requirement of belladonna could easily be satisfied by the yield from 500 acres; and at least one fifth of this was harvested from cultivation in 1917. Recent attempts to produce henbane as a drug crop in this country have resulted in failure.

Perhaps the enforced restrictions of war-time shortage will have had the not undesirable effect of demonstrating that many of the drugs now in use can well be dispensed with. This will be in harmony with the efforts of the Council on Pharmacy and Chemistry of the American Medical Association, which has long insisted that "a considerable proportion of Pharmacopoeial drugs and preparations are superfluous or worthless."² In the realm of desirable drug plants, haphazard methods of cultivation are quite as objectionable as is indiscriminate dispensing in the domain of therapy. For the production of a dependable supply of cultivated crude drugs of high quality, Stockberger writes, reliance must be placed on well-equipped growers who make the growing of drug plants a special industry, and who have the necessary experience in special methods of plant culture, acquaintance with trade requirements, and knowledge of the influence of time of collection and manner of preparation on the constituents of the drug on which its value depends. If developed along these lines, he adds, commercial drug growing in this country promises to become established on a sound basis for the future, when normal conditions return.

2. Useful Drugs, a List of Drugs Selected to Supply the Demand for a Less Extensive Materia Medica, Chicago, American Medical Association, 1916.

Physical Education of the Citizen.—The physical education of its citizens has been left almost to chance by nearly all nations, although physical strength and fitness are very important factors in the work of every one. The play and work of their daily lives, together with a casual indulgence in sports on the part of a few, make up the physical training of the masses. Considering its great value to the nation, it would appear advisable to encourage athletic sports, to provide numerous leaders for the specific purpose of encouraging athletic contests and getting all, even the modest, into the fields, the golf links and tennis courts. The great value of universal military drill in strengthening the physique of the young adult is beyond question.—Dr. P. G. Nutting, *Scientific Monthly*, November, 1918.

Current Comment

THE CHANGING RÔLE OF SUGAR IN THE DIET

The promise of increasing allowances of sugar in the near future to the American housewife will be welcome news to many persons. This does not mean that the enforced war-time conservation of sugar has provoked any unpatriotic utterances or occasioned any serious hardship to our population. Every one who reads must realize, after some months of reduced allowance of this food commodity, that sugar is not an indispensable part of the diet. Equivalent substitutes have found a use so quickly and widely as to awaken admiration for the resourcefulness and intelligent culinary ingenuity of the American woman, who has contributed most effectively in many unheralded ways toward winning the war. The history of the place occupied by sugar has changed from decade to decade since the colonial period. After the Revolutionary War, the estimated consumption of sugar in the United States was only 7.5 pounds per capita. It rose slowly to 8.3 pounds in 1821-1825, and remained there for some time. In the year 1915 the per capita use amounted to 84 pounds. In other words, a century ago the people of this country consumed less than one-tenth as much sugar as they do now. A simple calculation shows that the prewar rate of use represented from one fifth to one seventh of the daily food need expressed in terms of calories, at a cost of 2 or 3 cents. It is evident, therefore, that the significance of sugar in the diet has changed from that of a mere flavoring matter a century ago to one of a staple. Indeed, before the war the retail cost of a year's supply for a family of average size was about \$23 for sugar, \$36 for flour, and \$20 for potatoes, whereas the meat cost possibly \$200. The promotion of sugar to such dietary prominence has been the result of the profound economic changes in our national life, through improvements in agricultural, mechanical, commercial and transport facilities. Sugar thus affords a striking illustration of how something at first only psychologically valuable may acquire a larger rôle in the daily regimen.

THE "ACRID PRINCIPLE" OF CERTAIN PLANTS

Among the numerous plants still included in the voluminous modern dispensatories of drugs, there are some that contain an irritant usually described as an "acid principle." Phytolacca, or pokeroor, affords an illustration. A similar "principle" is believed to account for the acidity of certain plants that have not attained therapeutic dignity but are liable to come into contact with man in some accidental way. It is sometimes stated that these acid principles are dissipated by drying and by heat. Brown and Anderson¹ of the Pharmacological Laboratory at the University of Minnesota have solved the acidity puzzle for a number of these cases. Being unable to isolate any

1. Brown, E. D., and Anderson, D. D.: The Acidity of Some Plants Due to a Mechanical Action, *Jour. Pharmacol. and Exper. Therap.*, 1918, 12, 37.

volatile irritant, they turned their attention to mechanical factors. Plants like the Indian turnip, species of *Callocassia*, skunk cabbage and pokerooroot contain abundant raphides of calcium oxalate. It is these needle-like crystal masses that produce the irritation referred to as acidity. Any procedure that disintegrates the acicular structures decreases their capacity to produce irritation. This may happen through boiling; hence the supposition of volatility of the irritant substance. The degree of so-called acidity is governed by the physical character of the crystals and the nature of the plant tissues in which they are embedded, those plants containing the long, very slender crystals being much more acrid than those in which the crystals are shorter and thicker. The penetration of the raphides of calcium oxalate in a mechanical way can produce a fiery and painful irritation.

DEMOBILIZATION AND PREMEDICAL EDUCATION

As noted elsewhere, the War Department has ordered the demobilization of all units of the Students' Army Training Corps, and the discharge of the student soldiers began Monday, December 2. This makes unnecessary the further continuance of the condensed course of premedical education which, as shown in *THE JOURNAL*,¹ was established two months ago as a war measure. Had the war lasted for another year, the continuance of the course as outlined would have been an interesting experiment. Since the necessity for it has been removed, however, its continuance would be at altogether too great a cost. It crowded into four quarters, of three months each, the work heretofore requiring six quarters, or eighteen months. Although the curriculum was planned to more than cover the sixty semester hours of credits (the credit measurement of two years of college work), that total was reached only by allowing a credit of about thirteen semester hours for military instruction and training—subjects for which previously no credit was allowed. The emergency schedule not only was a distinct retrogression from the standard of preliminary education generally adopted before the war began, but also, if continued, would be unfair to the students taking it. It would seriously limit their privileges of entering medical colleges, or, if accepted by the medical schools, it would prevent their securing licenses in the majority of states. While it is probable that the licensing boards would have been willing to make concessions if the war had continued, neither such concessions nor a retrogression in standards is justified now that the emergency has passed. The prewar standards have placed both premedical and medical education in this country on a par with those of other leading nations. America has been forced by the war to accept a larger responsibility than heretofore for world problems and policies; it should be in position also to wield a wider influence in medical education and practice. It is of extreme importance, therefore, that premedical college education shall be promptly restored to its prewar status.

1. Schedule of Studies for Premedical Students, Current Comment, *THE JOURNAL A. M. A.*, Oct. 19, 1918, page 1317.

Association News

NEW COUNCIL APPOINTMENTS

Filling Vacancies on Councils on Medical Education and on Health and Public Instruction

The President of the Association, Dr. Arthur Dean Bevan, has made the following appointments: on the Council on Medical Education, John M. Dodson, Chicago, vice H. D. Arnold, Boston, resigned; Isadore Dyer, New Orleans, vice H. Gideon Wells, Chicago, resigned; on the Council on Health and Public Instruction, Victor C. Vaughan, Ann Arbor, Mich., vice Ludvig Hektoen, Chicago, resigned. These appointments, in accordance with the By-Laws of the Association, fill the vacancies until the next annual session.

Medical Mobilization and the War

Personnel of the Medical Corps

For the week ending November 29, there were in the Medical Corps 31,197 officers, an increase of thirty-nine over the previous week. This personnel includes three major-generals, six brigadier-generals, 200 colonels, 433 lieutenant-colonels, 2,357 majors, 9,986 captains and 18,212 lieutenants. There were in active service 30,408, an increase of sixty-nine over the previous week. Discharges to date include 2,855 officers.

European Red Cross Survey

It is announced by the American Red Cross that Major Homer Folks, formerly head of the New York State Charities Aid Association, who has been with the American Red Cross abroad since July, 1917, has been promoted to lieutenant-colonel and has been made chairman of a special mission to make a survey of the European countries in which the Red Cross is operating on which to base a comprehensive program of reconstruction. It is believed that through the rapidly changing conditions in those countries since the signing of the armistice an even larger demand may be made on the Red Cross. Investigations have already been made in Italy, and the Balkan countries will be next visited. The survey is to include Turkey, Armenia and Palestine.

Students' Army Training Corps Demobilized

On November 26 a telegram was sent to the presidents of all institutions having units of the Students' Army Training Corps, as follows:

"Commanding Officers of all units of S. A. T. C. both Sections A and B have been directed to demobilize and discharge the men commencing week of December first, with a view to completion of discharge by December twenty-first. Secretary of War has directed this Committee to arrange adjustments under contracts between institutions and War Department concerning which you will be advised. Letter follows."

The letter referred to confirmed the telegram and stated that adjustments would be handled by the business department of the committee in accordance with a line of procedure which is now being determined. It requested that no arrangement be made for the salvage or disposal of barracks, equipment, etc., pending receipt of information from the business department.

Demobilization of Medical Officers

We are informed that the Surgeon-General of the Army has requested the honorable discharge of all officers over 50 years of age with a view to enabling men well along in life to return to their homes and to take up their practice or other work with as little delay as possible. This step is taken with the belief that the older men should have the advantage of an early discharge in order that the work of recovering their practice and reestablishing themselves in their civil capacities may be less difficult. In taking this action the Surgeon-General wishes it to be understood that the work and service of these men in the department have been greatly appreciated, as well as the substantial sacrifice which they have made in

entering the service, the spirit which they have exhibited in tendering their services to the country in its time of need, and the satisfactory performance of the duties which have been assigned to them.

At the same time the Surgeon-General has requested the discharge of all officers with a personal rating lower than 55 on the scale of 100.

After these two classes of officers have been discharged the Surgeon-General will adopt a most liberal policy in the demobilization of the remainder of the Medical Corps, and will give special consideration to the policy of discharging officers who are needed by the community or whose affairs in civil life are making insistent demands for their early return. The age, length of service, location in which the officer lives, etc., will be especially considered in returning officers to civil life.

To assist the Surgeon-General to determine his policy of demobilization, a questionnaire is being circulated among the officers and it will be the policy of the department to take such action as will most nearly coincide with the interests and expressed desire of the officer. The questionnaire which has been circulated among officers is as follows:

From: THE SURGEON-GENERAL

Subject: Demobilization of officers of the Medical Department.

1. I am directed by the Surgeon-General to advise you that the present plans for the demobilization of officers of the Medical Department holding temporary commissions and who hold no Regular Army commissions, contemplate the division of such officers of the Medical Department into four classes:

First: those desiring immediate and complete release by way of honorable discharge;

Second: those desiring immediate release from active service and reappointment in the Officers' Reserve Corps, inactive;

Third: those who desire to remain on duty under their present commissions as long as their services are required;

Fourth: those desiring appointment in the Regular Army and who are considered eligible for such appointment.

2. Under existing law the maximum age limit for appointment in the Medical Corps of the Regular Army is 32 years, Dental Corps, Regular Army, 32 years and Veterinary Corps, Regular Army, 27 years. There is no provision of law for Reserve Commissions in the Sanitary Corps.

3. The Surgeon-General requests that you advise the personnel division of this office immediately in which of the above classes you wish to be placed.

(Signed) C. R. DARNALL,

Colonel, Medical Corps, U. S. A., Executive Officer.

In discharging officers the following individual records must be made and transmitted to the office of the Adjutant-General: copy of authority for discharge or separation from active service, report of physical examination, appendix to file record card and qualification card.

The following officers will not be discharged under the provisions of special instructions which have been issued: (a) officers holding commissions in the regular Army either on the active list or retired list; (b) officers under arrest on charges, or serving sentence of general court martial; (c) officers having had money or property accountability, and who have not clearance therefrom; (d) officers on sick report or in hospital; (e) officers who for exceptional reasons cannot be spared, or who in the opinion of the commanding officer should not be discharged at this time.

We are informed that it is the intention to issue Reserve Corps commissions in general to those officers who have served with credit to themselves in the war, and who desire such commissions.

Weekly Bulletin No. 29, American Expeditionary Forces

The following paragraphs are taken from Weekly Bulletin No. 29, Oct. 28, 1918, issued for circulation among American medical officers in France:

SECONDARY PNEUMONIA WITH INFLUENZA

From all sources, French, English, Swiss, Spanish, throughout the American Expeditionary Forces, and from our cantonments and civil health departments at home, the opinion appears to be unanimous that the respiratory infection now epidemic is due to, or at least the great majority of the cases are accompanied by, the influenza bacillus, which is easily and commonly found in the early stages or onset of the infection, and may be found in lungs, blood and cerebrospinal fluid. Great interest is attached to the incidence of the main, if not the only, serious complication, namely, the pneumonia, sometimes almost a sharply marked lobar involvement, oftener a disseminated patchy or bronchopneumonia.

A striking relationship is shown between the percentage of complicating pneumonias and the mortality from them, and the lack of resistance from one or other cause and the sanitation and hygiene of the different groups reported on. On shipboard with almost intolerable conditions of exposure, fatigue, anxiety, ill nourishment, poor ventilation and close contact, we have as high as 50 per cent. of bronchopneumonia, and of these cases as many as 50 per cent. die within a week of the onset of the disease. In one of the Army corps in active operations we had, in spite of fairly extensive prevalence of influenza, only 20 deaths from pneumonia in three months. In one of the large regions of France where there were many of the younger classes of the French military in barracks undergoing training, pneumonia developed in as high as 33 per cent. of the cases, the percentage of deaths being from 25 to 40 per cent. In a group of 500 cases of influenza at a camp hospital in the S. O. S., 6.45 per cent. developed pneumonia and of these 50 per cent. died.

With uniformity where resistance is high, as for instance, resulting from mature training and active outdoor military operations not beyond human endurance, where men have adequate clothing and hot food and can sleep in dry quarters, influenza is but a temporary inconvenience with insignificant mortality. Early recognition and hospital care prevents complications; segregation, by cubicle and mask, diminishes cross infection. Rest and symptomatic care and nursing under skilled internists diminishes the death rate.

The epidemic, which has lasted about two months since its return in the American Expeditionary Forces, is diminishing in almost all sections and among all troops, old and new arrivals. In Section 2 the reduction in cases has been 50 per cent. in the past week. The percentage of complicating pneumonias among cases in the American Expeditionary Forces has been from 9.3 to 10 per cent. and the total death rate from influenza and all pneumonias occurring during the period of the epidemic has been from 4.5 to 4.8 per cent. Reports from the French military and civil authorities show a mortality of from 5 to 8 per cent. The last convoys of transports arriving during the week with 28,898 men had 149 cases of influenza and pneumonia, and two deaths during the voyage, showing a vast improvement, one previous convoy having arrived with 24,000 troops and 233 deaths en route and another 311 among cases hospitalized after arrival at the base port.

We are beginning to get an increase in the primary lobar pneumonias and it behooves us to take advantage of the warning given us by the influenza and prepare to prevent pneumonia this winter by persistent and consistent measures to raise and maintain individual resistance by providing air, food, warm dry clothing, and by saving men where possible from exhaustion. Once a man is sick with a respiratory disease he must be treated with as much intelligent medical and efficient technic as is lavished on his fellow surgical sufferer who is guarded similarly against the ubiquitous streptococcus.

EPIDEMIC DISEASE REVIEW FOR THE WEEK

Influenza and pneumonia have during the past week diminished in all parts of the American Expeditionary Forces.

The present practice of hospitalizing and holding without transfer all respiratory diseases at once on establishing a diagnosis must be credited with the marked reduction in the number and severity of the complicating pneumonias after influenza. The almost universal adoption of some form of cubicle isolation of all respiratory tract infections in hospitals and the increasing use of nose and mouth masks for these patients on their way to hospitals and on hospital trains, and the protection of hospital personnel in the same way have also played a large part in reducing pneumonias and cross infections.

There has been a further fall in meningitis, 106 cases being reported as compared with 147 and 167, respectively, in the weeks ending October 20 and October 13, and of the cases reported in the past week just 50 per cent. are properly attributable to infection brought on transports.

Diphtheria again shows an increase. The cases are not grouped in any particular organization but are found (at least 67 of the 97 cases reported) among organizations engaged in active operations at the front. It would appear that the great difficulties in reaching men for medical observation of carrier and contact cases and the abundant opportunities for close contact among wounded men during evacuation from the front and from the evacuation hospitals are chiefly responsible for the increase in diphtheria.

Dysentery, measles, typhoid fever and scarlet fever show no significant change.

Weekly Bulletin No. 30

The following paragraphs are taken from Weekly Bulletin No. 30, Nov. 4, 1918, issued for circulation among American medical officers in France:

PREVENTIVE MEDICINE BY PUNGENT ADVICE IN A
D. S. O. CIRCULAR OF 80TH DIVISION

"To all Medical Officers. 1. There are over five hundred (500) cases of diarrhea reported in the division. Laboratory examination and clinical study have proved the condition to be a catarrhal enteritis of undiscovered specific cause, and not dysentery. The disease has direct connection with faulty kitchen and mess sanitation, imperfect water sterilization, poor cooking and filthy latrines. In those organizations where food is handled and cooked properly, kitchens kept clean, bags rinsed, and latrines given required attention, there are few cases of diarrhea. Such condition exists in the — Machine Gun Battalion.

2. In those organizations where there is not the required attention paid to these matters of sanitation the disease is prevalent. Such condition exists in the — Battalion of the — Infantry.

3. The matter resolves itself into medical responsibility, and the surgeon who neglects to meet this responsibility is directly responsible for the increased sickness in his command.

4. The mere making of recommendations to organization commanders, and telling people what to do, will not suffice. The surgeon must supervise the work at hand and see to it that sanitary requirements are carried out. If any difficulty is experienced in carrying out health measures properly, report will be made at once to the Division Surgeon, for action by the Commanding General.

5. The best treatment for the existing disease consists in early administration of castor oil, and dieting. Get the castor oil from the Medical Supply Officer. Merely requisitioning for it may not get it; go after it until you get it. Also ferret out the cases in the command so as to give them early treatment. Train the men to report to you promptly for any ailment. The serious cases of diarrhea are the ones not reporting to you until the disease has existed for four (4) or five (5) days or longer, and treatment has been delayed. Such cases generally require hospital treatment. Their service is lost, and when they are evacuated to corps hospitals, as frequently becomes necessary, the men are lost to the division.

6. Get an early breakfast, cut out that bridge game, and get on the job."

WEEKLY REPORT OF DISEASE

Meningitis has shown a gratifying reduction during the past week, 43 cases being reported as against 106 for the week previous. Scarlet fever, diphtheria and dysentery show similar reductions. The widespread prevalence of pneumonia and influenza continues, but there are signs of improvement not only in the military but also in the civil population. The mortality from pneumonia, primary, or complicating influenza, has been very high, in some sections exceeding 50 per cent. The same is true of bronchopneumonia.

The week ending October 18, 9,081 cases of influenza were admitted to hospitals in the American Expeditionary Forces and 10,985 the week ending October 25. Pneumonia, except bronchopneumonia, week ending October 18, 831; week ending October 25, 1,077; bronchopneumonia, week ending October 18, 492; week ending October 25, 853.

Weekly Bulletin No. 31

The following paragraphs are taken from Weekly Bulletin No. 31, Nov. 11, 1918, issued for circulation among American medical officers in France. This bulletin deals largely with the prevention of influenza and pneumonia among troops. In addition to the usual sanitary precautions, the following paragraphs are of interest:

PREVENTION OF INFLUENZA

WORK

When influenza is spreading rapidly in a command it is wise to remember that when men are overworked to the point of exhaustion they are rendered thereby extremely susceptible to infectious diseases. It is advisable, therefore, if military conditions at all permit, to ask that drill schedule and other work be slightly reduced until the epidemic is under control.

WHEN THE DISEASE HAS APPEARED: INSPECTION AND
SEGREGATION

When cases of grippe have begun to appear the medical officer should attend roll call and rapidly inspect all the men every morning. This can be done with speed by walking down the line, observing men for signs of "colds in the head," coughing, sneezing, or red eyes, and asking a few questions. Suspicious men should be made to step out and be sent to the sick call, where temperatures should be taken.

Men with definite colds in the head, without temperatures, should be taken out of their billets and made to sleep in special barracks or billets, or other available space, with shelter halves hung up so as to form screens between neigh-

boring beds. If possible, they should be given an extra allowance of bed covering. They should be placed on light duty for a day or two. If no special quarters are available for such men, put them all together at one end of the barrack and separate this end from the rest of the barrack by hanging up blankets, or in some other way making a screen.

Men with temperatures but without pulmonary signs should be hospitalized in the infirmary or field hospital in special grippe wards. In such wards ample floor space and screening between beds should be attended to. If possible, light and loose gauze masks should be provided for patients and attendants. If the temperature continues without coming down for forty-eight hours, or if pulmonary signs develop, the patient should be evacuated promptly.

Of all men showing temperatures on first inspection careful chest examination should be made. If any signs pointing to extensive bronchitis or actual pulmonary involvement are found, the patient should be evacuated promptly.

EVACUATION

During evacuation grippe cases should not be placed in the same ambulances with wounded or with other sick. Remember that, in evacuating pneumonia, the greatest care must be taken to prevent their exerting themselves. Do not let them walk, or dress, or undress themselves. Keep them on their backs. Failure to observe this may make the difference between recovery and death.

HOSPITALIZATION

In evacuation and other hospitals, grippe cases must be placed in separate wards.

Cases developing pneumonia must be taken out of the grippe wards promptly and placed in separate pneumonia wards.

Beds must be screened one from the other.

Attendants must wear light gauze masks.

Sputum must be disinfected or burned.

Thermometers must be sterilized.

The report is also largely devoted to the epidemic of meningitis which developed in one of the camps, and a study of the cases of this epidemic.

The report concludes:

During the past week there has been a sharp increase in diphtheria, the cases having originated chiefly in the zone of combat in the advance section and thence evacuated to the base hospitals where but few new cases have developed. Dysentery and meningitis show further and marked reductions. Four cases of smallpox have been reported among incoming troops at base ports. Influenza continues to decrease although the incidence and case mortality of the complicating pneumonias continue high.

ORDERS TO OFFICERS OF THE MEDICAL
CORPS, U. S. ARMY

Alabama

To Biltmore, N. C., for instruction, from Fort Oglethorpe, Capt. R. C. JONES, Mobile.

To Camp Bowie, Texas, base hospital, from Fort Oglethorpe, Lieut. C. H. MOORE, Birmingham.

To Camp Dodge, Iowa, base hospital, from Camp Grant, Lieut. A. L. GASTON, Ensley.

To Camp Travis, Texas, base hospital, from Fort Sill, Lieut. L. E. SORRELL, Birmingham.

To Philadelphia, Pa., University of Pennsylvania, from University, Va., Lieut. L. B. NICHOLSON, Gadsden.

To Washington, D. C., Surgeon-General's Office, from Washington, Major E. S. SLEDGE, Mobile.

Arizona

To Newport News, Va., from New York, Capt. R. E. HERENDEEN, Bisbee.

The following order has been revoked: To Camp Sheridan, Ala., base hospital, from Fort Oglethorpe, Lieut. E. B. THOMPSON, Benson.

Arkansas

To Fort Des Moines, Iowa, from Camp Dodge, Major L. THOMPSON, Hot Springs.

To Hoboken, N. J., from Panama Canal Department, Capt. D. GANN, Jr., Little Rock.

California

To Camp Jackson, S. C., base hospital, from Camp Cody, Lieut. E. H. CRABTREE, San Diego.

To Camp Leach, D. C., from Camp A. A. Humphreys, Lieut. B. J. ASSWELL, Quincy.

To Camp Logan, Texas, from Fort Oglethorpe, Capt. C. M. DEPUY, Oakland.

To Camp Travis, Texas, base hospital, from Camp Kearney, Lieut. J. A. GUILFOIL, San Luis Obispo.

To Carlisle, Pa., from Camp Dix, Capt. C. L. McCLISH, Los Angeles.
To Detroit, Mich., from Fort Oglethorpe, Capt. M. P. BURNHAM, San Francisco.

To Fort Benjamin Harrison, Ind., base hospital, from Camp Pike, Capt. A. S. J. SMITH, San Jose.

To Fort Oglethorpe, base hospital, from Camp Fremont, Lieut. F. J. BRESLIN, San Francisco; from Camp Pike, Capt. J. A. JACKSON, San Diego; from San Francisco, Capt. D. A. CONRAD, Santa Barbara.

To Fort Riley, base hospital, from Fort Oglethorpe, Lieut. R. L. CRUM, Los Angeles.

To Hollywood, Calif., Los Angeles State and Normal School, from Fort McDowell, Capt. F. P. BRENDEN, San Francisco.

To Lakewood, N. J., from Fort Oglethorpe, Capt. A. F. HAMMAN, Long Beach.

To Los Angeles, Calif., as examiner, Capt. M. M. CLOUD, Los Angeles.

To Washington, D. C., Surgeon-General's Office, from Lake Charles, Major L. F. LUCKIE, Los Angeles; from Newport News, Major W. A. SAWYER, Berkeley.

To West Baden, Ind., from Camp Dodge, Major C. E. PHILLIPS, Los Angeles.

The following orders have been revoked: To San Francisco, Calif., Leland Stanford University, for instruction, from Letterman General Hospital, Capt. W. C. BAKER, San Mateo; E. L. COTTRELL, Scotia; Lieut. L. DOZIER, Stockton.

Colorado

To Camp Lee, Va., from Camp A. A. Humphreys, Lieut. A. H. PETERS, Colorado Springs.

To Fort Riley, from Camp Zachary Taylor, Lieut. J. A. PHILLPOTT, Denver.

To West Baden, Ind., from Camp Dodge, Lieut. I. C. MIERLEY, Denver.

The following order has been revoked: To Camp Sherman, Chillicothe, Ohio, base hospital, for instruction, from Pittsburgh, Lieut. G. L. SHARP, Colorado Springs.

Connecticut

To Camp Travis, Texas, base hospital, from San Antonio, Lieut. F. M. SMITH, Willimantic.

To Camp Wheeler, Ga., base hospital, for instruction, from Fort Oglethorpe, Lieut. G. E. PORTER, Warehouse Point.

To Cooperstown, N. Y., from Fort Riley, Lieut. E. N. DEWITT, Bridgeport.

District of Columbia

To New Haven, Conn., from Fort Oglethorpe, Major R. D. ADAMS, Washington.

To Washington, D. C., Surgeon-General's Office, Colonel H. D. SNYDER, Major T. D. HURLEY, Washington Barracks, from Fort Oglethorpe, Lieut. W. J. G. THOMAS, Washington.

Florida

To Camp McClellan, Ala., from Auburn, Ala., Lieut. A. E. ACKER, Jacksonville.

To Camp Sherman, Ohio, base hospital, from Camp Beauregard, Capt. J. C. VINSON, Tampa.

Georgia

To Camp Wheeler, Ga., base hospital, for instruction, from Fort Oglethorpe, Lieut. P. C. QUARTERMAN, Valdosta.

To Fort McPherson, Ga., from Atlanta, Lieut. J. T. MOORE, Sycamore.

To Fort Oglethorpe, base hospital, from Camp Gordon, Capt. H. H. MALONE, Augusta.

To Walter Reed General Hospital, D. C., for instruction, and on completion to Boston, Mass., from Camp Wheeler, Capt. O. L. MILLER, Atlanta.

The following order has been revoked: To White Plains, N. Y., for instruction, from Fort McPherson, Capt. G. P. HUGULEY, Atlanta.

Illinois

To Baltimore, Md., Johns Hopkins Medical School, from New York, Capt. G. B. HASSIN, Chicago.

To Boston, Mass., for instruction, from Camp Devens, Lieut. J. L. WEBB, Chicago.

To Camp Cody, N. M., from Fort Bayard, Lieut. C. E. DUNCAN, McClure.

To Camp Custer, Mich., base hospital, for instruction, Lieut. P. H. WESSEL, Moline.

To Camp Devens, Mass., from Fort Oglethorpe, Lieut. G. M. LANAU, Chicago.

To Camp Gordon, Ga., base hospital, for instruction, from Fort Oglethorpe, Capt. G. FITZPATRICK, Chicago.

To Camp Hancock, Ga., base hospital, from Boston, Capt. J. H. BACON, Peoria.

To Camp Lee, Va., base hospital, from Camp Custer, Capt. D. M. KEITH, Rockford.

To Camp Logan, Texas, from Fort Oglethorpe, Lieut. J. S. BERKOWITZ, Chicago. Base hospital, from Central Department, Major E. THEXTON, Chicago.

To Camp Meade, Md., from Fort Oglethorpe, Capt. J. V. WHITE, Auburn.

To Camp Travis, Texas, from Fort Riley, Capt. I. H. ELLINGSWORTH, East Moline. Base hospital, from Camp Pike, Lieut. J. T. O'NEILL, Joliet; from Fort Thomas, Lieut. G. H. ANDERSON, Chicago.

To Cape May, N. J., base hospital, from the Surgeon-General's Office, Lieut.-Col. P. P. SCHUYLER DOANE, Chicago.

To Everman, Texas, Barron Field, from Urbana, Lieut. R. F. KNOLL, Chicago.

To Fort Benjamin Harrison, Ind., base hospital, from Fort Riley, Lieut. D. F. PAUL, Chicago.

To Fort McPherson, Ga., from Camp Gordon, Lieut. C. A. JACOBSON, Chicago.

To Fort Oglethorpe, base hospital, from Camp Greene, Lieut. G. E. PFEIFFER, Chicago; from Camp Jackson, Lieut. H. SERED, Chicago; from Camp Shelby, Lieut. P. T. DIAMOND, Evanston. For instruction, from Chicago, Lieut. H. S. SULLIVAN, Chicago.

To Fort Riley, base hospital, from Fort Oglethorpe, Capt. H. H. SHEETS, Oregon; Lieuts. W. H. HOWARD, D. KLEMPNER, Chicago.

To Fort Sheridan, Ill., from Camp Devens, Capt. N. S. DAVIS, III, Chicago; from Camp McClellan, Capt. W. H. GAMBILL, Centralia.

To Hampton, Va., Langley Field, from Morrison, Va., Lieut. C. H. REINHARDT, Chicago.

To Indianapolis, Ind., from Mineola, Major O. YARNELL, Decatur.

To Otisville, N. Y., from Camp Zachary Taylor, Capt. W. G. BAIN, Springfield.

To Plattsburg Barracks, N. Y., from Camp Travis, Capt. W. O. KROHN, Chicago.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Camp Upton, N. Y., base hospital, for instruction, from Fort Oglethorpe, Capt. W. H. GALLAND, Chicago.

To South Baltimore, Md., from Russell, Va., Capt. H. WOOD, Batchtown.

To Walter Reed General Hospital, D. C., for instruction, from Camp McClellan, Lieut. J. R. SHOLL, Peoria.

To Washington, D. C., from Chicago, Lieut.-Col. W. S. SHIELDS, Surgeon-General's Office, from Arcadia, Major R. H. BOLLING, Philadelphia.

To West Baden, Ind., from Camp Dodge, Capt. F. J. LESEMAN, Chicago. For instruction, from Fort Oglethorpe, Lieut. T. W. ROBERTS, Joppa.

The following orders have been revoked: To Camp Sheridan, Ala., from Fort Oglethorpe, Lieut. G. W. WESTERMEIER, Carlinville; G. E. KNAPPENBERGER, Macomb. To Hampton, Va., Langley Field, from Richmond, Va., Capt. R. R. TRUEBLOOD, Lawrenceville.

Indiana

To Camp Grant, Ill., from Camp Beauregard, Lieut. V. G. HURSEY, Legionier.

To Camp Lee, Va., from Camp A. A. Humphreys, Lieut. J. H. HAUCK, Terre Haute; from Fort Oglethorpe, Capt. C. E. GILLESPIE, Seymour.

To Camp Upton, N. Y., base hospital, Capt. H. B. COX, Morristown.

To East Norfolk, Mass., from Camp Greene, Capt. H. D. PURDUM, Sykesville.

To Fort Benjamin Harrison, Ind., for instruction, from Camp Shelby, Capt. H. G. FLEMING, Anderson.

To Fort Oglethorpe, base hospital, from Fort McPherson, Lieut. M. M. MORAN, Portland. For instruction, Capt. A. A. THOMAS, Linton.

To Fort Sam Houston, Texas, base hospital, from Camp Kearney, Capt. C. E. COTTINGHAM, Indianapolis.

To Fort Snelling, Minn., from Fort Oglethorpe, Capt. G. W. ANGLIN, Warsaw.

To report to the commanding general, Northeastern Department, from Plattsburg Barracks, Major G. L. GUTHRIE, Indianapolis.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Camp Sevier, S. C., base hospital, for instruction, from Fort Oglethorpe, Capt. E. A. BROWN, Indianapolis.

To West Baden, Ind., from Camp Jackson, Capt. J. A. MACDONALD, Indianapolis.

Iowa

To Camp Travis, Texas, base hospital, from Camp Pike, Lieut. C. C. LITTLE, Lansing.

To Camp Zachary Taylor, Ky., base hospital, from Nashville, Tenn., Capt. C. ASCHENBRENNER, Pella.

To Fort Benjamin Harrison, Ind., base hospital, from Fort Oglethorpe, Capt. T. B. LACEY, Glenwood.

To Fort Des Moines, Iowa, for instruction, from Fort Oglethorpe, Lieut. M. S. CORLETT, Westgate.

To Fort Oglethorpe, base hospital, from Otisville, Capt. W. L. HEARST, Cedar Falls.

To Fort Snelling, Minn., from Camp Grant, Capt. E. J. HARNAGEL, Des Moines; Lieut. W. H. REDMOND, Cedar Rapids.

To Lakewood, N. J., from Fort Oglethorpe, Lieut. J. O. MURPHY, Eldon.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Camp Meade, Md., base hospital, for instruction, from Fort Oglethorpe, Capt. F. LAMBACH, Davenport.

To Washington, D. C., Surgeon-General's Office, from Fort Riley, Major H. C. PARKER, Dubuque.

Kansas

To Camp Sherman, Ohio, base hospital, from Camp MacArthur, Capt. W. C. CHANEY, Independence.

To Camp Travis, Texas, base hospital, from Camp Pike, Lieut. G. A. KING, Maplehill.

To Denver, Colo., for instruction, from Fort Riley, Capt. C. J. MCGEE, Leavenworth.

To Walter Reed General Hospital, D. C., from Fort Leavenworth, Lieut.-Col. F. N. CHILTON.

Kentucky

To Camp Lee, Va., from Camp A. A. Humphreys, Major G. C. LEACHMAN, Louisville.

To Detroit, Mich., from Camp Jackson, Major E. B. BRADLEY, Lexington.

To Fort Benjamin Harrison, Ind., from Central Department, Capt. W. T. MCKINNEY, S. P. MYER, Louisville; from Walter Reed General Hospital, Capt. J. A. ROBERTSON, Fort Thomas.

To report to the commanding general, Eastern Department, from Albany, Lieut. L. J. GODBEY, Berea.

Louisiana

To Camp Cody, N. M., from Fort Bayard, Capt. W. H. SEEMAN, New Orleans. Base hospital, from Fort Bliss, Major J. W. LEA, Jackson.

To Camp Jackson, S. C., base hospital, from Camp Shelby, Lieut. S. M. BLACKSHEAR, New Orleans.

To Camp Logan, Texas, base hospital, from Camp Beauregard, Major W. E. HALL.

To Camp Sherman, Ohio, base hospital, from Camp Shelby, Capt. A. B. NELSON, Shreveport.

To Fort McPherson, Ga., from Boston, Lieut. R. S. KEMP, New Orleans.

To Fort Oglethorpe, base hospital, from Camp Gordon, Capt. A. L. WHITMIRE, New Orleans.

To Fort Riley, base hospital, from Fort Oglethorpe, Lieut. T. R. MCCARLEY, New Orleans.

To Plattsburg Barracks, N. Y., from Camp Custer, Capt. T. W. EVANS, Jackson.

Maine

To Camp Bowie, Texas, base hospital, from Fort Oglethorpe, Capt. C. M. ROBINSON, Portland.
To Fort McPherson, Ga., for instruction, from Camp Jackson, Capt. D. B. CRAGIN, Waterville.
To Houston, Texas, Ellington Field, from Princeton, N. J., Capt. W. E. WHITNEY, Bangor.

Maryland

To Boston, Mass., for instruction, from Fort Oglethorpe, Lieut. G. E. LANCASTER, Bowie.
To Camp Wheeler, Ga., as camp surgeon, from Camp Meade, Major O. H. STANLEY.
To Carlisle, Pa., for instruction, from Camp Custer, Capt. W. B. PERRY, Baltimore.
To East Norfolk, Mass., from Plattsburg Barracks, Lieut. L. B. HOHMAN, Baltimore.
To Erie, Ohio, from Camp Lee, Capt. P. L. TRAVERS, Easton.
To Fort Hancock, N. J., from Camp Upton, Capt. F. K. NICHOLS, Baltimore.
To Fort McPherson, Ga., from Boston, Lieut. L. BRADY, Baltimore.
To Fort Oglethorpe, base hospital, from Camp McClellan, Capt. T. J. COONAN, Westminster; from Camp Shelby, Major A. D. ATKINSON, Baltimore.
To Newport News, Va., from Fort Oglethorpe, Capt. N. H. BRUSH, Baltimore.
To Rockefeller Institute for instruction, and on completion *to Boston, Mass.*, from Camp Meade, Lieut. T. S. MEBANE.
To Schenectady, N. Y., from Troy, N. Y., Lieut. A. L. WILKINSON, Raspeburg.
To Walter Reed General Hospital, D. C., from the Surgeon-General's Office, Capt. H. P. MAUCK, Baltimore, Lieut. C. L. BAKER, Takoma Park.
To West Baden, Ind., for instruction, from Fort Oglethorpe, Lieut. J. A. SKLADOWSKY, Baltimore.
To Williamsbridge, N. Y., from Camp Meade, Capt. G. F. SARGENT, Towson.

Massachusetts

To Arcadia, Fla., Dorr Field, from Atlanta, Lieut. A. O. McLAUGHLIN, Haverhill.
To Camp Abraham Eustis, Va., from Newport News, Lieut. W. W. MARSTON, Newton.
To Camp Devens, Mass., base hospital, from Syracuse, Major C. B. STEVENS, Worcester.
To Camp Dix, N. J., from Fort Oglethorpe, Lieut. E. R. GOOKIN, Boston.
To Camp Hancock, Ga., base hospital, from Camp Sevier, Capt. E. L. HUNT, Worcester.
To Camp Kendrick, N. J., from Eastern Department, Capt. H. H. SUMNER, Lowell.
To Camp MacArthur, Texas, base hospital, from Otisville, Capt. G. L. SCHADT, Springfield. Base hospital, for instruction, from Camp Custer, Major W. E. FAULKNER, Boston.
To Camp Travis, Texas, base hospital, from San Antonio, Lieut. D. H. NISBET, Boston.
To Camp Upton, N. Y., from Eastern Department, Capt. W. H. ALLEN, Mansfield. Base hospital, for instruction, from Camp Crane, Capt. E. FLAGG, Boston.
To Carlisle, Pa., from Camp Beauregard, Major A. S. KIRKWOOD, Newton; from Fort Oglethorpe, Capt. D. L. MARTIN, Boston, W. G. CURTIS, Wollaston.
To Detroit, Mich., from Camp Meade, Lieut. H. M. BAKER, Boston.
To Fort McHenry, Md., from Camp A. A. Humphreys, Lieut. A. D. VAMVAS, Boston.
To Fort McPherson, Ga., Lieut. D. B. COLEMAN, Wellesley.
To Fort Oglethorpe, base hospital, from Camp Wadsworth, Lieut. J. H. GALLAGHER, Chicopee.
To Fort Riley, base hospital, from Fort Oglethorpe, Lieut. J. J. II. HILTON, Lawrence.
To Fort Snelling, Minn., from Fort Oglethorpe, Capt. T. E. CAVANAUGH, Holyoke; C. C. BURPEE, Malden.
To Lakewood, N. J., from Fort Oglethorpe, Capt. T. W. MURPHY, Lawrence.
To Newport News, Va., from Camp Zachary Taylor, Capt. E. B. YOUNG, Boston.
To Panama Canal Department, Lieut. A. A. NAUMANN, Springfield.
To Plattsburg Barracks, N. Y., from Camp McClellan, Major G. E. McPherson, Harding.
To report to the commanding general, Northeastern Department, from Plattsburg Barracks, Lieut. J. Y. RODGER, Lowell.
To San Antonio, Texas, Kelly Field, from Ithaca, Lieut. E. E. LIGHT, East Long Meadow.

Michigan

To Alcatraz, Calif., for instruction, from Camp Kearney, Lieut. W. G. JENKINS, Newberry.
To Camp Abraham Eustis, Va., from Fort Oglethorpe, Lieut. H. S. CARR, Niles.
To Camp Custer, Mich., base hospital, Lieut. C. R. WALSH, Detroit.
To Camp Lee, Va., from Fort Oglethorpe, Lieut. J. H. HOUTON, Flint.
To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Lieut. J. H. MULLER, Grand Rapids.
To Camp Sherman, Ohio, base hospital, Capt. T. H. E. BELL, Reading; from Camp Dodge, Major W. N. SALISBURY, Ann Arbor.
To Camp Travis, Texas, base hospital, from San Antonio, Lieut. L. M. BUSH, Detroit.
To Detroit, Mich., from Camp Meade, Lieut. A. W. HEINE, Detroit.
To Fort Porter, N. Y., from Camp Custer, Capt. S. A. BUTLER, Pontiac.
To Fort Riley, base hospital, from Fort Oglethorpe, Capt. C. A. WOODRUFF, Detroit.
To Houston, Texas, Ellington Field, from Princeton, N. J., Lieut. R. F. BOONSTRA, Detroit.
To Lakewood, N. J., from Fort Oglethorpe, Capt. F. B. MINER, Flint.
To Markleton, Pa., from New Haven, Capt. A. M. WEHENKEL, Detroit.
To Rockefeller Institute, for instruction in the treatment of infected wounds, and on completion *to their proper stations*, from Camp Meade,

Lieut. J. K. BURNS, Jr., Detroit; from Jeffersonville, Ind., Capt. C. B. GARDNER, Alma.

The following order has been revoked: *To Sawanee, Tenn.*, from Fort Oglethorpe, Capt. C. F. SMITH, Whitehall.

Minnesota

To Camp Dodge, Iowa, from Camp Zachary Taylor, Lieut. H. OERTING, Minneapolis. Base hospital, from Camp Grant, Lieut. J. M. ARNSON, St. Paul; from Fort Douglas, Lieut. W. J. McKILLIP, Duluth.
To Camp Las Casas, P. R., from Camp Jackson, Capt. C. F. McNEVIN, St. Paul.
To Camp Pike, Ark., base hospital, from Fort Riley, Capt. L. M. BOYD, Alexandria.
To Fort Bayard, N. M., from Fort McDowell, Capt. A. PETERSON, Rochester.
To Fort Oglethorpe, base hospital, from Fort Logan H. Roots, Capt. L. A. WILLIAMS, Slayton.
To Fort Snelling, Minn., from Fort Leavenworth, Lieut. F. P. FRISCH, Kimball.
To Minneapolis, Minn., as examiner, Capt. R. S. PERRY, Minneapolis.

Missouri

To Astoria, N. Y., from Camp Custer, Lieut. O. T. MOREY, Salisbury.
To Camp Crane, Pa., base hospital, from Fort Oglethorpe, Lieut. D. J. ROYER, Joplin.
To Camp Meade, Md., from Camp A. A. Humphreys Lieut. D. S. VAN HECKE, Kansas City.
To Carlisle, Pa., from Fort Oglethorpe, Capt. C. S. REHFELDT, St. Louis.
To Fort Des Moines, Iowa, from Jefferson City, Lieut.-Col. A. VON SCHRADER.
To Fort Leavenworth, Kan., from Camp Joseph E. Johnston, Lieut. E. Y. PARE, Leeton.
To Fort McPherson, Ga., from Fort Oglethorpe, Capt. W. E. MEANWELL, Columbia; R. E. NIEDRINGHAUS, St. Louis.
To Fort Oglethorpe, base hospital, from Camp Beauregard, Lieut. R. H. UNDERWOOD, Kansas City; from Camp Sevier, Lieut. H. F. PARKER, Warrensburg; from Camp Zachary Taylor, Lieut. J. C. DONOHUE, St. Louis. Evacuation hospital, from Camp Travis, Capt. J. D. PORTERFIELD, Cape Girardeau.
To Fort Riley, base hospital, from Fort Oglethorpe, Lieut. J. W. HUGHES, Leadwood.
To Fort Sam Houston, Texas, base hospital, Capt. G. P. ALTON, Barry.
To Kansas City, Mo., as examiner, Capt. J. G. HAYDEN, Kansas City.
To Newport News, Va., from Camp Leach, Capt. E. S. SMITH, Macon.
To Norfolk, Va., camp hospital, from Fort Oglethorpe, Lieut. W. L. MATLOCK, Sedalia.
To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Meade, Md.*, base hospital, for instruction, from Fort Oglethorpe, Capt. V. B. KIEFFER, St. Louis.
To Washington, D. C., and on completion, *to Camp Hancock, Ga.*, from Hoboken, Capt. D. E. SCHMALHORST, St. Louis.
To West Baden, Ind., from Camp Dodge, Lieut. T. E. LILLY, Kansas City.

Montana

To Camp Lee, Va., from Camp A. A. Humphreys, Capt. M. D. RIDLE, Shelby.
To Fort Oglethorpe, base hospital, from Camp Joseph E. Johnston, Lieut. E. S. PORTER, Moore.
To Fort Sill, Okla., from Norman, Okla., Lieut. J. J. TOBINSKI, Missoula.

Nebraska

To Camp Meade, Md., from Camp A. A. Humphreys, Lieut. R. F. DECKER, Byron.
To Carlisle, Pa., from Camp Zachary Taylor, Lieut. R. J. STEARNS, Omaha.
To Fort Jay, N. Y., from Camp Las Casas, Capt. J. A. STRONG, Kearney.
To Fort Oglethorpe, base hospital, from Camp Jackson, Capt. C. H. NEWELL, Omaha.
To Washington, D. C., and on completion *to Camp Gordon, Ga.*, from Hoboken, Capt. F. A. WILMOT, Bethany. On completion *to Camp Jackson, S. C.*, from Hoboken, Major E. S. TENNEY, Lincoln.
To West Baden, Ind., from Camp Dodge, Capt. A. R. DES JARDIEN, Lincoln.
The following order has been revoked: *To Camp Logan, Texas*, base hospital, Capt. C. A. ALLENBURGER, Columbus.

New Hampshire

To Boston, Mass., for instruction, from Camp Devens, Lieut. E. H. THOMPSON, Hampton.
To Camp Jackson, S. C., base hospital, from Camp McClellan, Lieut. G. S. FOSTER, Manchester.
The following order has been revoked: *To Camp Upton, N. Y.*, base hospital, from Fort Oglethorpe, Lieut. F. E. SPEAR, Woodsville.

New Jersey

To Camp Dix, N. J., from Army Medical School, Lieut. J. J. MANN, Perth Amboy. Base hospital, from Fort Oglethorpe, Capt. G. S. WILLIS, Morristown.
To Camp Jackson, S. C., base hospital, from Camp Sevier, Capt. J. W. FARROW, Dover.
To Camp McClellan, Ala., base hospital, from Camp Jackson, Lieut. C. P. CLARK, Summit. Base hospital, for instruction, from Fort Oglethorpe, Lieut. J. J. BURNE, Newark.
To Camp Meade, Md., base hospital, from Bound Brook, N. J., Lieut. J. T. LEAHY, Bound Brook.
To Camp Meigs, D. C., as tuberculosis examiner, from Camp A. A. Humphreys, Lieut. S. R. FAIRCHILD, Penn's Grove.
To Carlisle, Pa., from Fort Oglethorpe, Capt. W. A. McMURTRIE, Morristown.
To Fort Oglethorpe, base hospital, from Camp Wadsworth, Capt. C. W. EVELETH, West Orange.
To Newport News, Va., from Camp Meade, Lieut. E. B. FUNKHOUSER, Trenton; from Washington, Capt. G. PAYNE, Cedar Grove.

The following orders have been revoked: *To Camp Sheridan, Ala.*, from Fort Oglethorpe, Lieuts. T. H. PLATT, Dunellen; J. J. LEVY, Ocean Gate. *To Camp Wheeler, Ga.*, Lieut. A. E. OLPP, West Hoboken.

New York

To Camp Abraham Eustis, Va., from Fort Oglethorpe, Lieut. G. P. MICHEL, Buffalo. Base hospital, for instruction, from Camp Meade, Lieut. H. F. VAN LOON, Albany.

To Camp Crane, Pa., base hospital, from Camp A. A. Humphreys, Capt. A. A. EPSTEIN, New York; from New Haven, Lieut. D. JUNG, Buffalo.

To Camp Devens, Mass., from Philadelphia, Lieut.-Col. I. M. UNGER, Ithaca.

To Camp Hancock, Ga., base hospital, for instruction, from Fort Oglethorpe, Lieut. M. B. SPONSER, New York.

To Camp Jackson, S. C., from Richmond, Lieut. S. ZWERLING, Brooklyn. Base hospital, from Camp Logan, Lieut. J. M. BLANK, Brooklyn; from Camp Sevier, Lieuts. D. W. JENNINGS, Catskill; S. McLEAN, New York.

To Camp McClellan, Ala., to examine the command for nervous and mental diseases, from Plattsburg Barracks, Capt. C. A. ROSEWATER, New York.

To Camp Meade, Md., base hospital, from Fort Oglethorpe, Major P. W. NATHAN, New York; from New Haven, Major O. TEAGUE, Staten Island.

To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Lieut. J. H. BURKE, Brooklyn.

To Camp Shelby, Miss., base hospital, for instruction, from Fort Oglethorpe, Capt. J. S. DORIAN, Brooklyn.

To Camp Travis, Texas, base hospital, from Camp MacArthur, Lieut. L. A. BINGAMAN, New York.

To Camp Zachary Taylor, Ky., from the Surgeon-General's Office, Lieut. F. L. GATES, New York.

To Carlisle, Pa., from Fort Oglethorpe, Lieut. F. M. FRANKFELDT, New York.

To Erie, Ohio, from Fort Oglethorpe, Lieut. J. E. WRIGHT, Mendon.

To Everman, Texas, Barron Field, from Urbana, Lieuts. J. P. FITZGERALD, S. Z. ORGEL, New York.

To Fort H. G. Wright, N. Y., from Hampton, Lieut. S. S. INGALLS, Parish.

To Fort McHenry, Md., from Camp A. A. Humphreys, Lieut. A. MANGIARACINA, Brooklyn; from Camp Upton, Lieut. W. L. SNEED, New York.

To Fort McPherson, Ga., for instruction, from Camp Jackson, Capt. J. H. LEWIS, Buffalo; Lieut. M. R. BOOKMAN, New York.

To Fort Oglethorpe, base hospital, from Camp Fremont, Lieut. E. M. JOHNSON, New York; from Camp Jackson, Lieut. G. A. CLARK, New York; from Camp McClellan, Capt. C. J. HUNT, Clifton Springs.

Evacuation hospital, from Camp Wadsworth, Lieut. S. O. SHUMWAY, Brooklyn.

To Fort Ontario, N. Y., from Fort Porter, Lieut. B. F. HAUENSTEIN, Buffalo.

To Fort Riley, base hospital, from Fort Oglethorpe, Capt. A. S. RULAND, Syracuse.

To Fort Sill, Okla., base hospital, from Camp Sheridan, Lieut. B. WILSON, New York.

To Governor's Island, N. Y., from Fort Jay, Capt. F. L. CHRISTIAN, Elmira.

To Houston, Texas, Ellington Field, from Princeton, N. J., Lieut. P. B. JENKINS, New York.

To Lakewood, N. J., from Fort Oglethorpe, Lieut. H. B. DUPUY, New York.

To New Haven, Conn., Yale Army Laboratory School, from Camp Lee, Lieut. S. MORSE, New York.

To New York, as examiner, Major J. F. FRASER, New York. College of the City of New York, from Yonkers, Lieut. M. B. KUNSTLER, Yonkers.

To Pittsburgh, Pa., from Camp Lee, Lieut. R. E. MYERS, Cableskill.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Camp Sherman, Ohio, base hospital, for instruction, from Fort Oglethorpe, Capt. I. LEBELSON, New York.

On completion to Camp Zachary Taylor, base hospital, for instruction, from Fort Oglethorpe, Capt. E. S. GUSHEE, New York.

To Walter Reed General Hospital, D. C., from Fort Oglethorpe, Lieuts. S. EPSTEIN, New York; E. B. COOK, Rochester.

To Washington, D. C., from New York, Col. H. D. SNYDER. American University, from Army Medical School, Capt. J. M. Parkhurst, Bath.

On completion to Camp Dix, N. J., Camp Devens, and Boston, Mass., headquarters, Northeastern Department, Camp Upton, N. Y., and Hoboken, N. J., from Fort Oglethorpe, Capt. E. L. SWAN, Brooklyn.

St. Elizabeth's Hospital, from Camp A. A. Humphreys, Lieut. J. V. SWIERAT, Kings Park. Surgeon-General's Office, from San Antonio, Capt. P. J. LIPSETT, New York.

To Waynesville, N. C., from Camp Pike, Capt. E. P. EGLEE, New York.

To Williamsbridge, N. Y., from Camp Shelby, Capt. J. S. RICHARDS, New York; from Walter Reed General Hospital, Lieut. S. DANZER, Brooklyn.

The following order has been revoked: *To Camp Sheridan, Ala.*, from Fort Oglethorpe, Capt. A. MARK, Elmira.

North Carolina

To Camp Devens, Mass., as assistant to camp surgeon, from Camp Polk, Lieut. F. H. SPARREMBERGER.

To Camp Jackson, S. C., base hospital, from Camp Wheeler, Capt. S. D. CRAIG, Winston-Salem.

To Camp Logan, Texas, base hospital, from Camp Pike, Lieut. W. B. SHARP, Hertford.

To Dansville, N. Y., from Fort Slocum, Capt. A. DURHAM, Charlotte.

To Fort Bayard, N. M., from Fort Oglethorpe, Capt. W. WYATT, Winston-Salem.

To Fort Oglethorpe, base hospital, from Camp Hancock, Lieut. W. MONCURE, JR., Hamlet; from Camp Jackson, Capt. N. B. ADAMS, Murphy.

To Otisville, N. Y., from Camp McClellan, Capt. J. R. WILLIAMS, Asheville.

The following order has been revoked: *To Camp Kendrick, N. J.*, from Camp Upton, Capt. L. D. FLOYD, Cerro Gordo.

North Dakota

To Denver, Colo., for instruction, from Fort Riley, Lieut. F. E. WEED, Park River.

To Williamsbridge, N. Y., from Camp Crane, Lieut. W. H. WITHERSTINE, Grand Forks.

Ohio

To Camp Crane, Pa., base hospital, from New Haven, Lieut. C. SATER, Cincinnati.

To Camp Devens, Mass., base hospital, from Syracuse, Lieut. R. A. THORNTON, Columbus.

To Camp MacArthur, Texas, as camp surgeon, from Camp Pike, Lieut.-Col. E. F. McCAMPBELL, Columbus.

To Camp Sevier, S. C., base hospital, for instruction, from Fort Oglethorpe, Capt. S. W. EVANS, Cleveland.

To Camp Sherman, Ohio, base hospital from Camp Zachary Taylor, Capt. A. CROTTI, Columbus; from Fort Oglethorpe, Capt. R. A. GOUDY, Newcomerstown; Lieut. H. A. BUDD, Cleveland.

To Camp Travis, Texas, base hospital, from Camp Pike, Lieut. O. R. KACKLEY, Pleasant City.

To Cape May, N. J., from New York, Lieut. J. R. DAVIS, Toledo.

To Cleveland, Ohio, as examiner, Lieut. C. A. BOWERS, Cleveland.

To Detroit, Mich., for instruction, from Fort Oglethorpe, Lieut. D. C. FOX, Kenton.

To Fort Benjamin Harrison, Ind., base hospital, from Camp Zachary Taylor, Lieut. C. C. SHEARER, Cincinnati.

To Fort McHenry, Md., from Walter Reed General Hospital, Lieut. J. F. WILLIAMS, Cincinnati.

To Fort McPherson, Ga., from Camp Shelby, Capt. J. J. LASALLE, Toledo. For instruction, from Fort Oglethorpe, Lieut. F. C. BISSELL, Akron.

To Fort Oglethorpe, base hospital, from Army Medical School, Major R. D. MADDOX, Cincinnati; from Camp Jackson, Lieut. E. E. BAKER, Cincinnati; from Camp Sevier, Lieuts. T. A. COSTELLO, D. H. PATTERSON, Cleveland; from Camp Wadsworth, Capt. A. N. WISELEY, Ada; from Fort McHenry, Lieut. J. H. BUFF, Cincinnati. To give orthopedic instruction, from Camp Upton, Major A. S. McCLAIN, Lakewood.

To Fort Sheridan, Ill., from Ann Arbor, Lieut. C. W. IRISH, Barberton.

To Hampton, Va., Langley Field, from Morrison, Va., Capt. P. F. DAVIDSON, Cleveland.

To Lakewood, N. J., from Fort Oglethorpe, Capt. L. A. LEVISON, Toledo.

To Montgomery, Ala., from Mincola, Major C. P. GROVER, National Military Home.

To New Cumberland, Pa., from Camp Meade, Capt. F. J. WOOD, Cleveland.

To Plattsburg Barracks, N. Y., from Jefferson Barracks, Lieut. G. H. REEVE, Cleveland.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Camp Lee, Va., base hospital, for instruction, from Fort Oglethorpe, Lieut. H. M. SCHNEIDER, Cincinnati. On completion to Camp Sevier, S. C., base hospital, for instruction, from Fort Oglethorpe, Lieut. W. R. GOFF, Cleveland. On completion to Williamsbridge, N. Y., for instruction, from Fort Oglethorpe, Lieut. R. G. MOSSMAN, Youngstown.

To San Antonio, Texas, from Ithaca, Lieut. F. W. THOMAS, Piqua.

To Walter Reed General Hospital, D. C., from Fort Oglethorpe, Lieut. W. H. MILLER, Columbus.

To West Baden, Ind., for instruction, from Fort Oglethorpe, Capt. M. V. REPLOGLE, Bryan.

Oklahoma

To Camp MacArthur, Texas, base hospital, from Camp Beauregard, Capt. C. B. TAYLOR, Oklahoma City.

To Camp Meade, Md., from Camp A. A. Humphreys, Lieuts. J. A. NELSON, Centrahoma; E. MOSELEY, Millerton.

To Camp Polk, N. C., as camp surgeon, from Camp Devens, Major W. E. HARRINGTON, Wakita.

To Camp Sevier, S. C., base hospital, from Camp Travis, Capt. C. R. DAY, Oklahoma City.

To Camp Travis, Texas, from Fort Riley, Lieut. W. H. KINGMAN, Bartlesville.

To Fort Oglethorpe, base hospital, from Camp Cody, Lieut. G. H. APPLEWHITE, Shawnee.

To Fort Riley, base hospital, from Camp Travis, Lieut. H. M. REEDER, Shawnee.

Oregon

To Camp Lewis, Wash., base hospital, from Lakewood, Lieut. J. M. ODELL, Portland.

To Fort McPherson, Ga., from Boston, Lieut. R. E. WATKINS, Portland.

Pennsylvania

To Camp Abraham Eustis, Va., base hospital, from Camp Sherman, Lieut. H. GOODFRIEND, Scranton.

To Camp Cody, N. M., to examine the command for nervous and mental diseases, from Camp Wadsworth, Lieut. J. C. BARDIN, University.

To Camp Dix, N. J., base hospital, from Camp Colt, Lieut. F. D. LGHR, Derry.

To Camp Greene, N. C., base hospital, from Fort Oglethorpe, Capt. G. D. MERVINE, Lock Haven.

To Camp Hancock, Ga., base hospital, from Fort Oglethorpe, Lieut. W. H. HAINES, Philadelphia.

To Camp Jackson, S. C., from Tuskegee, Lieut. P. A. NOLL, Glen Rock. Base hospital, from Camp Greene, Capt. W. B. McKENNA, Pittsburgh; from Fort Oglethorpe, Capt. H. W. GASS, Sunbury.

To Camp MacArthur, Texas, base hospital, from Fort Oglethorpe, Capt. H. D. JORDAN, Allentown.

To Camp Meade, Md., base hospital, from Camp Upton, Capt. R. M. ALEXANDER, Reading.

To Camp Travis, Texas, base hospital, from Camp Upton, Lieut. W. D. STROUD, Philadelphia.

To Camp Upton, N. Y., base hospital, from Garden City, Lieut. L. N. GAY, Shamokin.

To Camp Zachary Taylor, Ky., from the Surgeon-General's Office, Major J. H. AUSTIN, Ardmore.

To Cape May, N. J., from New York, Lieut. C. A. BEHNEY, Philadelphia.

To Carlisle, Pa., for instruction, from Camp Meade, Capt. C. C. MECHLING, Pittsburgh.

To Corpus Christi, Texas, for instruction, from Fort Oglethorpe, Lieut. C. K. KISTLER, Reading.

To Fort Benjamin Harrison, base hospital, from Camp Zachary Taylor, Capt. H. H. TURNER, Pittsburgh.

To Fort McPherson, Ga., from Fort Oglethorpe, Lieut. J. O. BOWER, Wyncote. For instruction, from Camp Jackson, Capt. W. ANDERSON, Pittsburgh.

To Fort Oglethorpe, base hospital, from Camp Greene, Lieut. T. J. McGURL, Minersville.

To Fort Ontario, N. Y., from Schenectady, Lieut. J. E. MOORE, Carnegie.

To Hoboken, N. J., from Fort Hancock, Lieut. J. M. MONAGHAN, Minersville.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. V. S. WILKINSON, Oxford.

To Philadelphia, Pa., as examiner, Capt. J. W. WEST, Philadelphia. To Plattsburg Barracks, N. Y., from Camp Dix, Major R. L. HILL, Woodville.

To Richmond, Va., for instruction, from Fort Oglethorpe, Lieut. R. S. HINCHMAN, McKeesport.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Camp Dix, N. J., base hospital, for instruction, from Fort Oglethorpe, Capt. E. M. COWELL, Athens. On completion to Camp Meade, Md., base hospital, for instruction, from Fort Oglethorpe, Capt. O. G. LEWIS, Washington. On completion to Camp Zachary Taylor, Ky., base hospital, for instruction, from Fort Oglethorpe, Capt. S. P. GRAY, Chester.

To Walter Reed General Hospital, D. C., from Camp Colt, Lieut. J. W. BANCROFT, Altoona; from Camp Wheeler, Lieut. A. K. DU BELL, Philadelphia.

To Washington, D. C., Surgeon-General's Office, from Americus, Ga., Major W. S. CORNELL, Philadelphia; from Riverside, Calif., Major C. G. EICHER, McKees Rock.

To West Baden, Ind., from Camp Shelby, Capt. C. S. REBUCK, Harrisburg.

To Williamsbridge, N. Y., from Camp Crane, Lieut.-Col. F. B. LUND.

Porto Rico

To Dallas, Texas, from Mineola, Major E. I. VAUGHN, Central Aguirre.

Rhode Island

To Carlisle, Pa., for instruction, from Camp Meade, Lieut. E. S. CAMERON, Providence.

To Fort McPherson, Ga., from Fort Oglethorpe, Capt. R. C. ROBINSON, Providence.

To Mineola, N. Y., Hazelhurst Field, from Princeton, N. J., Capt. A. W. STEVENSON, Newport.

South Carolina

To Astoria, N. Y., from Fort Oglethorpe, Lieut. C. I. GREEN, Orangeburg.

To Camp Greene, N. C., base hospital, from Fort Oglethorpe, Capt. W. S. ZIMMERMAN, Spartanburg.

To Lakewood, N. J., for instruction, from Fort Oglethorpe, Lieut. W. P. TURNER, Greenwood.

To San Antonio, Texas, from Ithaca, Lieut. J. L. BLAIR, Sharon.

South Dakota

To Fort Oglethorpe for instruction, from Camp A. A. Humphreys, Lieut. N. J. NESSA, Sioux Falls.

To Fort Snelling, Minn., from Camp Grant, Lieut. B. H. SPRAGUE, Huron.

To New Haven, Conn., from Camp Dix, Capt. J. G. CHICHESTER, Redfield.

Tennessee

To Cambridge, Mass., from Boston, Capt. T. E. P. CHAMBERS, Cleveland.

To Camp Crane, Pa., base hospital, from New Haven, Lieut. A. T. SIKES, Nashville. Mobile hospital, from Camp Pike, Major J. W. CUNNINGHAM, Memphis.

To Camp Logan, Texas, from Fort Oglethorpe, Lieut. H. P. CALMES, Memphis.

To Camp Upton, N. Y., from Hoboken, Lieut. J. W. RAGSDALE, Memphis.

To Fort McHenry, Md., from Camp Lee, Lieut. J. H. REVINGTON, Chattanooga.

To Fort Oglethorpe, base hospital, from Fort Logan H. Roots, Lieut. W. H. NILES, Tellico Plains. For instruction, Lieut. R. G. NELSON, Nashville.

To Fort Riley, base hospital, from Fort Oglethorpe, Capt. O. J. PORTER, Columbia.

To Plattsburg Barracks, N. Y., from Fort McPherson, Lieut. P. J. TRENTZSCH, Rives.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Camp Dix, N. J., base hospital, for instruction, from Fort Oglethorpe, Lieut. B. L. JACOBS, Chattanooga.

Texas

To Camp Logan, Texas, base hospital, from Camp Bowie, Lieut. R. R. ROSS, San Antonio.

To Camp Travis, Texas, from Fort Riley, Lieut. R. L. LONG, Atlanta. Base hospital, from Camp MacArthur, Lieuts. J. S. CALHOUN, A. W. NASH, Dallas.

To Camp Wadsworth, S. C., base hospital, from Fort Oglethorpe, Lieut. A. C. ROGERS, Odell.

To Camp Wheeler, Ga., base hospital, for instruction, from San Antonio, Major W. B. RUSS, San Antonio.

To Fort Oglethorpe, base hospital, from Corpus Christi, Lieut. T. W. GRACE, El Paso; from Fort Douglas, Lieut. J. E. McDOWELL, Shamrock.

To Lakewood, N. J., from Fort Oglethorpe, Capt. A. L. RIDLINGS, Sherman.

To New Haven, Conn., for instruction, from Fort Oglethorpe, Lieut. G. HOGG, Edna.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Camp Devens, Mass., base hospital, for instruction, from Fort Oglethorpe, Capt. B. F. STEVENS, El Paso.

To Washington, D. C., Surgeon-General's Office, from Camp Bowie, Lieut.-Col. H. D. MCINTYRE.

The following order has been revoked: To New Haven, Conn., Yale Army Laboratory School, for instruction, from duty as a contract surgeon, Lieut. M. D. LEVY, Galveston.

Utah

To Camp Dix, N. J., from Fort Oglethorpe, Lieut. T. C. HILL, Huntington.

To Fort MacArthur, Calif., from Hollywood, Lieut. C. G. STIGALL, Salt Lake City.

To Fort Oglethorpe, base hospital, from Camp Logan, Capt. E. R. DUMKE, Ogden.

The following order has been revoked: To Camp Crane, Pa., mobile hospital, from Camp Cody, Capt. G. E. DORLAND, Devil's Slide.

Vermont

To Camp Dix, N. J., from Fort Oglethorpe, Lieut. D. J. CARROLL, Vergennes.

To Fort Myer, Va., as orthopedic surgeon, from Fort Oglethorpe, Capt. W. LINDSAY, Montpelier.

Virginia

To Camp Sevier, S. C., base hospital, from Camp Hancock, Lieut. B. E. STRODE, Amherst.

To Fort Adams, R. I., from Fort Oglethorpe, Lieut. W. H. REMINE, Lodi.

To Fort Des Moines, Iowa, from Camp Zachary Taylor, Capt. W. F. HARTMAN, Swope.

To Fort Foster, N. Y., from Fort Ontario, Lieut. C. A. FOLKES, Roanoke.

To Fort McPherson, Ga., from Gainesville, Fla., Capt. H. B. MAHOOD, North Emporia.

To Fort Oglethorpe, base hospital, from Camp Greene, Lieut. F. H. SMITH, Abingdon; from Camp Wadsworth, Capt. T. H. ODENEAL, Richmond.

To Washington, D. C., Surgeon-General's Office, from Garden City, Major J. N. BARNEY, Fredericksburg.

The following orders have been revoked: To Camp Sheridan, Ala., from Fort Oglethorpe, Lieut. E. D. WELLS, Clifton Forge. To Fort Oglethorpe for instruction, Lieut. R. H. BORCKWELL, Barnetts.

Washington

To Camp Lewis, Wash., from Everett, Wash., Capt. S. D. BARRY, Puyallup. Base hospital, from Fort Stevens, Capt. J. E. PREUCEL, St. John.

To Fort Snelling, Minn., from Camp Travis, Major E. A. RICH, Tacoma.

To Vancouver Barracks, Wash., Capt. F. J. DELANEY, Seattle.

West Virginia

To Fort McHenry, Md., from Fort Oglethorpe, Capt. G. B. CAPITO, White Sulphur Springs.

To Fort Oglethorpe, base hospital, from Camp Greene, Lieut. W. E. MYLES, White Sulphur Springs.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Camp Upton, N. Y., base hospital, for instruction, from Fort Oglethorpe, Capt. L. K. CRACROFT, Wheeling.

Wisconsin

To Camp Abraham Eustis, Va., from Fort Oglethorpe, Lieut. A. J. LOUGHMAN, Oconomowoc.

To Camp Custer, Mich., from Fort Porter, Capt. J. M. CONLEY, Oshkosh.

To Camp Hancock, Ga., base hospital, for instruction, from Fort Oglethorpe, Lieut. J. H. CARROLL, Milwaukee.

To Camp Jackson, S. C., base hospital, from Camp Cody, Lieut. E. R. MURPHY, Antigo.

To Camp Joseph E. Johnston, Fla., base hospital, for instruction, from Fort Oglethorpe, Capt. W. A. PROUTY, Burlington.

To Camp Meade, Md., from Camp A. A. Humphreys, Lieut. J. M. ROSS, Bloom City.

To Camp Travis, Texas, base hospital, from Camp Pike, Capt. C. O. LATHAM, Green Bay.

To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Lieut. W. G. DARLING, Milwaukee.

To Dansville, N. Y., from Camp Custer, Capt. W. T. KRADWELL, Wauwatosa.

To Fort Des Moines, Iowa, for instruction, from Fort Oglethorpe, Capt. W. A. LADWIG, Wausau.

To Fort Oglethorpe, base hospital, from Camp Zachary Taylor, Capt. B. E. SCOTT, Berlin.

To Fort Sheridan, Ill., for instruction, from Camp Colt, Major S. E. GAVIN, Fond Du Lac.

To Otisville, N. Y., from Markleton, Capt. L. W. DUDLEY, Milwaukee.

To Plattsburg Barracks, N. Y., from Camp Sherman, Capt. J. F. WENN, Milwaukee.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Camp Wadsworth, S. C., base hospital, for instruction, from Fort Oglethorpe, Capt. R. W. JONES, Wausau.

The following order has been revoked: To Carlisle, Pa., from Camp Crane, Capt. W. HECKER, Beloit.

Wyoming

To Wichita Falls, Texas, from San Antonio, Lieut. J. T. McBRIDE, Dayton.

ORDERS TO OFFICERS OF THE UNITED STATES PUBLIC HEALTH SERVICE

Surgeon E. A. SWEET, proceed to New York, for conference with the Secretary of the National Tuberculosis Association in regard to tuberculosis in the southwest.

Passed Asst. Surg. W. F. DRAPER, proceed to Washington, D. C., for temporary duty in connection with the Medical Reserve Corps of the Public Health Service.

Passed Asst. Surg. J. H. LINSON, proceed to Baltimore, Md., for conference regarding venereal disease clinics in the state of Maryland.

Passed Asst. Surg. J. G. WILSON, proceed to necessary points in the states of Ohio, Virginia, and West Virginia for inspection of nitro plants, with a view of taking them over for use as hospitals for the War Risk Insurance Bureau.

Asst. Surg. R. R. SAYERS, proceed to Joplin, Missouri, and other points in that vicinity for the purpose of establishing a tri-state sanitary district.

Asst. Surg. V. B. MURRAY, report for duty to Surgeon G. W. McCOY, San Francisco, Calif., for duty in experiments relative to the value of influenza vaccine.

Asst. Surg. H. S. MUSTARD, proceed to Wheeling, W. Va., to promulgate regulations necessary to prevent the interstate spread of influenza.

Asst. Surg. R. C. SANDIDGE, proceed to Alexandria, Va., to assume charge of Service activities at that place.

Acting Asst. Surg. B. E. ROBERTS, report to Surgeon W. H. FROST at Washington, D. C., for duty in connection with studies of the epidemiology of the recent epidemic of influenza.

Consulting Hygienists S. M. HAMILL, L. EMMETT HOLT, and J. P. SEDGEWICK, proceed to Washington, D. C., for conference in regard to questions relative to the improvement of the health of the coming generations.

Asst. San. Engr. A. J. SMALSHAF, relieved at Waco, Texas. Proceed to Columbus, Ga., for duty in extracantonment sanitation.

Asst. Educational Director W. P. GREEN, proceed to Philadelphia, Pa., to deliver a lecture before the Poor Richard Advertising Club.

Asst. Educational Director ROBERT D. LEIGH, proceed to Rochester, N. Y., to attend a meeting of the National Municipal League in regard to venereal disease control.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Personal.—Dr. Gavin J. Telfer, San Francisco, state health officer for the southern district, has been appointed to succeed Dr. Edward A. Ingram as state health officer in charge of the South Coast District. Dr. Ingram has been transferred to Sacramento.

Advice for Postinfluenza Period.—Health Officer Dr. Daniel Crosby of Oakland, in notifying the city council that it was the judgment of the health department that influenza masks could be dispensed with November 20, made the following suggestions for the guidance of the people during the postepidemic period while there was a possibility of the recurrence of the disease, and while it was certain that there would still be a few cases occurring:

All persons convalescing from influenza should wear masks when going about, until three weeks after the beginning of the illness; all members of the family of the patient should wear masks for a like period. All persons finding themselves "taking cold" should wear masks while going about and while in contact with others. All employers should request, and see to it, that all employees suffering with what are commonly called "acute colds" or "fresh colds" wear masks while at work and in contact with their fellow employees or the public. The school department should cooperate in the same way with reference to both teachers and pupils. It was also suggested that persons working in neighboring cities requiring masks should continue to wear masks while in those cities.

ILLINOIS

Unlicensed Practitioner Punished.—August Labraich, Chicago, is said to have been fined \$25 and costs, November 21, for practicing medicine without a license.

Sanatorium Closed.—The Weirick Sanitarium, Rockford, for the treatment of drug and liquor addicts, formerly the Broughton Sanitarium is reported to have been closed.

Proposed Union of Hospitals.—A committee of seventeen has been appointed to formulate plans for taking over the Alice Home Hospital and Lake Forest Hospital, Lake Forest, combining them into one institution.

Tuberculosis Dispensary Moves.—The free tuberculosis dispensary, for the examination and treatment of patients suffering from tuberculosis in Peoria, has been moved from 310 Chestnut Street, to 1300 Adams Street, and will be open every Saturday morning from 9 o'clock until noon.

Tuberculosis Nurses Form Union.—Thirty-four nurses enrolled in a newly formed labor union at the Municipal Tuberculosis Sanatorium, Chicago, recently. The union is

affiliated with the Federation of Labor, a charter having been secured through the president of the Woman's Trade Union.

Personal.—Dr. Henry F. Hooker, Danville, has been appointed local physician and surgeon to the Illinois Traction Company, to succeed Dr. George Steely, who has resigned to enter the military service.—Dr. Arthur F. Schuettler, Chicago, was injured, November 22, in a collision between motor cars, sustaining fractures of the collar bone, nose and two ribs.

Diphtheria.—The *Bulletin* of the health department of Chicago calls attention to the considerable increase of diphtheria in October over September. In the latter month there were 423 cases and 41 deaths, or 10 per cent.; in October there were 607 cases and 98 deaths, or more than 15 per cent. In attempting to determine the responsibility for the 139 deaths from diphtheria during the two months, it was found that in about 51 per cent. of the cases the parents had not called a physician, and that in about 49 per cent. the physician had failed to make a prompt diagnosis, which delayed the administration of antitoxin.

MARYLAND

Hospital Opened.—The South Baltimore General Hospital was formally opened during the past week. Drs. Llewellys F. Barker of the Johns Hopkins University and Jane E. Nash, superintendent of the Church Home and Infirmary, made the principal addresses.

Personal.—Dr. Alexander C. Gillis, former superintendent of Sydenham Hospital, Baltimore, on duty on the Western Front, has been wounded.—Dr. Albert F. Conrey, Baltimore, formerly resident physician at Mercy Hospital, has accepted an appointment as a member of the medical staff of the leper colony at Molokai, Hawaiian Islands.

Violation of Antinarcotic Law.—Dr. James A. Melvin, Baltimore, is said to have been found guilty, November 19, of violation of the Harrison Narcotic Law and to have been sentenced to imprisonment for six months. Dr. Melvin is charged with having prescribed narcotic drugs for soldiers at Fort Meade, and pleaded guilty to the charge.

Psychiatrist to Aid Police Department.—Investigation of circumstances surrounding future mysterious murders and suicides will be handled strictly on a scientific basis, according to a special order issued by Marshal Carter and transmitted to the district police captains. Dr. John Rathbone Oliver, Baltimore, who was appointed psychiatrist to the criminal courts in Baltimore several months ago, will in the future lend his scientific knowledge to the end of crime solution. He is now visiting physician at the clinic and devotes much time to work in the courts.

Making Influenza Survey.—Ten canvassers, under the direction of Capt. H. F. Smith, S. C., U. S. Army, and H. W. Streeter, sanitary engineer of the United States Public Health Service, are making a government survey in Frederick to ascertain facts concerning the spread and character of the recent influenza epidemic. The city has been marked off into districts and about 25 per cent. of the population will be reached. A house-to-house canvass is being made. This city was selected as an agricultural center, and it is understood that the rural districts of the country will be canvassed later. Maryland was selected for the survey because better records were kept here than in most states. Places have also been marked to take data in Baltimore, Cumberland, and probably Salisbury. Captain Smith has been in the service at Camp Beauregard, Louisiana, and while there studied at first hand many cases of influenza as well as the manner of its communication.

MINNESOTA

Personal.—Dr. Herbert F. Gammons, formerly superintendent of the Deer Wood, Minn., Sanatorium, has been appointed director of the publicity bureau of the Texas State Sanatorium, Carlsbad.—Dr. George S. Wattam, Warren, has been appointed temporary epidemiologist to the state board of health.

MISSOURI

Personal.—Prof. Dennis E. Jackson of Washington University, St. Louis, has been appointed professor of pharmacology in the University of Cincinnati.

Election Returns.—At the annual meeting of the St. Louis Medical Association, the following officers were elected: president, Dr. William Engelbach; vice presidents, Drs.

Rudolph S. Vitt and George F. Chopin, and secretary, Dr. Albert F. Koetter.

Influenza Dominant.—In the report of morbidity and mortality for St. Louis for the week ended November 23, of the 937 cases reported 816 were of influenza, and of the 154 deaths reported, 131 were due to that cause.

MONTANA

Personal.—Dr. Alonzo D. Eckerdt, Helena, left November 24, for a special training course at Yale University.—Dr. Phoebe A. Bottorf, Kalispell, while making a professional call and standing in the road preparing medicine for a patient, was run down by an automobile and seriously injured, the injuries necessitating the amputation of one leg above the knee.—Dr. Bennet S. Rundle, Billings, has been appointed acting assistant surgeon, U. S. P. H. S., and assigned to temporary station at Rapelje.

NEW JERSEY

Hospital for Foreign Sailors.—Word has been received from Washington that the hospital at the immigration station at Gloucester, which was opened during the epidemic period to sailors stricken with the influenza, will be continued as a hospital for foreign sailors.

Personal.—Dr. Guy Payn, medical director of the Essex County Hospital for the Insane, Overbrook, who has been called into the military service, has been granted leave of absence until December 31.—Dr. Fred A. Pringle has been appointed assistant on the medical staff of the Essex County Hospital for the Insane, Overbrook.

Tuberculosis Conference.—The Third Joint Tuberculosis conference was held at Perth Amboy, November 23. In the sociologic section employment for discharged soldiers was discussed as well as the Red Cross Christmas Roll Call, the Modern Health Crusade movement, and the effects of recent legislation on the tuberculosis cause. In the clinical section the new Army standards and the necessity for accuracy in the diagnosis of tuberculosis were discussed, and Dr. David R. Lyman, New Haven, Conn., president of the National Association for the Study and Prevention of Tuberculosis, detailed his experiences with the American Red Cross in France.

NEW YORK

Justices Must Report Prostitution Convictions.—The attorney general of the state has recently sent a letter to all justices of the peace of the state, calling their attention to the amendment of the Public Health Law, made by the legislature of 1918, by which it becomes obligatory for such justices to report to the local board of health all persons convicted under the various laws relating to prostitutes and prostitution, in order that the board of health may determine the presence or absence of venereal disease in such persons.

Typhoid at Herkimer.—One hundred and five cases of typhoid fever were reported from the village of Herkimer during October. This outbreak occurred conjointly with the influenza epidemic, and since, notwithstanding a provision of the state sanitary code requiring Widal tests in all cases suspected of being typhoid, a number of physicians failed to confirm their diagnosis by agglutination tests, there is a possibility that a few of these cases may have been influenza. The outbreak was clearly the result of the use of polluted water. For several days during September polluted water was pumped into the mains from West Canada Creek, and from the hydraulic canal while the chlorinating apparatus was not in operation. The municipal water commission of Herkimer had been previously warned of the danger of permitting the use of raw water from this source. Twenty-five additional cases had been reported up to November 23, but most of these were in all probability secondary to previously existing cases.

New York City

Personal.—Dr. Anthony Bassler has been appointed professor of gastro-enterology at Fordham University.—Dr. Henry E. Pflug, Brooklyn, and Dr. Charles F. W. Horn have been appointed temporary police surgeons.

Sentenced for Illegal Practice.—Henry Miller, Brownsville, Brooklyn, charged with the illegal practice of medicine, is said to have been found guilty and to have been sentenced, November 19, to imprisonment for four months in the Kings County jail.

Safety Institute Changes Name.—The supreme court has granted permission to the American Museum of Safety to change its name to the Safety Institute of America. The institute has plans for the extension of its activities during the coming year.

Anniversary Address.—The anniversary address of the New York Academy of Medicine was delivered, December 5, by Edwin G. Conklin, professor of biology in Princeton University, on "The Biology of Democracy with Especial Reference to the Present World Crisis."

Medical Society of the County of New York Elects.—At its one hundred and thirteenth annual meeting, held November 25, the Medical Society of the County of New York elected the following officers for the ensuing year: president, Col. Charles Howard Peck, M. C., U. S. Army; first vice president, Dr. Charles H. Chetwood; second vice president, Dr. George Gray Ward, Jr.; secretary, Dr. Daniel S. Dougherty; assistant secretary, Dr. J. Milton Mabbott; treasurer, Dr. James Petersen, and censors, Dr. William S. Gottheil, Dr. Gustav G. Fisch and Dr. Herbert B. Wilcox.

Debarkation Hospital Opens.—Army Hospital No. 3, at Eighteenth Street and Sixth Avenue, formerly the Greenhut Building, was opened, November 23, to receive its first consignment of wounded and convalescent soldiers. On that day 426 American soldiers and twenty-four officers were transferred from an incoming transport to the hospital, from which they will be distributed to other hospitals and institutions for convalescent soldiers. The hospital is headed by Major William J. Monaghan of the Medical Corps and is prepared to care for from 3,000 to 4,000 men.

PENNSYLVANIA

Personal.—Dr. Evan O'Neill Kane, Kane, who has been seriously ill as the result of roentgen-ray burns, is reported to be out of danger.—Dr. Edward H. Gingrich, city health officer of Lebanon, who has been seriously ill, is reported to be improved.

Appreciation of Volunteer Workers.—Dr. B. Franklin Royer, Harrisburg, acting commissioner of health, has sent a note of appreciation to the thousands of volunteers, doctors, nurses, and others who so loyally and unselfishly assisted in the care of the sick during the recent epidemic of influenza in the state.

Society Anniversary.—The fortieth anniversary of the founding of the Lackawanna County Medical Society was celebrated, November 19, in the rooms of the society at Scranton. Addresses were delivered by the only two surviving charter members of the society, Dr. Louis H. Gibbs, West Scranton, who spoke on "Organization," and Dr. Sumner D. Davis, Jermyn, who delivered an address on "Disadvantages of the Physician in Olden Times."

Memorial Building for Hospital.—Pierre S. Dupont has presented \$300,000 to the West Chester Hospital for the erection of a building in "memoriam" of Lewis Mason, who was Mr. Dupont's chauffeur, and who died of influenza during the epidemic. The money has been made immediately available and plans for the new building are being prepared. The old main building is to be torn down and will be replaced by a steel and concrete building. The wings on either side of the present building—both memorials—will be retained.

Officers for Orphan Committee.—Dr. B. Franklin Royer, acting commissioner of health, has appointed Dr. Nathan C. Schaffer, Harrisburg, superintendent of public instruction, as chairman, and Dr. Samuel McClintock Hamill, Philadelphia, chief of the division of child hygiene, secretary of the committee appointed to collect information as to the commonwealth surrounding the number of children who were rendered orphans because of the recent epidemic of influenza in the state. Dr. Wilmer R. Batt, Harrisburg, state registrar of vital statistics, was appointed statistician of the committee.

Philadelphia

Cost of Epidemic.—At the next session of city councils a request will be made by Director William Krusen for a special appropriation to meet the expense incurred by the municipality in fighting the recent influenza epidemic and the actual expense for service and materials furnished will amount to about \$75,000.—According to the report of the health department for the week ending November 30, influenza caused twenty-six deaths, sixteen of which were of adults, and pneumonia caused thirty-one deaths, of which twenty-seven were of adults.

Personal.—Dr. Astley P. C. Ashhurst, who went to France as a major in command of Base Hospital No. 34, unit of the

Episcopal Hospital, has been promoted to the rank of lieutenant-colonel and placed in charge of all the hospitals in the Mantes Sector. His place as director of Base Hospital No. 34 has been taken by Dr. Emory G. Alexander.—Dr. Hyman I. Schenker has been made assistant school medical inspector, and Dr. Edward Haentze has been appointed outdoor physician, bureau of health and charities.—Dr. John Leo Donahue, who has been serving with the British Army, has been commissioned captain in the American Army.

Influenza Conference.—A conference on the influenza epidemic, attended by medical men from the South, middle Atlantic states and New England states, was held at the hygiene laboratory, at the University of Pennsylvania, November 29 and 30. Dr. Wilmer Krusen, director of public health and charities, presided at the sessions. According to Dr. Krusen, figures obtained in Philadelphia showed little difference in the death ratio between whites and negroes, and the density of population appeared to have no effect on the spread of the epidemic as there were 118 deaths in the thickly settled third ward while there were 295 deaths in the twenty-second ward. Among the speakers were: Dr. Edwin W. Kopf, New York, chairman of the vital statistics of the American Health Association; Prof. R. E. Chaddock and Prof. C. C. Grove of Columbia University, Dr. William H. Guilfooy of the Department of Health in New York City and Dr. Frederick L. Hoffman, Newark, N. J., of the Provident Life Insurance Company. This conference was preparatory to the American Public Health Association's convention in Chicago, to be held the second week in December.

SOUTH CAROLINA

Action Taken on Noncompliance with Epidemic Closing Regulations.—In resolutions passed unanimously by the city board of health of Charleston, November 20, the action of the authorities of the Cathedral of St. John the Baptist in holding services, November 3, during the epidemic of influenza, in contravention of the regulations adopted by the health authorities with the approval of the local medical society and others of the local profession, was severely censured, in lieu of more drastic action that might have been taken under the powers of the board. This was the only notable instance in which the quarantine measures of the health authorities were violated during the epidemic, cooperation with the health board being otherwise commendably carried out. In a similar violation of the regulations of the city and health authorities in Los Angeles by members of the Christian science church the supreme court of the state upheld the validity of the ordinance requiring closing, and denied writs of habeas corpus in the cases of five men arrested for its violation by holding a meeting in the church during the epidemic.

TEXAS

State Board Meeting.—The Texas State Board of Medical Examiners held its semiannual meeting in Dallas, November 19 to 21. The eleven members of the board representing the entire state and the various physicians of medicine and osteopathy examined about thirty applicants.

Personal.—Dr. William A. Davis, state registrar of vital statistics, Austin, and secretary of the state board of health for the last five years, has received an offer from the state of Georgia for a similar position at an increased salary.—Dr. Guy H. Reed, Beaumont, has been appointed a member of the state board of health, to succeed Dr. Louis M. Weinfield, San Antonio, who has resigned.

WISCONSIN

Hospital Opened.—The South Side Hospital, Oshkosh, has recently been opened under the charge of Dr. John E. Schein.

Sanatorium for Grant County.—At the meeting of the county board of Grant County held at Lancaster, it voted unanimously for the construction of a tuberculosis sanatorium.

Personal.—Dr. James P. Lenfestey, DePere, has been elected county physician of Brown County, to succeed Dr. Frank L. Crikclair, Green Bay, who is going overseas.—Dr. John R. Hughes, Dodgeville, has been appointed local surgeon for the Chicago and Northwestern System, to succeed Dr. Walter S. Lincoln, deceased.—Seth M. B. Smith, Wausau, has returned to America, after serving as director of a hospital for refugees at St. Etienne, France.

CANADA

Hospital News.—Major Thomas D. Archibald, Toronto, has been placed in command of the Rosedale Military Hospital, Toronto. It has a capacity for 2,000 soldiers. Major Archi-

bald was transferred from Whitby, Ont., where he held a similar position.—The Guelph Ontario Military Hospital will probably be changed into a hospital for convalescent soldiers with tuberculosis. The first lot of tuberculous soldiers has arrived, seventeen having been transferred from Gravenhurst. The present medical staff will remain in charge of the institution.—A consolidated military hospital scheme is proposed for Victoria, B. C. The city has offered the site for the central institution, the loan to extend for two years after the termination of the war.—The Jordan Memorial Hospital, New Brunswick, has passed into the hands of the Invalided Soldiers' Commission of Canada. The federal authorities have taken a five-year lease of the institution; and civil patients will be cared for at a rate of \$15 per week. This hospital was presented to the province originally by Mrs. J. Clarke Jordan, and she is quite willing the soldiers should have the institution.—The Balfour Sanitarium for the Treatment of Pulmonary Tuberculosis, British Columbia, has been changed from a military to a civilian hospital. At the present time Captain Olson is on indefinite leave of absence from the C. A. M. C. and is acting as medical superintendent in charge.

Public Health Notes.—Col. John W. S. McCullough, Toronto, provincial health officer for Ontario, states that placarding and quarantine is not required in Ontario for influenza. While such laws are in force in certain states of the American Union and also in some provinces of Canada, the majority—four-fifths of medical officers of health in the two countries—give it as their opinion that any such laws are incapable of enforcement. At the outset of war the Dominion government was without facilities for a supply of typhoid vaccine and the Ontario Board of Health alone of all the provinces had such facilities. That board has supplied gratuitously to the Department of Militia and Defense about \$250,000 worth of typhoid and paratyphoid vaccine, which has proved an invaluable aid for the prevention of those diseases among soldiers.—A central board of health is now being advocated by the medical fraternity for the border cities of Ontario; and an active movement is on foot to bring about amalgamation of the different boards of health of the cities concerned. One central office and one central medical officer of health would enable the Ontario Department of Health to be more efficiently managed.—The medical profession of Halifax, N. S., answered the urgent call of the state of Massachusetts for assistance to fight the spread of influenza, and a detachment of nurses and doctors was sent which was immediately acknowledged by Governor McCall.

GENERAL

Improving City Milk Supplies.—During the last year the Dairy Division of the United States Department of Agriculture, through its specialists, has given assistance to thirty-six cities in fourteen states in the sanitary production and handling of milk. In addition, assistance was given by the United States Public Health Service in the way of sanitary milk surveys, etc., in fifteen extracantonment zones. In the assistance rendered by the government to local communities all phases of city milk supply are covered, such as inspection of dairies, milk plants and other distributing centers, analysis, chemically and bacteriologically, of milk samples, and, when necessary, help in the installation of laboratories and technic and in the interpretation of the results of chemical and bacterial analyses. Advice is also offered in framing ordinances to cover dairy and milk conditions, and milk contests are encouraged for the purpose of creating rivalry among dairymen, which tends to improve the milk supply. In these contests experts from the department act as judges in scoring the product.

Influenza.—In general, influenza continues to abate throughout the country, though there are some cities and some sections in which there is a recrudescence or an accession of the disease. Kansas is one state in which the disease appeared to be increasing the latter part of November, as indicated by reports from Concordia, Leavenworth and Topeka. At Butte, Mont., there seemed to be an exacerbation, and physicians were rebuked for not promptly reporting new cases. November 25, the Public Health Service was asked to send physicians and nurses to the coke district in Fayette County, Pa., on account of the disease. At Scranton, Pa., up to November 22, there had been 5,992 cases with 778 deaths. The disease was abating rapidly. In New York state on about the same date the disease had practically subsided. A number of municipalities in the western part of the state, where outbreaks had been more recent, reported temporary increases

in the number of cases following the peace celebrations. Up to that time 257,758 cases had been reported in the state outside of New York City. In *Public Health Reports*, November 22, appears a continuation of the tabulated record of cases throughout the country, as reported to the U. S. Public Health Service, together with an account of influenza among the soldiers abroad, covering the time up to October 21.

Orthopedic Journal Expands.—It is announced that the *American Journal of Orthopedic Surgery*, the official publication of the American Orthopedic Association, which has been the only journal in the English language devoted to orthopedic surgery, will now extend its field of activity and will become also the organ of the newly-formed British Orthopedic Association under the name of the *Journal of Orthopedic Surgery*. This has been brought about through the increased interest and importance of the subject of orthopedics on account of the war. It is believed the purposes of the orthopedic branch of surgery will be best served by the amalgamation, an idea long cherished by Lieut.-Col. Robert B. Osgood, M. C., U. S. Army, Boston, who promoted the establishment of the American journal. The journal will be published from the present offices in Boston under the management of Ernest Gregory. The committees appointed by the British Orthopedic Association consist of R. C. Elmslie, M.S., F.R.C.S., editor, London; T. R. Armour, F.R.C.S.; W. H. Trethowan, F.R.C.S., and H. Platt, M.S., F.R.C.S.; while Charles F. Painter, M.D., Boston, and Robert W. Lovett, M.C., Boston, comprise the committee appointed by the American Orthopedic Association. Miss Hannah Lissner, Boston, has been appointed in charge of the editorial department of the journal in America.

FOREIGN

Deaths Abroad.—Dr. Joseph Kidd, London; M. R. C. S., England, 1846, M. D. U. K. C. Aberdeen, 1853; aged 94; one of the most notable homeopathic practitioners of England, and physician to Lord Beaconsfield; died at his home, in Blackheath Park, recently.—Jose Palomeque, one of the leading Mexican physicians established in Havana, Cuba, a graduate of the University of Paris; a practitioner for more than fifty years; died in Lenox Hill Hospital, in New York City, October 30.

CORRECTION

Method for Staining the Diphtheria Bacillus.—We are informed by Capt. F. A. Beck that in his article published July 13 with this title, the following change should be made: Bismarck brown 0.480 mg. should be 0.480 gm. In the article published Nov. 16, 1918, under the title "Method for Preparing the Eosinate of Methylene Blue and Method for Staining" eosin yellowish (water-soluble) 0.470 mg. should be 0.470 gm. and methylene blue 0.400 mg. should be 0.400 gm.

SOUTH AND CENTRAL AMERICA, MEXICO AND WEST INDIES

Cuban Donations for the War Victims.—The *Cronica Medico-Quirurgica* of Havana states that the official committee appointed by the government to distribute the funds voted in aid of the victims of the war, has sent \$125,000 to France; \$80,000 to Belgium; \$100,000 to Italy, and \$100,000 to England. These sums are the state donations and do not include the gifts by private individuals. The Cuban Red Cross has received half a million which it has devoted to the same purposes.

The Motile Bacillus of Influenza.—At the meeting of the Academia de Ciencias of Havana, November 22, Dr. L. Plasencia, a leading microscopist, presented evidence that a coccobacillus isolated by him constantly from the sputum in cases of true influenza bears a causal relation to the disease. It was not found in other diseases, and it reproduced in monkeys a disease closely similar to influenza in the human. The coccobacillus in question is a little broader than the Pfeiffer bacillus, its minimal length about 0.6 micron, its extreme length (only in cultures) 2.1 micron, the average about 0.9. In width it varies from 0.1 to 0.3 micron. The grouping is characteristic as each bacillus is separate, even when in clusters. It takes the anilin stains but requires a little longer contact than other bacilli. The most characteristic feature is its motility, equal to that of certain strains of paratyphoid bacilli. As he knows of no previous description of this bacillus, he has named it the *Bacillus influenzae motilis*.

CUBA LETTER

HAVANA, Nov. 20, 1918.

The Epidemic of Influenza

There are at present about 12,000 cases of influenza in Cuba; but the epidemic is relatively mild, as the cases of bronchopneumonia represent only 3 per cent. of the total, and the statistics show the death rate to be slightly above 1 per cent. The communities in which the disease is most prevalent are Camaguey, with 4,000 cases, and Santiago de Cuba, with 3,000.

The Sociedad de Estudios Clinicos of Havana dedicated an extraordinary meeting to the study and discussion of the epidemic; Dr. L. Ortega, who was appointed speaker, condemned the use of vaccines as a routine measure and said that he saw no scientific basis for the widespread use of antidiphtheric serum against pneumonia and bronchopneumonia. There is no specific treatment for the disease that we call influenza, and until the discovery of the germ puts us on the road to the truth, we can do no more than undertake symptomatic treatment.

DR. PLASENCIA'S RESEARCH WORK

Dr. L. Plasencia, professor of microscopy of the University of Havana, has discovered in the sputum and in the throat of individuals attacked with the present epidemic disease a new micro-organism which at first they thought to be Pfeiffer's but which later they found to be motile, to grow in ordinary mediums as well as in blood agar, and to produce in monkeys a typical attack of the disease: sudden high temperature, catarrhal symptoms and great prostration. The curve of the temperature takes exactly the same course as in human cases. Dr. Plasencia asserts that he has found this germ, which he believes to be specific of the disease, in 90 per cent. of the cases he has examined. Dr. Plasencia is a well known and reliable man, and is not a vaccine manufacturer.

National Federation of Physicians

At the last regular meeting of the Sociedad de Estudios Clinicos, Dr. A. Salcines delivered an address proposing the union of all the physicians of Cuba in a national federation. According to Dr. Salcines' proposition, every physician should belong to the federation and should not be allowed to practice without his membership certificate. In this manner all quacks and unregistered physicians would be put out of business, as well as those graduated physicians who do not carry their practice under strictly ethical conditions. The society took under consideration Dr. Salcines' idea and appointed a commission to study the foreign as well as the home legislation on the matter.

Death of Dr. J. A. Clark

Dr. J. A. Clark, former director of the municipal medical service of Havana, died at his home, November 18, from cerebral hemorrhage. Dr. Clark was at the time of his death director of charities of the republic.

PARIS LETTER

PARIS, Nov. 7, 1918.

International Scientific Relations After the War

The Académie de Médecine appointed a special committee to consider this question. The commission consisted of Professors Laveran, Albert Robin, Achard and Drs. Regnard and Siredey. October 15, the Academy, believing personal relations between scientific men of the two groups of belligerents to be impossible until reparation and expiation of the crimes which have put the Central Empires under the ban of humanity permit them again to enter the concert of civilized nations, adopted the following resolutions submitted by the committee:

1. The Central Empires shall be compelled by a provision of the treaty of peace to retire from international scientific associations established by diplomatic conventions and implying personal relations between the members. This exclusion would not apply to common action solely concerning administrative relations indispensable between such public services as those affecting the regulation of navigation, railways, telegraphs, etc.

2. As soon as circumstances allow, those international conventions not belonging to the two categories noted above shall be dissolved by each of the competent groups of the Entente and of the United States of America in accordance with the statutes and regulations of each of them. New associations recognized to be needed for the progress of the

sciences and their application shall be established forthwith by the Allies and the United States, with the eventual cooperation of neutrals.

3. The governments of the allied countries and of the United States shall refrain from sending delegates to any international assembly at which representatives of the Central Empires would be expected to figure. It is desirable that the citizens of the Entente countries and of the United States should adopt the same line of conduct and not take part in any enterprise in which the citizens of the Empires would collaborate.

4. Inquiry should be made as to the steps to be taken to establish intimate collaboration between the Allies and the United States, particularly in the domain of allied science and in the publication of certain bibliographic works.

Anti-Influenza Measures in Schools

The prefect of the Seine district has instructed the mayors, medical inspectors and principals of the schools of Paris and of the département de la Seine to take the following measures with regard to the present epidemic of influenza: (1) Stop all meetings in school buildings; (2) inquire as to the reason for absence of any pupil, and inform, without delay, the bureau of medical inspection of schools of the results of such inquiry; exclude every child from the school who presents any symptoms of indisposition, and have him taken home, notifying the family to secure medical attendance for the child at once; (3) advise families to keep their children at home if they do not feel well; (4) exclude from school the brothers and sisters of the patient. The principal of the school should inform the principals of the schools attended by the brothers and sisters of their own pupils suspected of having influenza; (5) clean the floors and blackboards and desks often with Javelle water, creolin or a 20 per cent. aqueous solution of liquor formaldehyd; (6) do not close down the whole school, but dismiss for fifteen days all classes three fourths of whose membership is absent because of influenza; the school medical inspector may, however, close the school if the situation is grave; (7) proper antisepsis of the nasal fossae.

The Germans and the Pasteur Institute of Lille

The *Figaro* recently published a letter written by Dr. Calmette, October 15, and addressed to the mayor of Lille. Dr. Calmette, who had remained at the head of the Lille Institut Pasteur ever since the German invasion, in this letter protested against the Germans taking away the last three horses which had been used for the production of antidiphtheritic serum. A veterinary had pronounced these horses as being unfit for any service; they were not even shod, and they were absolutely needed by the institute for the production of diphtheria antitoxin. His protest was ineffective, although this action was a violation of the Hague peace conventions, an infringement of the rights of men, and an act of gross inhumanity because it deprived the already sorely tried and unfortunate civil population of the much needed serum for the treatment of diphtheria, especially at a time of the year when this disease is of common occurrence among children. Calmette says that at the proper time he will bring this matter to the attention of all learned societies the world over. Calmette's wife was taken to Germany last year as a hostage.

The Bread Ration of Young Soldiers

During the duration of the influenza epidemic, the soldiers of the class of 1919 who are still in the garrisons will be allowed a bread ration of 700 to 800 gm.

Helping to Fight Influenza

The under-secretary of state of the Service du Santé militaire has placed the mobilized physicians at the disposition of the civil population whenever there is an insufficient number of physicians in any given vicinity. The medical members of the class of 1888 (50 years of age) and older ones, can be sent to points where medical aid is demanded by the needs of the moment. The under-secretary has also asked convalescing physicians to help out, if their state of health permits, and render such service as they can wherever they may happen to be stationed.

Leading Citizens of Lille Protest Against German Atrocities

At the meeting of the Académie de médecine held October 29, the secretary read a letter signed by Dr. Calmette, director of the Institut Pasteur at Lille, M. Parenty, director of the tobacco manufacturers of Lille, and M. Witz, professor on

the science faculty of Lille, in which these savants protest against the infamous treatment imposed on the people of Lille by the German authorities. The Academy declared itself as being in sympathy with the writers of the letter, and voted a resolution to the effect that henceforth it would not collaborate with any German publication, nor participate in any scientific meetings or any international congress with German colleagues who have not previously publicly stated their disapprobation of these outrages committed by their government during the war. This letter was also read before the Académie des Sciences at its meeting held October 30.

School for the Blinded at Lille

The war fund for blinded soldiers and sailors founded by Mr. and Mrs. George A. Kessler of New York will supply the money needed to open an institute at Lille for the blinded soldiers of northern France who wish to return near their homes in the territory recently evacuated by the enemy. This decision was taken on request of the French government. More than 200 blinded French soldiers who came from the northern provinces are now resident in the numerous asylums distributed throughout France.

Deaths

Dr. Viault, professor of general anatomy and histology in the Bordeaux medical faculty is dead; likewise, Dr. Albert Auvray, formerly director of the school of medicine and pharmacy at Caen.

Professor Paul Dubois of the University of Berne, author of many publications on diseases of the nervous system, died recently at Berne, aged 70.

Personal

At its last meeting, the Académie des Sciences unanimously elected Marshall Foch *académicien libre* to succeed the late professor Léon Labbé.

LONDON LETTER

LONDON, Nov. 5, 1918.

The National Physique

In the *Observer*, Prof. Arthur Keith discusses the question of the national physique. He refers to the declaration of the prime minister, Mr. Lloyd George, who asked the minister of national service, "How many more men could we have put into the fighting line if the health of the country had been properly looked after?" and was told, "At least one million." In the course of voluntary work at the ministry of national service, Prof. Keith obtained the results of the surveys that are being carried out all over the country by the medical boards in the examination of recruits, and finds that the prime minister has understated the seriousness of the position. Dividing the population into four grades, he considers that if 1,000 young men be taken at random and graded according to their physical fitness, the following should be expected under good conditions: Grade 1, 700; Grade 2, 200; Grade 3, 75; Grade 4, 25. Grade 1 includes men fit for general military service, and Grade 4 men unfit for any of the duties of a soldier. Grade 2 and 3 are intermediate. The actual figures obtained from a large industrial town were: Grade 1, 190; Grade 2, 270; Grade 3, 410; Grade 4, 430. The objection, however, may be raised that the present population of our towns is merely a residue left after the departure of the fit young men to active service in the earlier years of the war. After the age of 30, men tend to become degraded, that is, to pass down the grades. On turning to trades that have been exempted from military service in the earlier years of the war, the objection just made is largely removed; but the figures remain very serious. They are: Grade 1, 270; Grade 2, 152; Grade 3, 158; Grade 4, 420. Professor Keith attributes these results to slum life. Slums produce children who become men of Grades 3 and 4. Another factor is wage earning by women, who are unable to look after their children.

The Question of the Unfit

At a meeting of the National Birth-Rate Commission, Major Leonard Darwin, son of Charles Darwin, said he was inclined to think that we should be driven to some form of sterilization as the only way to deal with the question of the unfit, but that we shall require to know a great deal more before we can move along that path. We shall want to be quite sure that sterilization does not affect the character of the person sterilized, and that if it proves a failure it does not affect the health of any child that may be born. Turning to the question of the racial effects of public expenditure intended to lessen the strain on family life, the

effects to be considered are (1) the mother and the children, and (2) the future output of children. With regard to the immediate results on the family, a complex balancing of good and evil effects has to be considered. Improvements in environment cannot be relied on to promote racial progress. It is when looking to the generations of the future that questions of heredity are seen to be of great importance. Good homes contain persons on the average somewhat innately superior to the inhabitants of bad homes, and to decrease the birth rate in bad homes would make for social progress. Social reformers ought to desire to lessen the output of children from bad homes without any reference to the effects of natural inheritance. On this account, it seems that expenditure likely to increase fertility should not be made applicable to bad homes. But expenditure intended to improve hygienic conditions often also tends to promote fertility. In considering the effects of such expenditure, the malthusian arguments must not be overlooked. But help will doubtless be demanded by many reformers to better the conditions in the worst homes. All such help, whether given without breaking up the home or in institutions, is likely to increase fertility. We are, therefore, on the horns of a dilemma. We must either refuse to give assistance to those continuing to live degraded lives, or we must promote enduring racial harm. As the result of a choice between these two evils, no help should be given to homes below a certain standard of decency, suitable institutional assistance being always available for their inhabitants. Harm as well as good will always result from public assistance to selected individuals. This argument points to help being given universally and without selection. But such help would do racial and other harm, because of the heavy taxation thus necessitated and for other reasons. This system of relief should be adopted only when the benefits aimed at are otherwise unattainable. Free feeding and doles to families should be given only in genuine cases of urgent need.

Venereal Disease and Man Power

In a previous letter, the objections that have been made to the defense of the realm regulation, known as 40 D, which makes it penal for any woman having venereal disease to have intercourse with or solicit intercourse with a British soldier, were discussed. The regulation was founded on information that the spread of venereal disease in the British and colonial forces involved a serious loss of man power. Up to the end of August, seventy-eight persons have been convicted of breaches of the regulation, of whom thirty-seven pleaded guilty. The removal for a time of these centers of infection, and the deterrent effect of the regulation on others, have already resulted in a diminution of venereal disease in some army districts. The United States authorities have asked that the regulation be extended so as to apply to their troops in this country, and the governments of Canada and New Zealand have made similar regulations for the protection of their troops in the dominions. In these circumstances the government has decided that the regulation must for the present be retained. It has, however, appointed a small committee to consider what modifications, if any, should be made in its terms or in the procedure for enforcing it. The committee includes Sir Malcolm Morris, a medical woman, and a number of well known philanthropic workers.

Marriages

ASST. SURG. HARDY VERNON HUGHENS, Lieutenant, U. S. Navy, on duty at Great Lakes, Ill., to Miss Agatha Alethea Roemer of Waukegan, Ill., November 28.

CAPT. GEORGE FLANDERS WILSON, M. C., U. S. Army (retired), Portland, Ore., to Mrs. Bessie M. Marshall, also of Portland, November 26.

LIEUT. CHARLES PRESTON MANGUM, M. C., U. S. Army, Kinston, N. C., to Miss Margaret Edwards of Chicago, November 6.

LIEUT. HAROLD THOMAS HYMAN, M. C., U. S. Army, to Miss Rita Abrahams, both of New York City, November 21.

JOSEPH LUKE DECOURCY, Cincinnati, to Miss Frances Cornelia Bickett of Chicago, November 28.

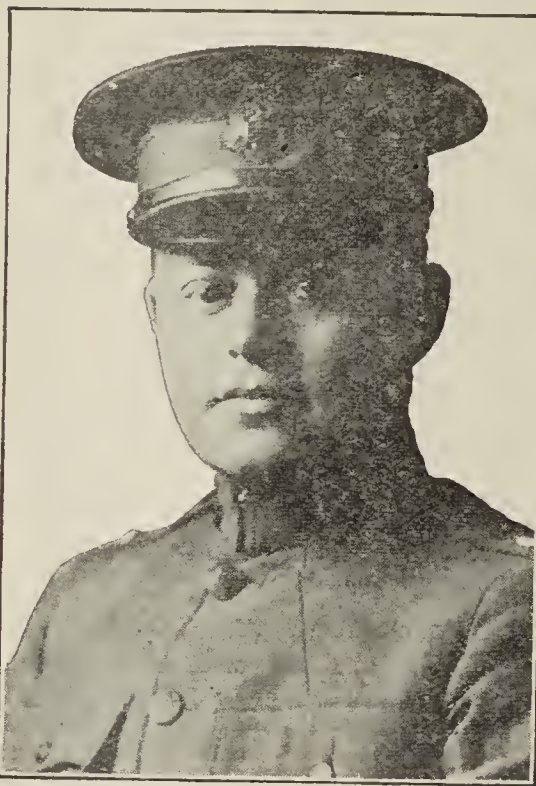
HAROLD HILL WALKER, Kansas City, Mo., to Miss Wanda Ramsey of Omaha, November 10.

ADOLPH STEINER, Lima, Ohio, to Miss Gertrude Becker of Chicago, recently.

Deaths

Lieut. August Adrian Strasser ☉ M. C., U. S. Army, Arlington, N. J.; College of Physicians and Surgeons in the City of New York, 1896; aged 44; a member of the American Association of Obstetricians and Gynecologists and New York Academy of Medicine; and once president of the New Jersey Academy of Medicine; chief of the children's disease clinic, in the German Hospital, Newark; a member of the staff of the Womens and St. Michaels hospitals, Newark; who entered the Medical Reserve Corps, June 1, 1917, and was on duty at Fort Oglethorpe, Ga., where he received an honorable discharge; died at Newark, N. J., November 20, from cerebral hemorrhage.

Capt. Theodore Fletcher Mead ☉ M. C., U. S. Army, New York City; Cornell University Medical College, New York City, 1912; aged 33;



Died in the Service

IN FRANCE

CAPT. THEODORE F. MEAD, M. C.,
U. S. ARMY, 1885-1918

who was appointed assistant visiting physician at Bellevue Hospital in January, 1917; entered the United States service in June, 1917, and sailed for France, June, 1918, and was on duty with the One Hundred and Fourth Field Artillery; died, October 30, from wounds received in action.

Capt. Frank Henry Knight ☉ M. C., U. S. Army, Brooklyn; College of Physicians and Surgeons in the City of New York, 1899; aged 42; a specialist in gynecology; formerly visiting surgeon at St. John's and the Kings County hospitals, and the Episcopal Orphan Asylum and Home for the Aged; visiting gynecologist to the Swedish and Methodist Episcopal hos-

pitals; on duty with Base Hospital No. 23 at Portsmouth, England; died from pneumonia, October 28.

Capt. Halstead Robert Wright ☉ M. C., U. S. Army, Columbus, O.; Ohio State University, Columbus, 1910; aged 43; a member of the American Academy of Ophthalmology and Oto-Laryngology; a specialist in diseases of the eye; formerly instructor in physiology and pathology of the eye in his alma mater; on duty at Base Hospital No. 14, Fort Oglethorpe, Ga., died at that place, October 17, from pneumonia following influenza.

Major Shadworth Oldham Beasley ☉ M. C., U. S. Army, San Francisco; Cooper Medical College, San Francisco, 1897; aged 42; assistant clinical professor of obstetrics and gynecology in Leland Stanford Junior University; major of volunteers during the war with Spain with service in the Philippine Islands; on duty with the American Expeditionary Forces in France; is reported to have been killed October 14.

Charles Emery Payne, Brooklyn, N. Y.; New York Homeopathic Medical College, 1903; aged 36; consulting laryngologist and rhinologist to the Jamaica and Cumberland Street hospitals, and attending physician to the home for Consumptives; laryngologist, rhinologist, and assistant oculist and aurist to the Brooklyn Nursery and Infants' Hospital; died at his home, November 18, from pneumonia.

Robert Goodwin Marriner, Menominee, Mich.; Northwestern Medical School, Chicago, 1881; aged 61; a member of the Michigan State Medical Society; attending physician and surgeon to St. Joseph's Hospital, Menominee; city health officer; who fell from a porch while making a professional call, November 12, fracturing two ribs, died at his home, November 21, from secondary pneumonia.

Jacob Rosenberg, New York City; University and Bellevue Hospital Medical College, New York City, 1914; aged 29; a member of the Medical Society of the State of New York; surgeon to Mount Sinai, Hudson Street, and Gouverneur hospitals; died at his home, November 14, from pneumonia following influenza.

William N. Yates ♂ Fayetteville, Ark.; Missouri Medical College, St. Louis, 1878; aged 67; health officer of Fayetteville, and a member of the Washington County Board of Health; for many years a member of the board of trustees of the University of Arkansas; died at his home, November 17, from pneumonia.

Lieut. Samuel Lewis ♂ M. C., U. S. Army, Brooklyn, N. Y.; Long Island College Hospital, Brooklyn, 1917; aged 22; on duty with the Fifty-Second Field Ambulance, British Expeditionary Forces in France, is reported to have been killed in action on the Somme, August 28.

John Solomon Meltzer, New York City; University and Bellevue Hospital Medical College, 1912; aged 29; a member of the Association of American Physicians; visiting physician at Mount Sinai and Lying-In Hospitals, New York City; died at his home, November 16.

Capt. George Edward Farr ♂ M. C., U. S. Army, Shelbyville, Mo.; University Medical College of Kansas City, Mo., 1906; aged 39; on duty on the Mexican border; died in the base hospital, Brownsville, Texas, October 30, from pneumonia following influenza.

James Corbett Rathbun, Danville, Ill.; Bennett Medical College, 1909; aged 37; a member of the Illinois State Medical Society; while driving across the interurban tracks in Danville, November 13, was struck by an interurban car and instantly killed.

Thomas William Hovorka, St. Cloud, Minn.; Minneapolis College of Physicians and Surgeons, 1902; aged 44; a member of the Minnesota State Medical Association; died at his home, October 17, from pneumonia following influenza.

William B. Melick, Fort Edward, N. Y.; Albany, N. Y., Medical College, 1884; aged 60; a member of the Medical Society of the State of New York; at one time coroner of Washington County; died in New York City, November 3.

Lieut. Arthur Francis McQuaid ♂ M. C., U. S. Army, Chicago; Loyola University, Chicago, 1915; aged 28; on duty at British war hospitals in England from October, 1917, to July, 1918, and since that time serving with the British Expeditionary Forces in Flanders and France; is reported to have been killed in action, October 15.

Glenn Charles Spurgeon ♂ Seattle; Northwestern University Medical School, Chicago, 1904; aged 44; a member of the staff of the Eye, Ear, Nose and Throat Infirmary, Seattle; died at his home, October 29, from pneumonia following influenza.

Herman Oechsner ♂ New Orleans; Tulane University, New Orleans, 1899; aged 56; also a graduate in pharmacy; a member of the state board of health in 1908; died at his home, September 30, from intestinal toxemia.

Lieut. Harry Shafer Marcle ♂ M. C., U. S. Army, New York City; University of Syracuse, N. Y., 1911; aged 32; anesthetist to the Hospital for Ruptured and Crippled, New York City; on duty at Camp Eustis, Va.; died at that place, November 18.

John Calvin McClurkin, Chicago; Bellevue Hospital Medical College, 1871; aged 78; who was operated on November

14 for cataract, jumped from a window in St. Luke's Hospital, November 24, sustaining injuries from which he died shortly after.

Joseph Francis Berghoff ♂ Butte, Mont.; John A. Creighton Medical College, Omaha, 1913; aged 33; a member of the staff of the Montana State Hospital, Warm Springs; died in St. Ann's Hospital, Butte, November 17, from pneumonia.

Capt. Joseph E. Dudenhofer ♂ M. C., U. S. Army, Erie, Pa.; Jefferson Medical College, 1911; aged 30; on duty with the American Expeditionary Forces in France; was killed in action, September 17.

Harmon Jackson Wall, Richland Center, Wis.; Rush Medical College, 1880; aged 74; a member of the State Medical Society of Wisconsin; a veteran of the Civil War; died at the home of his daughter in Milwaukee, November 14, from pneumonia.

Lieut. Malcolm Cunningham ♂ M. C., U. S. Army, Chicago; Chicago College of Medicine and Surgery, 1917; aged 25; on duty with the 76th Spruce Squadron, Astoria, Ore.; died at his post, October 8, from pneumonia following influenza.

Herbert Clargo Mills, Berkeley, Calif.; College of Physicians and Surgeons of San Francisco, 1901; aged 39; a member of the Medical Society of the State of California; died at his home, October 22, from pneumonia following influenza.

John Millington, Greenwich, N. Y.; University of Michigan, Ann Arbor, 1873; aged 71; a member of the Medical Society of the State of New York; at one time health officer of Washington County; died at his home, November 3.

Frank Joseph Stoll, New York City; University of Klausenburg, Hungary, 1909; aged 34; who volunteered to assist in the influenza epidemic in Pottsville, Pa.; died in that city, October 20, from pneumonia following influenza.

David Ralph Houston, Miami, Fla.; Manitoba Medical College, Winnipeg, 1909; aged 35; for several years a practitioner of Dominion City, Manitoba; died at his home, November 15, from pneumonia following influenza.

Robert Z. Ingersoll, Seymour, Ia.; Keokuk Medical College, College of Physicians and Surgeons, 1902; aged 41; a member of the Iowa State Medical Society; died at his home, October 22, from pneumonia following influenza.

Lieut. Grover Carlisle Price ♂ M. C., U. S. Army, Judson, Ind.; University of Louisville, Ky., 1909; aged 30; on duty with the American Expeditionary Forces in France; died at Toul, France, October 30, from bronchial pneumonia.

Wilson B. Shelton, Bingham, Ill.; (license, years of practice, Illinois, 1888); aged 75; a member of the Illinois State Medical Society; and a veteran of the Civil War; died at his home, November 4, from cerebral hemorrhage.

Malcolm Donald MacNab, Chicago; Rush Medical College, 1895; aged 47; at one time a member of the Illinois State Medical Society and Physicians' Club of Chicago; died at his home, November 27, from a gunshot wound.

Lieut. Timothy Gibson Sellev ♂ M. C., U. S. Army, Marietta, O.; Medical College of Ohio, Cincinnati, 1901; aged 43; on duty at Camp Grant, Rockford, Ill.; died at that place, October 20, from heart disease.

Margaret Allen Judge ♂ Erie, Pa.; Woman's Medical College of Pennsylvania, Philadelphia, 1910; aged 39; died at Hamot Hospital, Erie, Pa., November 22, from influenza.



Died in the Service

IN FRANCE

CAPT. JOSEPH E. DUDENHOFER, M. C.,
U. S. ARMY, 1888-1918



Died in the Service

IN FRANCE

LIEUT. ARTHUR F. MCQUAID, M. C.,
U. S. ARMY, 1890-1918

Edward A. Butts, Washington, D. C., Georgetown University, Washington, D. C., 1873; aged 72; for many years a pharmacist and manufacturing druggist; died in his apartments, October 22, from pneumonia.

James Stewart Doubleday ⊕ New York City; University of Virginia, Charlottesville, 1893; aged 43; associate physician to the Southampton, L. I., Hospital; died at his home, November 14, from pneumonia.

Lieut. Clinton Virgil Reed ⊕ M. C., U. S. Army, Three Forks, Mont.; Rush Medical College, 1914; aged 29; on duty with a medical unit in England; died recently from pneumonia following influenza.

Albert Garfield Porter ⊕ Terre Haute, Ind.; Indiana University, Bloomington and Indianapolis, 1909; aged 38; police surgeon of Terre Haute; died at his home, October 29, from pneumonia following influenza.

William Madison Patterson, Egan, S. D.; University of Illinois, Chicago, 1902; aged 49; for some time editor of the local paper; died at his home, about November 13, from pneumonia following influenza.

Paul Orcutt Miller, Deer Lick, Pa.; Jefferson Medical College, 1915; aged 29; formerly of Warren, Ohio; died at the University of Colorado Hospital, Boulder, November 18, from pneumonia following influenza.

John Gustaf Swensson, Portland, Ore.; State University of Iowa, Iowa City, 1897; aged 42; a member of the Oregon State Medical Association; died at his home, November 22, from heart disease.

Lieut. Millard Cressy Clark ⊕ M. C., U. S. Army, Bethlehem, N. H.; Tufts College Medical School, Boston, 1917; aged 25; died at Camp Gordon, Ga., September 29, from bronchopneumonia.

Ernest Boston, Palacios, Tex.; Barnes Medical College, St. Louis, 1899; aged 43; a member of the State Medical Association of Texas; died in Owensboro, Ky., November 10, from pneumonia.

Lieut. Alfred Johnson ⊕ M. C., U. S. Army, Clyde, Kan.; St. Louis College of Physicians and Surgeons, 1907; aged 39; on duty at San Francisco; died at his home, November 6, from influenza.

John L. Poppe, Haley, N. D.; University of Christiania, Norway, 1903; aged 35; died in St. Luke's Hospital, Aberdeen, S. D., October 27, from double lobar pneumonia following influenza.

Lieut. Leslie James Phillips ⊕ M. C., U. S. Army, Weyerhauser, Wis.; Queen's University, Kingston, Ont., 1912; aged 30; is reported to have died recently in France, from pneumonia.

David J. Mercer ⊕ Poe, Ind.; Fort Wayne, Ind., College of Medicine, 1901; aged 39; died in the Lutheran Hospital, Fort Wayne, Ind., November 20, from pneumonia following influenza.

Isaac Brown Jordan, Hope, Ark.; Meharry Medical College, Nashville, Tenn., 1913; aged 32; a colored practitioner; died at his home, October 10, from pneumonia following influenza.

Claude Baxley, Baltimore; University of Maryland, Baltimore, 1860; aged 80; while crossing a street in Baltimore, October 18, was struck by an automobile and instantly killed.

Angeline Mildred Lemon Dumbleton ⊕ Detroit; Cleveland College of Physicians and Surgeons, 1908; aged 31; died at her home, November 7, from pneumonia following influenza.

James R. Hughes, Atlanta, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1913; aged 36; died at his home, October 12, from pneumonia following influenza.

Robert S. Miles, Tacoma, Wash. (license, Minnesota, 1900); aged 77; formerly of Glencoe, Minn.; a practitioner since 1868; died at his home, November 16, from pneumonia.

Mary Powell Sook Thompson, Cleveland; Cleveland University of Medicine and Surgery, 1880; aged 70; died at her home, November 9, from carcinoma of the liver.

Lieut. Albert Frederick Ostwald ⊕ M. C., U. S. Army, Buffalo, N. Y.; University of Buffalo, N. Y., 1911; aged 35; died at his home, November 8.

George P. Hemm, Hays, Kan.; St. Louis University, 1907; aged 36; died at his home, October 10, from pneumonia following influenza.

Lewis Jerome Murphy, Los Angeles; Medical College of Indiana, Indianapolis, 1903; aged 41; died at his home, recently.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

LEONARD EAR OIL

Another Deafness Cure Humbug

"Leonard Ear Oil" is an alleged cure for deafness, sold by one A. O. Leonard of New York City. The present method of exploiting this nostrum is comparatively new. A few years ago Leonard was engaged in a mail-order business of selling his "Invisible Antiseptic Ear Drums." At that time his "Ear Oil" was an accessory to his "Ear Drum" trade, and constituted the "repeater" part of the business. More than four years ago, the Propaganda department collected Leonard's series of follow-up letters; these were of the usual medical mail-order fake type, with the accompanying testimonials, bulletins, etc. The price first asked for one of the "Invisible Antiseptic Ear Drums" was \$5.00, which included, also, enough "ear oil" to last one month. Additional "ear oil" came "at \$1.00 per bottle, for the personal use of those who purchase the drums." Before the follow-up series was complete, the price had been reduced to \$2.50. The final letter contained an offer to send a bottle of Leonard's Ear Oil for \$1.00, nothing being said about the

Look for this Sign in
Drug Store
Windows.
It is a
**LEONARD
EAR OIL
AGENCY**



If your druggist is not an agent write me, 150 5th Ave., Suite 816, New York City, for descriptive circular and list of New York, Brooklyn and N. J. druggists who are agencies for Leonard Ear Oil. NO OIL SOLD BY ME AT RETAIL.

"Invisible Antiseptic Ear Drum." In fact, the last letter of the series would lead its recipient to infer that the "Ear Oil" was the only thing necessary to cure deafness.

Like most mail-order quacks Leonard apparently sold the original letters received from prospective victims, after they had ceased to be commercially valuable to him. At any rate a company that makes a business of buying and selling the original letters of "suckers" offered for sale, under "Deaf Letters," more than nine hundred of A. O. Leonard's vintage of 1907-08, more than five hundred of 1909-10, and more than seven hundred of 1911-12.

During the past year or two, Leonard seems to have been putting the soft pedal on the "invisible ear drum" part of his business, and playing up his "ear oil" fortissimo. Moreover, instead of selling the stuff as a mail-order proposition, Leonard now does business through drug stores. This tendency on the part of mail-order quacks to abandon the mail-order method, and conduct their business through the retail drug trade channels is an indication of the growing appreciation on the part of quacks of the protective power of the post-office fraud order. Is it also an indication of the low standard of business ethics of certain retail druggists? Leonard Ear Oil is by no means the only mail-order medical humbug that has found it safer, and doubtless more profitable, to abandon the mail-order feature and split the profits with the retail druggist.

One wonders whether the postal authorities have, during the past few years, dropped a hint to Leonard that his methods were likely to bring him into conflict with the law. This suspicion is strengthened by changes that have taken place in the character of the Leonard advertising, during the past few years. In the past we were dogmatically assured that "Leonard Ear Oil removes the mucous, opens up the tubes," etc.; now with more circumspection we are informed

that "The purpose of Leonard Ear Oil is to remove the mucous, open up the tubes," etc. In 1915 Leonard Ear Oil "restored" hearing, if one were foolish enough to believe the advertising: now "restored" has given place to "improves." A further comparison between the older and newer advertising claims will indicate the change from direct falsehood to inferential misstatement:

OLDER ADVERTISING

"... the Leonard Glandular Oil, if applied as directed will *cure* the diseased or catarrhal condition. . . ."—[Italics in original.—Ed.]

"Rubbing this on the glands of my throat and back of my ears night and morning, thoroughly massaging it in, I have *cured* the catarrhal condition. . . ."—[Italics in original.—Ed.]

"... it, together with my Invisible Ear Drums, has *cured* literally thousands of cases of Deafness and Head Noises that were considered hopeless." —[Italics ours.—Ed.]

"The imported Oil used in this preparation successfully carries the *curatives* it contains, . . . through pores of the skin to the diseased parts and effects a *cure*." —[Italics ours.—Ed.]

Some months age the Department of Health of the City of New York purchased specimens of Leonard Ear Oil and analyzed it. The chemist reported in effect, that the stuff had essentially the following composition:

Liquid petrolatum	41.96 per cent.
Ammonium oleate (soft soap)	8.18 per cent.
Oleic acid	14.40 per cent.
Camphor	9.85 per cent.
Eucalyptol	11.07 per cent.
Alcohol	12.00 per cent.
Water	2.54 per cent.

This would mean that Leonard Ear Oil is to all intents and purposes liquid petrolatum with camphor, eucalyptol, etc., emulsified by aid of a soft soap produced from ammonia and oleic acid. Having determined the composition of Leonard Ear Oil, the Department of Health of the City of New York lodged a complaint against Leonard, who was arrested and arraigned before the Court of Special Sessions, and adjudged guilty of making false and misleading claims. On July 14, 1918, Leonard was sentenced to thirty days in jail or to pay a fine of \$250.00. Of course he didn't go to jail.

The Health Department of New York City went still further in protecting the public against this humbug. It notified all druggists in New York City that "the continued sale of Leonard Ear Oil with these false and fraudulent statements attached, will constitute a violation of Section 116 of the Sanitary Code, and will subject the druggist so doing to prosecution." Moreover, the Bureau of Public Health Education of the New York Department of Health gave the facts publicity through its *Weekly Bulletin* and its *Monthly Drug Bulletin*, and prepared an exhibit which was placed in a window on a prominent street, exposing the Leonard fakery. The exhibit consisted of two placards used by the Leonard Ear Oil concern, with a bottle of the oil itself. Alongside the original bottle were placed two other bottles, one with material which the chemist's analysis showed the bottle to contain, and another showing a bottle of the same size containing water. Under these bottles appeared the following legends:

Bottle No. 1—"Leonard's Ear Oil. This preparation costs you \$1.00. The Courts of this City have declared that the claims made as to the medicinal value of the preparation are false and misleading."

Bottle No. 2—"This preparation is, analytically, the same as 'Leonard's Ear Oil' and may be purchased at an ordinary drug store for about 20 cents."

Bottle No. 3—"This bottle contains water and is just as good as 'Leonard's Ear Oil' for deafness. The cost to you is only the price of the bottle."

NEWER ADVERTISING

"... the Leonard Glandular Oil, if applied as directed will *relieve* the diseased or catarrhal condition. . . ."—[Italics ours.—Ed.]

"Inserting this in my nostrils and rubbing on the glands of my throat and back of my ears night and morning, thoroughly massaging it in, I have *overcome* the catarrhal condition. . . ."—[Italics in original.—Ed.]

"... it, together with my Invisible Ear Drums, has *relieved* literally thousands of cases of Deafness and Head Noises that were considered hopeless." —[Italics ours.—Ed.]

"... the Imported Oils used in this preparation successfully carry the *remedies* it contains to the diseased parts and *remove the cause* of Deafness and Head Noises."—[Italics ours.—Ed.]

This was last summer. Since that time another city—Cleveland, Ohio, which makes an effective attempt to protect its citizens from fraud in medicine—has taken action on the Leonard Ear Oil. Under date of November 4, the Commissioner of Health of the City of Cleveland issued an order to Cleveland dealers relative to the sale of the Leonard preparation. This order read as follows:

"Informing retail dealers that Leonard Ear Oil has been examined by this department and found to be a misbranded product within the meaning of the laws applying to Cleveland in that the claims made for this product are false and fraudulent, and its sale is therefore contrary to the best interests of the public health of this city.

"Dealers in Cleveland are hereby notified to discontinue the sale or offering for sale of Leonard Ear Oil."

As Leonard has ceased selling his stuff on the mail-order plan, he is no longer amenable to prosecution by the post-office authorities. As he doubtless is careful to avoid making false and fraudulent claims for his product on the *trade package*, he can not be prosecuted under the Federal Food and Drugs Act. There is nothing, however, to prevent him making all the misleading claims he wishes to, regarding his nostrum, if he confines these claims to circular matter or window displays distributed through drug stores, and newspaper advertisements. That is, there is nothing to prevent this, unless city or state health authorities follow the lead of New York City and Cleveland. Will they do it?

Correspondence

"A REGISTRATION FEE FOR PHYSICIANS"

To the Editor:—In THE JOURNAL, Nov. 16, 1918, p. 1629, is an article by Francis W. Shepardson entitled "A Registration Fee for Physicians." About the time I finished reading the article the mail brought me a letter from the author asking the names of three physicians of our county (Christian) to whom he might write and at the same time asking me to express my opinion of the measure. As it is a matter of interest and importance to the physicians of the state I am offering my comments through THE JOURNAL in the hope that others may be interested and, perhaps, express their approval or objections to the proposed measure.

Mr. Shepardson admits, by implication, that he is biased in his views and proceeds to point out the shortcomings of the medical profession in Illinois. He says that we have a very poorly organized profession; but aside from the one point of numbers he does not say in what manner we are lacking. Were he to investigate, he would probably find that in our state we are as well organized, both in the state and county organizations, as physicians are in other states.

He next points with pride to a formidable array of quacks and charlatans, who he seems to think are fostered by the medical profession of this state, regardless of the fact that through our state society we have begged the legislature from year to year for laws ridding the public of these various pretenders and as often have been turned down and the people of the state left to the impositions of the whole band. Why should he blame the medical profession for the existence of all these fake doctors when it is the laymen—the boasted "neutrals"—who through their representatives have passed the laws permitting them to exist and that, too, against the bitter protest of the medical profession?

He mentions the abortionist and other evil doers in our midst, but also points out that the prosecuting attorneys (neutrals, also?) have either refused to take up the cases or managed in some way to sidetrack them. He says that some of these cases failed because physicians were unwilling "to give testimony or to encourage deluded victims to give the department the legal use of the information given them in the quiet hours of confession," but he does not even suggest why these physicians refused to commit themselves.

When the state and the people sanction and legalize all these frauds, is it incumbent on the physician to injure himself when he knows he would only be censured for meddling?

Mr. Shepardson says there are more fakers and charlatans in medicine than in all the other professions and trades combined. This is probably true; and they flourish because the legislature, which represents the public, has persistently refused to give us laws to suppress them, and because the paid officials of the state are unwilling to perform their plain duty to the public, as Mr. Shepardson himself points out.

I might suggest right here that it is not by the sanction of the medical society of the state or any of its component societies that these evils exist any more than it is that nearly every newspaper carries advertisements of the most glaring frauds of "cancer cures," "consumption cures," "dissolving cataracts," etc. These advertisements are carried under state and national laws despite the most strenuous protests of the medical profession, although Mr. Shepardson, by implication at least, seems to think we are to blame for it.

In his comments on medical education I have no criticism, and the medical profession in general is pleased with the advanced standard of our medical courses. But this was not brought about by "neutral regulators" but by the advanced ideas of the physicians who constitute our medical societies.

Under the heading "Regulation of Practitioners," he points to nine different items under which revocation of license may be secured, but does not say how the proposed "regulation" of physicians is to secure such penalties or even the prosecutions for the offenses. There is no indication that the laws would be changed or that more direct evidence would be produced thereby for the prosecution of such cases, or that the prosecuting attorneys would change their habits in putting off these cases, as mentioned above. The quack who goes from town to town advertising to be a "specialist" on every disease to which human flesh is heir would be as free from prosecution as he now is; and if there are to be prosecutions at all, they will have to be made in the same manner as they now are, to wit: The physicians or others must lay in the complaint and furnish the evidence.

Mr. Shepardson points out that since the first registration law of 1877 went into effect there have been 29,936 individuals licensed, and adds, "How many of these licenses are active at the present time nobody knows." This is, no doubt, true; but would this annual registration correct the matter? Many have died, some moved to other states, some retired, and a few had their licenses revoked. Some may be practicing under fraudulent registration and, if so, all they have to do is to send in their fee and get a renewal card which they may hang in their offices and point to with assumed pride when their patrons come in, and thus continue their illegal practice as before. Why, therefore, resort to the proposed annual registration when we have a much better, more economical and easier method of finding and reporting these impostors? By sending the lists of physicians as already recorded to the secretaries of the various counties the lists may be verified or corrected as may be, and a far more correct list obtained than by annual registration.

Those secretaries who have served a year or two, and most of them serve long terms, know more of the physicians in any particular county than any registration would find out in ten years, and at no expense at all unless it be a mere matter of postage. Secretaries are always ready to correct these lists, and usually know every physician in their county.

It is true, no doubt, that the lists in the directory of the American Medical Association are not always perfect, and the same may be said of the one from the state board of health; but they are probably fully as correct as the one under the proposed registration would be, and with equal care in compiling and cooperating with the county secretaries would be more so with the added opportunity

of corralling those who registered illegally, as, for instance, when they are registered on a diploma or examination not their own; for when the board of censors of the county society recommends a man for membership in a county society, they inquire very carefully into his standing, his graduation, etc., and have a much better opportunity to do so than that afforded by simply the payment of a registration fee.

In the fourth item of "advantages" it is claimed that the state would have better control over unethical practitioners; but a registration does not give us a law to punish the offenders. It is easy enough to find the unethical and fraudulent practitioner. What we want and need is the means of getting rid of him, and there is nothing even suggested in Mr. Shepardson's article whereby this may be accomplished any better by registration than under present conditions.

As regards the fee of two dollars, that is not much; and if there were a prospect of getting results there is not a reputable physician in the state who would not gladly pay it and be the gainer thereby; but for the reasons given, it seems to me to be an entirely useless cumbrance of the law and an annoyance to the members of the profession. Nor am I alone in this view. While writing these pages I took a little time off to inquire what benefits were gained by those who were already "regulated." I made the rounds of the undertakers, the barbers, the dentists, the jewelers and the plumbers; and of all these only three persons thought there was any benefit at all and the rest promptly and emphatically said "no," and usually added that the only ones benefited by the annual registration were those who got the jobs of keeping the records and collecting the fees. One barber, only, thought there might be some benefit by limiting his profession against itinerants; but he could not mention a single instance to support his belief. One dentist thought there might be some benefit, gave the same reason the barber did, and cited one instance in which a dentist was excluded from practice in the state; but later in the evening he met me on his way home and said that the exclusion was due to the fact that he was not registered at all in the state and not that the annual registration had kept him out. I saw one plumber and he thought there "might" be some benefit in the registration, but could not mention any instance in which the benefit had actually been observed.

It is my firm belief that if we could only get the laws, and honest, efficient officials to execute them, there would be no need of any regulation by laymen, no matter how "neutral" they may be.

D. D. BARR, M.D., Taylorville, Ill.

EPIDEMIC INFLUENZA IN PRIVATE PRACTICE

To the Editor:—The pandemic reached Hartford about the middle of September, reached its greatest pace about September 28, and from then on raged fiercely until October 21, when it began to recede. The number of deaths was 586 resident and 137 from out of town. The population is estimated at 145,000, thus giving a death rate of 4 per thousand. The number of influenza cases was about 23,000.

The schools and theaters were not closed here, and from the manner in which the epidemic spread they apparently were not an important factor in disseminating the disease. The epidemic raged most intensely in the crowded tenement districts. Proportionately, the Jews were hit harder probably than any other group of peoples. They were affected first and in great numbers. The northeast section, populated by Jews, Russians and Italians for the most part, was in the grip of the epidemic for a week before it spread to the east side (adjacent), populated mainly by Italians and Russians. In the latter days of the epidemic the south end of the city had more cases than the other sections. The hospitals were overcrowded and able to admit only a small portion of the patients needing admission. An emergency hospital was opened about October 15. It did good work, but was really too late to do the most good.

The subjoined observations were made from approximately 500 cases seen in private practice. As elsewhere, the fatalities were chiefly among the 20 to 35 age group. Similarly the prognosis was better for those over 40. Elderly patients were rare. It was a question whether it was more frequent for a child or an adult to bring the disease into the family.

Epistaxis was common, occurring in from 10 to 15 per cent. of the cases. Some of these resulted in pneumonia. The headache and backache frequently persisted for three or four days. The temperature on the first day was between 101 and 104. A feature of the temperature was its variability during the day, rising and falling at irregular intervals. In the ordinary case the temperature persisted for from two to five days. Sweating was common even without medication or hot drinks. The bowels were inclined to be constipated. There was a general but slight enlargement of the lymph nodes. The spleen was not palpable. The pulse was relatively slow in many cases, but was not always so.

In regard to treatment, no particular drug had special virtues. Rest in bed, fresh air, light, nourishing food, plenty of water and open bowels were the main reliances. A simple expectorant cough mixture, sometimes with the addition of codein, sufficed for internal medication in the ordinary case. Alcohol rubs were soothing when the temperature was high. For the heaviness and soreness in the chest, home-made mustard plasters undoubtedly gave relief. The "fever and pain" powders or capsules, as were ordinarily prescribed, frequently only increased the prostration, and in a few cases in which the patient had taken a number of them, it seemed to prolong their convalescence. This type of medication was frequently more harmful for the patient than the pain for which it was intended.

In the pneumonias, stimulation did not seem to stimulate. It was rare to find pneumonia develop in a patient who took to bed at the onset of his influenza, and have it set in before convalescence, but it did occur. Pneumonia usually occurred after too early getting out of bed, or from too strenuous efforts after or during convalescence.

Three cases of the meningeal type of influenza were encountered. Prompt spinal puncture with withdrawal of excess fluid which was under pressure gave immediate relief. These cases were recognized by unconsciousness chiefly, with variable rigidity of neck, convulsions, involuntaries, dilatation of pupils and vomiting. In one of these cases, in which spinal puncture was delayed, recovery was slower than in the other two.

HARRY BERMAN, M.D., Hartford, Conn.

PREVENTION OF INFLUENZA BY OSMOTIC ACTION IN AIR PASSAGES

To the Editor:—The infection of influenza unquestionably enters the system through the nasal spaces and upper air passages. This fact is practically proved by a mode of disinfection and cleansing of those spaces and surfaces which I have suggested and used in the case of many thousand individuals who would ordinarily be considered likely subjects to infection. Infection was prevented in practically 100 per cent. when the treatment was properly used.

The tortuosities of the nasal and postnasal spaces and their great extent make the use of the many remedies suggested ineffective, because, however excellent they may be in themselves, they do not reach all the surfaces involved and they furthermore lack certain physical qualities necessary to invite a sufficient and strong osmotic action.

A powder composed of impalpable boric acid, 95 parts, sodium bicarbonate, 3 parts, and calomel, 2 parts, thoroughly triturated, is the basis of treatment.

With a good powder blower, this powder is freely blown into the nose, and will reach every recess in the upper air passages, and does not seem irritating to any extent. This powder, by abstraction of liquids from the moist surfaces, dissolves, excepting the calomel, and will shortly cause a mucoserous flow induced by osmotic pressure, and during

this process the membranes involved are thoroughly washed and disinfected by virtue of the double osmotic current induced. This mucoid secretion can then be discharged, and the process repeated after from four to six hours. Ordinarily, the use of this powder once a day will suffice to keep the nasal membranes in fine condition and free from infections.

JAMES A. BACH, M.D., Milwaukee.

THE CIVILIAN PHYSICIAN'S SACRIFICE

To the Editor:—May I ask why as my husband was a victim on the long list of doctors who succumbed to the terrible epidemic last month no mention is made in any periodical or public newspaper of these noble fellows who gave their lives in fighting this disease? Are they not to be mentioned in any way as heroes?

The sacrifices of physicians in this section of our country was greater than the people of closely populated districts during the past four years of war can conceive, as the distance they must cover is great, and doctors are few. My husband for the past year has practiced alone in this county his nearest town being 28 miles away, the farthest, 75 miles. He could not enter the Army on account of being tuberculous. When he died he had worked night and day for two weeks alone trying to save people in this county.

Another tuberculous doctor from an adjacent county came over and took up the fight, leaving a little doctor in his place who left a tuberculosis sanatorium in El Paso, to aid the people. I am sure similar cases could be brought to mind over our country. Is there no memorial for these gallant men?

MRS. LONGINO, Fort Stockton, Texas.

THREE SIGNS OF SOME VALUE IN THE DIAGNOSIS OF UNUSUAL CASES OF INFLUENZA

To the Editor:—The last epidemic of influenza has been confined almost entirely to inflammatory changes in the respiratory tract. While it is true that there have been occasional instances in which the whole brunt of the disease has been borne by other systems, these could be diagnosticated only by inference as (1) the presence of the epidemic; (2) attacks of well-marked respiratory influenza in other members of the same family, or (3) previous similar attacks, unquestionably of influenzal nature in the same individual. Even here, in many instances, on close questioning, it could be ascertained that there was an occasional sneeze four or five days before the onset of the disease.

In these out-of-the-ordinary attacks, the nervous system was the one commonly involved. However, 95 per cent. of the cases seen in this epidemic involved the respiratory system, and the diagnosis was almost always made within two or three minutes after seeing the patient. Now and again in an isolated case of this type the question was raised in the mind of the practitioner "whether or not one was dealing with an influenza or with an ordinary head cold or coryza," such as is not uncommon at this time of the year. The absence of early rise of temperature and pulse and respiration changes in some of the influenza cases made this often a puzzling problem. Most physicians "played safe" and diagnosticated all of such cases as influenza. This was eminently fit and proper.

1. In a large number of true cases of influenza of the respiratory tract I have noticed a sign that may at times be of some help from a diagnostic standpoint. It has not to my knowledge been described before. It consists of a very marked redness of the opening of the salivary or Steno's duct, just opposite the second molar tooth. The punctum is usually swollen and raised above the level of the cheek, and the red spot is seen in the center. Mere swelling of the punctum has no diagnostic import. It may easily be inspected by placing a spoon handle in the side of the mouth and retracting it. If the sign is present on one side it is almost always visible on the other as well. It is not invariably present, but can be seen in at least 70 per cent. of the cases.

It has been present in most of the sporadic cases, and here is of very considerable value.

2. The presence of fine crackles at both bases of the lungs posteriorly near the vertebrae is *prima facie* evidence of influenza in a case in which there is a history of an acute onset. In old persons who have been lying down for some time, in cardiacs with broken compensation and in cachexia of any kind, this criterion is valueless, because such râles are commonly present without influenza.

3. After the disease has spent itself, frequently a harassing cough persists. This cough resembles whooping cough more than anything else. On listening to one such paroxysm without a history, it is almost impossible to make a diagnosis from early whooping cough. On inspection, however, one will in these cases find a redness over the arches of the palate. This is from $\frac{1}{3}$ to $\frac{1}{4}$ inch in width; sometimes it extends only half way up on the sides and at other times it makes a complete arch. It is seldom or never missing in this type of cough due to influenza.

Incidentally, by touching the pillars and the nasopharynx with a silver nitrate solution, more good will be done than by the ingestion of many pints of cough mixture.

THOMAS F. REILLY, M.D., New York.

GOVERNMENT RESPONSIBILITY TO THE STUDENT

To the Editor:—The government has taken over the military control of the medical schools, enlisted the students, and has agreed to pay their tuition fee, their board, and \$30 a month. I understand that now that peace is in view the government is going to give this up, which is all right, but the students expect to have this year's teachings under the above terms, and now are not prepared to suddenly pay the expense for the balance of the term. So it seems to me that the government, even if it gives up the military control of all schools ought to carry out at least the financial agreement with the students until the end of the year. Not to do this would be a great injustice to some of the poorer students.

J. H. CARSTENS, M.D., Detroit.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

STATUS OF RESERVE OFFICERS IN DEMOBILIZATION

To the Editor:—Please inform me as to the exact status of the Medical Reserve Corps with reference to the Army. Was the Medical Reserve Corps abolished? Was there a Medical Reserve on Nov. 1, 1918, of any kind? Is there a Medical Reserve Corps for doctors and students separately?

C. R. KESSEL, Morgantown, W. Va.

ANSWER.—As stated elsewhere in this issue, in the demobilization of officers of the Army those whose services are no longer needed will be given an honorable discharge. Such discharges will be a complete separation from the service. Opportunity will then be given to them to express their desire to reenter the Officers' Reserve Corps, Medical Section. Other officers who are qualified may enter the regular Army. The granting of new commissions will be dependent on individual fitness, eligibility and number of vacancies as provided by existing or future legislation. Although all of the officers of the Reserve Corps were originally commissioned for five years, commissioning for the period of the emergency was, it is reported, made by G. O. No. 73 which terminated the five year provision. This made all men officers of the Medical Corps. It has been reported that legislation will be presented to Congress for the reorganization of the Army whereby suitable arrangements may be made for commissioning in the regular Army and in the Officers' Reserve Corps men who have served in the present war. Under the National Defense Act of 1916 there was both an Officers' Reserve Corps and an Enlisted Reserve Corps so that medical students were made eligible for the Enlisted Medical Reserve Corps.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

- ALABAMA: Montgomery, Jan. 14. Chairman, Dr. S. W. Welch, Montgomery.
- ARIZONA: Phoenix, Jan. 7. Sec., Dr. Allen H. Williams, 219 Goodrich Bldg., Phoenix.
- COLORADO: Denver, Jan. 7. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.
- DELAWARE: Wilmington, Dec. 10-12. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.
- DISTRICT OF COLUMBIA: Washington, Jan. 14-16. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.
- FLORIDA (E): Jacksonville, Dec. 16-17. Sec., Dr. G. A. Munch, 1806 Franklin St., Tampa.
- HAWAII: Honolulu, Jan. 6. Sec., Dr. J. R. Judd, Honolulu.
- ILLINOIS: Chicago, Dec. 9-11. Mr. F. C. Dodds, Supt. of Registration, Springfield.
- IOWA: Des Moines, Dec. 10-12. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.
- MINNESOTA: Minneapolis, Jan. 7-10. Sec., Dr. Thomas McDavitt, 741 Lowry Bldg., St. Paul.
- NEW MEXICO: Sante Fe, Jan. 13. Sec., Dr. W. E. Kaser, East Las Vegas.
- NORTH DAKOTA: Jan. 7. Sec., Dr. G. M. Williamson, 860 Belmont Ave., Grand Forks.
- OKLAHOMA: Oklahoma City, Jan. 7-8. Sec., Dr. J. J. Williams, Weatherford.
- OREGON: Portland, Jan. 7. Sec., Dr. H. S. Nichols, Corbett Bldg., Portland.
- PENNSYLVANIA: Philadelphia, Jan. 7-9. Sec., Mr. Nathan C. Schaeffer, State Capitol, Harrisburg.
- RHODE ISLAND: Providence, Jan. 2-3. Sec., Dr. B. U. Richards, State House, Providence.
- SOUTH DAKOTA: Pierre, Jan. 14. Sec., Dr. P. B. Jenkins, Waubay.
- UTAH: Salt Lake City, Jan. 6. Corres. Sec., Dr. G. F. Harding, 405 Templeton Bldg., Salt Lake City.
- VIRGINIA: Richmond, Dec. 10-13. Sec., Dr. J. W. Preston, 215 S. Jefferson St., Roanoke.
- WASHINGTON: Spokane, Jan. 7-9. Sec., Dr. C. N. Suttner, 415 Old Nat'l Bk. Bldg., Spokane.
- WISCONSIN: Madison, Jan. 14. Sec., Dr. J. M. Dodd, 220 E. 2d St., Ashland.

District of Columbia October Examination

Dr. Edgar P. Copeland, secretary of the Board of Medical Supervisors of the District of Columbia, reports the oral and written examination held at Washington, Oct. 8-10, 1918. The examination covered 16 subjects and included 80 questions. An average of 70 per cent. was required to pass. Of the 7 candidates examined, 6 passed and 1 failed. Two candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Georgetown University (1918)	79.2, 85.6, 88.4.		
George Washington University	(1918)		90
Howard University	(1918)		80.6
University of Maryland	(1917)		82.5
FAILED			
University of Nashville	(1893)		16
College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Georgetown University	(1914)		Maine
Bowdoin Medical College	(1916)		Maine

Illinois June Examination

Mr. F. C. Dodds, superintendent of registration, Department of Registration and Education, reports the practical and written examination held at Chicago, June 3-6, 1918. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 232 candidates examined, 203 passed and 28 failed. One candidate did not complete the examination. The following colleges were represented:

College	PASSED	Year Grad.	No. Licensed
Howard University	(1918)		1
Chicago Coll. of Med. and Surg. (1915) (1917, 2); (1918, 68)			71
Hahnemann Med. Coll. and Hosp. of Chicago	(1918)		14
Loyola University	(1916, 2) (1917, 2)		4
Northwestern University	(1918)		52
Rush Medical College	(1918)		37*
University of Illinois	(1918)		20
Washington University	(1918)		1
University and Bellevue Hosp. Med. Coll.	(1916)		1
Queen's University	(1917)		1
University of Kharkov	(1914)		1

FAILED

Chicago Hospital College of Medicine	(1915)	2
Chicago College of Med. and Surg.	(1917, 5) (1918, 7)	12
Jenner Medical College	(1910) (1911) (1917)	3
Loyola University	(1916) (1917)	2
Northwestern University	(1918)	1
Rush Medical College	(1918)	1*
Boston University	(1911)	1
University Medical College of K. C.	(1900)	1
Meharry Medical College (1912) (1913) (1915) (1916) (1917)		5

*Degrees for 32 of these candidates were withheld, pending completion of hospital internship.

Book Notices

COMMOTIONS ET EMOTIONS DE GUERRE. Par André Léri, Professor agrégé à la Faculté de Paris. Préface du Professeur Pierre Marie. Paper. Price, 4 francs. Pp. 196, with illustrations. Paris: Masson et Cie, 1918.

When the war began, the French had a great advantage. They knew more of nervous diseases than any other nation and they had a greater number of trained observers in this department. Consequently, they more quickly sized up the situation and more promptly had a fairly adequate organization to handle nervously sick soldiers. Naturally they have gone farther than the rest and are in a position to teach. This is exemplified in the present small book, which is limited to what the author calls the *commotionné*, the *contusionné* and the *émotionné*. We may say that he treats of patients suffering from concussion and contusion of the central nervous system and the war neuroses. He has the great advantage of having served at the front, in the immediate rear and in a neuropsychiatric center of the interior. Each of the three classes of cases by no means presents the same clinical picture at the three different stations, and the author gives us the benefit of his unusual experience by considering each class of trouble (a) on the battlefield and at the first aid station; (b) at the evacuation hospital (à l'ambulance), and (c) at the base hospital or convalescent center. The descriptions are remarkably clear, and the illustrative cases cited are illuminating. It cannot be said that all of the opinions expressed are shared by the author's colleagues; but the book is fairly representative of French war neurology, which is the best that there is. It is condensed, is a small mine of information, and should be in the hands of every reader of French who is interested in what war (and other things) can do to the nervous system.

THE NORMAL AND PATHOLOGICAL HISTOLOGY OF THE MOUTH. Being the Second Edition of the Histology and Patho-Histology of the Teeth and Associated Parts. By Arthur Hopewell-Smith, L.R.C.P., M.R.C.S., L.D.S., Professor of Dental Histology, Pathology and Comparative Odontology, University of Pennsylvania. Volume I—Normal Histology. Cloth. Price \$4.50 net. Pp. 345, with 264 illustrations. Philadelphia: P. Blakiston's Son & Co., 1918.

This volume is divided into three parts. The first contains chapters on Nasmyth's membrane, the enamel, the dentin, the cementum, structural modifications of the tissues, the dental pulp and the alveolodental periosteum. The second part deals with the oral cavity and its accessories, including the lips, cheek and tongue, glands, palate and tonsils; the maxillary and mandibular bones, and a group of minor structures, including the absorbent organ, the dental capsule, the gum and the mucous membrane of the maxillary sinus. The third part is devoted to the development of the teeth in mammals, fishes, reptiles and batrachians. The appendix has a note on the functions of the cells of the dental pulp and on the absorption of the alveolar process. The work is encyclopedic in character, giving the views of many investigators on each subject. This makes it of value to those who are able to analyze the material for themselves, but is apt to confuse the average student. The work is strongly colored by the author's views, especially concerning Nasmyth's membrane, the cementum and the dental pulp. The author's statements in regard to the lymphatic vessels seem hardly justified in view of the work of Schytzer, and the more recent confirmation of his work in this country. The volume is well illustrated.

Medicolegal

Privileged Communications—Admissibility of Evidence

(*Dodd v. State (Texas)*, 201 S. W. R. 1014)

The Court of Criminal Appeals of Texas, in affirming a judgment of conviction of defendant Dodd of rape in this case, wherein the death penalty was assessed, says that the defendant set up insanity as a defense. A physician, an expert on insanity, who appeared to have been present at the trial as a witness, was called by the state in rebuttal, and objected to testifying because he had been employed by the defendant to make an examination of him with reference to his sanity, and that he desired to be exempt from the necessity of giving his opinion on account of the confidential relationship existing between him, a physician, and the defendant, his patient. The court, without objection from the defendant, excused the witness, and at the end of the trial the defendant requested the court to instruct the jury to disregard the incident just related. The defendant presented no authority sustaining the contention that there was error thus disclosed, and this court has found none. The physician was a witness, and the state's counsel appeared to have been within his rights to call him to testify, and so far as this court was advised, to require him to testify, so far as the inhibition of privileged communications touched the subject. The general rule is that communications between physician and patient in the absence of statute are not privileged. The courts recognize that there are many reasons for regarding the communications between physician and patient as privileged when the patient seeks the physician for medical aid, and in many states statutes have been enacted on the subject. It has been held, however, that when the consultation is not for medical aid, these reasons do not obtain. Whatever the rule, there is no statute in this state exempting such communications.

When insanity is an issue, it is competent for the state to call witnesses to prove the conversations and conduct of an accused, not admitting guilt, while in jail as a basis for an opinion as to the sanity or insanity.

If evidence that the hymen of the prosecutrix had been previously ruptured by an operation was material and admissible, the proof of it should have been made by direct inquiry of her as to the fact. Her statement to a physician would have been hearsay, not competent to prove the fact, but available only to impeach the prosecuting witness if on inquiry of her she had denied the fact that the operation had taken place.

Test of a Hospital as a Public Charity and Why Exempted from Taxation

(*Lutheran Hospital Association of South Dakota v. Baker, County Treasurer (S. D.)*, 167 N. W. R. 148)

The Supreme Court of South Dakota, in reversing a judgment that was rendered in favor of the defendant in this action to recover certain taxes levied against the property of the plaintiff and paid under protest, holds that the plaintiff was a corporation or society organized and conducted exclusively for charitable purposes, and that its property was being used exclusively for such purpose and was exempt from taxation, under the state statute providing that all property belonging to any charitable society or used exclusively for charitable purposes shall be exempt from taxation. The court says that the criterion in this class of cases seems to be that whatever is done or given gratuitously in the relief of public burdens or for the advancement of the public good is a public charity, and an institution founded as a purely public charity does not lose its character as such under the tax laws if it receives a revenue from the recipients of its bounty sufficient to keep it in operation; or, applying another test, if the object for which an institution is founded is the general public good, and not private gain, and it is so conducted that the public receives all the benefits of it, it is purely a public charity. Indefiniteness of beneficiaries is one of the characteristics of a charitable use. A public

charity may be open to all mankind, or the officers, thereof may be empowered to select beneficiaries from designated classes of humanity. The fact that the plaintiff had a department for training nurses was not in conflict with its charitable purpose. It was just as necessary to have trained nurses as any other appliance. Common observation would say that one of the most efficient methods for procuring trained nurses would be to do your own training, so that no private profit resulted therefrom. So training, and having on hand at all times when needed, well-trained nurses, would improve the facilities of the institution for caring for the sick. The existence in a community of such an institution which admits, cares for, and gives medical aid to the pauper as well as the prince, without private gain to itself, is a public charity in the fullest sense. Very fortunate, indeed, is the community which has situated in its midst such an institution, organized and conducted as the one in question. It relieves the public from maintaining by taxation such an institution of its own. This is the basic reason for the exemption from taxation of the property of such institutions, when it is used exclusively for the purposes of charity.

Time from and for Which After Injury Medical Services May Be Compensated

(*Cooke v. Holland Furnace Co. et al. (Mich.)*, 166 N. W. R. 1013,
McMullen v. Gavette Construction Co. et al. (Mich.),
166 N. W. R. 1019)

The Supreme Court of Michigan says, in the first case, in which it reverses and vacates an award of the industrial accident board for compensation and for medical services rendered nearly a year after the date of the injury of the employee, that it was confronted for the first time with the question of whether the statute begins to run from the date of disability (or ascertainment and definite satisfaction that disability exists), or from the date of the accident, in the provisions of the employers' liability law that during the first three weeks after the injury the employer shall furnish, or cause to be furnished, reasonable medical and hospital services and medicines when they are needed, as to the time after the injury within which notice shall be given to the employer, and that within which claim for compensation shall be made. The court comes to the conclusion that it is compelled to hold, must hold, unless it resorts to judicial legislation, that the legislature by the two sections containing these provisions fixed the date of the injury at the date of the accident, and not some remote date thereafter, when the injured employee became definitely satisfied that he was disabled as a result of the accident.

In other words, as stated in the second case, decided on the same day as the first and wherein an award is also vacated, the court says that it held in the first case that the date of the accident fixed the date of the injury, under the workmen's compensation act, and that the industrial accident board was not authorized by the act to award and compensate the employee for medical and hospital services performed more than three weeks after the accident. The authority for such allowance by the board does not exist, except per force of the statute, and the legislative judgment has limited the allowance to such services as are performed during the first three weeks after the injury. Nor has the board authority to award as damages the amount paid for such services performed at a later date, on the theory, ingeniously advanced, that the failure to furnish proper medical and hospital services created a liability for the payment of such services so performed, which may be awarded by the board as damages.

Society Proceedings

COMING MEETINGS

American Physiological Society, Baltimore, Dec. 30-Jan. 1.
American Public Health Association, Chicago, Dec. 9-12.
Medical Association of Porto Rico, Ponce, Dec. 14-15.
Society of American Bacteriologists, Boston, Dec. 30-Jan. 1.
Southern Surgical Association, Baltimore, Dec. 17-19.
Western Surgical Association, Chicago, Dec. 20-21.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Physiology, Baltimore

November, 1918, 47, No. 2

- 1 Quantitative Studies on Intracellular Respiration. E. J. Lund, Minneapolis.—p. 167.
- 2 *Effect of Epinephrin on Fatigue Produced by Injection of Fatigue Products, Lactic Acid and Acid Potassium Phosphate. C. M. Gruber and O. S. Kretschmer.—p. 178.
- 3 *Antagonistic Action of Epinephrin to Fatigue Produced by Perfusion of Acid Sodium Phosphate. C. M. Gruber.—p. 185.
- 4 Influence of Alkali Administration on Urinary Excretion of Lactic Acid; Significance of Latter in Maintaining Neutrality in Body. J. J. R. Macleod and H. J. Knapp, Cleveland.—p. 189.
- 5 *Variations in Flexion and Crossed-Extension Thresholds in Experimental Traumatic Shock, with Coincident Blood Pressure Changes. E. L. Porter, Philadelphia.—p. 208.
- 6 Viscosity of Urine. R. Burton-Opitz and R. Dinegar, New York.—p. 220.
- 7 *Experimental Surgical Shock. F. C. Mann, Rochester, Minn.—p. 231.
- 8 Photochemical Effect of Certain Fluorescent Substances on Renin. J. H. Clark, Baltimore.—p. 251.
- 9 Nature of Sensory Stimulation by Salts. M. Irwin.—p. 265.
- 10 *Secretory Pressure of Liver with Special Reference to Presence or Absence of Gallbladder. F. C. Mann and J. P. Foster, Rochester, Minn.—p. 278.

2. **Effect of Epinephrin on Fatigue Produced by Injection of Fatigue Products.**—In this research the authors endeavored to determine whether epinephrin, which possesses the ability to increase the height of contraction and increase the decreased threshold irritability of a fatigued muscle, would counteract the fatigue produced by perfusing moderately strong solutions of fatigue substances through the muscle. It was found that epinephrin (0.5 to 1 c.c. of a 1:1,000 solution) counteracts the induced fatigue produced by the perfusion of fatigue substances such as sarcolactic acid, lactic acid and acid potassium phosphate through the muscle in identically the same way as it does the fatigue produced normally in active muscles. Epinephrin in some cases has no bettering effect. In these muscles it also has no ability to produce vasoconstriction.

3. **Effect of Epinephrin on Fatigue Produced by Perfusion of Acid Sodium Phosphate.**—Gruber found that epinephrin counteracts the fatigue produced by the perfusion of acid sodium phosphate as tested by the changes in the height of muscular contraction. In all cases in which a marked recovery was obtained, epinephrin caused an almost complete cessation of the passage of the perfusion fluid through the muscle.

5. **Nervous Reflexes in Experimental Traumatic Shock.**—The outstanding features in the results of Porter's investigation are as follows: Manipulation of the intestines in the spinal cat (a cat deprived of its brain) resulted in raising the threshold of the crossed extension reflex in all cases, and of the flexion reflex in roughly 50 per cent. of the experimental animals. Increase in threshold may be evident less than a minute after manipulation has commenced. Recovery may be complete or incomplete, prompt or delayed. It is more likely to be prompt and complete in the case of flexion than of crossed extension. The flexion reflex is never completely lost as a result of the manipulation; crossed extension often is lost. A case is described in which this did not occur until some minutes after the manipulation had ceased. The changes in reflex threshold are not dependent on a decrease in blood pressure; on the contrary, the blood pressure rises momentarily as manipulation starts, and this may coincide with the rise in reflex threshold. After the momentary rise, the blood pressure decreases steadily as the experiment proceeds, and the original reflex threshold may be recovered under a lower blood pressure than existed before the manipulation. The suggestion is made by Porter that if pain in the conscious animal could be measured during intestinal manipulation, it is probable that its threshold would show alterations roughly paralleling those of the reflex thresholds described in this paper.

7. Experimental Surgical Shock.—All of Mann's experiments were performed under ether anesthesia. By the manipulations of the various tensions of ether it is possible to parallel the various stages and signs of shock. Under high tensions the blood pressure is decreased and all the other symptoms follow. However, it is quite possible to saturate an animal with ether at a tension just slightly lower than that necessary to abolish the eye reflex and to produce an obtundity of the reflexes without decreasing the blood pressure to a shock level. It is possible to obtain such results with a certainty only when the ether is administered mechanically and is not dependent in any way on the respiratory efforts of the animal. In a study of the vascular and respiratory reflexes under various tensions of ether it was found that all the respiratory reflexes, except that which produces inhibition of respiratory movements, disappeared before the respiratory center failed. The excitatory respiratory reflexes disappear under a relatively high tension of ether. On the contrary, instead of a depression of the inhibitory reflex being caused by ether, a relative increase, at least, is quite common. Thus it was possible under deep etherization, in some instances, actually to kill an animal by prolonged stimulation of the nerve fibers that inhibit respiration.

It was believed that this phenomenon might have some bearing on the shock problem; a more complete study of it was therefore made, and the following suggestive facts were obtained: The inhibitory reflex of respiration is decreased or completely abolished during periods of hyperpnea; the period of apnea following hyperpnea under light ether anesthesia is not increased by the stimulation of the nerves which inhibit respiration, and the inhibitory reflex is decreased or abolished during the period of increased respiratory movements in the first stage of asphyxia. An animal cannot be killed by reflex inhibition of respiration during the first stage of asphyxia. However, as asphyxia is prolonged and the respiratory movements begin to decrease, stimulation of inhibitory nerves will inhibit respiration and in many experiments produce sudden death.

In some experiments, while the time during which respiration is inhibited under deep ether is greatly increased over that under light ether, death cannot be produced. A slight period of asphyxia will increase the time of inhibition so that death will occur. It would seem that the lack of oxygen may be a factor. Inhibition of respiration under deep etherization frequently produces death very quickly. The blood pressure usually decreases at once and the heart soon stops beating. This result would seem to imply that death was due to or associated with other factors than asphyxia. However, a comparison of the curves in instances in which death was due to asphyxia under deep ether shows a close similarity to those found in the condition produced experimentally. The asphyxia under deep ether seems to explain the sudden decrease in blood pressure and stoppage of the heart, although an active process may be involved. Under light surgical anesthesia respiration is seldom inhibited for a very long time.

In a few experiments stimulation of the superior laryngeal nerves under an ether tension, slightly too low for surgical work, has produced a partial inhibition of respiration for as long as four to eight minutes. This period of inhibition is longer than that which produced death in several of the experiments under deep ether. Under the very low ether tension, however, blood pressure remained practically normal and death did not occur.

These results would furnish some support to the idea that the sudden death following inhibition of respiration under a high ether tension was mainly owing to a failure of the organism to compensate for the asphyxiation when saturated with a high ether tension. Ligation of all the structures to the limbs of a dog except the major artery, will usually produce all the signs of shock. The relative amount of tissues involved by these ligatures was on an average approximately 15 per cent. of the total body weight. The experiments show that a circulatory impairment following venous obstruction of the return of blood from the

four limbs of an etherized animal is sufficient to produce the signs of shock.

10. Secretory Pressure of Liver.—The secretory pressure of the liver was found to vary considerably in various species of animals. The reason for this is not clear; there may be many causes; however, the presence or absence of the gallbladder does not seem to be one of them. The secretory pressure of the liver appears to be somewhat greater in unanesthetized animals than in those under an anesthetic, but since the data obtained on anesthetized animals were only comparative, the conclusion that the presence or absence of the gallbladder bears no relation to the secretory pressure of the liver is justified.

Boston Medical and Surgical Journal

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- 11 Modern Art and Mass Psychotherapy. S. E. Jelliffe.—p. 609.
- 12 Shall We Never Learn? D. M. Lewis.—p. 613.
- 13 Neuroses Among Returned Soldiers. Types and Indications. C. B. Farrar.—p. 615.

Colorado Medicine

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- 14 Work of Draft Boards. J. R. Barber.—p. 267.
- 15 Nation's Need of Doctors and Nurses for Army. H. G. Wetherill.—p. 271.
- 16 Insanity. Prevention and Treatment as a State Problem. G. A. Moleen.—p. 273.
- 17 Case of Hysterical Lameness with Convulsions Treated by Suggestion. C. S. Bluemel.—p. 280.

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- 18 Educational Qualifications for Practice of Medicine. B. D. Myers.—p. 401.
- 19 Fistula in Ano. C. F. Fleming.—p. 404.

Journal of the Medical Society of New Jersey, Orange

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- 20 Pathology of Epidemic Influenza. A. R. Casilli.—p. 373.
- 21 After Dinner Addresses. J. F. Patterson, Orange.—p. 374.

Journal of Pharmacology and Experimental Therapeutics

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- 22 *Anthelmintics: Their Efficiency as Tested on Earthworms. T. Sollmann.—p. 129.
- 23 *Differences in Action of Drugs on Different Parts of Bowel. W. C. Alvarez.—p. 171.
- 24 *Liberation of Internal Secretion of Thyroid Into Blood. J. M. Rogoff.—p. 193.
- 25 *Preparation of a Soluble Concentrated Product of the Thyroid Gland. J. M. Rogoff.—p. 207.

22. Efficiency of Anthelmintics.—Sixty-nine drugs or combinations were tested by Sollmann as to their anthelmintic property. He found that the highest vermifugal efficiency is possessed by substitutes that are not clinically available for this purpose; namely, mercuric chlorid, cupric sulphate, and mustard oil. Sollmann suggests that by virtue of this effect, anthelmintics doubtless often "expel" the parasite when the concentration does not rise sufficiently high to kill the worm.

23. Action of Drugs on Different Parts of Intestine.—This study was undertaken by Alvarez with the hope that light might be thrown on the physiology as well as pharmacology of the intestine. Other work convinced him that there are marked differences in the neuromuscular apparatus in different parts of the tract. Five segments excised from different parts of the rabbit's intestine were studied under identical conditions in warm aerated Locke's solution. Seventy-six substances were tested. Physostigmin, glucose, mercuric chlorid, pilocarpin, potassium chlorid and sodium bicarbonate stimulated all parts about equally, whereas alum, bile, calcium chlorid, cocain and ether depressed all parts about equally. Some of these drugs stimulate in small doses and depress in large; some depress or stimulate after an initial stimulation or depression; others affect one segment one way and another segment the other way. A number of substances stimulated or depressed one end of the bowel more than the other, while a few stimulated one end and actually depressed the other. Among the drugs which might steepen

the gradient were epinephrin, aloin, cascara, magnesium sulphate, sodium citrate, sodium bicarbonate and sodium chlorid. Among drugs which might reverse the gradient were digitalis, ergot, ipecac, potassium iodid, sodium salicylate and morphin sulphate. The depressant effects of alum, carbon dioxid, cascara, senna and sodium nitrite were usually more marked in the colon than in any part of the small bowel. Mercuric chlorid generally stimulated the colon less than the small intestine. Sodium salicylate sometimes stimulated the colon more than it did the small intestine. Benzene usually stimulated the small intestine and depressed the colon. Similar effects were obtained with lead acetate and phenol. They were observed less constantly with chloroform, copper sulphate, sodium chlorid and sodium citrate. Morphin generally increased the amplitude of the colonic contractions while it sometimes depressed the activity of the small bowel. Picric acid, in several experiments, markedly stimulated the colon and at the same time, depressed the small bowel.

24. Liberation of Internal Secretion of Thyroid Into Blood.—The object of this investigation was to determine whether it is possible to detect, in the blood coming from the thyroid, a substance whose physiologic activity corresponds to that of the gland. Rogoff reports the results of a preliminary set of experiments with blood obtained from the thyroid glands of three dogs, in which the tadpole reaction was employed. One dog, whose thyroid glands were rich in colloid and had a good iodine content, yielded evidence of an active secretion into the blood collected from the glands during massage and during stimulation of the cervical sympathetic nerve. Two dogs whose thyroid glands were hyperplastic and contained no detectable iodine yielded negative results.

25. Soluble Product of the Thyroid Gland.—The product "A" obtained by alkaline hydrolysis of normal thyroids of hogs, according to Kendall's method (1), was subjected by Rogoff to further hydrolysis in water acidified with hydrochloric acid. When the substance was completely digested the resulting solution was filtered through a Chamberland filter. To the clear filtrate was added hydrated aluminum silicate (Lloyd's reagent) and the mixture thoroughly shaken and filtered through paper. The hydrated aluminum silicate on the filter was thoroughly washed with water until all of the acid was washed out. The absorbed product was separated by slowly percolating through the material on the filter a dilute solution of ammonia in water until the percolate came through entirely colorless. The ammoniacal solution was then heated on a water bath and the ammonia driven off with the aid of a current of air passed through the solution. The resulting aqueous solution was reddish brown and on evaporation yielded an amorphous powder. This powder contained 13.44 mg. of iodine per gram of dry substance and the product "A" from which it was obtained contained 16 mg. per gram. A small quantity of the product was available for feeding experiments with tadpoles. This product showed very nearly the same degree of activity as the product "A" from which it was obtained.

Kansas Medical Society Journal

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- 26 Clinical Value of Wassermann Reaction and Other Laboratory Tests in Diagnosis of Syphilis. H. M. Conner.—p. 263.
- 27 When and How to Remove Tonsils. T. L. Higginbotham.—p. 267.
- 28 Spiritual vs. Medical Advice. D. D. Wilson.—p. 269.

Kentucky Medical Journal, Bowling Green

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- 31 Pituitrin; Its Uses and Abuses. E. Speidel, Louisville.—p. 503.
- 32 Rupture of Pregnant Uterus. H. L. Read, Louisville.—p. 505.
- 33 Prolapse of Uterus. H. A. Gilliam, Milburn.—p. 506.
- 34 Pelvic Infections. W. E. Fallis, Louisville.—p. 507.
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Maine Medical Association Journal

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- 43 Sporotrichosis. Report of Case. D. B. Cragin, T. E. Hardy and J. F. Shaw.—p. 93.

Medical Record

Nov. 16, 1918, **94**, No. 20

- 44 Tuberculosis: Diagnosis and Treatment with Roentgen Ray. A. R. McMichael.—p. 839.
- 45 *Cancer of Thyroid. D. C. Balfour.—p. 847.
- 46 Shall Women Study Medicine? A. S. Daniel.—p. 850.
- 47 *New Method of Percussion. A. Abrams.—p. 855.
- 48 Value of Salicylates in Treatment of Influenza. B. Robinson.—p. 856.

45. Cancer of Thyroid.—One hundred and three cases of cancer of the thyroid were seen in the Mayo Clinic, a percentage of 1.6 of 6,359 cases of goiter, exclusive of the exophthalmic group. The cancer incidence, based on 14,456 patients with goiters, is 1.19 per cent. Of the 103 patients, 81.5 per cent. were more than 40 years old. Sixty-eight (68 per cent.) of the patients were females, thirty-five (35 per cent.) were males. The most important lesson to be drawn from an analysis of these cases, Balfour says, is the fact that in 46 per cent. no clinical manifestations of the disease were in evidence. This group shows by far the highest percentage (about 70) of patients free from recurrence at the present time. In other words, the great majority of apparent cures have occurred in those cases in which the malignant change was an unexpected finding. Total thyroidectomy was rarely performed in this group. In most instances the lobe containing the tumor and the malignant process was removed, but in many the enucleation of an adenoma was the procedure. The analysis showed also that when clinical evidences of cancer are present the results of surgical treatment are discouraging. Total extirpation of the gland appears to be indicated only when both lobes are grossly involved in the disease, and when past experience warrants surgical interference in the particular case. Recognizable involvement of cervical glands usually means that the time for surgical cure is past. Occasionally, however, just as the unexpected occurs in the treatment of extensive cancer elsewhere, an apparent cure is obtained. Gross involvement of trachea or esophagus is almost a certain sign against curability. In this series the average number of years of abnormal growth in the thyroid preceding the operation was 11.6. This Balfour regards as being proof positive of the advisability of the early removal of well-developed thyroid nodules.

47. New Method of Percussion.—The method described by Abrams embodies the principle of transsonance and is executed by continuous or intermittent direct percussion (without the interposition of a pleximeter) with the finger at the acromial extremity of either clavicle. In very fat individuals a pleximeter may be used and the latter struck by aid of a plexor with a soft rubber end. In the execution of the method cognizance is taken of the following components which make up the maneuver: (1) dulness; (2) palpatory percussion; (3) auscultatory percussion.

Missouri State Medical Journal

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- 54 Some Neglected Fields in Medicine and Their Relation to General Practice. J. W. Bolton.—p. 399.
- 55 *Small Hospitals in Rural Districts, Their Benefit to the Laity and Physician. N. I. Stebbins.—p. 402.

49. Abstracted in THE JOURNAL, June 15, 1918, p. 1889.

50. Abstracted in THE JOURNAL, June 15, 1918, p. 1889.

55. Abstracted in THE JOURNAL, June 15, 1918, p. 1889.

New York Medical Journal

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63 Carrel-Dakin Treatment of Infected Wounds. W. Fuller.—p. 861.

Ohio State Medical Journal

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101. **Heart Murmurs in Recruits.**—When examining some thousands of applicants for the Naval Reserve, Cordeiro found that pulmonary murmurs far outnumbered all other forms of murmurs—perhaps ten to one. The majority of the pulmonic murmurs were found chiefly among runners, though they occur in all forms of athletics where there is a steady prolonged grind. The strain of a race is thrown almost wholly on the right heart. The left heart participates to a much less degree. The call is for blood and air in the lungs and the right heart endeavors to supply a double amount of the former. The pain in the side is a symptom of this abnormal effort. The pathologic history of these cases seems to be as follows: At first, after each abnormal dilation, the heart contracts to its normal size, or nearly so. But a physiologic hypertrophy accompanies these efforts and the pulmonary orifice, instead of contracting to its former dimensions, eventually overcontracts and becomes slightly narrowed. This may be furthered by the development of new muscular tissue about the orifice. These murmurs, while occurring chiefly among runners, were also found in footballers, basket-ball players, boxers, wrestlers and among rowing men. Baseball players seemed to be least affected. Many college boys, undeveloped and imperfectly developing, without proper food at home, and often without a midday meal, practice assiduously every afternoon on a field. While their anemic systems are struggling with the burden of the rapid growth after puberty, they subject their hearts to the added strain of the track.

Another class of cases of pulmonary direct murmurs, which, while indistinguishable clinically from athletic murmurs, have been found less often, and present a picture of their own. These cases can be attributed to an incoordinated development of the great vessels relatively to other parts of the body. Cordeiro has called them tentatively, hypoplastic murmurs. They occur only among the poorer classes and seem to be clearly the result of insufficient nutrition. There is usually a weedy growth in which the nutrition seems to be expended wholly in increasing the length of the body while the other parts remain stationary—notably the great vessels. The rule in such cases is that the subjects are very much under weight for their height—20 to 40 pounds underweight. Their complexions and skins are pasty and pimply, in marked contrast to the clear skin of health, in which specimens there are never heart murmurs.

As a result of his investigation, Cordeiro is convinced that athletes, professional and amateur, are of distinctly less value from a military point of view than the average normal man. He suggests that one of the reforms springing out of this war will be—not the abolition of athletics, but a revision of the present athletic system. Physical exercise from a recreational and hygienic point of view is necessary, but beyond that point is a waste of time and may be injurious. Track athletics among boys he regards as criminal, and among their elders is of no value to the participants or the community, but on the contrary tends to spoil what would otherwise have been good military material.

103. **Athletics and Their Relation to War.**—Luby draws attention to the fallacies of our athletic system as developed up to the present time. He points out the uselessness of the object sought, and asserts that there was no gain but rather serious loss to those who participated in athletics in the past. He pleads for a radical change in methods and objectives in the athletics of the preparatory school, the college, and the university. He says that one of the most serious faults of our present athletic system, a vicious, pernicious system, if ever there was one, is the necessity for haste. Trainers work feverishly and anxiously to develop a winning team. They must develop such a team at all costs because failure means the loss of a job. Medical men and, to a certain extent, military men recognize that there is something wrong with athletics as now conducted in America. If boys are allowed to follow the pernicious course which begins in the grammar school or preparatory school and ends only with the university, they must pay the price, as their predecessors have done. To neglect the most careful athletic development of boys is to sap the very roots of strength and vitality in the future material of the Army and Navy.

While it is generally admitted that military training has considerable incidental advantages from the point of view of health, it would seem that the first thing to be considered is the universal physical training of boys. The plan proposed by Luby is as follows: All branches of athletics must be reclassified on the basis of their effects on the heart and other vital organs, and not on the basis of popularity and commercial advantage. In the grammar school the form of athletics to which a boy could be assigned or in which he would be permitted to engage in would depend on (1) his family history; (2) his personal history, having regard especially to previous illnesses endured; (3) his physical status; (4) his particular type, height, weight, etc., in relation to age, etc. Every class should have its specially prescribed athletics, both physical and tactical, and under no circumstances should a lad be allowed to engage in competitive sports assigned to a class above or below his own. A physical examination would mark his entry and exit from a class and he would be marked for development of body and for ability to perform the various tactics. While in the grammar school a chart would be begun for him which would accompany him throughout his educational career.*

As the boy passes on to the higher school there should be a reconsideration of his individual record and his family history. A physical examination should be made and his chart and previous athletic work considered. There should be athletic classes and all members of a school or college should participate, except when exempted for physical disability. Outside competitions with other schools would be reduced and the competitive idea find its illustration principally in interclass games. Work in the gymnasium should accompany and parallel the work done in teams and athletic games. Where students show beyond all reasonable doubt a real and permanent improvement in body and an increased ability to participate in various branches of sport they should receive credits at the hands of the college authorities in the same way that credits are given for scholarship.

All athletics of the more strenuous type and all those contests which inevitably induce even temporary exhaustion must be abolished. Mass competition, such as that in which a class would participate as a whole, is to be encouraged. New feats of prowess should be introduced. There should be walking contests, wall-scaling contests, obstacle raising, hurdling, shorter relay events with increased personnel, more soccer football, shot putting with a lighter shot, etc. The athletics of today must be remolded and their object clearly defined. Athletics can have no better purpose than to develop a robust and healthy boy who, though he may not be an interscholastic champion or sought after by the larger colleges as likely to increase their fame, will nevertheless enter on his life work with a symmetrical, fully developed body, capable of resisting disease and of enduring physical strain. For such a young man the training camp, the transport, and the trench will not contain the threat of death from disease before his grapple with the enemy.

Reports from General Pershing's Army showed that the highest mortality from communicable disease was in the National Army and the lowest on the Regular Army. Luby believes that the variation in susceptibility can be ascribed directly to the variation in the time of preparation and development which these different units have enjoyed, the development of the National Army having been characterized by intensive training and high speed. He believes further that the accumulation of fatigue substances from overtraining for lengthy periods without proper attention to the time element brought about a condition analogous to that seen in the stale athlete, and it is not to be wondered at that the overtrained soldier should be particularly liable to pneumonia, scarlet fever, influenza, etc. Luby's study of soldiers on transports confirmed this belief.—The men were trained "too fine!"

106. **Dengue at St. Thomas, V. I.**—Lane has made a careful analysis of cases seen during an epidemic of dengue which suddenly made its appearance among the Americans who had been on St. Thomas Island three to eight months. These cases presented some peculiar features. The immediate source of the infection was unknown. The important

feature, however, was the agent carrying the infection. The *Siegmomyia calopus* is practically the only mosquito seen and inhabiting the localities where the disease was most prevalent, and the only place where the mosquito bite seemed to do any damage. The mild character of the bone pains was characteristic. Involvement of the lymph glands, in many cases, was quite severe. No breaking down or supuration subsequently has been noted. Not one set of glands but all the large superficial glands throughout the body were involved. Epistaxis, although it occurred in only 10 per cent. of the cases, was very severe and difficult to control. Pain on forced motion of the eyeballs was the principal cause of the symptoms described by the patient as "headache" or "pain in the eyes." The pain was only elicited on extreme motion. Hyperesthesia, of a most intense variety, was noted when the shoulder was unconsciously touched by the examiner. Vasomotor phenomena occurred from the sixth to the eighth day, causing a cyanosis and coldness of the arms, hands, lower legs, and feet in about 17 per cent. of cases. The disappearance of the eruption was followed in about twenty-four hours by a quite severe and long-continued desquamation, accompanied by intense itching at times, a sensation as of swelling of the hands and feet, and a continual and profuse sweating of these parts. Blood examination did not show on the average the very low leukocyte count and the discrepancy in the differential count usually accredited to dengue, yet these findings were sufficiently marked in a number of cases to accord perfectly with other descriptions. These blood findings depended largely on the severity of the attack.

A very disturbing feature in the convalescence, from the patient's standpoint, was the inability to relish food due to the bad metallic taste that everything had, although the appetite was quite keen. All the ordinary work could be performed without any difficulty, but the least extra strain, such as fast walking or going up hill, brought on an intense weakness and fatigue which had not been present before the fever and which it took some days and, in many cases, weeks to overcome. In most cases immunity seems to hold after one attack, but about 5 to 8 per cent. of the patients had a recurrence three weeks to several years after the original attack.

The epidemic gradually faded out. With the decrease in rainfall it had almost disappeared. Only an occasional individual who had just arrived would become infected. During the dry season when mosquitoes were very few, dengue was practically absent. The control of the mosquitoes and their breeding places has improved conditions to a slight degree, but the inability to obtain screening for the town, the lack of a properly trained corps of sanitary inspectors, and the difficulty in educating the people (natives) do not give much hope of freedom from dengue in the near future.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal

Oct. 26, 1918, 2, No. 3017

- 1 Doctrine of Consumption in Harvey's Time and To-day. P. Kidd.—p. 455.
- 2 *Advantages of Intramuscular Injections of Soluble Cinchonin Salts in Severe Malarial Infections. L. Rogers.—p. 459.
- 3 Epidemic Encephalitis. Analysis of Sixteen Cases. A. J. Hall.—p. 461.
- 4 *Quinin Prophylaxis in Malaria. G. W. Scott.—p. 463.
- 5 *Unreliability of Sulphur for Destruction of Lice in Clothing. A. Bacot.—p. 464.

2. **Injection of Soluble Cinchonin Salts in Malaria.**—Experiments were made by Rogers to ascertain the rapidity and completeness of the absorption from muscle of quinin and cinchonin bihydrochlorid, respectively. In animals killed twelve hours after injection, 88 mg. of absorbed alkaloid were recovered from the organs in the case of the cinchonin sal., as compared with only 30 mg. in the quinin animal, showing approximately three times as great absorption in the practically important first twelve hours. On the other hand, 80 mg. of the precipitated quinin was recovered from

the muscle after twelve hours, as against 40 mg. of precipitated alkaloid in the cinchonin animal. At the end of twenty-four hours 65 mg. were recovered locally from the quinin animal against only 30 mg. from the cinchonin one, while 65 mg. were recovered from the organs of the cinchonin animal (where the alkaloid would come into contact with the malarial parasites) against 26 mg. in the quinin one. At the end of seventy-two hours the organs only showed 2 and 8 mg., respectively, showing that absorption must have now nearly ceased, and most of the drug, had already been eliminated from the body, presumably through the kidneys. The injected muscle now showed no less than 28 mg. of precipitated quinin still remaining in it, against only 10 mg. of alkaloid in the cinchonin animal, thus indicating that the absorption of the cinchonin salt was much more complete at the end of three days than of the quinin one. This fact, taken with the three times as rapid absorption during the first twelve hours of the cinchonin bihydrochlorid, indicates that the latter is far superior to quinin bihydrochlorid when given by the intramuscular route with a view to rapid absorption and action in a severe malarial infection.

The clinical effect on the animals was even more striking, for whereas the animals injected with the quinin salts appeared to suffer from no definite symptoms of poisoning, the cinchonin animals, on the other hand, became violently convulsed within half an hour of the injection, indicating very rapid absorption of the drug, a relatively very large dose having purposely been given.

In the treatment of human cases, the acid hydrobromid has been mainly used for intravenous and the bihydrochlorid for intramuscular and subcutaneous injections. By each method of injecting the cinchonin salts, rapid disappearance of both the fever and of the parasites from the peripheral blood was obtained in all three varieties of malaria. In the benign tertian and quartan cases the parasites always disappeared in one or two days, and in all but one the fever ceased within the same time, and in the remaining one within three days. In the malignant tertian variety the parasites generally disappeared within two days and always within three, and the fever ceased within the same period of time. The immediate results of the injection of the cinchonin salts were thus very satisfactory, and compare favorably, especially as regards the more serious malignant tertian variety, with those of administering quinin by various methods in the army in England. In severe cases of malaria and during the prevalence of pernicious cases, as well as in patients who vomit orally administered quinin, Rogers suggests the further trial of intramuscular injections of 7.5, 10, and in adult males up to 15 grains of cinchonin bihydrochlorid (or in less severe cases, if preferred, the cinchonin acid hydrobromid, which produces less cinchonism) during the first few days of an attack of malaria, to be followed by a full course of quinin orally to prevent relapses.

4. Quinin Prophylaxis in Malaria.—The members of one group of rubber workers, the tappers, were given 10 grains of quinin each day for one year, and during that period no prophylactic quinin was issued to a second class of workers, the weeders, in order to determine the value of quinin prophylaxis against malaria. The result was entirely negative. The treatment gave no protection whatsoever against malaria.

5. Sulphur as a Lice Destroyer.—The trials forming the basis of this note, were undertaken with a view to testing the efficiency of a process of fumigation as applied in the London Borough casual wards. The results of these experiments were entirely unsatisfactory, hence Bacot suggests reliance on heat, wherever possible, for the destruction of insect vermin, half an hour's exposure to a temperature of 55 C. being amply sufficient with either dry or moist heat, provided the clothing or other articles are suspended, and not bundled.

Dublin Journal of Medical Science

September, 1918, 146, No. 561

- 6 *Clinical Report of the Rotunda Hospital for 1916 and 1917. W. Smyly, R. Purcfoy and E. H. Tweedy.—p. 101.
7 Leechcraft in Afghanistan. I. Ali Shah.—p. 122.

- 8 Medical Diseases of the War. A. F. Hurst.—p. 129.
9 Practical Organic and Biochemistry. R. H. A. Plimmer.—p. 130.
10 Dublin University Calendar for Year 1918-1919. Hodges, Figgis & Co.—p. 131.
11 Field Sanitation. C. G. Moor.—p. 132.
12 War Surgery of the Abdomen. C. Wallace.—p. 133.
13 Conduction of Nervous Impulse. K. Lucas.—p. 134.
14 Internal Secretions. E. Gley.—p. 136.

6. Clinical Report of Rotunda Hospital.—A total of 3,090 labors were attended by the hospital staff during the year. There were seven deaths. Two were due to hemorrhage, one to rupture of the uterus, one to eclampsia, one to cerebral hemorrhage, one to advanced pulmonary phthisis, and one patient was hopelessly septic when admitted. Among the complications were five cases of rupture of the uterus. A sixth case was sent into the hospital after the accident had occurred. Of the six patients, one mother died. Of nine cases of eclampsia, only one proved fatal, a mortality of 11 per cent. Besides these cases of eclampsia there were twelve of toxemia, the so-called pre-eclamptic state: all the patients recovered. Five labors were complicated by uterine myoma, in three of which there was serious trouble including one death from hemorrhage. There was one case of mania. Forceps were applied 70 times. Version was performed ten times—three external, four bipolar, and three internal. External manipulation was twice employed to convert the breech into a vertex presentation. Bumm's subcutaneous pubiotomy was performed on two occasions, with satisfactory results as regards the mothers, but one child was stillborn, and the other died on the sixth day. Premature labor was induced five times, three times for toxemia, once for pelvic deformity, and once for mitral stenosis. Cesarean section was performed fifteen times, namely, in nine cases of pelvic deformity, in three of rupture of the uterus, twice for myoma, and once for anus vaginalis. The placenta was removed manually twenty-two times. Five cases of melena in infants were treated with horse serum, with one death.

Indian Journal of Medical Research

July, 1918, 6, No. 1

- 15 Detection of Hookworm Infection. C. Lane.—p. 1.
16 Examination of Relationships by Statistical Methods. G. T. Walker.—p. 26.
17 *Food Value of Groundnut (Peanut). R. L. M. Wallis.—p. 46.
18 Antiberiberi Vitamin Content of Three Kinds of Atta Biscuits. E. D. W. Greig and D. F. Curjeil.—p. 56.
19 Latent Dysentery. J. Cunningham.—p. 68.
20 Laboratory Study of a Diphtheria Outbreak. R. Knowles.—p. 102.
21 *Use of Strychnin in Diagnosis of Malaria. H. H. King.—p. 116.
22 Romanowsky Staining. H. E. Shortt.—p. 124.

17. Food Value of Groundnut.—Wallis regards the groundnut or peanut as an especially valuable source of protein. It would seem that in India, where this legume grows in abundance, Nature had provided a cheap and efficient source of nitrogenous material to supplement the diet of the natives, which is rich in carbohydrates and poor in protein. The adoption of groundnut cake as a food is urged both on scientific and economic grounds. Wheat, oats, and several other cereals are markedly deficient in the so-called basic amino-acids, and groundnut cake contains the largest amount of these building stones of any known cake. To be palatable, easily digested and free from any objectionable taste, it requires to be properly prepared. The groundnuts as obtained after decortication must be washed free from grit, dirt, stones, etc., and have the red skin coating the kernels removed. The clean, white kernels are now subjected to hydraulic pressure to remove the arachis oil. After this expression, which should always be carried out in the cold, the groundnut cake still contains too much oil—between 9 and 10 per cent., or even as much as 15 per cent. Such a cake when ground up will yield a flour with a taste of the groundnut, which is slightly bitter. Further, it contains too much oil to be really serviceable for the making of bread or biscuits.

A large number of experiments were carried out by Wallis with such a cake, but it was found that the bread made from it was always too heavy. By warming the cake

and then subjecting it again to hydraulic pressure, some of this oil is removed. The cake is now ground up, and yields an excellent flour, which possesses a slightly sweet taste, and is far superior in every way to the cake containing 10 per cent. or more of oil. The small amount of oil remaining, usually about 5 per cent., is, on the whole, beneficial, since it tends to preserve the flour, increase its nutritive properties, and makes a light and easily preserved biscuit. All objections to the groundnut as an article of food are thus removed, since the oil is the constituent responsible for any undesirable effects. Wallis suggests that in view of the shortage of the world's food supplies, both now and after the termination of the war, it would appear advisable to consider the utility of developing this industry with a view to the preparation of peanut flour on a large scale.

21. Strychnin in Diagnosis of Malaria.—Di Paca says that repeated doses of strychnin or berberin are useful in the diagnosis of malaria by increasing the number of parasites in the peripheral circulation. The dose of strychnin advocated is from 2 to 4 mg. by the mouth, or 2 or 3 mg. hypodermically every hour for four hours. The blood is then to be taken from the lobe of an ear at the end of the fourth hour. If it be true that strychnin has this effect, the observation is an important one, since it would materially aid the study of malaria and of malarial relapse. King tested this use of strychnin by comparing with each other blood slides taken before and after its administration. He found that strychnin in large doses (20 or 30 minims of liquor strychninae hydrochloridi, B. P., in five hours) will in half of the cases definitely contract a large spleen, but have no appreciable action on small spleens. In most cases it will not increase the number of parasites in the peripheral circulation. Hence, as a routine aid to diagnosis, strychnin has no place. King suggests that the blood pressure raising group of drugs, such as strychnin, be tried in the treatment of malaria in the early as well as in the late stages as an adjuvant to quinin.

Indian Medical Gazette

September, 1918, 53, No. 9

- 23 *Unclassified Form of Long Continued Pyrexia in Mesopotamia. C. A. Sprawson and F. P. Mackie.—p. 321.
- 24 Principles of Military Orthopedics. Constitution of Orthopedic Hospital. A. W. Sheen.—p. 328.
- 25 Cases Treated with Radium. J. C. Vaughan.—p. 333.
- 26 Mirror of Hospital Practice. C. A. F. Hingston.—p. 336.
- 27 Case of Primary Abscess of Spleen. J. Winterbotham.—p. 340.

23. Long Continued Fever of Mesopotamia.—The diseases to which the condition described has most resemblance are kala-azar, pulmonary tuberculosis, and malaria, either singly or a combination of kala-azar or malaria with tuberculosis. The condition has special resemblance to kala-azar, especially in its long continued pyrexia and in the leukopenia present and in the pigmentation. No Leishman-Donovan parasite, however, has been recovered from spleen or liver puncture either before or after death. Quinin, arsphenamin, antimony tartrate intravenously, and arsenic by the mouth seem to exert no influence on the course of the pyrexia. Moderate doses of potassium iodid have hitherto given most satisfaction. It is suggested that the disease will prove to be due to infection with a streptothrix-like parasite and therefore may be described as a "disseminated nocardiasis." The disease exhibits bronchitic, pulmonary or pleuritic signs at some period of its course. It may be fatal or spontaneous recovery may occur.

Archives des Maladies du Cœur, etc., Paris

September, 1918, 11, No. 9

- 28 Sinusal Bradycardia with Paradoxical Response to Atropin. A. Cramer.—p. 385.
- 29 Deceptive Case of Mitral Stenosis. Laubry and Esmein.—p. 389.
- 30 Extrinsic Causes of Shock in the Wounded. C. Vincent.—p. 394.

Bulletin de l'Académie de Médecine, Paris

Oct. 8, 1918, 80, No. 40

- 31 *The Blood and the Urine in Influenza. G. Patein.—p. 304.
- 32 *Uremia After War Wounds. H. Reynès.—p. 308.
- 33 *Spirochetes in Influenza Sputum. De Verbizier.—p. 310.

31. The Blood and Urine in Influenza.—Patein comments on the surprisingly high urea content of the urine in his influenza cases.

32. Uremia After War Wounds.—Reynès found from 30 to 45 gm. of urea per liter in twenty-four hours in 30 cases of war wounds. About 210 analyses were made and they showed the gradual rise of the urea content of urine and blood, paralleling the gravity of the symptoms. The urea comes from the absorbed products of the disintegration of devitalized tissues, and by watching over the urea content of the urine it is possible to ward off serious uremia by giving hot sweetened drinks in abundance, with other means to stimulate diuresis. No nitrogenous food should be allowed, no milk, but saline purges should be given repeatedly. Other measures to combat uremia include warmth, rubbings, venesection, lumbar puncture, intravenous injections of sugar solutions, and thorough clearing out of all devitalized tissue, with ample drainage. In conclusion he reiterates that the "uroprognosis from the daily urea curve" is extremely important.

33. Spirochetes in Influenza Sputum.—Verbizier has found two varieties of spirochetes along with pneumococci, streptococci and probable Pfeiffer bacilli in the sputum of his influenza patients.

Bulletins de la Société Médicale des Hôpitaux, Paris

July 12, 1918, 42, No. 25

- 34 *Walking Test of Heart. Joltrain and Baufle.—p. 745.
- 35 Production of Eosinophils and Basophils in Joints and Tissues. Petzetakis.—p. 749.
- 36 Epidemic Influenza. A. Florand.—p. 753.
- 37 Hypertension of Cerebrospinal Fluid After Ligation of Internal Jugular Vein. G. Guillain.—p. 757.
- 38 Claude Bernard-Horner Syndrome in Aviator After Fall. G. Guillain.—p. 761.
- 39 Purely Meningeal Form of Ictero-Hemorrhagic Spirochetosis. S. Costa and J. Troisier.—p. 762.
- 40 Tetragerus Sepsis Complications. Perfetti and Monziols.—p. 768.

34. Walking Test of Functional Capacity of the Heart.—Joltrain and Baufle comment on the instructive findings with the test of the heart which they apply. One hour after lunch the group being examined are sent for a walk over a certain course, from 2 to 15 miles long, under the surveillance of an experienced person. The walk is at a uniform pace, without resting, and the pulse is recorded before and after, and again as the individual reclines, perfectly still, the second, fourth, fifteenth, twentieth, thirtieth, forty-fifth and sixtieth minutes. No matter what the exertion, the tachycardia in a normal subject has always disappeared by the sixtieth minute.

Lyon Chirurgical, Lyons

May-June, 1918, 15, No. 3

- 41 *Liver Abscesses in Macedonian Campaign. G. Cotte and Chifoliau.—p. 273.
- 42 *Sequelae of War Wounds of Chest. Péhu and Daguet.—p. 291.
- 43 *Complications of War Wounds of Lung. Combiér and Hertz.—p. 311.
- 44 *Pleurectomy for Wounds of the Chest. Roux-Berger.—p. 330.
- 45 *Extraction of Projectile in Lung. R. Olivier.—p. 339.
- 46 Projectile in Anterior Wall of Heart Ventricle. B. Desplas and D. Chevalier.—p. 353.
- 47 *Gastroduodenal Ulcer and Appendicitis. M. Dubard.—p. 356.
- 48 Laws of Healing of Superficial Wounds. R. Ingebrigtsen.—p. 363.

41. Liver Abscesses in Macedonian Campaign.—Among the fifteen operative cases, the abscess had already perforated in three cases, and in all the diagnosis had been made tardily, but seven of the men recovered. The symptoms from the abscess had been masked by malaria or dysentery. The cases teach the importance of systematic exploration of the liver in search of suppuration when the liver is found enlarged in a person with or who has had dysentery. The outlook for operative relief is infinitely better when it comes early, and radioscopy and puncture usually permit an early diagnosis. In one case it proved possible to clean out the pus pocket and suture it, with filiform drainage and healing by primary intention.

42. War Wounds of Chest.—Péhu and Daguet found three cases of unmistakable pulmonary tuberculosis among 146 men with war wounds of the chest reexamined from four months to three years afterwards. In two others there was

pleurisy of tuberculous origin. They were impressed by the frequent complete return to normal after extravasation of blood or a suppurative process. With tuberculous pleurisy, on the other hand, there is liable to be involvement of the diaphragm, etc., leading to irreparable lesions.

43. Septic Local Complications of Wounds of Chest.—The experiences in fifteen cases which are reported in detail show that it is possible to ward off chronic purulent pleurisy by clearing out the septic effusion in the pleura, rendering the pocket sterile by Carrel's technic for irrigation and drainage, and then suturing at the earliest possible moment. The war experiences have demonstrated the harmlessness of incision of the pleura, without fear of pneumothorax. Exercises to expand the lung are an important factor in the cure, especially exercising with the spirometer.

44. Pleurectomy for War Wounds.—Roux-Berger describes four cases of total pleurectomy, shelling off the stiff and thickened pleura, and fastening the lung to the chest wall to ensure its expansion. Three of the four men were completely cured; the fourth still has a small fistula left.

45. Tardy Extraction of Projectile in the Lung.—The projectile had been causing trouble in only two of the fifteen cases reported. The transpleural operation with artificial pneumothorax seems to be the preferable technic. The powerful retractors now used allow the ribs to be spread apart to give ample room for exploring the lung. The lung is easily brought outside the wound, the foreign body removed, and the airtight suture made.

47. Gastroduodenal Ulcer and Chronic Appendicitis, Etc.—Dubard found chronic appendicitis unmistakable in over 33 per cent. of 145 cases of gastro-enterostomy for ulcer. In private practice, this percentage is even higher. The frequency of such associated lesions of the gastro-intestinal tract explains the failure to cure of operations on one of the lesions, leaving the others still in a position to cause disturbance. They teach the necessity for careful exploration of the entire digestive tract. In 33 per cent. of his thirty-six laparotomies for ulcers and pyloric stenosis, the appendix was found diseased, as also in 45 per cent. of forty operative duodenal ulcer cases. He states further that 80 per cent. of his gastric ulcer cases presented evidences of pulmonary tuberculosis at the time, florid, torpid or healed. In nearly or quite all of them, pressure on the pneumogastric nerve in the neck on one or both sides was painful. He calls this the "sign of the pneumogastric," and explains it as a neuritis of this nerve, of pulmonary origin, and possibly reflected along the entire gastro-intestinal distribution of these nerves. This affords a predisposition to trophic disturbance, liable to elicit ulceration and certain other chronic inflammatory processes in the digestive tract.

Paris Médical

Sept. 7, 1918, 8, No. 36

- 49 *Ophthalmology in 1918. F. Terrien.—p. 181.
- 50 Examination of Superior Conjunctiva. A. Terrien.—p. 186.
- 51 *Otorhinolaryngology in 1918. L. Dufourmentel.—p. 190.
- 52 *Reconstruction after War Wound of Nose. Guisez.—p. 198.
- 53 Syphilis of the Pharynx. Bellin and Vernet.—p. 205.
- 54 Phlegmon Causing Jackson's Syndrome. H. Aloin.—p. 209.

49. Ophthalmology in 1918.—Terrien advocates the use of a mask to protect the eyes against scraps of shells, and has devised what seems to be a good model. He endorses Duverger's advice to retain the eyeball when the anterior portion only has been injured. In 150 penetrating wounds of the eye he succeeded in doing this in twenty-four cases, resecting down to sound tissue. He reviews among other works on ophthalmology published recently, Aubineau and LeNoble's study of nystagmus independent of eye and ear conditions; it must be classed with myoclonia. Also Weekers and Ferket's research on the multiple and diverse ocular disturbances liable to be encountered with icterohemorrhagic spirochetosis, including iritis, optic neuritis and herpes of the cornea. Every wound of the eye, it is emphasized, should be injected with a 1 per thousand solution of mercury cyanid, whether there is a foreign body present or not. This combats effectually the early infection in

wounds of the eyes. If this had been done systematically in all the advanced stations, it is possible that the eyes might have been saved, in certain cases.

51. Otorhinolaryngology in 1918.—In Dufourmentel's review, he calls attention to Fay's statement that the disability from deafness does not depend on the acuity of the hearing but on the distance at which sounds are heard. Ability to hear the human voice is the gage of social impairment from deafness. The prognosis of deafness from shell commotion has proved favorable. The only treatment for war deafness that has proved effectual is by vocal reeducation and lip reading. Lombard's research on the sense of balance has established certain physiologic laws for antagonist movements with equilibration which have raised a number of new problems. A good illustration of some of these laws is afforded by the use of the balancing staff by the tight-rope walker. The physiologic laws he has determined impose certain attitudes for certain movements, and some of these attitudes have been perpetuated empirically in classic art. Among the recent progress in rhinology that has been realized is the appreciation of the pronounced tendency to spontaneous healing of war wounds of nasal sinuses. The mistake made at first was to regard and treat them like a sinusitis. Luc warns that a pointed trocar is liable to perforate the posterior wall of the maxillary sinus; a blunt instrument is better.

52. Reconstruction of Nose.—Seventeen illustrations show a number of devices to correct among other mutilations the loss of the tip of the nose. A triangle of bone and cartilage is cut extending sideways back of the nose, the straight side parallel with the upper jaw. This triangle is then swung around to bring the lateral tip on top. The flap then provides a normal outline for the nose.

Presse Médicale, Paris

Oct. 7, 1918, 26, No. 56

- 55 *Antagonistic Action of Epinephrin and Pituitary Extract on the Bronchi. B. A. Houssay (Buenos Aires).—p. 513.
- 56 Cases of Direct Commotion of Spinal Cord. H. Claude and J. Lhermitte.—p. 514.
- 57 *To Line Bone Cavity with Skin. D. Thévenard.—p. 515.
- 58 Natural Iodized Waters. G. Billard.—p. 518.
- 59 Falling of the Hair from Irritation Caused by Wax in Ear; Two Cases. J. Deroide.—p. 520.

Oct. 10, 1918, 26, No. 57

- 60 *The Influenza Pandemic. H. Violle.—p. 525.
- 61 Treatment of Influenza. G. Lyon.—p. 527.
- 62 *Present Status of War Surgery. G. Manoury.—p. 528.

55. Antagonistic Action of Epinephrin and Pituitary Extract.—Practically this same article was briefly summarized on page 1178, Oct. 5, 1918.

57. Lining the Osteomyelitic Focus with Skin.—Thévenard reports excellent results in the prompt healing of old and extensive inflammatory processes in bones by clearing out all devitalized tissue and lining with skin the deep groove left. The procedure is illustrated. The skin and subcutaneous tissue are incised to form square flaps each side of the bone focus. The bone lesion is cut to leave the focus as near a right angle as possible. A hole is bored through the soft parts and bone on one side to a point just above the inner angle of the gap in the bone, and a thread is drawn through. Then the loosened skin flap is drawn down into the gap to the lowest point, and is held there by tying the thread over a roll of gauze. The procedure is repeated on the other side, and the defect in the bone is thus lined smoothly with skin. The two flaps are fitted together where they meet at the inner angle, and may be held with a stitch. The threads are drawn only tight enough to hold the sets of gauze rolls in place.

60. Influenza.—Violle pleads for special hospitals for influenza patients, saying "Cases of fatal contagion of other patients already in the hospitals and left in contact with the influenza newcomers are already beyond counting, they are so numerous." It is equally important, he reiterates, to isolate, bacteriologically, influenza patients from each other. He advocates masks for all the healthy in contact with influenza patients, citing the favorable experiences with

masks in Manchuria during the epidemic of pneumonic plague.

He compares influenza with hog cholera as instances of infection by some one virus which opens the portal to another virus. In hog cholera, the invisible bacterium that unleashes the disease opens the portal to the paratyphoid bacillus. Without the latter there is no hog cholera, and yet we know that it is unable, alone, to induce hog cholera. Its presence is important both from the standpoint of prophylaxis and treatment, as the destruction of the paratyphoid bacilli seems to check the development of the still unknown primal bacterium of hog cholera. In influenza, the invisible virus causes such extreme prostration and has such toxic action that the ordinary microbes already present in the air passages or digestive tract rush into the gaps in the defenses. Nicolle calls these secondary invaders *microbes de sortie*. Probably even the Pfeiffer bacillus belongs in this group. All varieties and degrees of lesions may result, such as are possible when a virulent, toxin-producing and pyogenic microbe steps into a soil prepared in advance with ideal conditions for its rapid proliferation. One writer has said, "The reason why influenza kills, is because it strikes at the thorax." Meunier adds, *La grippe condamne et la surinfection exécute*. The true microbe of influenza may have already disappeared by the time this superposed infection strikes home.

Violle reasoned that if the superposed infection could be warded off, influenza would lose its danger. In his region, the pneumococcus seemed to be mainly responsible for it, and he treated his influenza patients systematically with antipneumococcus serum in the same way as antitetanus serum is given the wounded. Each patient was injected in each thigh with 20 c.c. of antipneumococcus serum four hours after a preliminary injection of 1 c.c. of the same serum, and 4 gm. of calcium chlorid were given by the mouth. A hot compress was laid over the site of the injection. He says, "The results obtained were remarkable; it may even be advanced that pulmonary complications are averted by this means. But it is effectual of course only when the pneumococcus is the causal agent of the pulmonary complications. In regions where the streptococcus is involved, an antiserum for this would have to be used, or both. It seems as if the streptococcus was responsible more for the pleural complications, and the pneumococcus for the pulmonary." He also tried convalescents' serum but, as at least 100 c.c. are required for each patient, he turned to autoserotherapy, and this has given conclusive results, he says, in several cases. He drew the blood from a vein in the arm and reinjected at once the 20 c.c. under the skin of the outer front of the thigh. He adds that this can be repeated day after day without any inconveniences.

62. Present Status of War Surgery.—This is the presidential address delivered by Manoury at the French Surgical Congress which convened at Paris, October 7. He emphasized the abyss that separates the surgery of the day from that which prevailed at the time of the last congress of the kind, five years ago. (See recent Paris Letters.)

Progrès Médical, Paris

Sept. 7, 1918, **33**, No. 36

63 *Hexamethylenamin in Tuberculosis. Loeper and Wagner.—p. 305.

64 Necessity for Early Nephrectomy with Renal Tuberculosis. R. Uteau and M. Piollenc.—p. 305.

65 Gangrenous Phlegmon of Back of Hand. E. Chauvin.—p. 308.

66 *Adiposis Dolorosa and Lipomatosis. Bourdinière.—p. 309.

Sept. 14, 1918, **33**, No. 37

67 The Feeble-minded at the Court Martial. J. Crinon.—p. 313.

68 *Epilepsy, Hysteria and Chorea in a Military Hospital. H. Damaye.—p. 315.

69 *Serum Anaphylaxis. J. Fiévez.—p. 318.

63. Hexamethylenamin by the Vein in Tuberculosis.—Loeper and Wagner declare that, in their experience, this drug injected intravenously in a daily dose of 1.25 or 1.5 gm. for about twenty days seemed to exert a decided action on the general febrile, toxic and septic reactions in tuberculosis, without any depressant action. It seems to reduce the toxicity of the infection, wherever the infectious process may be located. In one case described in detail, the sputum swarming

with tubercle bacilli, remarkable improvement was realized under two series of seven injections by the vein, a total of 21 gm. of the hexamethylenamin. The young man had nephritis with 5 gm. albumin and ureosecretory constant of 0.24, besides the tuberculous left bronchopneumonia.

66. Adiposis Dolorosa.—In the case described the typical adiposis dolorosa developed in a girl of 16 whose menses had been suppressed for several months. The pains returned at monthly intervals and the clinical picture showed great improvement under ovarian treatment. After two years of suspension menstruation returned, and since then the paroxysms of pain have been much less pronounced. The pituitary region seems to be normal, as also the thyroid. In another case the young officer has small movable lipomas on the forearms, absolutely symmetrical. They developed at about 16, and there is nothing else pathologic to be discovered in the robust young man. The lumps are only slightly painful.

68. Epilepsy, Hysteria and Chorea in Advanced Psychiatric Center.—Damaye gives some examples of convulsions resembling epileptic seizures which developed after exceptional physical exertion, long day and night marching or manual labor. A very little alcohol, then, may be the last straw that brings on the convulsion. The effect of a wound or bombardment or getting gassed may also have this effect. Epileptics average as high in courage as others, other things being equal. They are not infrequently cited for gallantry. Some do heroic acts in a kind of impulsive manner like that in which they sometimes commit criminal actions. Some epileptics display symptoms resembling those of neurasthenia, and some who have been trephined present, in addition to all this, attacks of jacksonian epilepsy. In treatment, a quiet environment, sodium cacodylate and a milk-vegetable diet were the main reliance. In the great majority of the cases the epilepsy dated from early life but had been aggravated by campaign conditions.

69. Serum Anaphylaxis.—Fiévez has encountered in the last year fifteen cases of a mild anaphylactic reaction to a second injection of antitetanus serum or other serum. The intensely itching urticaria developed suddenly, twenty-four or thirty hours after the repeated injection, in some cases. In one case the interval was only ten minutes. Preventive injection of calcium chlorid and epinephrin did not seem to do any good. Although these reactions are not severe, yet their repetition might prove somewhat serious, and nowadays antitetanus serum is often injected several times as a man may receive several wounds in the course of time.

Correspondenz-Blatt für Schweizer Aerzte, Basel

Oct. 5, 1918, **48**, No. 40

70 *Influenza Epidemic. E. Bircher.—p. 1338.

71 Biology of Lice. B. Galli-Valerio.—p. 1341.

72 Development of Bothriocephalus. C. Janicki.—p. 1343.

70. Influenza.—Bircher reiterates that his findings in the prevailing epidemic pointed to invasion of highly virulent streptococci, and there was not the slightest evidence to prove that the Pfeiffer bacillus was the cause of the disease. The weather was never so hot or the region so dry and dusty as this summer. Fatiguing work seemed to afford a predisposition, as also the lymphatic-asthenic constitution. About half the cases in his district developed pneumonia. He was impressed with the large proportion of children affected, but he knew of no case in an infant and no severe case in persons over 50. One robust person showed the first symptoms at 4 p. m. and died before 10 the next morning. The findings in the lungs were not those of ordinary pneumonia, but resembled more those of pneumonic plague, as German clinicians have also reported. The pneumonia mortality was 10 per cent., and severe empyema developed in some of the survivors. In one week he performed ten empyema operations. Some of the influenza patients lost up to 20 kg. in weight in one week. Complications were frequent, anti-streptococcus serum proved ineffectual, but antipneumococcus serum benefited where pneumococci were found present. In some cases the influenza seemed to induce a positive Wassermann reaction. The disease was exceptionally fatal in the pregnant.

Gazzetta degli Ospedali e delle Cliniche, MilanAug. 1, 1918, **39**, No. 61

- 73 Mixed Organic and Hysteric Crossed Hemiplegia after War Wound. A. Roccavilla.—p. 593.

Aug. 4, 1918, **39**, No. 62

- 74 *Treatment of Primary Serofibrinous Pleurisy. V. Panto.—p. 604.

Aug. 8, 1918, **39**, No. 63

- 75 *Peripheral Neuritis in Tuberculosis. C. Tarchetti.—p. 614.
76 Disturbances from Artificial Feeding of Infants. R. Costa.—p. 615.
77 Influenza. T. Di Giuseppe.—p. 616.

74. **Treatment of Pleurisy.**—Panto's routine practice in primary pleurisy with effusion is to aspirate from 80 to 100 c.c. of the effusion on alternate days, repeating three or four times, always at a different point; giving digitalis, sodium salicylate and theobromin according to the indications; painting the chest wall with iodine; a light milk and egg diet, and during convalescence, the hypodermic injection of an iodine and iodid solution (Durante's formula). The results have been highly satisfactory in the sixty cases he has treated by this method. The diuresis increased at once, the local relief in the chest was pronounced, and the fever rapidly subsided. The reaction to the mechanical irritation from the repeated puncture aids in the resorption of the effusion until all is gone by the tenth or fifteenth day. The recovery is more rapid the earlier the punctures can be applied.

75. **Peripheral Neuritis in Pulmonary Tuberculosis.**—Tarchetti has encountered ten cases of peripheral neuritis in men with pulmonary tuberculosis at a certain hospital, and he was able to trace it to a favorite prescription in vogue there containing aconite. The neuritis was evidently due to chronic aconite poisoning, as there have been no further cases of the neuritis during the six years since the aconite prescription was discarded. The prescription called for 0.008 gm. of the alkaloid in each hundred parts of the excipient.

Policlinico, RomeOct. 13, 1918, **25**, No. 41

- 78 Tests of Functional Capacity of Heart. G. Galli.—p. 965.
79 Principles of Technic for Transfusion of Blood. G. Egidi.—p. 969.
80 Principles of Technic for Intravenous Injections. Massimi.—p. 970.

Oct. 20, 1918, **25**, No. 42

- 81 The Prevailing Epidemic. F. Micheli and G. Satta.—p. 989.
82 Mastoiditis from Shell Concussion. G. Bilancioni.—p. 995.
83 Test for Picric Acid Jaundice. E. Pittarelli.—p. 999.
84 Primary Suture of War Wounds. Zapelloni.—p. 1002.

September, 1918, **25**, Medical Section No. 9

- 85 *Malaria in Military Hospital at Milan. C. Pezzi and G. Polti.—p. 257.
86 Clinical Forms of Malaria. A. Borgherini.—p. 270. Cont'n.
87 Tremor in Malaria. P. Rusca.—p. 278.

September, 1918, **25**, Surgical Section No. 9

- 88 Albee's Operation for Pott's Disease. D. Maragliano.—p. 257. To be continued.
89 Abdominal War Wounds. G. Egidi.—p. 274. Cont'n.

85. **Malaria.**—Pezzi and Polti urge the necessity for intensive measures during the coming months to cure every case of malaria, so that none will be left from which mosquitoes may get infected next spring and summer. The diagnosis is the first thing now, and every practitioner, they reiterate, should be on the alert to detect malaria.

Riforma Medica, NaplesJuly, 1918, **34**, Rummo Memorial Number

- 90 A Gaetano Rummo. In memoria.—pp. 1-28.

Sept. 14, 1918, **34**, No. 37

- 91 *Adequate Diets. E. Maragliano.—p. 726; S. Baglioni.—p. 726.
92 *Atropin as Test for Tachycardia. G. Galli.—p. 727.
93 *Arthrotomy for Purulent War Wound of Knee. G. de Francisco.—p. 729.
94 *Resection of Auriculo-Temporal Nerve for Parotid Fistula. R. Ianni.—p. 731.
95 Nosography of Wounds of Chest. E. Aievoli.—p. 735.

91. **Adequate Diets.**—Baglioni replies to Bottazzi's recent publications on this subject, and Maragliano comments on the depressing influence exerted by statements as to the indispensability of certain proportions of certain foods which

war conditions, etc., have shut off more or less completely for the present.

92. **Atropin Test for Paroxysmal Tachycardia.**—In a case suspected of malingering, four minutes after a subcutaneous injection of 1 mg. of atropin the pulse dropped from 90 to 73, and the respiration grew slower. Then, the forty-third minute after the injection, suddenly the pulse ran up to 215 and the respiration rate became much increased. The tachycardia lasted for forty-seven minutes and then gradually subsided to 75 by the end of the hour. Even with internal administration of 20 drops of a 1 per thousand solution of atropin it is possible to elicit a typical attack of essential tachycardia in the predisposed, but the interval is over an hour when given by the mouth.

93. **Arthrotomy for Purulent Knee Process.**—De Francisco extols the advantages of a posterior-inner counter-opening in the popliteal space with wounds of the knees requiring drainage. The drainage is much more complete with this than with the usual median popliteal incision, while it is free from the dangers of the latter. He applies it to supplement ample lateral arthrotomy. The incision, about 6 cm. long, is made between the tendons of the rectus muscle and of the semitendinosus. The synovial capsule is incised on the internal tuberosity of the tibia and posterior margin of the internal condyle of the femur, the incision carried up to its superior insertion, guided by the finger or sound introduced into the joint through the inner anterior-lateral incision. At the same time, the bursa of the semimembranosus is incised. The joint is thoroughly rinsed out with boric acid solution and the recesses wiped out with sponges, rinsing then with ether and again with hydrogen peroxid.

94. **Resection of Auriculotemporal Nerve to Arrest Parotid Secretion.**—Ianni reviews what has been published in Europe on this subject, and gives illustrations showing the physiologic basis of the operation. He performed the operation on a soldier with a long war wound of the parotid region that had healed except for a fistula from which saliva poured constantly. The nerve was resected through an incision the same as for ligation of the superficial temporal artery, the nerve being found just below this artery. He isolated the nerve all the way down to the parotid gland and then pulled on it and cut the central end. He thus succeeded in isolating a tract 4.5 cm. long, with the small glandular secretory ramifications. The saliva still poured from the fistula for a few days, but by the seventh day the fistula had completely healed, and no saliva issued from the mouth of the duct of Steno. The cure has been complete during the nearly two years to date. None of the persons who have been operated on by this technic experience any inconvenience from the loss of the parotid secretion, the other glands furnishing abundance of saliva.

Anales del Instituto Modelo de Clinica Medica, Buenos AiresJanuary-June, 1918, **3**, No. 1

- 96 Transfusion of Citrated Blood. (La méthode "Agote.") L. Agote.—p. 1.
97 Causes of Error in Wassermann Test. E. Lorentz.—p. 18.
98 *Nature of Acute Rheumatism. L. Agote.—p. 60.
99 Physics and Chemistry of Nervous System. H. Damianovich.—p. 66.
100 *Pathologic Anatomy of Rabies. I. L. Y. Apphatie.—p. 73.
101 *Hematology of Intestinal Amebiasis. R. F. Vaccarezza.—p. 108.
102 *Syphilitic Gastritis. R. Novaro.—p. 132.
103 Interpretation of Wassermann Reaction. E. Lorentz.—p. 145.
104 Changes in Blood of Animals under Influence of Diphtheria Toxin. H. Damianovich and J. Outes.—p. 155.
105 *The Syphilitic Eye. E. V. Merlo.—p. 158.
106 Some Notes on Pathologic Anatomy. L. Merzbacher.—p. 159.
107 Parenteral Injection of Milk to Promote Lactation. C. P. Mathcu.—p. 168.
108 Nuclei in Vignal-Ranvier Cells. P. Rojas.—p. 171.
109 Regeneration of Nerves. L. Merzbacher.—p. 175.
110 Catalase in the Brain Tissue. M. Amato.—p. 189.

98. **Nature and Prophylaxis of Acute Articular Rheumatism.**—Agote comments on the close analogy between the primary chancre and recurring manifestations in syphilis, the mosquito bite and the recurring febrile attacks in malaria, on the one hand, and the primary infectious sore throat and the recurring attacks of acute polyarticular rheumatism. All

three share a primary lesion and a tendency to recurrence, and are all probably of parasitic origin. It has been his experience that the attacks of acute articular rheumatism occur in spring and fall, never in the extremely cold or the extremely hot months. He has noticed further that the recurrences develop at the same season as the first attack. He cites some cases in which the subjects could thus foretell exactly when a new attack was to be expected. Treatment and prophylaxis, therefore, should be on the same principles as for syphilis and malaria, prolonged and preventive medicinal treatment when recurrence is anticipated. He orders 1 or 2 gm. of sodium salicylate daily during the month before the anticipated recurrence. If the season is very backward, he makes allowance for this. In case of gastric intolerance, he gives 3 gm. in an enema on retiring. When the rheumatism shows a little let-up, he gives the salicylate for a fortnight or month, then suspends for the same length of time and repeats until the rheumatism is conquered. A number of cases are cited in which under this prophylactic treatment there has been no return of the previously annually recurring attacks of the febrile rheumatism every spring. One boy of 14 had had six spring attacks, but has not had the disease since this prophylaxis was inaugurated.

100. **Pathologic Anatomy of Rabies.**—Appathie remarks that the filtrability of rabies virus seems to disprove any assumption as to the Negri bodies being the parasite of rabies. It is possible that the spores might pass through the filter—In any event, he declares, the time has come for revision of the problem of filtrable pathogenic viruses.

101. **The Blood with Amebiasis.**—Vaccarezza found the blood much concentrated in some of the twenty-five cases examined, as the result of loss of fluids. In thirteen, eosinophils formed less than 3 per cent.; in five, from 3 to 5 per cent.; in four, from 5 to 7, and in three, from 7 to 10.5 per cent. The differential count in each case is compared with the clinical course, etc.

102. **Syphilitic Gastritis.**—The husband of the woman of 44 was an old syphilitic and she had had six abortions besides seven still living children. For three months there had been pain in the epigastrium three or four hours after eating, with other signs of an infiltrating gastritis, but the stomach shadow was normal although not flexible. The blood picture was of the chlorosis type, and under intravenous injection of an arsphenamin preparation, recovery was soon prompt, complete and permanent.

105. **The Syphilitic Eye.**—Merlo during the last three years has found that the Wassermann reaction and the course of the case invariably confirmed his diagnosis of syphilis based on the aspect of the eye alone. One eyelid droops slightly, and this unilateral ptosis is accompanied by slight strabismus and a peculiar mixture of vagueness and sadness in the glance. He recognizes the syphilitic by this means, having found this "syphilis eye" common in the secondary and tertiary stages of the disease. The eye probably shows the effect of the involvement of the meninges.

Brazil Medico, Rio de Janeiro

May 18, 1918, 32, No. 20

111 *Protection of Children of Tuberculous Parents. C. Ferreira.—p. 153.

Aug. 10, 1918, 32, No. 32

112 Brazilian Gregarinas. G. Hasselmann.—p. 249.

113 Malarial Coma. H. Ribeiro.—p. 249.

Aug. 17, 1918, 32, No. 33

114 The Murmur of Mitral Insufficiency. J. L. de Mesquita.—p. 257.

Aug. 24, 1918, 32, No. 34

115 Isolation in Leprosy. F. Terra and J. Moreira.—p. 265.

116 Bacteriology of Dysentery at Rio. E. Gomes.—p. 267.

111. **Protection of Children of Tuberculous Parents.**—Ferreira is president of the Liga Paulista contra la Tuberculose, and he was the leading spirit in introducing into Brazil a movement similar to Grancher's plan in France. (This was described in THE JOURNAL, July 6, 1918, p. 1.) He describes the fine results realized by this "Obra de Preservação" at S. Paulo. In 1914 it had fifty-five children in its charge, from 4 to 16 years old. In 1916 the number

was fifty-eight, and two more advisory clinics and two more sanatoriums are planned.

Progresos de la Clinica, Madrid

August, 1918, 6, No. 68

117 *Complications of Malta Fever. Camacho.—p. 69.

118 *Causal Factors in Cirrhosis of Liver. F. F. Martinez.—p. 76.

119 Serous Cysts of the Kidney; Two Cases. R. Molla.—p. 85.

120 Treatment of Erysipelas. A. Perera.—p. 90.

121 Treatment of Atonic Ulcers. A. Perera.—p. 91.

122 Present Status of Cancer Research. C. F. Arroyo.—p. 95.

123 Congenital Luxation of Knee. A. T. Pujol.—p. 104.

124 Sulphur Springs in Treatment of Syphilis. J. G. Viñals.—p. 123.

125 Lavage of the Stomach. J. L. Yagüe y Espinosa.—p. 126.

117. **Complications of Malta Fever.**—Camacho remarks that Malta fever is endemic in his district (Granada) and causes more morbidity than any other disease. It frequently masquerades as pulmonary tuberculosis, typhoid fever, chronic rheumatism or meningitis, or it may be responsible for inflammatory and suppurating processes in joints and long bones. He describes six cases of this kind in children and adults. Inflammation in the synovialis and around joints is so common that it must be regarded as a symptom rather than a complication. The most frequent localization is in the sacroiliac articulation, next, the hip and shoulder. The effusion in the joint is a pure culture of the melitococcus, and when suppuration follows it seems to act like a fixation abscess, diverting the septicemia and generating antibodies to such an extent that prompt recovery ensues.

118. **Factors of Cirrhosis of the Liver.**—Martinez reviews the various factors that have been suggested by others, and then analyzes in detail fifty-four cases from his own practice. Alcohol was unmistakably to be incriminated in 59.25 per cent. In the other cases alcohol could not have been a factor, but infectious diseases, malaria, syphilis, etc., tobacco, lead poisoning or thyroidism evidently had a share in the morbidity of the liver.

Semana Medica, Buenos Aires

July 4, 1918, 25, No. 27

126 *History of Influenza. A. Marco Del Pont.—p. 1.

127 Roentgen Findings After Intramuscular Injection of Iodin Preparations. J. F. M. Gomez.—p. 10.

128 Campaign Against Tuberculosis. E. R. Coni.—p. 14.

129 *Register of Criminals. V. Delfino.—p. 15.

July 11, 1918, 25, No. 28

130 *Complications of an Otitis. M. J. Rizzi.—p. 33.

131 Movement of Eyelid, Associated with Mastication. C. S. Damel and A. Natale.—p. 41.

132 Vaccination Against Typhoid in Argentina. J. A. Lopez.—p. 45.

133 History and Comparison of Pubiotomy and Symphysiotomy. T. Chamorro.—p. 50.

134 The Campaign Against Venereal Disease. A. M. Gimenez.—p. 56.

126. **History of Epidemics of Influenza.**—Del Pont is professor of epidemiology at Buenos Aires, and his historical review of 125 pandemics of influenza shows that 50 occurred in the winter, 35 in the spring, 16 in the summer and 24 in the fall. The first reliably recorded epidemic was in 1173, while authentic accounts of plague are on record from 2,000 years before our era. Among the odd facts he relates is the history of a ship in 1781 on which influenza developed in mid-ocean—no cases having been known in the port from which it sailed. Every person on the ship was stricken, and when it arrived at Canton the disease was found epidemic there, the first cases having developed at about the same date in Canton and on the ship in mid-ocean.

129. **National Register of Criminals.**—Delfino urges a national central headquarters where the data for identification of each criminal can be kept filed for ready reference, and where the outcome of each criminal court trial is duly and promptly filed. The courts of the country thus can obtain the complete summary of the criminal's career to date, and thus be enabled to pass judgment with true justice in each case, discriminating between the occasional and the habitual criminal. The scheme proposed provides for quick action on each demand for data, the records to be accessible only to the duly qualified authorities.

130. **Complications of an Otitis.**—Rizzi's patient was a man of 34 with postinfluenzal right otitis media from which devel-

oped thrombophlebitis with suppuration and septicemia, with an abscess in the cerebellum. The man was finally completely cured after a two years' course of treatment including four extensive operations and twenty-six punctures of the brain.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

Aug. 10, 1918, **2**, No. 6

- 135 Sunlight in Treatment of Tuberculosis. P. B. Middendorp.—p. 427.
136 Influenza in Garrison. W. F. Enklaar and S. van der Veen.—p. 442.
137 Influenza. J. M. Wiggelendam.—p. 445; J. W. Napjus and J. Houtman.—p. 448.
138 *Tumors of Spinal Dura Mater. G. C. Bolten.—p. 450.

Aug. 31, 1918, **2**, No. 9

- 139 *Radiotherapy of Uterine Cancer. G. F. Gaarenstroom.—p. 727.
140 *Radiotherapy of Superficial Cancer. J. H. Kuijjer.—p. 734.
141 *Exploratory Puncture of Cancer. H. T. Deelman.—p. 744.
142 Influenza. D. N. van Gelderen.—p. 749.
143 Case of Missed Labor. L. F. Driessen.—p. 750.

138. **Cancer in Spinal Dura Mater.**—Bolten refers to primary tumors, and reports eight cases. Paresthesias and neuralgia are usually the first symptoms, but sometimes the first signs of trouble are from interruption of spinal cord functioning. In the early stages, roentgen examination is negative except when the tumor is a calcified fibroma. In only one of his eight cases was the roentgen outline distinct. At the same time, roentgen examination is very important as positive findings are so significant. Laminectomy is not particularly dangerous, and three of his patients recovered. The operation was done under local anesthesia in some of the cases. That his results were not constantly favorable was due to intercurrent pneumonia or to the general debility. These eight operative, plus two cases in which no operation was attempted, were all encountered in one year recently. One of the two patients who refused operative treatment was a man of 48 and surprising improvement followed roentgen exposures, both the violent neuralgia and the motor disturbances subsiding completely, with no return during the six months of apparently perfect health to date. Judging by other experiences, a metastatic tumor in the dura must be regarded as hopeless; they are comparatively common with ovarian and prostate tumors. Complete interruption of spinal cord functioning seldom retrogresses, even after removal of the tumor, although the pains may have disappeared.

139. **Radiotherapy of Uterine Cancer.**—Gaarenstroom's experience with 67 cases of uterine cancer, all inoperable but 4, has confirmed the value of the combination of radium and roentgen treatment. Not that there is any essential difference between the effect of the rays on the cancer, he says, but because the anatomic and physical conditions enable one to supplement the other more effectually. His technic includes curetting, radium, 100 mg. for twenty-four hours, then roentgen exposures, vaginal, sacral and abdominal, concluding with a repetition of the radium dose, and all within four weeks, not allowing the cancer cells a chance to recuperate. Of the 58 inoperable and otherwise doomed patients, 11 have been free from appreciable manifestations of their malignant disease during the months since, from fifteen to twenty-six months in six. Great improvement was realized in 7 other cases, and 3 were improved. In only 3 of the total 58 cases was there no benefit.

140. **Radiotherapy of Superficial Cancer.**—Kuijjer reports from the same institution the experiences with superficial cancer in 63 cases. The details are tabulated for comparison, and some especially instructive cases are described in full. All were cured or improved, 24 of the 26 smaller cancers being listed as quite cured, as also 11 of the 17 large ones, 5 of the 10 very extensive ones, and 4 of the 8 lupus cancers. There has been recurrence in only 4 cases, and these were in the two first mentioned groups.

141. **Exploratory Puncture of Malignant Tumors.**—Deelman expatiates on the superior advantages of puncture over excision for differentiation of tumors. A fine needle is worked into the tumor and, as the piston is drawn up, scraping movements are made with the tip of the needle. The syringe then contains a little bloody fluid with minute scraps

of tissue. It is remarkable how clear the histologic findings often are in scraps no bigger than the point of a pin. He treats them with formaldehyd, followed by acetone. This puncture can be done in the office or in the bed, and he has never had any mishaps with it or by-effects in the twelve cases in which he has applied it to date, while the findings were extremely instructive, as he shows in a plate from some of the cases.

Hospitalstidende, Copenhagen

May 15, 1918, **61**, No. 20

- 144 *Action of Pathologic Serum on Photochemical Processes. II. Haxthausen.—p. 609. Commenced in No. 19.—p. 578.

144. **Dermatitis from Exposure to Light.**—Haxthausen remarks that hematoporphyrin, some element in maize, and a certain kind of buckwheat are the only substances that to date have been directly incriminated in the production of certain skin affections traced to the action of sunlight, hydroa vacciniforme, etc. But there is evidence to prove that many substances under certain circumstances may have a sensitizing action on the skin. He has been studying the blood serum of patients with solar eczema or Hutchinson's prurigo restricted to the exposed portions, face, hands and forearms. The most easily studied photochemical process in the blood is the hemolysis by light, and his tests showed a much higher hemolysis index in the serum of persons with this polymorphous light dermatitis than in normal serum or in serum from other forms of dermatitis. The difference is most marked the stronger the concentration.

Hygiea, Stockholm

Sept. 30, 1918, **80**, No. 18

- 145 *Obstetrical Paralysis. E. Rodhe.—p. 1041.

145. **Obstetric Neuritis.**—In two of the three cases reported of traumatic puerperal neuritis and paralysis, forceps had been used. In the other case delivery proceeded spontaneously, but was long protracted. The symptoms of neuritis developed immediately after delivery in one, during the first stage of labor in one, and during the last half of the pregnancy in the third woman. The pains and paralysis in the legs subsided in the course of six weeks, three and six months. The literature on neuritis after parturition is reviewed, and the etiology discussed.

Norsk Magazin for Lægenvidenskaben, Christiania

October, 1918, **79**, No. 10

- 146 *Atypical Cases of Acute Leukemia. L. Dedichen.—p. 1105.
147 Cystic Ureteritis. F. Harbitz.—p. 1126.
148 Weight and Length of New Born Infants in Norway. C. L. Nielsen.—p. 1134.
149 Case of Paralysis of Brachial Plexus. S. F. Holst.—p. 1146.
150 Angina Pectoris. K. Motzfeldt.—p. 1158.

146. **Atypical Leukemia.**—Dedichen reviews the literature on atypical cases of leukemia and reports two cases which ran their course like an infectious disease with pronounced hemorrhagic tendency and gangrenous processes but no swelling of glands, although necropsy showed microscopic leukemic changes in them. There was leukopeny with lymphocytosis and severe anemia of the pernicious type. The girl of 12 and man of 35 died in less than three weeks and seven weeks after the first symptoms. Bacteria could not be cultivated from the blood during life, but streptococci and other species were found in the spleen. The third patient was a boy of 10, afebrile, no hemorrhagic tendency nor swelling of peripheral glands, but the spleen and liver were enlarged, and a lympho-sarcoma in the place of the thymus and the Mikulicz syndrome were accompanied by anemia and the blood findings of acute lymphatic leukemia. No bacteria could be cultivated from this case.

Svenska Läkaresällskapets Handlingar, Stockholm

Sept. 30, 1918, **44**, No. 3

- 151 *Fetal Vascular Layer of the Lens. J. W. Nordenson.—p. 407.
152 The Physiology of Swimming. G. Liljestrand and N. Stenström.—p. 441.
153 *Behavior of Heart During Swimming. G. Liljestrand and J. Lindhard.—p. 495.

151. **Structure and Retrogression of the Vascular Coat of the Lens.**—The research reported was done on cattle fetuses.

153. **Swimming.**—The respiratory interchanges were studied on nine healthy persons during swimming exercises and compared with the findings in a similar group at rest. The blood pressure, the resistance offered by the water to the expansion of the chest, and other elements of swimming are discussed. The volume per minute and the blood pressure both increase during swimming exercises, so that the work of the heart is exaggerated more than with other forms of exercise as a rule.

Ugeskrift for Læger, Copenhagen

Sept. 19, 1918, 80, No. 38

154 *Influenza Epidemic. V. Bie and others.—p. 1501; V. Scheel.—p. 1510.

155 *Meningococcus Carriers. T. V. Hyge.—p. 1514.

Sept. 26, 1918, 80, No. 39

156 *Hysteric Spasm of the Esophagus. S. Monrad.—p. 1539.

157 Hair Ball Removed from Stomach of Girl under 4. S. Monrad.—p. 1546.

158 *Experiences with the Wassermann Test. Ehlers and Aaskow.—p. 1550.

Oct. 10, 1918, 80, No. 41

159 *Death Following Directly on Roentgen Treatment of Exophthalmic Goiter. K. Secher.—p. 1613.

154. **Influenza.**—The experiences related from Copenhagen indicate that at the same time as the epidemic of influenza—and probably a consequence of this, by the predisposition induced—a pneumococcus epidemic developed which far outshadowed the other in gravity. Sputum collected from the influenza patients immediately on entrance into any of the hospitals showed invariably numerous pneumococci, alone or predominant, whether the patient developed pneumonia later or not. Pfeiffer bacilli were not found. Similar experiences are cited from Germany. Pfeiffer himself was unable to find the influenza bacillus in a number of cases, as also Gottschlich, Sehürmann and Uhlenhuth, while Kolle, Friedmann, Mandelbaum and Gruber did not find it at all. In conclusion Curschmann's report is mentioned, dated 1908, of an epidemic of "influenza" prevailing at that time in Leipzig for which the pneumococcus seemed to be exclusively responsible.

Bie and his co-workers are not positively certain that the small, distinct, regularly circumscribed colonies of diplococci were actually the *Diplococcus lancetolatus* of Fränkel. They were found constantly, gram positive, lanceolate, usually encapsulated, even when they occurred in chains. In twenty-eight cases these diplococci were cultivated pure from the sputum or droplets coughed on agar plates as soon as the patients entered the hospital, and pneumococcus septicemia developed in twenty-two of twenty-three mice injected with the sputum. The diplococci developed always either in pure cultures or as the predominating bacteria. The gross bacteriologic properties of this diplococcus and of the pneumococcus are identical, they say, but it is possible that the two may not be identical but of a closely allied species. This is suggested by the lytic drop in the temperature, which was frequently observed, as also by the occurrence of the diplococci in chains. All the links in the chains, however, were always capsule-bearing diplococci.

Scheel, in discussing what he calls the *morbus ibericus*, relates that in Norway there was quite a conflict between the physicians and pharmacists, on one hand, and the government on the other. The government had prohibited the dispensing of alcohol and strong wines, even on a physician's prescription. But the pharmacists refused to submit to this prohibition, and the government had to rescind it. Scheel adds that it is certainly doubtful whether alcohol acts as a preventive, as some believe, and owing to the prolonged course of the epidemic its use for this purpose is not to be recommended.

155. **Meningococcus Carriers.**—Hyge cites Chievitz' report that 6.8 per cent. carriers were found among 1,175 persons in the environment of meningitis patients, and 7.8 per cent. of 1,790 not known to have been in contact with cases. Only one carrier was found in 400 children; 3 among 240 civilians in a Copenhagen polyclinic, and 18 per cent. among 240

soldiers in the hospital for other than respiratory affections. Thomsen and Wulff's recent compilation showed 2.1 per cent. in 474 new recruits. The meningococci may be found three or four weeks after they have apparently disappeared from the nasopharynx, but they usually vanish in about three weeks, although cases are on record of persistence for months, up to eighteen months in Kutscher's case (1912). Hyge doubts whether gargling or nose douches are effectual, advocating rather occupation out of doors and keeping away from other people as much as possible, especially during the hours of sleeping and eating, with special care as to sneezing, coughing, etc.

156. **Hysteric Spasm of Esophagus.**—The 5-year-old girl presented a grave clinical picture exactly like that with stenosis from corrosion by a caustic. Monrad commenced dilatation with a fine catheter and found that the esophagus was completely permeable. The child had actually drunk some caustic, but the first symptoms of stenosis did not appear until three months later after she had heard of a relative who had developed stenosis from such a cause. In a boy of 5 the conditions seemed to indicate a congenital diverticulum in the esophagus, but in this case also the esophagus proved to be normal on roentgenoscopy and under chloroform, although every attempt to introduce a catheter met with impassible resistance at the lower third. In this case the spasm in the esophagus had been noticed during the first year of life, the spasm occurred at different levels of the esophagus at different times, and the esophagus returned to apparently normal size and shape afterward, with no tendency to dilatation. In a third case a girl of 6 had had typical hysterical anorexia for several years, and Monrad was not surprised when the child developed the clinical picture of a diverticulum of the esophagus. A surgeon consulted counseled gastrostomy to strengthen the child for an operation on the esophagus, but Monrad found that the spasm subsided abruptly under introduction of a No. 31 catheter, after the smaller series had been constantly arrested at a point 25 cm. from the teeth. The child was apparently completely cured of all disturbances and ate with good appetite for weeks, but was brought back to the hospital a month after her dismissal presenting the same clinical picture of stenosis as before. Again it yielded to catheter treatment. In the second of the three cases, the threat of catheter treatment sufficed to arrest the spasm on several occasions.

158. **Experiences with the Wassermann Test.**—Ehlers states that in a recent series of 1,091 patients in his service at the Kommunehospital, 371 were syphilitic. In ten cases the routine Wassermann test was the only thing that gave the clue to the syphilis, confirmed by the course of the cases. He does not accept as sole testimony of syphilis a single positive response with negative responses afterward.

159. **Death Following Roentgen Treatment of Exophthalmic Goiter.**—Secher reiterates that the enlarged thyroid gland responds to roentgen treatment in very different ways in different cases. In several cases cited, an ordinary goiter seemed to become transformed into the exophthalmic type under roentgen treatment. Belot and Simon, among others, have declared that a correctly given course of roentgen treatment is free from danger, but Secher insists that this is not true. The thyroid may be whipped up to function to excess, or it may become functionally insufficient. A tendency to myxedema, however, is rare, but numerous cases of aggravation of hyperthyroidism have been reported, even with the most modern improved technic. Rieder and Vering have reported each one or two cases in which the aggravation was so intense that the patient died, and Secher now adds another case to this list of fatalities. His patient was an unmarried woman of 40, previously healthy until exophthalmic goiter developed. The thyroid was given roentgen treatment after a year, eight exposures, each $\frac{1}{2}$ Saubouraud-Noiré unit, distributed in four fields, three on the thyroid and one on the thymus. Her symptoms became much aggravated at once, with restlessness, choreiform movements, pulse 100 to 200, and heart beat up to 240, respiration 72, and death the fifth day. The thyroid showed very slight changes and the thymus nothing abnormal.

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IMPORTANCE OF A COMPLETE ROENTGEN STUDY OF GASTRO-INTESTINAL TRACT AND GALLBLADDER

IN ALL OBSCURE ABDOMINAL CASES *

GEORGE E. PFAHLER, M.D.

PHILADELPHIA

Generally a roentgen study of the gastro-intestinal tract is limited to the obscure cases. In such cases it is our duty to make the study complete. By a complete study, I mean the investigation of the gallbladder region for gallstones, enlargement and adhesions; a study of the stomach to prove that it is either normal or abnormal, and if abnormal, in what respect it is abnormal; a study of the duodenum; a study of the head of the pancreas; a study of the course of the food through the small bowel; a study of the appendix and the appendiceal region; a study of the colon, and very often it is advisable to make a study of the spinal column and of the urinary tract. If the spinal column and sacro-iliac region or the kidneys, ureters and bladder are to be studied, it should be done preceding the study of the gastro-intestinal tract, and should be done while the stomach and bowels are empty.

Such an extensive study involves more time and expense than an incomplete investigation, but gives a great deal more information and enables the physician or the surgeon to know the pathology and the function of these various organs so that he has a complete outline for his treatment. The expense and time consumed are increased, but one mistake will cost the physician and the patient more than ten complete examinations. Therefore, as a matter of economy as well as of efficiency, the examination should be complete. I have seen the futility of incomplete examinations so often that I almost refuse to make an incomplete study. The great majority of patients, sent to me for an examination of the "stomach" because of stomach symptoms, do not have any lesion in the stomach, but have disease of one of the other organs, most often the gallbladder or the appendix. If I were to confine my examinations to the stomach, because of the stomach symptoms, the patient would have spent time and money and would be little nearer a diagnosis than before. This is an embarrassment to the physician, a disappointment to the patient, and, to say the least, a detriment to the roentgenologist.

This does not mean that one should go through one of these abdominal studies in a routine and

mechanical fashion, giving equal attention to each organ in each particular case, but, in the light of the symptoms and history, one should make an examination of all the organs, laying the greatest stress on the organ that is under suspicion, or on the organ which, during the course of the examination, suggests some pathologic condition. I have had patients who had been sent to me for gastric ulcer, and have found stone in the kidneys as the cause of the symptoms. In others, duodenal ulcer, or gallstones, or appendicitis, or intestinal stasis produced the symptoms. On the other hand, I have had patients sent for a study of the bowels because of a diarrhea and have found perforating gastric ulcer. I have had patients sent with a definite diagnosis of pyloric obstruction, probably due to carcinoma, and have found cardiospasm with enormous dilatation of the esophagus, so that the esophagus held quarts of fluid, and no lesion of the stomach. Often a patient is sent to me with suspicion of disease in the duodenum and I find gallbladder disease, or chronic appendicitis. On the other hand, symptoms of gallbladder disease are frequently due to chronic appendicitis. In some of the cases, the appendix is attached in the gallbladder region, which accounts for the peculiar location of the symptoms.

PROCEDURE

It is therefore my custom to allow at least forty-eight hours for one of these studies. I then request that the patient be given a bottle of magnesium citrate or some other agreeable purgative at 9 o'clock on the evening preceding the examination and ask him to report the following morning at 9 o'clock without breakfast, at which time, if there is any suspicion whatever of the possibility of disease in the urinary tract, a set of plates is made of the kidneys, ureters and bladder. If there is considerable aching about the spine, several plates are made of the spine. Then from six to eight plates are made of the gallbladder region. The patient is then taken into the fluoroscopic room. A hasty inspection of the chest is made with the fluoroscope, the condition of the lungs is noted, the movements of the diaphragm, the expansion of the chest, and the movements of the lung markings. The heart is studied as to size, shape, position, peristaltic movements. The mediastinum is reviewed. The abdominal cavity is inspected generally as to the curve and position of the diaphragm, and the outline of the liver and of the spleen. Very frequently one may observe the outline of the kidneys and at times detect the presence of a kidney stone preceding any opaque meal. Rarely one may even detect a stone in the gallbladder region.

I then give the patient an opaque meal, watch it pass down the esophagus, note the movements of the

* Read before the Section on Gastro-Enterology and Proctology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918

walls of the esophagus, the general diameter, the amount of delay at the cardia, the opening of the cardia, and the passing of food through the cardiac orifice into the stomach. I then note the rate at which the opaque material falls to the bottom of the stomach, for generally one may detect a dilated stomach merely by the characteristics of the passage of the opaque meal to the lower pole, either through gas or generally through a collection of fluid when the stomach is dilated. One may judge the tone of the stomach by the passage of the opaque meal from the upper pole into the lower pole. As the stomach fills up, one may study its size, shape, the presence or absence of filling defect, and the presence or absence of any spasmodic contraction. If spasmodic contractions are present, it is then one's duty to determine their cause, which may be either intragastric or extragastric. If no spasm is present, one searches for filling defect, and any filling defect, excepting at the pylorus, may be detected fluoroscopically. A filling defect, however, may be present at the pylorus and may be detected only after a complete series of plates is made of this particular region. I believe that valuable evidence of gastric ulcer should be detected in about nine tenths of the cases, and in the great majority of them a definite diagnosis may be made. A perforating gastric ulcer is indicated by a projection of the opaque material beyond the outline of the stomach wall.

The absence of a filling defect means the absence of carcinoma, and I believe a negative diagnosis of carcinoma may be made when one is certain that no filling defect is present. Yet even when a filling defect is present, one cannot always ascribe it to carcinoma, as it may be due to adhesions, or inflammatory exudate secondary to a perforating gastric ulcer, or to pressure from the outside. The actual differentiation between carcinoma and gastric ulcer is a microscopic one, and in early cases cannot be made either from the roentgenologic or macroscopic appearance, for the stage at which gastric ulcer develops into carcinoma is almost beyond recognition by the microscope. All cases having macroscopic evidence of carcinoma of the stomach should be recognized roentgenologically. Fine differentiation between indurated gastric ulcer and early carcinoma is, however, unnecessary, for such lesions should always be excised at operation and treated as if malignant.

INTENSIVE STUDY OF ORGANS

The Stomach.—The position of the stomach does not carry with it the significance that was attached to it a number of years ago. We all know now that the stomach does not have the shape nor position which was so commonly described in textbooks of ten or more years ago, and with which we, at that time, were accustomed to make our comparison of our stomach findings and to arrive at the conclusion that anything different from those anatomic illustrations was abnormal. We know now that this is not true, and that the greatest variation in the position, the outline and the shape of the stomach may be present and be entirely consistent with health and must, therefore, be considered normal. I believe that there is as much variation within normal limits with regard to the stomach in its shape and size as there is between the shape and size of various men's noses. The variation in the size and shape of a man's nose may have some significance, but it cannot be looked on as evidence of pathology. So, too, variations in the form and position of the

stomach may be of some clinical significance, but can not of themselves be looked on as pathologic. The brilliant work done by Mills¹ has done much to clarify this subject, and to teach us that the size, shape and position of the stomach is very often only a matter of type, and belongs to a type of man or woman just as the size and shape of his nose belongs to his type. The size, shape and position of the stomach, however, do help us to arrive at conclusions with regard to type and our dealings with the symptoms in this type of individual may be influenced by this knowledge.

The Pylorus.—The pylorus that presents smooth gastric and duodenal surfaces is generally healthy, but even so it may be very much thickened, and this thickening may be evidence of a long-continued pyloric spasm. One may find the pyloric line of sphincter measuring approximately one-half inch in width instead of one eighth of an inch as is normal. I believe that such thickened pyloric muscle is evidence of a pathologic state, even though it may not be evidence of a local pathology. A smooth duodenal surface associated with a jagged gastric surface of the pylorus should always arouse the suspicion of carcinoma, and one should not give up until this has been proved negative. In all doubtful cases there should be a large series of small plates, or multiple exposures, taken so as to get the fixed deformities about this valve, making from twenty to forty plates or photographic exposures of this region. On the other hand, if by careful fluoroscopic examination I can clearly see the outline of the wall of the stomach and peristaltic waves moving up accurately to the pylorus, and if everywhere I find smoothness and regularity of movement, I frequently make no plates whatever of the stomach and pylorus.

The Duodenum.—This organ is studied both fluoroscopically and by plates as to its position, its outline, its peristaltic movements and filling defect, and its retention. One should recognize, I believe, at least 95 per cent. of duodenal ulcers, and this evidence is indicated by filling defect or abnormalities in the outline of the duodenum, particularly the first portion. A filling defect or an irregularity about the duodenum does not always mean duodenal ulcer, for the same defects may be caused by adhesions or even by spasms, but when spasm is present, one must always think of a duodenal abrasion or early duodenal ulcer. I am more concerned over a duodenal spasm than over a fixed indentation or niche in one of the borders. A fixed indentation of the first portion of the duodenum, together with contraction of the entire duodenum in practically all instances is due to duodenal ulcer. Like the study of the pyloric end of the stomach, any doubtful sign of disease in the neighborhood of the duodenum should be studied by a large series of plates with at least from twenty to forty exposures. These may usually be small enough to embrace only the pyloric end of the stomach and the duodenum. These plate studies of the pyloric end of the stomach and the duodenum also frequently give valuable evidence as to the gallbladder, either in demonstrating calculi or in demonstrating displacement defect due to an enlarged gallbladder.

The Gallbladder.—The study of the gallbladder should show rather definite evidence of gallstones in about 50 per cent. of the cases in which they are pres-

1. Mills: The Relation of Bodily Habitus to Visceral Form, Position, Tonus and Motility, Am. Jour. Roentgenol., 1917, 4, 155.

ent, and doubtful evidence, which has some confirmatory value, in about 25 per cent. more. The demonstration of gallstones depends chiefly on the character of their composition, but also on the absolute stillness of the gallbladder, the amount of tissue overlying it, and the contents of the gallbladder. A gallbladder filled with fluid may give little or no evidence of the outline of gallstones, but one may get a general outline of it because of its increased density. This I have observed in a number of instances in connection with the strawberry gallbladder. Adhesions in the gallbladder region are indicated by abnormal attachments of the surrounding organs, such as the duodenum, the stomach, the colon, and are particularly recognizable when one is dealing with an otherwise gastroprotic stomach, in which one finds the duodenum hooked up very definitely in the gallbladder region, thus changing the entire shape of the stomach. Even the appendix may be distinctly attached to the gallbladder. One, of course, cannot observe the actual adhesions. One only recognizes the effect of the adhesions as is indicated by the displacement or fixation of the organs containing the opaque material.

The Small Bowel.—As the food passes through the small bowel, one should notice any abnormal delay in any particular portion, any evidence of fixation or kinking, or excessive dilatation.

The Appendiceal and Cecal Regions.—The most favorable time to study the appendix, the cecum and the ileocecal region is at the sixth, eighth and twenty-fourth hour period, and at each of these periods one should make a careful fluoroscopic study, together with palpation by means of a wooden spoon. I prefer a wooden spoon covered with a metallic circle which will always enable me definitely to localize the point of pressure. At times, one may find the appendix filled at the end of six hours, and yet empty at each other study. The importance of seeing the appendix filled is shown by the fact that one may definitely localize its position and determine, to a certain extent, its mobility or other evidence of adhesions. Very generally the appendix is visualized at the end of eight hours, and in nearly all instances it may be seen at the end of twenty-four hours. If it is not visualized, it very commonly means that the lumen has been obliterated, or that it may be filled with exudate.

DIAGNOSTIC FEATURES OF APPENDICITIS

The important diagnostic points with reference to the appendix and chronic appendicitis are:

Localized Tenderness.—This is the most valuable sign obtained, and is elicited either by direct palpation under the screen by means of the gloved hand, or much better (which is my practice) by means of a wooden spoon-like instrument, called a "distinctor." This wooden spoon may be passed readily under the screen and is controlled by the hand above the screen over the protection of the lead glass. If this spoon is surrounded by a rim of metal, one can easily see it move around over the different parts of the colon and of the abdomen, and by watching the ring can definitely localize the tenderness of appendicitis in the cecal region or over the appendix, wherever it may be located. When the appendix is visualized (that is, when the barium meal enters the appendix so that it may be distinctly seen), one can often localize the tenderness directly over the appendix, and when the appendix is movable

not infrequently the localized tenderness moves with the appendix. I have been able, in a number of cases, to move the appendix as much as three or four inches, and in each instance the sharply localized tenderness moved with the appendix. This may seem contradictory, in view of some ideas of the sensibility of the viscera, but whether contradictory or inconsistent, it is a fact. Without suggestion to the patient, I have been able to move my wooden spoon around over the abdomen, and in each instance, when I came back to the location of the appendix, the patient complained of pain, even though I had moved the appendix from its original place. This tenderness is persistent and is present throughout the various studies made. At times it is acute, and sharply localized, and at others it is more or less general and less acute. A vague tenderness is more common when the appendix is retrocecal, in which instance there is considerable soreness, but the tenderness is not sharply localized until one twists the patient in such a manner as to bring the pressure directly to bear on the appendix, in which instance the pain is often quite acute. If no tenderness is present, and if at the same time the cecum is freely movable, I believe that one may say that no appendicitis exists. If, on the other hand, there is localized tenderness over the cecum, with fixation of the cecum, and no visualization of the appendix, it very frequently means an obliteration of the appendix by inflammatory exudate, which prevents the appendix from filling with the barium meal. Localized tenderness, with fixation of the cecum, and without filling defect, I believe, is strong evidence of appendicitis. Clinically the surgeon and the physician are apt to look for tenderness over McBurney's point. As we have many opportunities of studying the position of the appendix and the localized tenderness, we realize how much in error we may be if we depend on localized tenderness over McBurney's point as evidence of chronic appendicitis. For example, if the appendix is located deep in the pelvis, there will be absolutely no tenderness over McBurney's point. Likewise, if the appendix is located in the hepatic region, and very commonly when it is retrocecal, there is no localized tenderness over McBurney's point. Then, too, the appendix may be on the left side instead of the right, either because of nonrotation of the colon or complete transposition of the viscera.

Demonstration of the Appendix.—The appendix may occasionally be demonstrated by the opaque enema, but in many more instances it is demonstrated by means of the opaque meal, particularly when administered with buttermilk. I believe that, in the majority of cases referred for gastro-intestinal study in which the barium and buttermilk meal is administered, the appendix may be demonstrated if one looks for it at the end of eight hours, at the end of twenty-four hours, and at the end of forty-eight hours. It is not always visualized in a plate made of this region, but if one palpates the cecum by means of the wooden spoon, or distinctor, if the appendix has been filled with the barium, it may always be demonstrated, I believe, even if it is lying behind the cecum. To accomplish this, one should rotate the patient to the right or to the left sufficiently to bring the posterior surface of the cecum into view. The appendix may then be demonstrated if it is filled with opaque material. I believe that no case is thoroughly studied unless this procedure is followed.

Fixation.—A chronically inflamed appendix is very apt to become more or less attached to the surrounding tissues. It may be attached only at its tip, in which instance the greater portion of the appendix could be moved around freely, together with the cecum, and yet the tip of the appendix remain in a stationary position. On the other hand, the appendix may be fixed throughout, or it may be fixed at its base, and its tip may be movable. However, absence of fixation, or evidence of adhesions about the appendix must not be regarded as negative evidence in the diagnosis of chronic appendicitis, for we all know that an appendix may be inflamed and yet be freely movable. In this instance, the localized tenderness again is of value.

Position of the Appendix.—Normally the appendix is directed downward into the pelvis, but normally it is freely movable, and changes its position without external influence to a considerable extent during twenty-four or forty-eight hours. It not only changes its position but its shape, indicating that there is likely some vermicular or peristaltic movement associated with the appendix. One may find, therefore, an appendix producing chronic appendicitis lying in a normal position in the pelvis, or lying transversely, or lying along the inner side of the ascending colon; or it may be retrocecal, or, as in one case of mine, it may be wound around the pyloric end of the stomach. In a number of instances, I have found it up in the gallbladder region, in which instances, the patients are generally sent for a gallbladder examination rather than an appendiceal study. In general, when the appendix is directed upward or is retrocecal it is more likely to indicate chronic appendicitis.

Kinking or Angulation.—The mere bending of the appendix has no significance, for its shape will vary many times within twenty-four hours, but if there is a fixed angulation it is very commonly due to an adhesion at the point of fixation. This has distinct significance.

Constriction.—Constriction, or dilatation, or irregularities in the lumen may consist of a bulbous portion, or the whole appendix may be much dilated, or one may have marked irregularity in the lumen. All these conditions, I believe, have pathologic significance.

Abnormal Retention.—If the appendix remains filled with barium after the cecum and ascending colon have become empty, or after the entire colon is emptied, I believe it has pathologic significance.

CECUM AND ASCENDING COLON

At the same time that one is making records of the appendix, one should note abnormalities of the cecum and the ascending colon, such as fixation, abnormal position, abnormal dilatation, and filling defect or abnormal retention, for one may find retention in the cecum after the remainder of the bowel has been emptied one, two or three days, and this must be recognized as an abnormal condition. One should also study the mobility of the ascending colon and its relation to the transverse colon or the surrounding tissues. If careful palpatory studies are made under the screen, one may commonly diagnose the presence of any adhesions or any evidence of a jacksonian membrane, or kinking or angulation at the hepatic flexure. The same observations may be made with regard to the remainder of the colon.

Carcinoma of the Colon.—It must be borne in mind that carcinoma of the colon may exist for a consider-

able period of time without giving rise to symptoms, and even after it gives rise to some symptoms many months and even years may pass before the colon is entirely obliterated or true obstructive symptoms develop. So, too, when one is making observations of the opaque meal in its passage from the mouth, one rarely finds in the early stages any appreciable localized obstruction or stoppage of the bowel. If filling defects in the bowel are seen, they must always be confirmed by means of an opaque enema, for it is my experience that the opaque meal may pass for a considerable time from above, and yet an enema be totally obstructed at the point of constriction. This must, of course, be due to some localized associated spasm. Generally, even though the constriction in the bowel is very small, an opaque enema passes through the constriction and gives a very definite and fixed deformity of the bowel which may commonly be recognized definitely as carcinoma. It is my practice to follow an opaque meal through the bowel for forty-eight hours. This gives one a fair idea as to the general function of the gastro-intestinal tract, and enables one to recognize adhesions, localized tenderness, etc., and then finally at the end of forty-eight hours, if one gives an enema and fills the entire bowel, any filling defects are noticed more definitely and positively than can be done in any other way.

The Ileocecal Valve.—The incompetence of the ileocecal valve, which is common, may be recognized very often by passing a meal from the mouth, and at times one may find the ileum entirely empty at the sixth or the eighth hour period, and yet at the end of twenty-four hours find the ileum still filled with the opaque material. This can only mean that there has been regurgitation from the bowel into the ileum, most likely due to reverse peristalsis. Patients presenting this evidence of an incompetent ileocecal valve commonly have colicky pains, often a diarrhea, and very generally a considerable amount of gas, nausea and general distress. The incompetence of the ileocecal valve, I believe, is most commonly due to intestinal stasis, and is generally associated with an atony or stretched condition of the ascending colon, and this incompetent valve is simply a part of the general stretching of the colon. At times the incompetence of this valve is due to adhesions, secondary to chronic appendicitis or to a perityphlitis. If, on the other hand, one finds no intestinal stasis present, and does find some evidence of chronic appendicitis, the presumptive evidence is that the incompetence of the ileocecal valve is due to chronic appendicitis or to a perityphlitis.

ADVANTAGES OF COMPLETE STUDY

If one makes a complete study of this kind and finds the evidence of gastric ulcer, and perhaps also the evidence of chronic appendicitis, both conditions may be dealt with at the same operation; otherwise the patient cannot be expected to get entirely well until the other abnormal condition has been rectified. So, too, if duodenal ulcer is present, and at the same time one finds a well marked intestinal stasis, one cannot expect complete recovery until the intestinal stasis is also dealt with, as well as the duodenal ulcer. In fact, at times the symptoms of the duodenal ulcer will disappear if the intestinal stasis is thoroughly and competently treated. With reference to the gallbladder, I have seen patients that have traveled all

over this country consulting the best stomach specialists because of severe and persistent stomach symptoms, and only stomach symptoms. Yet I have found in them gallstones, the removal of which relieved all gastric symptoms. I have found gallstones by roentgen-ray examination because I had made a complete study, when all the symptoms seem to point toward a urinary rather than a biliary colic, even to the extent that the patient passed a slight amount of microscopic blood in the urine.

Chronic appendicitis, I believe, gives rise to more obscure symptoms in the abdomen than any other condition, and yet gives the most elusive evidence on which to base a diagnosis. If one makes a complete study of the alimentary canal, together with the gallbladder, and at times the urinary tract, spinal column and sacro-iliac region, one can practically always make a diagnosis or find pathology sufficient to account for the abdominal symptoms. I believe that such a complete study thoroughly done by a competent, skilled roentgenologist is of as much, and at times more value than an exploratory abdominal operation. Within a short period of two weeks, there have been sent to me three patients who have had exploratory operations done by competent surgeons because of the symptoms of gastric ulcer, in whom no evidence of gastric ulcer could be palpated by the surgeon, and the abdomen was closed. Within a year these patients were sent to me and in each of these three patients I found the evidence of malignant disease which was confirmed by a subsequent operation.

If such a complete study of the abdomen is made, I believe that carcinoma, if not present, can be eliminated from consideration in the diagnosis, and if present can, I believe, in all instances be diagnosed, or at least pathology suggesting carcinoma will be recognized which will be sufficient for an operation. The exploratory operation will then be for a definite purpose, at a definite location, to investigate a definite lesion, and when roentgen evidence points to carcinoma in the gastro-intestinal tract, the surgeon should be very sure that it is not carcinoma before he ridicules this diagnosis or eliminates it from his consideration.

CONCLUSIONS

1. A complete roentgen study should be made in all obscure abdominal cases.
2. Such a study should determine each organ to be either normal or abnormal, and if abnormal, the nature of this abnormality should be carefully described.
3. The diagnosis of carcinoma, if present, may practically always be made.
4. The absence of carcinoma may, in most instances, be proved.
5. Gastric ulcer may be recognized in about 90 per cent. of the cases.
6. Duodenal ulcer may be recognized in probably 95 per cent. of the cases.
7. Gallstones may be recognized in approximately 50 per cent. Other evidence of gallbladder disease may be obtained in 25 per cent. more.
8. Chronic appendicitis may be diagnosed in practically all instances.
9. Incompetence of the ileocecal valve may be recognized, and diagnosed only by this procedure.
10. Defects, adhesions, filling defect and abnormal function of the bowel may be recognized by this method better at times than by operation.

11. Diverticulitis may be recognized only by this method and by operation.

12. Carcinoma of the rectum may, at times, be more definitely determined as to its position, location and its extent than by a proctoscopic examination.

13. Patients generally obtain a great deal of mental satisfaction that is helpful in the cure of their cases, as the result of a complete study of this kind.

ABSTRACT OF DISCUSSION

DR. BERTRAM W. SIPPY, Chicago: Dr. Pfahler has presented the subject from the standpoint of the roentgenologist. It appeals to two classes, those who, through experience, have been conducting roentgen-ray examinations of the gastro-intestinal tract for diagnosis, and those who are familiar with it only through writings and hearsay. Our duty is not done in obscure cases until we have made a complete examination. The difficulty is, how do we know that a case is obscure? Sometimes it may appear to be obscure when it is not; and mistakes in diagnosis are apt to be made by making only a routine examination. If we are going to diagnose cases properly, we may well refer them to a competent roentgenologist.

The doctor made a very strong plea for complete examination. I wish to supplement that plea by making a plea for complete examination nonroentgenologically. Physicians usually are too narrow in their vision of intestinal troubles, looking at intestinal troubles only with the idea of giving cathartics or enemas. They are confused by intestinal stasis, by disturbance of the ileocecal valve, by Jackson's membrane, by a large amount of rubbish, names that have very little significance. They should know these things are remedial, and that there are not very many diseases or disorders of the stomach for which patients seek relief. If we eliminate cathartics and enemas and rivet attention on the serious possibilities, realizing that by working with a little understanding, there are mighty few cases that cannot be studied without roentgenology and conclusions drawn that will be influenced very little by roentgenology. Having started this work before we had the roentgen ray to help us, we developed a certain technic in our diagnosis of gastro-intestinal disorders, and we make fewer mistakes when we carry that out as accurately as possible than we would otherwise. When one does that, I want to say to you, from long experience, that it is possible to do your work so accurately that it is only now and then that the roentgen ray will give you very material advantage. But we cannot get along without it, because we do not know just what it is going to show. It will show things like these diaphragm hernias that you cannot get in any other way.

DR. WILLIAM VAN VALZAH HAYES, New York: I am disposed to endorse strongly every word Dr. Pfahler said, except one statement, that the only way we can tell if the ileocecal valve is incompetent is by means of the roentgen ray. I do think we can frequently get information about this if we use our hands and ears intelligently.

I wish to emphasize what Dr. Sippy said of the extreme importance of a thorough study of the case by the gastroenterologist before the roentgenogram is made. I do not think that giving the barium meal, and seeing if the stomach is empty in six hours, is an adequate test of the duration of digestion. The stomach may act differently with different meals, and it is very desirable to make other tests, such as the rice and raisin test and the "duration" test (two soft-boiled eggs, a glass of water and roll), which should be out of the stomach in three and a half hours. The roentgen ray furnishes extremely valuable confirmatory evidence, and sometimes gives an insight into conditions that would be overlooked without it. For example, we have gone over the abdomen carefully, and have concluded that the organs are all in normal position; we have tested the position of the stomach with the patient reclining and have found the greater curvature at the umbilicus, or slightly below, and all seems to be right in that respect. We send the patient to the

roentgenologist, and learn of the existence of a very marked gastroptosis. It has been shown that when the patient stood with the meal in the stomach, the stomach dropped down about 4 inches. Some of these patients can be relieved by using a supporting belt or corset. The roentgen ray is particularly valuable in showing the presence or absence of filling defects in the stomach and bowel, and this, perhaps, constitutes its most important aid in gastro-enterologic diagnosis. We should avail ourselves of the skill of the roentgenologist to the greatest practical extent, in order to get a full-rounded diagnosis. If we do, and if we make thorough studies ourselves, we can go forward in confidence, feeling sure we shall know whether there should be an operation or whether we can get results by medical treatment.

DR. A. HEINEN, Chicago: The view of the gentlemen preceding me as to the value of roentgenology in gastro-intestinal disturbances is correct. I always contend that if you depend on the diagnosis of gastro-intestinal disturbance by the roentgenologist, you will make more mistakes than you ever made. The principle in diagnosis of gastro-intestinal disturbance is a thorough physical study of the case and the laboratory findings. In the diagnosis of ulcer of the stomach by the roentgen ray, retention may be due to spasm; but as we are all most concerned by the importance of the diagnosis of carcinoma of the stomach—which means death to the patient—I think that an early diagnosis of carcinoma is of the greatest importance, because you can save the patient's life by the proper surgical procedure. The roentgen ray fails in the early diagnosis. The early diagnosis of carcinoma is made only if you seek for carcinoma. If the roentgen ray shows that carcinoma is there, it is a late diagnosis. In the early diagnosis of carcinoma, I rely on the history, physical examination, and, above all, on the occult blood test of the stool. Carcinoma of the stomach is mostly the medullary form and begins in the mucous membrane; it consists mostly of blood vessels—very little stroma—and as the growth breaks down constantly, blood always is present in the stool. If you find occult blood in the stools for a period of a week, carcinoma is present. The roentgen ray will not show anything in this stage, not until two or three months later, when the patient is doomed.

DR. J. GUTTMAN, New York: We can all fail once in a while, particularly if we base the diagnosis on one fact. Dr. Pfahler did not intend to convey the impression that we should limit our diagnosis to roentgen ray. He intended to say that it is absolutely necessary to be thorough, whether you do it in a clinical way, or in a chemical way, and when you do it from the roentgenologist standpoint you must be particularly careful to be thorough, because it is the little details which enable you to make a correct diagnosis. Why is the diagnosis more important than anything else. No physician has done his duty to his patient, in spite of any effective treatment he may have instituted in that particular case, unless he knew why he was making the application of this particular therapy. So first and foremost comes the diagnosis. If we can make a diagnosis without the aid of any tests, well and good, but if not, let him resort to chemistry and the roentgen ray. If I were to chose my methods of diagnosis, I would say, give me clinical experience; if my clinical experience teaches me that I am dealing with a gastric ulcer, and the laboratory findings may tell me there is achylia gastrica and other evidences present which might indicate carcinoma, I shall be firm in my diagnosis of gastric ulcer. If clinical experience tells me I am dealing with carcinoma of the stomach, and the roentgen ray will fail to find definite or other evidence, I shall still put my faith in my clinical diagnosis. Often the roentgen ray leads in the proper direction, not always; but the failures are not so much because of the ray itself, but because of the way it has been used. It depends entirely on the man and on the method used, and on the interpretation of the findings. But taking it as a whole, first comes proper clinical diagnosis, then the laboratory work, whether it is chemical or roentgen ray, done in the proper way and by an expert. The time is coming when we will all become expert in roentgen-ray laboratory work, when every man who is considered a gastro-enterologist will not make a diagnosis unless he is a

roentgenologist. It is going to be a necessary part, just as much as knowing how to handle a stomach tube. Dr. Pfahler says he finds the appendix very often. I never saw the appendix visualized as frequently in giving the patient the ordinary barium meal or carbohydrate meal as I do when I give him buttermilk. After twelve or fourteen hours, I find the appendix visualized, if it can be visualized.

DR. HORACE W. SOPER, St. Louis: Boas, who originated the occult blood test, has always admitted that it was of no value in the early diagnosis of cancer. He states so explicitly, and I think that this has been the general opinion of all men of large experience with the test. It occurs late in the development of the growth. No examination of the gastro-intestinal tract is complete without the roentgen-ray findings; and in the hands of an expert it is our only method of obtaining an early diagnosis in cancer. I think that Dr. Pfahler's percentage figures in relation to ulcer and appendicitis are very conservative.

DR. GEORGE E. PFAHLER, Philadelphia: More mistakes in diagnosis are made through carelessness than through ignorance; and that applies whether it be in roentgenology or any other method of diagnosis. It is lack of thoroughness that is generally the cause of the mistakes. The mistakes in the diagnosis of carcinoma of the rectum in the majority of instances are due to the lack of the physician putting his finger into the rectum. The great majority of cases that have gone on for a long time have been neglected because the physician has not introduced his finger into the rectum; and that is only an illustration of the absolute carelessness that is going on all over the country in the matter of diagnosis, and it applies to clinical medicine, and perhaps even more to roentgenology. In regard to the ordinary clinical examination—and the roentgenologic findings are also clinical—I agree with everything Dr. Sippy said, and everything Dr. Hayes said. Of course, we should use every means of diagnosis, and use the roentgen ray also, and you will have that much more thoroughness in the diagnosis. When the diagnosis differs, there is something wrong in the observations some place, and it should be corrected by more thorough study.

With regard to the diagnosis of early carcinoma, I challenge not only Dr. Heinen, but any man, to make a diagnosis of carcinoma—the early diagnosis of cancer of the stomach that I cannot make with the roentgen ray, if the work is done thoroughly. You cannot, however, make such a diagnosis if you are going to depend on technicians, men who are simply paid to work a certain time, and are generally underpaid. In certain cities some hospitals have no physicians in charge of their roentgen-ray department. They depend on the technicians to make their studies, and then commercialize the roentgen-ray department so that they can get the greatest amount of money for the least amount of work out of them. That is the cause of mistakes in diagnosis, and that is what prompted me to write this paper. Patients are sent for a stomach examination at so much per, and then because a mistake is made he comes back and damns the roentgen ray. The patient thinks he has had a roentgen ray examination, but you know he has not. The patient is the one who suffers. Somebody gets some coin that does not belong to them. The only plea I make is, more thoroughness in the roentgen-ray examinations and thoroughness in the clinical diagnosis.

Epidemic Diseases in City and Country.—It is true that epidemics of disease spread with greater rapidity in the cities owing to the fact that the infected person is liable to come in contact with a large number of persons in a short time. But sources of infection are more promptly located, the hospital for contagious diseases is made use of without delay, and the common agencies for the prevention of disease in our cities are not so readily available in the sparsely populated parts of the state. By this I refer to the efficient health organization of the city with its corps of inspectors, laboratory workers, epidemiologists, etc. Added to this is the efficient nursing organization, ever ready to lend timely aid.—Byron U. Richards, M.D., *Bulletin Rhode Island State Board of Health*.

THE DIAGNOSTIC AND PROGNOSTIC
VALUE OF BLOOD UREA IN
UROLOGY *

ALBERT E. GOLDSTEIN, M.D.

Associate in Genito-Urinary Surgery, University of Maryland School
of Medicine and College of Physicians and Surgeons; Attend-
ing Urologist to Hebrew Hospital

BALTIMORE

In partially reviewing the literature on urology of the past three decades, one's attention is immediately attracted to the advances made on the surgical and diagnostic sides, though the advances of the former depend almost entirely on the latter. That is, as the newer methods in diagnosis of urologic conditions have developed, the urologist has become more competent as a prognostician and therefore was enabled to perform operations that otherwise would not seem feasible. Furthermore, the advances in diagnosis have been principally aided by the more modern laboratory methods of the blood and urine, and one finds himself dependent on the various chemical tests of the blood and urine, together with the action of various dyes on certain organs before a urologic operation is performed.

The work of Koranyi¹ on cryoscopy, of Heidenhain² on indigocarmin, of Von Mering³ with the phlorizin test, of Geraghty and Rountree⁴ on phenolsulphonephthalein, and the various contributions to science on the methylene blue test, rosoline test, indigocarmin urine urea and other examinations of urine, etc., are doubtless familiar to all the members of this Association.

The literature up to date is teeming with endless variations of these tests, each having its own followers, each one in itself being applied best to certain classes of cases only, and each one an excretory test. In most institutions, three, four or all the tests were employed, and from the data collected from the combination, conclusions were drawn. In view of the misleading interpretations that followed the use of some of the foregoing methods at various times and in various classes of cases, the importance of retention tests was soon recognized, and in the past few years less stress has been laid on excretory tests and much more stress on some of the retention tests, particularly blood urea, nonprotein nitrogen, creatin and uric acid.

The work by Marshall and Davis⁵ on "The Distribution of Urea and its Elimination from the Body," the work by McClean and Sellig⁶ on "Urea and Total Nonprotein Nitrogen in Normal Individuals," and that by Folin and Denis⁷ on "The Diagnostic Value of Uric Acid Determinations in Blood," have encouraged investigators to seek methods from which more conclusive data could be obtained than by the excretory methods which at all times and in all classes of cases

did not correspond. Schwartz and McGill,⁸ in their series of 211 cases, have shown conclusively the importance of blood urea, and Tileston and Comfort⁹ have demonstrated the relationship of it in health and disease. Gillard¹⁰ employs it with great satisfaction in the diagnosis of surgical diseases of the urinary tract and Scherck and Gradwohl¹¹ have shown conclusively that no urologic case is completely examined for diagnosis or operation without the employment of a retention test.

My investigations for the past three years have been carried out practically along the same lines as those of Scherck and Gradwohl, the principal retention test employed being that of blood urea. The cases selected for the work were all urologic cases, in the services of Dr. Rytina and myself.

The method employed for determining the blood urea at first was Marshall's¹² (that of using serum), and later Van Slyke's¹³ (that of using whole blood) and calculating on the per liter of blood basis with a normal consideration of from 0.3 to 0.6 gm. per liter of blood. The number of cases in my investigations up to the time of writing was 104, on which 280 blood urea determinations were completed.

For purposes of comparison and to demonstrate partially some of the surpassing qualities of blood urea in relation to diagnosis and prognosis in genito-urinary surgery, I have employed the three following tests, which are the most uniformly used and the simplest of application: (1) the urine urea test; (2) the phenolsulphonephthalein test, and (3) the ordinary chemical and microscopic examinations of urine (albumin, casts, etc.).

METHOD OF PROCEDURE

The method of procedure was as follows: When a urologic case was admitted to the hospital, some urine was taken for microscopic and chemical examination. An intravenous injection of phenolsulphonephthalein was given, some blood was taken for a blood urea and whenever possible, a twenty-four hour specimen of urine collected for urine urea determination, either the Hüfner¹⁴ or Marshall¹⁵ method being employed. The patient was not placed on any special diet, except in cases in which possibly there were some constitutional disturbances present. Therefore the intake of proteins was practically constant and did not interfere materially with the relative comparisons of the blood urea, although the patient was advised to drink water copiously. In from three to five days, the same procedure was carried out to determine the course of the case, that is, whether conditions were becoming more or less favorable for the patient and for the surgeon. If the various tests, particularly the blood urea, were within normal limits on the first examination, and the second examination demonstrated an improvement or lack of improvement, I could at this time begin to consider the prognosis of the case, should operation be contemplated. If the blood urea increased in amount, which of course indicated a higher degree of toxicity, operation was delayed and the blood was

* Read before the Section on Genito-Urinary Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

* Investigations carried out in the Urological Departments of the Mercy and Hebrew Hospitals.

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taken again in from three to five days. This procedure continued until the blood urea reached within the normal limits of from 0.3 to 0.6 gm. urea per liter of blood. In most cases a phenolsulphonephthalein was given at the same time that the blood was taken for urea determination. Should the blood urea, after a number of determinations, not reach the upper normal limits, then when a stationary point was reached and the operation was imperative, it was performed, providing the stationary point was not too far above the upper normal limits. In this manner, I was able from my series of cases to standardize approximately (as one might call it) the minimum and maximum retention of urea that might be present in the blood before operation was performed with impunity. This will become apparent from the study of the accompanying tables. Here it is obviously seen

urea of more than 1 gm. who were operated on and recovered, appeared not to have as stormy a recovery if the obstruction were a urethral, rather than a renal or prostatic obstruction. Whether this is a mere coincidence or the resisting powers are greater, I am unable to state.

In cases with a blood urea between 0.75 and 1 gm., in which operation was necessary, only a fair prognosis was made, depending on whether the stationary point reached was a progressive decrease or a progressive increase in the amount of blood urea. This point was determined only by a series of blood urea determinations, best demonstrated in Case 86. This patient is at present in the hospital and has been there for the past three months under the preoperative regimen. His blood urea on admission was 0.55 gm. urea with a phenolsulphonephthalein of 55 per cent.,

TABLE 1.—COMPARISON OF RESULTS OF BLOOD UREA, PHENOLSULPHONEPHTHALEIN AND URINE UREA TESTS

Case Number	Name	Diagnosis	Blood Urea Gm. per Liter of Blood				Intravenous Phenolsulphone- phthalein for Two Half-Hour Collections			Urine Urea Gm. per Diem, Doremus			Urine Examina- tion	Prognosis		Opera- tion	Results	Remarks
			Admission	Preoper. 1st	Preoper. 2d	Postoper.	Admission	Preoper.	Postoper.	Admission	Preoper.	Postoper.		Admis- sion	Pre- oper- ative 2d			
24	G. C.	Stricture of bulbo-membranous urethra, calculus in prostatic urethra	1.04	1.04	0.75	0.6	2%	1%	35%	3	3	14	Albumin +++; pus cells ++; staphylococci	Fair	Good	Cystostomy and external urethrotomy	Improvement	Operation imperative
25	G. K.	Stricture of bulbo-membranous urethra	0.96	0.94	....	0.6	10%	...	40%	10	..	16	Albumin ++; few pus cells; colon bacilli	Good	Good	Dilatation	Improvement	
30	H. K.	Stricture of bulbo-membranous urethra, uremia	4.1	4.1	*	*	*	*	*	8	8	..	Albumin ++	Grave	Grave	Dilatation	Died	Patient died soon after admission
31	T. Y.	Stricture of bulbo-membranous urethra	1.2	1.1	0.4	0.3	5%	5%	40%	2	5	..	Albumin ++; few pus cells; casts; staphylococci	Poor	Good	Cystostomy and external urethrotomy	Cured of stricture	Operation was imperative
55	J. L.	Stricture of bulbo-membranous urethra, perforating fistula	1.0	0.9	....	0.7	†	†	†	†	†	†	Albumin +++; casts and few pus cells and organisms	Fair	Fair	External urethrotomy; excision of fistulous tract	Cured	Operation was imperative
71	J. W.	Vesical calculus	0.5	0.5	....	...	5%	5%	....	3	3.5	..	Albumin +++; pus cells ++; and organisms	Good	Good	Perineal section and cystostomy	Died	Demented. Refused nourishment

* None obtained.

† Unable to obtain on account of perforating fistula.

that only rarely did a patient recover from an operation with a blood urea of more than 1 gm. per liter of blood (the prognosis being considered grave here at all times) and at no time was the prognosis grave, urologically speaking, with a blood urea of less than 0.75 gm. As will become apparent from the study of the accompanying tables, in the few cases in which the patients with blood higher than 1 gm. were operated on, it will be readily observed that the patients developed uremia, the prognosis having been made before operation. This development took place in all cases with the exception of certain types, such as some prostatic hypertrophies and strictures of the urethra, in which a cystostomy was imperative for retention, irrespective of the condition of the patient. Then the operation was subsequently completed if conditions permitted, as in Cases 24, 31 and 55, all of which were stricture cases with recoveries following operation. Peculiar as it may seem, patients with a blood

and 10 gm. urine urea daily. Blood urea tests were completed in from five to seven days, with a result that there was a constant variation rising to 0.81 and dropping back to 0.6 and then rising again. In view of other conditions present, this patient would be a surgical risk, unless his blood urea would remain stationary, somewhere below 0.75 gm. or between 0.75 and 1 gm. A point of great interest here is that the blood urea and phenolsulphonephthalein were within normal limits on admission and, should dependence have been placed entirely on the one determination, this patient would unquestionably have developed uremia and died. Hence the importance of a series of blood urea determinations before operation. In only one case in which the patient was operated on and in which a very favorable urologic prognosis was given before the operation, the patient died from a renal insufficiency, that is to say, of a uremia following an acute renal suppression probably due to the

administration of ether or some other unknown cause, as no necropsy was obtained.

CASE 1.—The case is worthy of mention. The patient was H. A., a man, aged 60, with a diagnosis of papilloma of the bladder and a moderate benign hypertrophied prostate. His blood urea on admission and previous to operation was 0.33 gm. per liter of blood, the phenolsulphonephthalein test was 45 per cent. for two half hours. The urine examination showed many red and white blood cells. Cystoscopic examination revealed a small papilloma of the bladder and slight intravesical bulging of the prostate. The systolic blood pressure was 145, the diastolic 95, and the heart and lungs normal. In view of the excellent condition of the patient, he was operated on three days after admission. The papiloma with the normal surrounding tissue was excised and a sphincterotomy performed at vesical neck. Two days after operation the patient had the appearance of being toxic, drained only about 250 c.c. in more than twenty-four hours, in spite of forced liquids, infusions, etc., and before blood was taken for a blood urea test the patient died, three days after operation. We were unable to obtain necropsy, but

ADVANTAGES OF BLOOD UREA OVER URINE
UREA TEST

The advantages of blood urea over urine urea will become apparent from the study of Table 1, the principal advantages being as follows:

1. The great variation, which exists in the normal and leads to inaccurate interpretations, on which account it is difficult to determine when one is dealing with a borderline case.
2. The disappointing results produced by the quantitative estimate of this normal urinary constituent, because of the fact that the amount of these substances excreted depends not only on the functional activity of the kidney, but on the amount of these substances carried to the kidney for excretion.
3. The inability to obtain a correct and fairly accurate twenty-four hour specimen of urine.

From a study of a series of tables I have completed, of which only three have been included in this paper

TABLE 2.—RELATION OF BLOOD UREA TO URINE ANALYSIS IN OPERATIVE CASES

Case Number	Name	Diagnosis	Blood Urea Gm. per Liter of Blood				Intravenous Phenolsulphone- phthalein for Two Half-Hour Collections			Urine Urea Gm. per Diem, Doremus			Urine Examina- tion	Prognosis on Admis- sion	Operation
			Admission	Preoper. 1st	Preoper. 2d	Postoper.	Admission	Preoper.	Postoper.	Admission	Preoper.	Postoper.			
12	D. B.	Benign prostatic hypertrophy	1.7	...	...	...	Trace	....	....	..	..	..	Albumin —, red blood cells —, white blood cells —, organisms +, Albumin +, few pus cells	Grave	None
16	T. L.	Benign prostatic hypertrophy	0.78	0.45	0.45	0.41	35%	55%	....	20	..	..		Good	Perineal prostatectomy
18	W. O.	Benign prostatic hypertrophy	0.28	0.3	...	...	75%	....	....	25	..	..	Negative	Good	Suprapubic prostatectomy
5	A. E.	Malignant prostatic hypertrophy	2.6	3.4	...	...	None	None	....	..	..	..	Albumin —, white blood cells or red blood cells, specific gravity 1.002	Grave	No operation
37	M. M.	Benign prostatic hypertrophy	0.68	0.64	...	0.5	57%	58%	60%	..	..	..	Albumin +, few white blood cells	Good	Suprapubic prostatectomy
40	B. R.	Benign prostatic hypertrophy	0.6	0.6	...	...	55%	54%	....	18	..	..	Few white blood cells	Good	Suprapubic prostatectomy

with a preoperative normal blood urea and a suppression following operation, the cause of death seemed obvious. I regret very much that I did not have a blood urea test in this case, previous to the patient's death.

Seven other patients that were operated on died after a favorable prognosis was given based on the blood urea determination, but here in all the cases the cause of death was not a renal insufficiency, as will be apparent from the study of the accompanying cases. One died of a pulmonary edema following a perineal prostatectomy, a second of a streptococcus infection following a cystostomy for drainage, a third of a septicemia following a suprapubic prostatectomy, and a fourth of starvation, in which case the patient was of the demented type and, following operation, refused nourishment. A fifth died of pneumonia following a suprapubic cystostomy, a sixth died of pneumonic tuberculosis following a nephrectomy, and a seventh died of pulmonary embolism following a nephrectomy. Certainly a urologist cannot be blamed for the deaths of the foregoing seven patients, as these deaths could have occurred in any other operative cases.

for lack of space, it was observed that from the urine urea determinations certain patients would have been considered favorable surgical risks and others unfavorable surgical risks, best demonstrated in some of the cases of the accompanying tables.

CASE 2.—The patient whose case was of particular interest from this standpoint was B. C., a young man, aged 24, who developed a lobar pneumonia. During his convalescence, a partial suppression of urine set in, and the first four days after I saw him, he voided between 175 c.c. and 300 c.c. of urine in twenty four hours. His blood urea during these four days remained stationary, that is, from 1.44 to 1.45 gm. per liter of blood. A very grave prognosis was given. An intravenous phenolsulphonephthalein in this case showed only a trace of phenolsulphonephthalein for two, one-half hour collections. His urine urea remained fairly constant during these days, varying from 1.05 to 1.36 gm. per diem. There were albumin, casts, and red blood cells constantly in the urine with a specific gravity ranging from 1.008 to 1.014. Under forced fluid intake, on the fifth day, he excreted 1,250 c.c. of urine with a specific gravity of 1.010, a urine urea of 12.4 gm., and a blood urea of 2 gm. In spite of his increased urine urea, his blood urea increased. I gave a

very unfavorable prognosis. On the sixth day, his output increased to 3,500 c.c. with a specific gravity of 1.012, a urine urea of 35 gm., a phenolsulphonephthalein of 3 per cent., but a blood urea of 2.7 gm. On the seventh day, the urine urea increased to 38 gm., and the blood urea to 3.2 gm. In spite of the increase in the output of urine and the increase in urine urea, after his blood urea left the stationary point of 1.45 gm., the outcome of the case to me was obvious, and on the eighth day, with an output of 4,000 c.c. of urine with a specific gravity of 1.012, a urine urea of 40 gm. and a blood urea of 3.2 gm., the patient died of a toxic uremia and pyemia. During the last three days, his temperature ran very high with a high leukocyte count, and he had areas of tenderness in several parts of the body.

The discussion of this case is simple. Under the forced intake of fluids, the kidneys began excreting hypernormally, conveying with the excretion only a small quantity of solids; hence the low specific gravity.

sulphonephthalein to give a true status of conditions. This will become apparent from the study of Table 1. Here it is again observed that Cases 24, 25 and 31, from a standpoint of the phenolsulphonephthalein test, would have been poor operative risks, but from the blood urea determinations, operation was deemed advisable and the patients made uneventful recoveries. Vice versa, some cases had high or apparently normal phenolsulphonephthalein, but high blood ureas, and in each case the patient died before operation was undertaken. Fortunately, this has not occurred many times. In this manner many cases have been diagnosed as good operative risks and others diagnosed as poor operative risks, according to the blood urea examinations. When renal surgery is necessary, blood urea in itself is not sufficient. Here it may be employed only as a prognostic agent. For diagnosis,

TABLE 3.—BLOOD UREAS IN TWO-STAGE PROSTATECTOMIES

Case Number	Name	Diagnosis	Blood Urea Gm. per Liter of Blood				Intravenous Phenolsulphonephthalein for Two Half-Hour Collections			Urine Urea Gm. per Diem, Doremus			Urine Examination	Prognosis		Operation	Results	Remarks
			Admission	Preoper. 1st	Preoper. 2d	Postoper.	Admission	Preoper.	Postoper.	Admission	Preoper.	Postoper.		Admission	Pre-operative 2d			
23	L. M.	Benign prostatic hypertrophy	0.74	0.74	0.41	...	10%	*	*	21	25	..	Albumin + + +, few pus cells and organisms	Good	Good	Cystostomy	Died	Developed streptococcus infection
7	J. N.	Benign prostatic hypertrophy	0.9	0.9	0.46	0.4	40%	42%	50%	25	28	30	Albumin + +, few pus cells, red blood cells and organisms	Fair	Good	Cystostomy and suprapubic prostatectomy	Cured	
6	J. C.	Benign prostatic hypertrophy	1.2	0.76	0.6	...	32%	20%	....	20	..	..	Albumin +, few pus cells, casts	Grave	Fair	Cystostomy and suprapubic prostatectomy	Died	
2	C. M.	Benign prostatic hypertrophy	0.45	0.34	....	...	Trace	32%	....	..	..	..	Albumin +, red blood cells +, white blood cells +, casts +	....	....	Cystostomy and suprapubic prostatectomy	Cured	
38	G. N.	Benign prostatic hypertrophy	3.5	0.8	3.5	...	None	10%	....	..	10	..	Albumin + +, white blood cells +	Grave	Grave	Cystostomy	Died uremia	Drainage improved condition, but gradually developed uremia
41	A. W.	Benign prostatic hypertrophy Median Bar.	0.61	0.6	....	...	18%	...	....	..	..	..	Albumin + +, white blood cells +	....	....	Punch	Cured	

* Unable to obtain.

The liver in this case was unquestionably manufacturing an extra quantity of urea (Van Slyke¹⁶), which was being partially taken up by the kidney and excreted in the urine; hence the high urine urea. But with the increase in the manufacture of urea by the liver, the kidneys were excreting only part of it and the remainder of it was being stored up in the circulation; hence the increase in the blood urea and toxic condition of the patient. This is one of the types of uremia cases that I believe Foster¹⁷ classifies.

DIFFICULTIES OF PHENOLSULPHONEPHTHALEIN TEST

Every urologist, I am certain, has met with certain types of urologic conditions in which, on account of mechanical impossibilities, it was difficult for phenol-

it is absolutely essential to obtain relative renal function, and it is here that I believe the excretory tests, such as phenolsulphonephthalein, indigocarmin and urine area, are indispensable.

The presence or absence of albumin, pus and casts today does not play as important a rôle as it has in the past excepting where a renal or vesical lesion is suspected, and here it is ruled out by cystoscopy and catheterization of ureters, which is very essential. But for the presence of abnormal constituents in patients to be operated on for the prostate urethra, or bladder, I am certain that if other conditions are within normal limits, operation need not necessarily be delayed.

Other tables were completed, but are not to be presented in this paper for lack of space in which the blood urea phenolsulphonephthalein and urine urea practically all agreed, and from which sufficient data could be collected from the combination, enabling the urologist to proceed with the necessary operation with

16. Van Slyke, D. D.: Proc. Soc. Exper. Biol. and Med., 1913-1914, 15, 487.
17. Foster, N. B.: Uremia, THE JOURNAL A. M. A., Sept. 23, 1916, p. 927.

safety. This last class I may say, though, did not include more than 60 per cent. of the cases. In the other 40 per cent. of the cases there were disagreements in results of the tests, so that if phenolsulphonephthalein and urine urea had been depended on entirely, operation would have been performed, and our mortality rate would have been increased, as in most instances the patients developed uremia and died.

As a prognostic agent in genito-urinary surgery, I consider blood urea to be almost infallible, and from my results deduced in my many investigations, I can readily say that a favorable or unfavorable prognosis may be made, according to the amount of blood urea present at various times, only to be determined by the studying of a series of urea tests of the blood in each case.

TYPES OF OBSTRUCTIONS

In the series of 104 cases, there were eighty patients operated on and twenty-four not operated on. This included all the genito-urinary conditions, but the variations that existed were principally in the following classes of cases: (1) certain types of hypertrophied prostate; (2) large vesical calculi; (3) impassable strictures of the urethra; (4) stones in the ureter; (5) pyelitis; (6) suppression of urine; (7) large vesical neoplasms; (8) strictures of the vesical neck; (9) diverticula of the bladder, and (10) uremia.

A brief survey of the surgical pathology of each of the foregoing conditions will convince the reader that he is dealing with a mechanical obstruction in most cases. Therefore, there should exist a difference between the excretory and the retention tests, accuracy being detailed to the retention test, principally for the reason that the entire excretory function, be it phenolsulphonephthalein or urine, cannot be collected entirely through the medium of voiding or catheterization. In some cases, this is true of hypertrophied prostates, when some urine is retained in the bladder that the catheter does not remove, principally when there is a large median lobe, therefore the calculation is inaccurate; hence the reason for the wide discrepancy between this and the retention test. In large vesical calculi, large vesical neoplasms, and in some cases of diverticula of the bladder, the same condition exists; not all the urine can be collected, therefore, all the phenolsulphonephthalein is not collected. Here is a case of particular interest:

CASE 3.—H. W., aged 54, was admitted to the Mercy Hospital from a neurologic sanatorium to have a perineal prostatectomy done. The urethra of the patient was very sensitive, and in addition to his being demented, he refused a complete examination, allowing only a rectal examination. A large hard mass was felt which at the time was considered to be prostatic tissue. The urine examination revealed a normal specific gravity, a low twenty-four hour urine urea, a phenolsulphonephthalein test of only 5 per cent. for two half hour collections and a blood urea of 0.5 gm. In spite of the low phenolsulphonephthalein, a perineal prostatectomy was decided on. In fact the patient insisted on an operation through the perineal route. After the patient was anesthetized and a sound passed into the bladder, a definite click of a calculus was obtained. The urethra was opened through the perineum, the finger was inserted into the bladder, and a very large calculus was felt. On account of its large size, it could not be delivered through the urethra, and a suprapubic cystotomy was necessary. A stone weighing 9 ounces was removed. The patient did nicely for several days after the operation, but beginning on the fifth day following the operation, he refused to take nourishment. We forced feeding through tubes both rectally and by mouth, but in spite

of all this, he died on the twelfth day following operation. His blood urea before death was 0.5 gm., the same as before the operation. There is practically no discussion to this case, excepting that the phenolsulphonephthalein was low, due to the inability to collect all the urine which contained the phenolsulphonephthalein and not because it was not excreted.

In the cases of impassable strictures of the urethra and strictures of the vesical neck, here again all the urine is not voided or collected through a catheter, and again the phenolsulphonephthalein reading becomes inaccurate from the standpoint of dependability. In all the foregoing types of cases that I have mentioned, the phenolsulphonephthalein, probably in a large number of cases, was excreted, but not collected, the fault lying not in the excretion of the drug, but in the collection of it on account of the obstruction. Likewise, in the case of stones in the ureter, the kidney on the involved side is excreting the phenolsulphonephthalein, but on account of the obstruction all the urine is not passing by the calculus; hence inaccurate results again. In the cases of pyelitis, a different picture presents itself. Invariably, if not in all cases of pyelitis, we have an accompanying dilated pelvis which may have a capacity of from 10 to 200 c.c. Here again, if there has not been total destruction of the kidney, the urine or dyes, whatever they may be, are being excreted, but unless a ureteral catheter is inserted to withdraw the retained urine in the pelvis, accuracy cannot be obtained. This is best conveyed to the mind of the reader by the following case:

CASE 4 (No. 63).—B. C., aged 24, was admitted to Mercy Hospital with a complaint of urinary frequency. The urine examination revealed a very large quantity of albumin, pus cells, a few red blood cells, colon bacilli and staphylococci; a combined phenolsulphonephthalein of 26 per cent. was obtained for two half hour collections. The patient was cystoscoped, her ureters were catheterized, and many pus cells, colon bacilli and staphylococci were obtained from both sides. The pelvic capacity of each kidney was between 75 and 80 c.c. Both kidneys functioned with a continuous drop suggesting a hydronephrosis. The blood urea at this time was 0.6 gm. per liter of blood. The diagnosis of bilateral pyelitis of pregnancy was made. The pelvis of each kidney was irrigated with a 1 per cent. solution of silver nitrate. This procedure was carried out once a week for six treatments, and at the end of this time, the patient felt very much improved. A relative phenolsulphonephthalein test was obtained giving 35 per cent. output from the right kidney and 11 per cent. output from the left kidney, a total of 46 per cent. The blood urea at this time was 0.37 gm., showing a marked improvement. She left the hospital, returning for treatments. Two months later the patient was admitted to the hospital to be delivered. A combined phenolsulphonephthalein test gave only 21 per cent. output. A blood urea at this time was 0.48 gm. per liter. One week later the patient was delivered and made an uneventful recovery.

In discussing this case, it is obvious that with existing bilateral hydronephrosis, some of the urine was retained in the pelvis of each kidney, this being demonstrated at the time of each pelvic lavage. Keeping this point in mind together with the fact that when a relative phenolsulphonephthalein was given and collected by catheterization of the ureters, we find that an output of 46 per cent. was obtained. At the time of the patient's delivery her blood urea as stated was 0.48 gm., which is within normal limits, while her phenolsulphonephthalein was only 21 per cent., which is below the normal. This is undoubtedly due to the retention of phenolsulphonephthalein in the pelvis of each kidney, as a previous phenolsulphonephthalein of 46 per

cent. was obtained after its injection and collection by catheterization of the ureters. On both occasions, the blood urea was well within the normal limits.

The blood picture in all cases of pyelitis varies from the information obtained from phenolsulphonephthalein. The dye or urine for the hour or two of calculation is being excreted by the kidneys according to the extent of the lesion, but is partly retained in the pelvis of the kidney. The decrease of the output of phenolsulphonephthalein in these cases always exceeds in proportion the increase in the retention of urea. The only explanation that can be offered here is the theory of retention in the pelvis. In suppression of urine and its subsequent condition of uremia, we have two conditions which may be recognized sooner by a series of blood urea determinations than by any other test, simply on account of its being a retention test. On several occasions, an oncoming uremia was diagnosed in this way long before the information was obtained by the excretory tests.

As the cause of death in a large percentage of patients operated on for urologic condition is uremia, it is of utmost importance to the urologist and surgeon to diagnose this condition before the operation, thereby lowering materially his percentage of mortality; and it is here that blood urea excels all other tests as diagnostic and prognostic agents, if the method that I have employed is carried out and one remains within the boundary line of maximum retention of blood urea.

It has not been my intention in this paper to lead one to believe that I have discarded the use of other tests for diagnosis and prognosis, because I have clearly demonstrated in the paper that there are certain conditions that befall the genito-urinary tract, under which the other tests must be employed in addition to blood urea, to determine the true status of conditions. From the foregoing information I have been able to draw the following conclusions:

CONCLUSIONS

1. In blood urea we have a valuable retention test to be used in the diagnosis and prognosis of urologic cases.
2. It may be employed in all urologic cases without any special limits.
3. Blood urea as a prognostic agent in urology is practically infallible, if employed by the method I have described.
4. It is a simple procedure and may be used to advantage when the excretory tests such as phenolsulphonephthalein, urine urea, etc., cannot give the desired information.
5. When relative kidney function is desired, it should be used in conjunction with the excretory tests.
6. In a case with a blood urea of more than 1 gm. per liter of blood, the prognosis should be considered grave, and less than 0.75 gm. as good.
7. An oncoming uremia may be diagnosed long before the clinical signs make their appearance, and before the excretory tests can give the information.
8. Its employment will materially decrease the percentage of mortality held against the urologist or general surgeon.

330 North Charles Street.

Anesthetic Preferable in Shock.—Nitrous oxid and oxygen is the anesthetic of choice of men who have suffered from shock or serious hemorrhage.—*Review of War Surgery and Medicine.*

THE INFLUENZA EPIDEMIC IN CHICAGO

THE DISEASE AS A TYPE OF TOXEMIC SHOCK

ROBERT W. KEETON, M.S., M.D.

Instructor, Department of Pharmacology and Therapeutics, University of Illinois College of Medicine; House Physician, Cook County Hospital

AND

A. BEULAH CUSHMAN, M.D.

Instructor, Department of Ophthalmology, University of Illinois College of Medicine; Resident Physician, Cook County Hospital

CHICAGO

The following report is based on the cases of influenza admitted to Cook County Hospital, and on personal observations and experience in their treatment. We believe a careful statistical report of those cases is valuable for two reasons: First, it will serve to correct and amplify many opinions and conclusions which physicians dealing with a more limited set of cases have formed; second, it will aid in understanding some pre-epidemic obscure cases. For about eighteen months the term "atypical pneumonia" has been frequently used to designate cases which did not conform

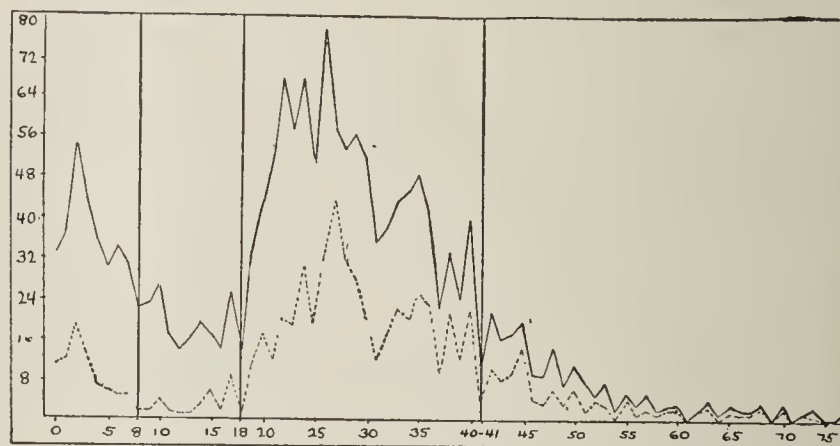


Chart 1.—Admissions and deaths with reference to age: solid line, admissions; broken line, deaths.

to textbook descriptions, but which have been increasing in numbers. Some of these cases made their appearance in the hospital over one year ago, and in the spring of 1918 constituted many of the so-called lobar pneumonias. They were admitted to the hospital and discharged under varying diagnoses, as bronchopneumonia, capillary bronchitis and epidemic mixed infections. We now know we have just passed through a period in which those more or less sporadic and obscure cases have grown into epidemic proportions.

Two previous reports have appeared from the Cook County Hospital, one¹ dealing with the etiology and pathology primarily, and another² with one of the complicating factors (pregnancy). The present work is based on a study of 1,735 completed records in which the patients have been discharged, either through death or recovery. These were drawn from all ages and included males and females living under conditions reproduced in all large cities throughout the country. From an epidemiologic point of view, the statistics should furnish valuable supplemental data to those being reported from the Army camps.

1. Nuzum, J. W.; Pilot, Isadore; Stangl, F. H., and Bonar, B. E.: Pandemic Influenza and Pneumonia in a Large Civil Hospital, *THE JOURNAL A. M. A.*, Nov. 9, 1918, p. 1562.

2. Woolston, W. J., and Conley, D. O.: Epidemic Pneumonia (Spanish Influenza) in Pregnancy, *THE JOURNAL A. M. A.*, Dec. 7, 1918, p. 1898.

ADMISSIONS

Because of the epidemic nature of the disease and the rather limited hospital facilities, instructions were issued to the county and examining physicians to accept for the hospital only patients that were really ill. Under such a working rule the final hospital diagnosis showed the distribution of cases to be 38.2 per cent. of influenza with or without bronchitis, and 61.8 per cent. of bronchopneumonia.

Age as influencing the incidence is shown by Chart 1, and it will be noted that the density of admission falls into two groups, one terminating with the eighth year, and the other lying between the eighteenth and fortieth years.

According to sex, the percentage of males was 59.2, and of females, 40.8.

This is rather interesting from an epidemiologic point of view. The male population was much reduced by the Army drafts. The floating population that frequents the saloon and cheap lodging house and is subjected to untoward conditions of life had been largely eliminated by the "work or fight" ruling.

The females did not remain at home in greater proportions, because the prostration of the class of cases accepted was such that they would have been a burden on the family, rather than an aid. It is safe to conclude, therefore, that males were affected in larger numbers than females. This may mean that because of their more frequent contact with each other in crowded streets and cars, the opportunity for infection was greater in the male than in the female.

MORTALITY

The total mortality reported by Nuzum and his collaborators¹ was 31 per cent. This was figured on the basis of the receiving office records of admissions, and the deaths for the corresponding number of days. Our data, taken from completed records of discharged cases, shows the slightly higher figures of 39.3 per cent.

Age.—Reference to Chart 1 again shows a close similarity between the number of admissions and deaths. From a casual glance one might conclude that this was the only factor concerned. The density of admissions falls into four groups as shown by the vertical lines bounded by 8, 18 and 41 years. The death rate for each of these groups was: to 8 years, 26.6 per cent.; from 8 to 18 years, 18.5; from 18 to 41 years, 44.7, and above 41 years, 52.7 per cent.

In the light of the frequent comment that the children and old people stand the influenza much better than adults, it will be noted that old age is not a period of good, but of poor prognosis, while the lower mortality of youth is confined primarily to the years between 8 and 18.

Sex.—In the series studied, the deaths of males were 38.9 per cent., and of females, 40 per cent.

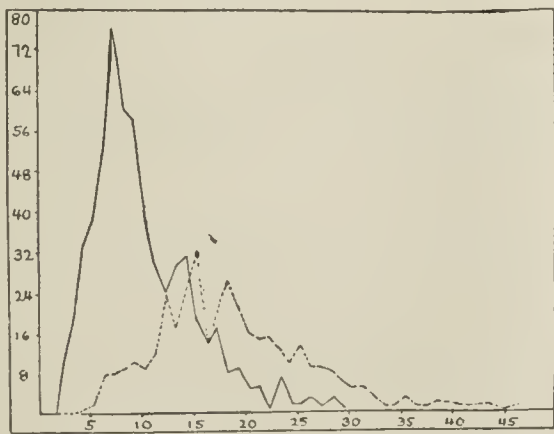


Chart 2.—Duration of bronchopneumonia from onset until discharge from the hospital by recovery, or until death: solid line, deaths from bronchopneumonia; broken line, recoveries.

Attention has been called by Woolston and Conley² to the unfavorable effect of pregnancy on the prognosis. Since their data include approximately 100 pregnant women, it would seem that a female suffering from influenza uncomplicated by pregnancy has a chance of recovery equal to that of a male.

DURATION OF DISEASE

When a physician has exhausted all the means of physical diagnosis in attempting to judge the prognosis of a case, he finally consults the chart for the duration of the disease, before offering an opinion as to the ultimate outcome. With this idea in mind, the durations of sickness in both influenza and bronchopneumonia have been studied.

In bronchopneumonia, death (Chart 2) occurs as early as the third day. The maximum number is on the eighth day, from which point the decrease is rapid, until the sixteenth day. The level then gradually sinks to the twenty-eighth day.

Recoveries began on the fourth day and lasted through thirty-three days, with the peak of the curve on the sixteenth day, and a maximum extending from the eleventh to the twenty-fourth day.

Deaths from influenza (Chart 3) were due frequently to an attack terminating a chronic process (as myocarditis, emphysema or cirrhosis of the liver) or developing in the course of pregnancy. Their number is too small to be significant.

Recoveries from influenza begin on the third day, the maximum period ending on the twentieth day, with the high point of the curve on the thirteenth day.

A period of further morbidity of from seven to fourteen days must be added before the patient was fit to resume his daily routine. It is safe to say that the economic loss in these severe cases amounted to from three to six weeks.

In a person ill with bronchopneumonia, the chances of recovery computed in terms of days of duration may be thus expressed: from four to eight days, 7 per cent.; eleven days, 19; fifteen days, 45; twenty days, 70 per cent.

DURATION IN THE HOSPITAL

The duration of the patient in the hospital before death is shown in Chart 4. The high percentage of deaths within from twenty-four to seventy-two hours after entrance indicates that their condition was already hopeless before entrance. Unquestionably the strain, discomfort and exposure associated with the transfer of many cases to the hospital not only reduced their chances of living, but hastened the impending end.

CLINICAL PICTURE

In examining the histories, we hoped first to establish those features of primary and secondary constancy, and finally those less frequent but still of great academic interest, in showing the protean manifestations of the disease.

The primarily constant features were asthenia amounting usually to prostration; headache; muscle

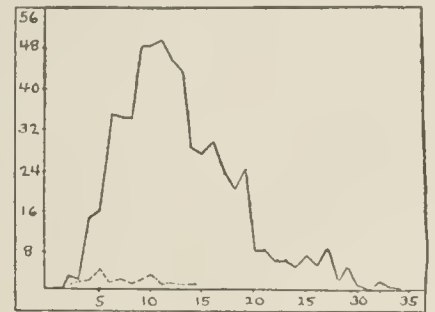


Chart 3.—Duration of influenza from onset until discharge from the hospital by recovery, or until death: solid line, influenza recoveries; broken line, deaths.

pains chiefly located in the sacral region or the extremities, and cough or other evidences or respiratory irritation.

Those of secondary constancy were hemorrhages of some form: epistaxis, hemoptysis, which at times amounted to a pulmonary hemorrhage; bleeding from the gums; hematemesis; menorrhagia; metorrhagia, and hematuria; sore throat, not always a definite soreness, more frequently a dryness and irritation in the nose and throat, which presented on examination a dry, glairy, beefy red color; hoarseness; nasal discharge in infants; nausea and vomiting; cyanosis in adults, and pallor in children.

Less frequently there occurred pleuritic pain at the onset; abdominal pain; diarrhea; urinary retention; erythemas of various types, and deafness.

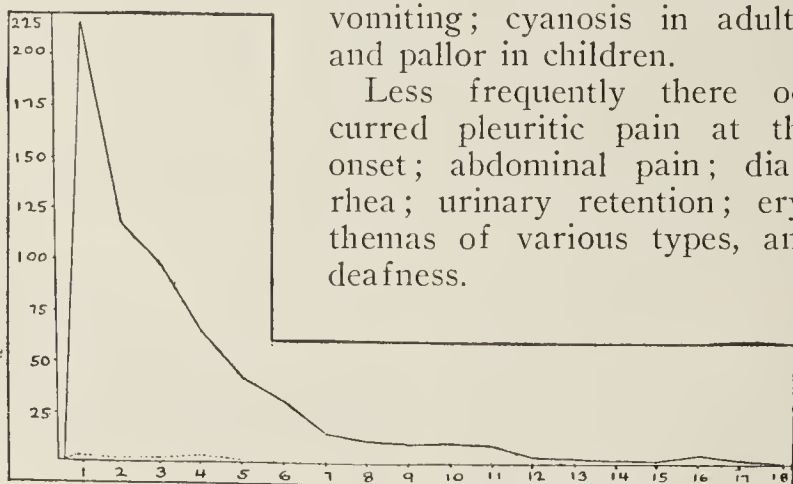


Chart 4.—Daily distribution of deaths with reference to the length of time in the hospital: solid line, bronchopneumonia; broken line, influenza.

The spleen was reported enlarged in only a very few cases. This may have been due to faulty observations, but we are inclined to think it a rather inconstant feature.

The onset was usually insidious, as outlined above. Less frequently it was so stormy that the patient could present with exact accuracy the details of its progress.

Blood Counts.—The exact relation of leukopenia to the disease is not clear in the textbooks. The physician busy with his daily practice has no data from which to formulate an expression of opinion. Our records showed 688 counts, of which an appreciable number were on the same patient on succeeding days. They were studied with reference to the duration of the disease, diagnosis of the cases, and the ultimate outcome as to life or death. The results are to be found in the accompanying table. The counts were tabulated for the day of sickness, and the percentages were computed from the number of counts on this day. The normal count was placed at from 7,000 to 9,000.

Influenza has a high (46.6) percentage of leukopenia in the early stages. With improvement, 24.3 per cent. of the counts were raised into a leukocytosis. During the whole period, more than half (62.2 per cent.) maintained a leukocytosis. The ranges of this leukocytosis lay between 9,000 and 15,000. Such an increase in the white count must be regarded as a favorable sign.

Bronchopneumonia.—In patients dying, the early counts (four days) showed a 50.1 per cent. leukopenia. If now the total counts in the normal and leukopenia column are contrasted in those recovering (53.7 per cent.) and those dying (65.4 per cent.), it will be seen that a balance of 11.7 per cent. exists in favor of the recoveries. Despite the occurrence of death, 22.3 per cent. of the counts were raised from a leukopenia or normal into a leukocytosis. The total average for the

period showed no significant result. The lowest count was 900.

In patients recovering, the evident tendency to leukocytosis is shown throughout the course. This fact is more clearly seen when the succeeding counts are examined. The range of leukocytosis was found to be somewhat higher in this class of cases (from 15,000 to 20,000).

It may be concluded that even in the early stages of bronchopneumonia, a leukopenia points to a bad prognosis, and a maintenance of a low count cannot be looked on as other than a very serious symptom. In a few instances a drop was actually noted in the count on the day preceding death. This raises the question of the mechanism of the leukopenia. If it is a toxin that is stimulating negatively the hematopoietic organs, then the leukopenia in the milder cases may be taken to mean a persistence of unneutralized toxins. Crile³ has called attention to a leukopenia as a diagnostic point in surgical shock. On such a basis, leukopenia developing terminally may be an expression of the more profound toxic shock into which the patient is sinking.

Blood Pressure.—The blood pressures were taken in selected cases, one group presenting cyanosis with and without pulmonary edema, and another group with a high temperature presenting profound toxemia, but with no evidence of cardiovascular break.

Cyanosis is not an evidence of low blood pressure and does not bear any constant relation to it. Thus systolic pressures of 70, 85, 98 and 98 were recorded in patients who had no cyanosis. Even in the presence of pulmonary edema the pressure may be well maintained. Our records show pressures below 100 in sixteen cases, the majority of these being in the nineties; between 110 and 100 in eight cases, and above 110 in thirty-three cases. In fact, one is again impressed that a patient may maintain an apparently efficient blood pressure in the presence of a definite toxic shock

BLOOD COUNTS

Duration	Leukocytosis	Normal	Leukopenia
Influenza, recoveries:			
Preceding maximum recoveries 5 days..	28.7	24.7	46.6
Maximum recovery period 6 to 18 days..	41.1	29.3	29.6
Total period	37.5	32.4	30.1
Bronchopneumonia, recoveries:			
Preceding maximum recoveries 6 days..	46.3	24.4	29.3
Maximum recoveries 7 to 18 days.....	70.6	11.3	18.1
Total for 18 days.....	62.2	16.1	21.6
Bronchopneumonia, deaths:			
Preceding maximum death period 4 days..	34.6	15.3	50.1
Maximum death period 5 to 18 days.....	56.9	8.2	34.9
Total for 18 days.....	41.3	13.5	45.2

or at least on the verge of such condition, and that the blood pressure is of little value in determining the breaking point of the cardiovascular system.

COMPLICATIONS

We shall enumerate rather briefly some complications encountered, and speak in detail of one of the more unusual findings.

Bronchopneumonia.—This may be considered as either the subject under discussion or its most important complication. The fact that these pneumonic areas were at the onset usually centrally located explains the

3. Crile, G. W.: Hemorrhage and Transfusion, New York, 1909, p. 75.

absence of pleuritic pain in the early stages of the disease. It was not until an extension of the consolidation involved the pleura that either pain or an effusion developed. The rather constant finding of fluid as reported by Nuzum and collaborators¹ in those patients dying early is simply an expression of the rapidity of the process. In our series, only twenty cases of pleuritic effusions were diagnosed and confirmed by paracentesis. Five of these patients later developed pus, and one a pyopneumothorax. In six other patients now convalescent, a diagnosis of thickened pleura has been verified by the fluoroscope and plates. It would seem, then, that the great majority run their courses without having the pneumonic process so situated as to involve the pleura.

Otitis Media.—This, the next most frequent complication, occurred in eighty cases.

Mastoiditis.—Three cases developed, one of which was associated with facial nerve paralysis terminating fatally. Two patients recovered.

Parotitis.—There were six cases, suppuration developing in one.

Meningismus.—Nineteen cases presented all the signs of meningeal irritation. The spinal fluid was negative except for the increased pressure.

Meningitis.—There was one case in which gram-positive cocci were present in the fluid. The patient died.

Ulcerative Stomatitis.—There was one case with death.

Cervical Adenitis.—There were two cases.

Peritonsillar Abscess, Disease of the Antrum, and Osteomyelitis of the Femur.—Of each of these there was one case.

Surgical Emphysema.—There was one case involving the neck tissues of undetermined etiology.

Diseases of the Heart.—Myocarditis with decompensation and recovery occurred in only one case. The unfavorable effect of the disease on previously established heart lesions was to be expected. Of twenty such patients, only three who were suffering from a mild influenza recovered.

Superficial Infections.—Small abscesses involving scalp, nose, axilla and sacral regions were noted. A tendency to development of bedsores was evident. The tip of the ear sloughed off following a puncture for a blood count in one case.

Psychoses.—The exact data involving the number of postinfluenzal psychoses from our series of cases is not available. Dr. F. M. Fowler states that there were thirty-three admissions to female wards of the psychopathic division of the hospital; the onset was from three to five days after an apparently established convalescence from a bronchopneumonia; the mortality was 15 per cent., and the duration was from twelve to fifteen days.

Acute Laryngeal Obstruction.—Of this there were six cases, in patients aged, respectively, 1 year, and 1½, 2, 4, 6 and 50 years. The condition developed in four cases at the height of the disease, in one case in convalescence, and in one case ten days after discharge. The symptoms were those of a typical obstruction: cyanosis, laryngeal stridor, retraction of the episternal notch and xiphoid process; and nonproductive and irritative cough, immediately relieved by intubation. Cultures from the throats, and intubation tubes were negative for diphtheria. Antitoxin was given in two of the

first cases. Tracheotomy had to be performed eventually in all of the cases. From the tubes, large amounts of pus and serosanguineous mucus was obtained. Pathologic examination revealed an intense tracheobronchitis extending upward, involving the larynx with consequent edema. Death resulted in from eight to seventy-two hours in five of the cases. One patient survived and is still in the hospital.

DIAGNOSTIC DIFFICULTIES

Since the influenza cases were entered and handled through the contagious branch of the hospital, the problem of an accurate diagnosis carried with it a greater element of urgency than in most medical cases.

At the onset, typhoid was diagnosed in three cases that later proved to be influenza. Another case was seen by several of the attending men, who were divided in their opinions between miliary tuberculosis and influenza. Roentgenograms favored influenza. The outcome with recovery and the development of a complicating antrum established the diagnosis.

In fifteen cases these questions arose: Is it a pulmonary tuberculosis, on which an influenzal infection has been grafted? Is it a pneumonic phthisis? Is it a rapidly advancing tuberculosis without appreciable consolidations? In one of these fifteen cases the patient, a lad of 17 years, entered the hospital with a syndrome that made a diagnosis impossible. Roentgenograms of the chest furnished no conclusive evidence. Two blood cultures were positive for a staphylococcus. Improvement followed for a while; then a reappearance of the symptoms occurred. At this time the chest plates showed an unmistakable miliary tuberculosis. Meningitis terminated the course. Evidently an influenza had lighted up a healed or latent tuberculosis.

Lobar pneumonia was still being handled in the medical wards of the general hospital. Under what conditions were cases to be continued in medical wards as lobar pneumonia? With consolidation evident and a leukocytosis present, all cases presenting a history of sudden onset with chill and pleuritic pain were retained in medical wards as lobar pneumonia. The nasal discharge in the children resembled nasal diphtheria, while the erythemas were quite suggestive of scarlet fever.

Theoretically, pertussis in children and smallpox in adults before the appearance of skin eruptions might be mistaken for influenza.

TREATMENT

Before one can satisfy oneself that therapy is directed along rational lines, one must appreciate the mechanism of the perversion of the physiologic processes. Every one appreciated that in those dying, failure to continue life must be attributed to the exhaustion of the cardiovascular system. The cyanosis, the pulmonary edema, the weak second pulmonic sound, the enlarged, tender liver, increasing dyspnea, and the low blood pressure in certain cases were all evidence that the toxins were destroying the one vital function, the circulation.

During the past four years under the guidance of the Medical Research Committee of this country and Great Britain, the phenomena of shock have been clarified. The views as to its nature and the literature are completely given in two readily available articles by the

British Medical Research Committee⁴ and by Cannon.⁵ Briefly, shock may be precipitated by three classes of agents: surgery, trauma and toxins; but minor variations may exist in the picture, depending on the etiologic agent. Cannon speaks of shock as an "exemia." The blood pressure is a resultant of heart action, vasomotor control and blood volume. That the first two factors are not at fault has been abundantly demonstrated. The evidence for this view is stated by Mann.⁶ That the blood volume factor is the important thing in surgical and traumatic shock has been shown by Cannon, and more recently by Mann.⁷ Guthrie,⁸ in studying one form of surgical shock, induced by excessive stimulation of nerves, was unable to confirm the results of other investigations that the quantity of blood fluid is reduced in the capillaries. On the contrary, he found some evidence of entrance of liquid into the blood. The rather difficult task experienced by other workers in inducing shock by this procedure raises the question of its identity as compared to that induced by other methods. Some difference of opinion exists as to whether this loss of blood from the available circulation is due to its accumulation in the veins or whether it has been lost by outflow into the tissues and lymph spaces through the capillary walls. The latter is the more probable view.

Dale and Laidlow⁴ produced shock by the use of histamin, which is the amin of histidin, one of the building stones of the protein molecule. The conversion of amino-acids into amins is distinctly a type of bacterial activity, and can be reproduced in vitro. We may regard, therefore, that the toxins at work are akin in their activities to histamin. It was shown that at the low point of the blood pressure practically 50 per cent. of the blood plasma had been lost in the capillary region. The secondary results of this are slowing of the blood stream through the increased viscosity, and poor oxygenation of the tissues. Poor oxygenation of the tissues terminates in a condition of acidosis, through the accumulation of intermediate split products. The acidosis affects unfavorably the permeability of the capillary walls. The situation, then, is transudation of the plasma under the influence of the bacterial toxins, slowing of the blood, greater tax on the heart and vascular system, poor oxygenation, acidosis, more transudation, and so on ad infinitum.

Granted a severe infection, the problems of treatment are the prevention as far as possible of the shock state, and the treatment of the established state.

The one element in prevention that lends itself to ready therapeutic application is a dilution of the toxins. Those patients who were evidently prostrated, but were not in a shock state, and in whom sufficient nursing care was available, showed improvement, when fluids, in maximal quantities, were given. These were given by mouth, discontinuous rectal administration by the drip method, and hypodermoclysis. The rationale of the use of the alkalis had not appealed to us; so while we used them in this stage, we believe that the concentrations used were too small to show results. When shock developed, treatment was of little or no avail,

but we wish to record certain measures which we feel may be of distinct harm.

Venesection.—In the cyanotic cases, some of the attending men believed that a venesection should be performed, followed by hypodermoclysis. This was advocated with the idea that a certain amount of toxin would be mechanically removed, and that probably relief might be furnished to the heart; so the parting word of advice given by them was to go carefully on the amount of fluids returned to the body. Theoretically the method should be valuable in removing some of the toxins; but instead of relieving the heart, it was only adding to its burden. For the heart was failing not because of excessive peripheral resistance but because there was not enough blood on which it might contract and maintain its coronary circulation. Venesection was performed in fourteen cases. Thirteen of the patients died, and the fourteenth is now suffering from a rather serious psychosis. One died during the operation, and in at least three others the condition was so changed that death occurred in an hour's time. This is exactly in line with the experience reported by those dealing with surgical shock, that even a small hemorrhage reduces the patient's chances of recovery.

Administration of fluids in this stage is difficult. By intravenous injection and hypodermoclysis the fluid may be introduced into the circulation, but it leaks out immediately through the capillaries. Rectal absorption fails in many cases. The water is expelled or distends the patient, adding to his difficulties.

Glucose Administration.—A series of cases has been reported by Litchfield¹⁰ in which the patients were treated by intravenous injections of hypertonic glucose solution. In this work an occasional reaction was reported in which high temperatures with chill occurred. We gave a 10 per cent. glucose solution in two cases, and in each the temperature rose from a level which was only moderate to 107, and death followed in five hours. We were rather discouraged, for frankly at the time that the solution was given to one patient we felt that she had a chance of recovery by the more conservative methods of treatment. That such injections, even when practiced in a number of cases sufficiently large to rule out these so-called accidents, may be harmful is indicated by the findings of Mann⁷ in a recent piece of work. He produced shock by tying off the venous return from the leg of an animal and allowing the arterial supply to remain intact. The animals went into shock after varying periods. If, now the ligatures were removed, the shock deepened instead of improving, his interpretation was that in the period of ischemia there had been formed certain products which, when thrown back into the circulation, were contributory factors in maintaining the shock. It is just possible that the glucose may wash into the efficient circulation a sufficient dose of toxic metabolites to act very injuriously.

Digitalis and atropin seemed to be the most efficient of the drugs used. The indications for digitalis would seem to lie in its action on the heart and in its power of transferring the blood from the venous to the arterial side.

Atropin relieved many patients of their cyanosis, and, we believed, increased the chances of recovery in those patients in whom it was used. The beneficial effect of atropin in large doses as shown in the epi-

4. Memorandum, British Medical Research Committee, Brit. Med. Jour., March 24, 1917.

5. Cannon, W. B.: A Consideration of the Nature of Wound Shock, THE JOURNAL A. M. A., March 2, 1918, p. 611.

6. Mann, F. C.: Bull. Johns Hopkins Hosp., 1914, 25, 205.

7. Mann, F. C.: Am. Jour. Physiol., 1918, 47, 231.

8. Guthrie, C. C.: The Blood in Shock, Arch. Int. Med., July, 1918, p. 1.

10. Litchfield, Lawrence: Glucose Intravenously as a Therapeutic Measure, THE JOURNAL A. M. A., Aug. 17, 1918, p. 503.

demic at Great Lakes Naval Training Station has been reported by Ridge.¹¹ The only suggestion we have for its apparent value over pituitary solution lies in the well known experiment of Auer¹² in which he showed that atropin prevents death in guinea-pigs subjected to an anaphylactic shock by preventing the stenosis of the bronchioles. The cyanosis may be due to moderate narrowing of the bronchioles already filled with mucous secretion. That it is of value in beginning pulmonary edema is a matter of clinical experience. If it has an action on the permeability of the capillaries of the lungs, stopping the outward flow of fluid from the blood, it is no great stretch of analogy to transfer the same line of reasoning to all of the tissue capillaries of the body. Hence, it may be regarded as a drug that is acting at the site in which the perversion of the physiologic processes is occurring. In grosser terminology, it might be said to have more or less "specific" action in this class of cases.

CONCLUSIONS

1. The blood count early in influenza may show a leukopenia or normal count in over 50 per cent. of the cases, but with recovery this is changed to a leukocytosis of from 9,000 to 15,000.

2. The blood count in bronchopneumonia, in those recovering, shows early a very transient period of leukopenia; in those dying, a much higher percentage of leukopenias is found and a greater tendency to its persistence. A normal count or a leukocytosis may be changed to a terminal leukopenia in fatal cases. The range of leukocytosis lies between 15,000 and 20,000.

3. The blood pressure is no index of the state of the cardiovascular mechanism. Cyanosis bears no constant relation to blood pressure.

4. In the acute cases the patients are really suffering from a toxemic shock.

11. Ridge: Bull. Chicago Med. Soc., Oct. 12, 1918, p. 20.

12. Auer: Am. Jour. Physiol., 1910, **26**, 439.

Health in City and Country.—Commenting on and attempting to give reasons for the somewhat better showing of city men over country men in the recent military draft examinations, Dr. L. D. Bristol, state health commissioner of Maine, in an address before the Massachusetts School for Health Officers (May, 1918) thus summarizes the essentials of public health administration in rural districts: (1) a thorough study of rural sociology in general; (2) a special study of rural sociology based on the economic interests of the state in question; (3) public health education in rural districts leading to a definite demand for, and financial support of, an adequate local health organization; such education should be carried on by (a) the state department of health; (b) the rural schools; (c) the agricultural colleges. The latter should give required courses in hygiene and public health under the direction of thoroughly competent sanitarians, and should educate the rural population through extension courses in order to develop rural public health leadership. (4) As soon as possible, the establishment of health unions made up of two or more towns, for the employment of union health officers and nurses, who, in some manner, should be responsible to the state health organization. Towns or cities over a certain population which desire to employ their own full-time health officer should be exempt from the union plan. (5) The extension of all laboratory facilities for the state department of health so that through branch laboratories the rural districts might have close at hand all of the advantages of modern diagnostic and prophylactic methods. (6) Extension of federal and state financial aid until such time as the local rural community can assume the entire financial responsibility.—*Bulletin of the State Department of Health of Maine.*

POSTCILIARY SCLERAL TREPHINING FOR ACUTE GLAUCOMA *

A. E. EWING, M.D.

ST. LOUIS

As the several procedures in the case reported below have resulted in a blind eye, the material is offered only as a study in the intricate problem of glaucoma.

REPORT OF CASE

A healthy unmarried woman, aged 57, during the course of a sty two weeks before I saw her, noticed that her right pupil was large and that the vision was not so good as formerly. Since then she had been using physostigmin (eserin), prescribed by a physician, without relief.

July 18, 1917, in the left eye the tension as determined by the Schiötz tonometer was 20, and the vision $\frac{20}{20}$ with correction 1.75 spheric. There was a large, old retinochoroidal atrophic spot in the lower nasal portion of the fundus. The field was normal. In the right eye the tension with the Schiötz tonometer was 57, and the vision $\frac{8}{150}$. The cornea was steamy over the central portion. The pupil was 6 mm. in diameter. There was a shallow anterior chamber. Only a dim view could be obtained of the disk and vessels. There was a small, old retinochoroidal atrophic spot in the lower nasal portion of the fundus, and a larger one in the temporal portion of the fundus. The field was practically confined to the temporal half, and in this half was greatly restricted.

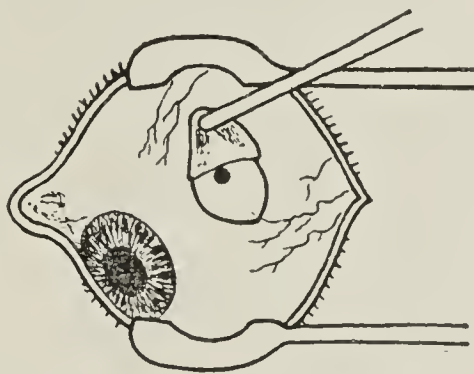


Fig. 1.—Postciliary scleral trephining for acute glaucoma: Location of the wound in the neutral region, midway between the superior and the external rectus muscles.

With the aid of physostigmin and pilocarpin the cornea and media cleared to the extent that arterial pulsation on the disk was readily observed and there was marked cupping of the disk, which seemed to be physiologic. Also the vision rose to $\frac{20}{60}$, but the pupil remained wide, 6 mm. in diameter, under repeated instillations of physostigmin. The nasal examination by Dr. Sluder showed a general

chronic atrophic rhinitis of low grade. The blood pressure was 140, systolic.

July 25, as there was no evidence of permanent improvement, a postciliary scleral trephining was performed in the upper temporal portion of the globe 7 mm. from the corneal margin, the operation being one that has already been described,¹ a diagram of which is here reproduced (Fig. 1). In this procedure the eye is first anesthetized with holocain, 1 per cent., and cocain, 5 per cent., and a minim of 1 per cent. cocain solution is then injected hypodermically at the site of the intended opening in the sclera. After from three to five minutes an 8 to 10 mm. conjunctival flap is raised from below and the wound is located at the center of the base of this flap, which is placed preferably in the neutral region, either between the external rectus and the superior rectus, or between the external rectus and the inferior rectus muscles. The flap may be dissected from the sclera over its whole area, or the conjunctiva may be dissected to Tenon's fascia only as far as to the base of the flap, and here with scissors it may be cut through the fascia to the sclera at the site of the wound to be trephined. It has seemed that better drainage was obtained by the last method.

In this particular case the entire flap was dissected through to the sclera, and with a 2 mm. trephine the sclera was then

* Read before the Section on Ophthalmology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Ewing, A. E.: Am. Jour. Ophth., July, 1917.

trephined through the choroid, 7 mm. from the corneal margin. This membrane bulged into the wound but did not rupture. The conjunctival flap was then replaced by means of a suture at the apex, and the eye was cleansed with physiologic sodium chlorid solution and bandaged. Following the operation there was no appreciable reduction in the tension, as determined by palpation with the fingers. The operation was practically painless, and there was no subsequent pain. At the time of the first dressing, forty-eight hours later, the globe was very quiet, the cornea clearer than at the time of the operation, the pupil round and central and 7.5 mm. wide, there was a good reflex from all portions of the fundus; there were no details. Vision was reduced to fingers at 1 foot, eccentric to the right. There was no appreciable change in the tension of the globe, but the patient remarked that the eye was "more comfortable than it had been in three weeks," because it had felt as if the globe was "too large for the socket." This discomfort had ceased. Under the constant use of physostigmin, 0.5 per cent., the vision returned to $\frac{20}{60}$, eccentric to the right, during the succeeding four weeks, and the field was somewhat reduced in size. There was marked protrusion of the conjunctiva over the trephined area, and the opening in the sclera was readily seen through the conjunctiva and shown to be clear by transmitted light.

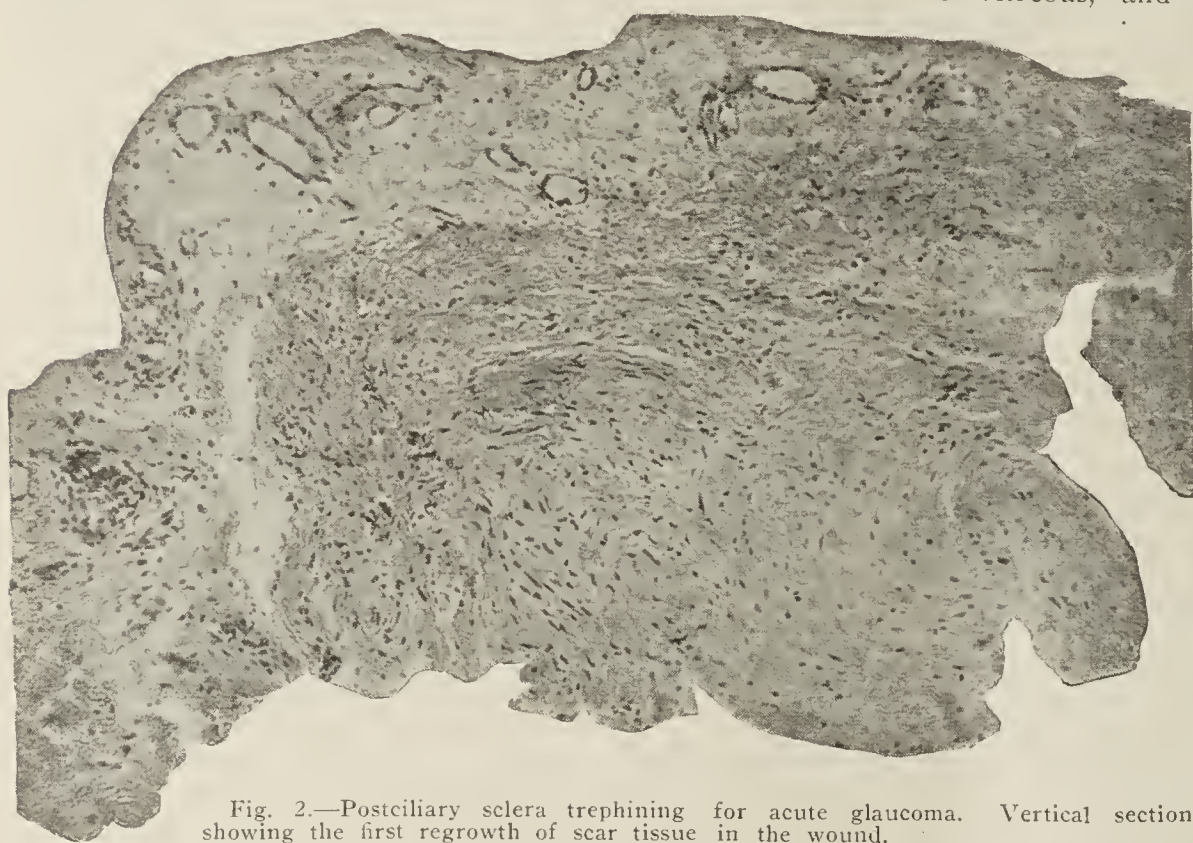


Fig. 2.—Postciliary sclera trephining for acute glaucoma. Vertical section, showing the first regrowth of scar tissue in the wound.

September 19, the tension was 60 mm. of mercury by the Schiötz tonometer. September 24 it was 55; there was no discomfort; the media were clear; there was marked arterial pulsation on the disk. Vision was $\frac{20}{120}$, eccentric to the right.

September 25, I raised a conjunctival flap over the trephined area and discovered that the apparent protrusion of the conjunctiva, which I supposed was a delicate cystic scar, actually consisted of dense tissue formed from the sclera, a vertical section of which is shown in Figure 2. It was removed by means of a Graefe knife on the flat in the plane of the sclera. It did not seem to be connected with the choroid, which was later slit open by the knife on the flat, also in a plane with the sclera, and this incision in the choroid was followed by three large drops of vitreous, which were removed in succession with the spatula until it ceased of itself to flow. This left the globe very soft.

September 26, the globe was soft; the media were clear; there was no arterial pulsation on the disk; there was a small, diffuse, nearly central retinal hemorrhage. Vision was fingers at 4 feet. The pupil was 6 mm. in diameter, not affected by physostigmin. During the following few days other small peripheral hemorrhages appeared in the retina and several minute adhesions of the pupillary margin to the

lens became evident, yet there was no other indication of iritis and no cyclitis.

October 3, vision was $\frac{20}{40}$, eccentric. Tension by the Schiötz tonometer was 9. The media were clear. There was no arterial pulsation on the disk. The globe was quiet. There was no tenderness on pressure.

Now follows the extremely interesting part of this experience, and it demonstrates that acute glaucoma is not cured by direct loss of vitreous. Also it demonstrates that glaucoma is dependent on the drainage of the aqueous, and that this drainage may be by way of the vitreous, provided it could be sufficiently maintained by this route.

October 5, the vision of the right eye was motion of the hand at 6 inches. Tension by the Schiötz tonometer was 51. The fundus details were very indistinct. Following the employment of physostigmin salicylate, 1:240, twice during the next three hours, vision became $\frac{20}{150}$, and the media became sufficiently clear to detect marked arterial pulsation. This pulsation ceased after massage of the globe over the wound, the eyelids being closed, but without further improvement in the vision.

October 7, vision was $\frac{5}{150}$. The globe was hard, and there was marked conjunctival protrusion at the site of the wound. Incision through this was followed by a free flow of aqueous, no vitreous, and reduction of tension to below normal.

October 9, vision was $\frac{10}{38}$. There was no arterial pulsation on the disk, and there were no new hemorrhages.

October 10, the patient reported an uncomfortable night. The eye was painful, the globe hard, the disk blurred; there was a mere outline of the vessels. Vision was $\frac{3}{60}$. The conjunctiva was distended at the site of the wound. I incised the distended bleb with a sickle needle. One hour later, vision was $\frac{10}{48}$, the media were clear; there was a clear view of the disk and vessels. There was no arterial pulsation, the globe was soft, and there were no fresh hemorrhages.

October 11 and 12, vision was $\frac{10}{38}$, the media were clear, and there was no arterial pulsation.

October 13, the patient felt severe pain for several hours. Tension was high. The disk was blurred. Vision was $\frac{5}{75}$. The conjunctiva at the site of the wound was distended. Following incision there was free discharge of aqueous, no vitreous, and immediate relief from pain. Half an hour later, the media were clear. There were no new hemorrhages.

Vision was $\frac{10}{38}$.

October 15 the condition was similar. Incision was made with similar results.

October 17, vision was $\frac{1}{192}$. Tension was high. The disk was indistinct. There was subconjunctival evacuation of aqueous from the site of the wound. Ten minutes later the tension was below normal. The media were clear. Vision was $\frac{10}{48}$.

October 18 there was similar refilling of the globe. Incision was made with similar results.

October 22 and 23 there were repetitions of this.

October 29, vision was $\frac{10}{192}$. I repeated the scleral trephining after partially elevating a thin conjunctival flap. The globe was quiet except in the region of the wound, where there was moderate conjunctival infiltration. On this account the dissection of the flap was difficult, as the conjunctiva was very friable. Following the removal of the trephined "button," there was a free flow of aqueous, no vitreous; suture was omitted. A reproduction of a vertical section through this trephined "button" is shown in Figure 3, and again demonstrates a firm fibrous scar.

November 1, vision was $\frac{10}{38}$. Tension was normal. The media were clear. There was no arterial pulsation on the disk. There were no new hemorrhages.

November 7 the field was telescopic. Vision was $10/120$. There was marked arterial pulsation. The media were clear. The conjunctiva over the wound was distended. Immediately following incision, the vision was $10/60$.

After this, as the media remained clear, although the arterial pulsation on the disk returned, pilocarpin and physostigmin and massage were relied on for controlling the pulsation, which usually ceased temporarily with their employment.

Jan. 9, 1918, vision was reduced to hand movements at 1 foot. There was nothing to account for this change except the continued increased tension. The media were clear, there was arterial pulsation on the disk, and the globe was entirely quiet.

January 12, postciliary scleral trephining was performed with a 2.5 mm. trephine in the upper nasal portion of the globe. The scleral "button" split from the deeper portion of the sclera just as the choroid was approached. The remaining sclera was teased through to the choroid without rupture of the choroid over a space 1.5 mm. in diameter. The conjunctival flap was replaced by suture. There was no apparent relief to the tension. No pain followed the operation.

January 16, vision was 0. The media were clear, the globe quiet, there was moderate arterial pulsation, tension was as before operation, there was no choroidal reaction, and the eye was entirely comfortable.

February 23, although the globe was entirely quiet and comfortable, an incision was made in the wound first trephined to demonstrate whether any vision might return after so long an interval of blindness. The media were clear. There was moderate arterial pulsation on the disk. Tension by the Schiötz tonometer was 54. This incision was made first through the conjunctiva and then through a firm tissue protruding from the scleral wound. There was a free flow of aqueous, but no vitreous. Arterial pulsation on the disk ceased immediately. For the first time in this series of tappings of the globe there was a slight flow of dark pigmented fluid from the wound into the lower portion of the vitreous. This seemed to be a serous fluid stained with hematin or with pigment from the choroid or retina. It ceased immediately. Four hours later the arterial pulsation had become reestablished. There was no return of vision.

March 2, the globe was entirely quiet and comfortable, the pupil 6 mm. in diameter, the media clear, arterial pulsation on the disk, a small hemorrhage of the retina below the disk, a little floating exudate in the vitreous, and moderate conjunctival distention at the site of each trephined wound.

March 8, the fundus was quiet, the media clear, the globe entirely quiet and comfortable, the pupil 6 mm. wide, slight consensual response of pupil to light. Tension by the Schiötz tonometer 70, which was 13 mm. higher than before the several operations, moderate arterial pulsation on the disk, no change in the cupping of the disk, and the globe entirely quiet and comfortable. No medicines had been used during the last two weeks.

COMMENT

The case has ended unfavorably, and is unfavorable to this mode of treatment for acute glaucoma, if the condemnation of such treatment in the future is to be based on the result from one case. In my own hands cases just as favorable for operation, and even more favorable, have ended in the same way by methods considered generally as the best for glaucoma operations, namely, the iridectomy of von Graefe and sclerocorneal trephining. The experience here indicates that safety in glaucoma depends on the drainage. If drainage can be obtained by this method, it is safest of them all, because there is no danger to the lens.

The several procedures in the case demonstrate that:

1. The removal of vitreous in such quantity that the tension of the eye is far below normal is no more a cure for glaucoma than is the removal of the lens.

2. Drainage may be established by way of the vitreous chamber

3. A trephined wound in the sclera is closed by newly formed fibrous tissue, in the same manner as a trephined wound at the sclerocorneal margin.

4. A trephined wound of the sclera in glaucoma is not a more dangerous wound than a wound in the sclerocorneal margin.

5. The clouding of the cornea and the vitreous, and the arterial glaucomatous pulsation on the disk, may be instantly relieved by drainage from the vitreous, with immediate restoration of vision.

6. The "full feeling" and the pain of acute glaucoma are relieved by sclerocorneal trephining, even though the choroid is not disturbed and there is no apparent lowering of the tension.

7. The lens is not affected by the operation.

8. Miotics are of as great value following the operation as before the operation.

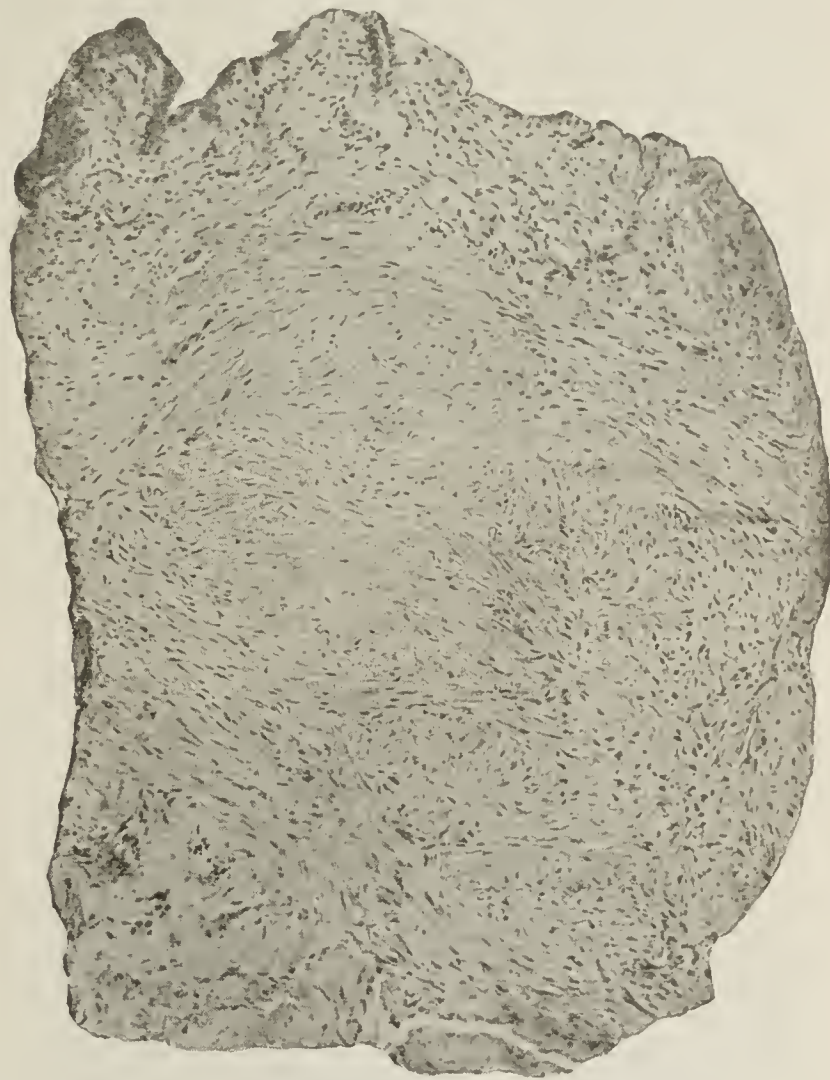


Fig. 3.—Postciliary scleral trephining for acute glaucoma. Vertical section, showing the second regrowth of scar tissue in the wound.

9. A painful glaucomatous eye will become comfortable after postciliary scleral trephining without visible operative defect, and without material lowering of tension.

Query: What are the compensatory avenues in the circulation in an eye in which there was pain and marked blurring of the media with the tension at 57, to cause it to become entirely quiet and comfortable, media clear and no appreciable change in the cupping of the disk, with the tension at 70?

ABSTRACT OF DISCUSSION

DR. WILLIAM F. HARDY, St. Louis: Dr. Ewing stated that a wound in the sclera is not more dangerous than one at the corneoscleral margin. In my opinion it is less dangerous. Last summer I performed a number of operations through the sclera by various methods, to note the length of time such wounds stay open, and the manner in which they heal. It was found impossible to delay or prevent the scleral wounds

from healing; they healed very promptly no matter what method of operating was chosen. They remained patulous for possibly a week, after which they gradually filled in with dense fibrous tissue, and at the end of the month were completely healed. Dr. Ewing, therefore, has added evidence to the fact that posterior drainage operations are of temporary effect only, but are poor reeds to lean on for permanent effects in glaucoma.

DR. ARTHUR E. EWING, St. Louis: Since beginning this work about a year ago I have performed half a dozen of these operations in cases of chronic glaucoma, one a case with a tendency to iritis, and one a case of acute retinal separation. In each of the cases there is a protrusion at the site of the wound, a very large protrusion in a case in which a 3 mm. trephine was employed, too large to be sclera or newly formed scar tissue. In contradistinction to this, in the case with retinal separation, there was no protrusion at the site of the wound, the globe being subnormal in tension. The same condition obtained in the case of chronic glaucoma with a tendency to iritis, the tension of which was 40, but became subnormal after the operation and remained subnormal. This fact, that there is no distention without intraocular pressure, indicates that there must be some form of drainage.

TREATMENT OF NEURALGIA OF THE FIFTH NERVE BY INJECTION OF THE GASSERIAN GANGLION*

H. H. MARTIN, M.D.
SAVANNAH, GA.

The injection of the ganglion of Gasser through the foramen ovale for the relief of trigeminal neuralgia has passed beyond the experimental stage and will eventually supersede surgical extirpation of the ganglion, division of the sensory root, peripheral and

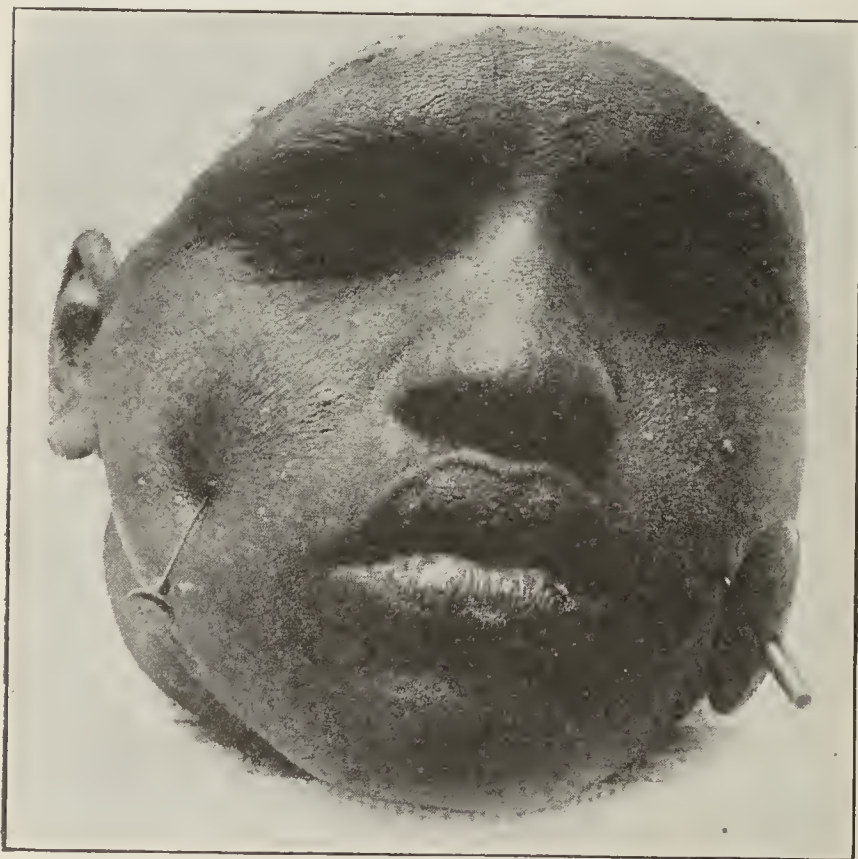


Fig. 1.—Left side shows needle in correct insertion. Right shows stylet displaced outward by postmortem contraction of skin.

nerve trunk injection, and other more or less unsatisfactory procedures. The operation is, of course, a very delicate one and requires, in addition to thorough knowledge of the topography of the parts, some sur-

gical skill and dexterity; the needle will necessarily pass very near to important blood vessels, principally the internal maxillary artery, which lies in close proximity to the inferior maxillary nerve in the sphenomaxillary fossa and sends a small meningeal branch through the foramen ovale.



Fig. 2.—Same as Figure 1 in profile.

If improperly directed, the needle may enter the foramen spinosum, the jugular foramen, or an anomalous foramen transmitting an emissary vein known as the foramen Civinini, occasionally found just below the foramen ovale. If the needle is passed too far through the foramen ovale, possible injury might occur to the cavernous sinus or even the internal carotid, both of which are in intimate relation with the ganglion. But all such accidents can be safely guarded against; and the procedure, though a formidable one, is not so formidable as the surgical extirpation of the ganglion, while the desirable results are equally good and the undesirable results, such as paralysis of other cranial nerves, weakness of the muscles of mastication, and neuroparalytic keratitis, are never so bad.

The history of this operation, like many others, is one of evolution, and dates back to 1903, when Schlosser, an ophthalmologist of Munich, discovered by chance that subcutaneous injections of alcohol in or about an offending nerve afforded prompt relief from pain.

This idea has been taken up and elaborated on by many investigators in France, England, Germany and America, including ophthalmologists, rhinologists, neurologists, general surgeons and others, until there has been evolved a very simple method of injecting the ganglion of Gasser through the foramen ovale, which can be acquired by any one who will give sufficient time to experiments on the cadaver.

The indications for injection of the gasserian ganglion are the same as those for gasserectomy, namely, severe trifacial neuralgia, for which the cause cannot be discovered, or if discovered, cannot be removed. There are no serious contraindications; heart disease, high blood pressure, kidney lesion, etc., while increasing the seriousness of the situation, are not contra-

* Read before the Section on Laryngology, Otology and Rhinology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

indications. Some measure for relief is necessary, and the injection is less dangerous than gasserectomy.

The finer distinctions between so-called essential neuralgia, postherpetic neuralgia, etc., have no place in this paper, which is limited to treatment; but I desire to say in passing that I do not believe that any of the procedures enumerated in the first paragraph of this paper will be of any benefit in a painful "tic" having its origin proximal to the ganglion of Gasser; on the contrary, those directed to the nerve trunks often aggravate the condition. The surgical or chemical destruction of the ganglion cells, however, will often give temporary relief from pain.

Therefore, given a case of painful "tic," the question arises as to what is to be done. Internal medication, massage, radiotherapy and electrotherapy have all been tried in the balance and found wanting. We have remaining the destruction of the central ganglion or of the nerve branches either surgically or with chemical solutions. It is my opinion that surgical methods should be abandoned in favor of those based on the direct application of chemicals calculated to destroy either the ganglion cells or the conducting fibers, and of these, the former is to be preferred, because the ganglion cells are the more vulnerable, as shown by the immediate positiveness and longer endurance of the results. Of the chemical agents that have been employed for this purpose I may mention osmic acid, chromates, formaldehyd solution in glycerin, phenol (carbolic acid) or menthol, chloroform, ether, antipyrin, salicylates and quinin salts, all of

tion of nerve tissue, the chief of these being, of course, the cocain group.

The trigeminal divides at the gasserian ganglion into three principal trunks, the ophthalmic, the superior maxillary and the inferior maxillary. The ophthalmic divides into three terminal branches, the superior max-



Fig. 4.—Same as Figure 3, front view. Note wire passing through posterior horn of left lateral ventricle and out at the vertex. So far as could be determined on the cadaver, no important structures would be endangered through entering the ventricle by this route. Right side shows point of needle resting in the ganglion.



Fig. 3.—Right side shows needle in correct insertion with point in the ganglion. On the left side a wire has been passed through the needle and through left cerebrum with the idea of entering the lateral ventricle by this route to ascertain what structures might be injured.

illary into six, and the inferior maxillary into seven; all sensory excepting the latter, which is mixed, carrying motor fibers to the muscles of mastication.

In a recent paper, Sicard contends that alcohol nerve blocking treatment is adapted only to what he describes as essential neuralgia, differentiating thus: If the pain keeps up continuously, or if there is concomitant anesthesia of skin or mucosa, it is not essential neuralgia; or when the neuralgia comes on abruptly in all the three branches at once, or when other cranial nerves are involved and there are trismus, hemiatrophy of the tongue, etc. These forms of neuralgia are secondary, and injection of alcohol not only does no good but may even aggravate them. Hence it is necessary to have the patient examined by specialists in the nose, ear, eye and teeth, before assuming that a trigeminal neuralgia is of the essential type. Migraine must also be excluded, as also the neuralgia after herpes zoster. He warns us also against the neurasthenics.

I quite agree with this conclusion so far as it applies to injections into nerve trunks or branches; but injections into the central ganglion of the trigeminal system, or, better still, injection into the sensory root, has in my opinion a larger application than nerve blocking per se, and is a justifiable procedure in all cases of painful "tic" not otherwise relievable. I have never known of its doing serious harm when properly performed. There is always a very marked temporary relief, and it can be repeated ad libitum.

The technic of the injection is simple in the extreme, but ability to locate and enter the oval foramen can be acquired only by extensive and patient trials on the cadaver; but in every sense of the word it is eminently

which have been abandoned in favor of alcohol in various strengths (from 70 to 95 per cent.). Also there are various chemicals which will give a temporary analgesia and anesthesia as well without destruc-

satisfactory both as to the accuracy with which it can be accomplished and as to the results.

If pain is limited to the area supplied by the third branch only, the injection can to a certain extent be limited to this branch; but if the first or second branches are involved, the needle should be inserted into and through the corpus of the ganglion until the point has penetrated the sensory root. This can be accomplished with a reasonable degree of accuracy. It is my practice to attempt this in every case. The only serious consequence involved is a neuroparalytic keratitis which in my experience occurs in about 30 per cent. of all successful injections, but rarely involves the deeper layers of the cornea, and in most instances recovers in due time without injury to the eye.

Wilfred Harris of London, who is one of the pioneers of direct injection of the ganglion through the oval foramen, says:

When first I practiced injection of the foramen ovale on the dead body, I found, practically invariably, that when the needle point was placed within the nerve at the lips of the foramen, without pushing the needle through the foramen, injection of solution of methylene blue infiltrated the whole gasserian ganglion, the stain even surrounding the walls of the cavernous sinus, and even spreading down the anterior surface of the pons. Clinically I have thus injected the ganglion in scores of cases, anesthesia first appearing over the third division; and as more alcohol is injected, a few drops at a time, the anesthesia spreads over the second and first divisions until, after using from 1 to 1.5 c.c., the whole territory of the fifth nerve has become anesthetic. The patient indicates this spread of the alcohol by slight burning pain being felt around the eye and top of the head, and on testing with a pin there will be found total anesthesia to pin-prick and to pressure over the whole front of the head on one side, including the eyeball. If the alcohol has been slowly injected a few drops at a time, the anesthesia being tested after each injection, this total anesthesia will begin to fade away after a lapse of five or ten minutes from the first and second divisions, and an hour or so later, or the next day, there will be found slight analgesia on the forehead and cheek only, while total anesthesia persists over the third division.

It is important not to inject more than a few drops of the alcohol at a time, and to wait at least two minutes for testing the anesthesia on the forehead before pushing in any more alcohol. As soon as total anesthesia develops over the forehead and eyeball, there is a possibility that the damage to the ganglion cells may be so great that the total anesthesia does not evaporate, as is usually the case, though in the majority of cases as much as 0.5 c.c. of alcohol may be further injected after total anesthesia appears, without risk of its being permanent. When a total of more than 1.5 c.c. has been injected, this risk is a very real one, and if total anesthesia still persists half an hour after the injection, the eyelids should be closed by rubber plaster and a pad and bandage, in order to prevent the risk of keratitis developing, which is certain to appear on the following day if total anesthesia is still present. If, however, sensation is returning in the first division and pressure on the eyeball can be felt definitely, then the risk is past. When, however, the anesthesia is still complete on the following day, then it is practically certain

to persist for weeks or months and the eyelids should be sewn up, leaving a chink at either canthus for washing out the palpebral cavity with saline. So long as the lids are kept closed, keratitis will not develop, and even a certain degree of keratitis which had developed, previous to the sewing up of the lids, will clear up. I have been forced to have this treatment adopted in seven patients whose ganglion I had injected. The cure of the neuralgia is, however, certain and likely to be permanent, though my first case of injection of the ganglion dates back only four years.

In many subjects it is possible to push the needle through the lips of the foramen ovale into the ganglion itself, though this is rarely necessary. A curious point, which I am unable to explain, is that after the ganglion injection, the anesthesia in the first division is more intense and more lasting than in the second or third divisions, a point which is peculiarly unfortunate, owing to its dependent keratitis.

I have incorporated this extensive quotation into my paper for two reasons: First, it clearly sets forth some essential facts regarding this procedure, and second, it embodies some conclusions with which I do not entirely agree. I do not agree, first, that the injection should begin at the lips of the foramen ovale and that it is rarely necessary to push the needle through the ganglion. This, in my opinion, is erroneous. The needle should not only be pushed through the ganglion but an attempt should be made to place the first 0.5 c.c. of the alcohol directly into the posterior root, injecting the remainder into the ganglion as the needle is withdrawn. Naturally if the alcohol is injected only at the lips of the foramen, the anesthesia in the first and second divisions would begin to fade away after a few minutes, because actually only the third division has been injected, the other two being temporarily affected by percolation of the injected fluid. If the patient is to have a permanent cure of the neuralgia, he must also be prepared to endure a more or less permanent anesthesia as well.

Secondly, I disagree with the suggestion that the eyelids should be sewed up. Never, never do that! If a neuroparalytic keratitis should occur, the eye must be suitably protected, and it should also have the benefit of daily cleansing with instillations of atropin and argyrol solutions.

The assertion that "so long as the lids are kept closed, keratitis will not develop" is also erroneous, keratitis often appearing during the first twenty-four hours, manifesting itself first as an epithelial exfoliation usually directly at the apex of the cornea, although I have seen it in the lower segment.

TECHNIC OF THE OPERATION

The technic should in the first place be strictly surgical with the patient lying supine and under a general anesthetic. I have the skin of the entire face on the side to be injected cleansed, first with benzin followed by iodine and after a few minutes with alcohol. I then

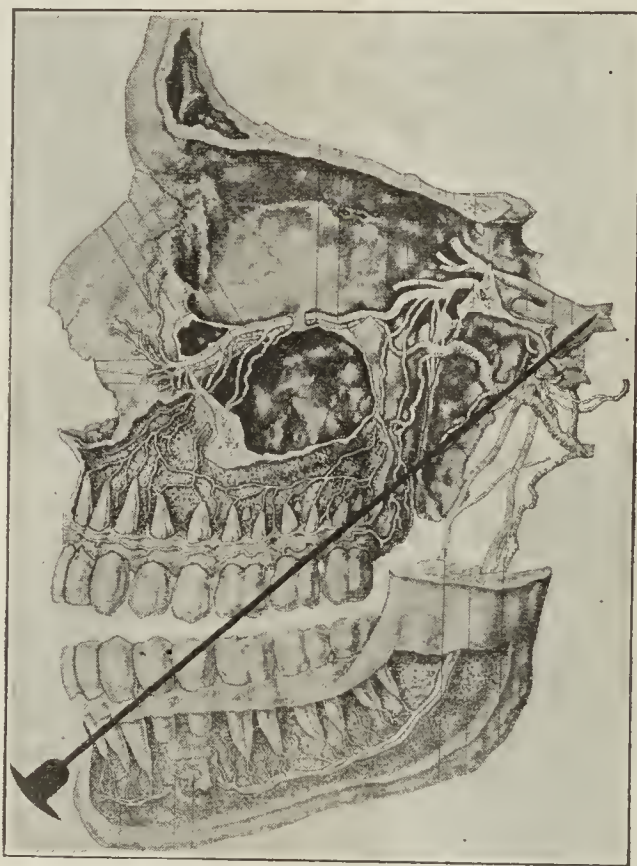


Fig. 5.—Schematic, showing needle point in sensory root.

study the contour of the face and head, getting a mental picture of the location of the foramen ovale (which is not by any means constant but varies in different individuals). The needle, which is 10 cm. long graduated up to 8 cm., is then with one deliberate thrust inserted into the sphenomaxillary fossa; at this time it is well to pass through the needle an obturator or stylet which serves several purposes: First, it extends a little beyond the point of the needle, rendering the needle point less sharp, thus limiting the chances of injury to blood vessels encountered. Secondly, it clears the lumen of the needle of any impedimenta that may have been acquired during its passage through the cheek wall. Finally, it prevents obstruction of the needle during its further passage.

The needle is now advanced cautiously in the direction of the foramen as pictured in the mind of the operator, and if he is lucky, will often pass at the first thrust directly into the foramen without touching the bone at all. The operator will immediately recognize this fact by the sense of touch, if sufficient practice has been had on the cadaver. If bone is encountered, however, one must then ascertain the depth to which the needle has penetrated, and if this should be approximately 6 cm., the point is in the neighborhood of the foramen. If, on the other hand, it should be less than 6 cm., the point is above the foramen, and if more than 6 cm., the point is below the foramen. Gentle manipulation, with the topography well in mind, will usually place the point in the foramen without having to withdraw and reinsert the needle.

When one finds the needle in the foramen, it is well to pause and again study the contour of the face and head, not neglecting to slide the skin of the face upward on the needle where it has suffered slight depression or dimpling from the passage of the needle. This should show a penetration of about 6.5 cm. A firm hold on the needle is taken and it is advanced until the 8 cm. mark is almost reached or until a certain fibrous resistance is encountered, which indicates that the dura has been reached and consequently the insertion is too deep. In this case, the needle is slightly withdrawn, leaving the point as nearly as possible resting in the sensory root; the stylet is now withdrawn and the operator waits a moment, carefully observing whether either cerebrospinal fluid or blood should well up through the needle. In the former case, the point is within the dura and should be slightly withdrawn before the injection is made; in the latter case, the point is within the lumen of a blood vessel and the injection must not be attempted until the operator is absolutely sure that this position has been corrected, as very disastrous results have been reported from the injection of alcohol into a blood vessel, among them, gangrenous necrosis of the palatal bone with sequestrums. However, this is an unpardonable error and should never occur.

I always inject preliminary to the alcohol, 5 to 10 minims of a 0.5 per cent. solution of cocaine or a 2 per cent. solution of procain. This is done for the purpose of inducing temporary anesthesia in the area supplied by the fifth nerve, in order that the patient may not suffer from the great burning pain caused by the action of the alcohol after recovery from the anesthetic. To complete the operation, 2 c.c. of 95 per cent. alcohol are now drawn into the syringe, half of which is injected in or near the posterior root, the

remainder being slowly distributed throughout the ganglion as the needle is withdrawn.

In case a general anesthetic is not used, the only modification of this procedure is preliminary injection of a local anesthetic into the skin and subcutaneous tissues of the cheek and again when the point of the needle reaches a depth of 6 cm., waiting in each instance from five to ten minutes for full effect. In order to accomplish this the stylet will, of course, have to be removed temporarily, but must in all instances be reinserted before the needle is farther advanced.

In some instances, as stated, the needle will find the foramen with astonishing ease, while again one will have to grope for it patiently and persistently. The point of entrance is usually about 2 cm. above and external to the corner of the mouth. The needle should closely graze the alveolar process of the upper jaw, passing between this surface and the ramus of the lower jaw. With the patient supine and the head bent backward at an angle of about 30 degrees, the direction is almost perpendicular; but if the head is held erect, the direction is about 15 degrees upward but will vary in different subjects.

In old persons who have neither teeth nor alveolar process in the upper jaw, the locating of the foramen is exceedingly difficult but not by any means impossible.

The immediate results of a deep injection, as advocated in this paper, are anesthesia of the entire area supplied by the fifth nerve, which persists for a variable time and in variable degrees, and an analgesia which in the great majority of cases will be permanent.

REPORT OF CASES

CASE 1.—A man, aged 23, was suffering from genuine unilateral neuralgia of the left side, which had existed for from one and one half to two years. The operation was classical; a few minims of procain solution in the skin and subcutaneous tissues produced perfect local anesthesia, and the needle passed through the cheek and sphenomaxillary fossa without pain. When the inferior maxillary nerve was reached, sharp pain was complained of, which was almost immediately relieved by a few minims of procain. The needle was then advanced 1 cm., and when pain was complained of, procain was again injected; when the needle was advanced another 0.5 cm. and procain injected, the patient at once remarked that he had a strange feeling in the eye, face and tongue. One c.c. of alcohol was then injected without pain, and the patient was found to have complete anesthesia of cornea, skin and mucous membranes supplied by the fifth nerve. This patient developed a neuroparalytic ulcer in the lower temporal quadrant of the cornea, which persisted for weeks. He would not remain in the hospital, but was seen once a week for two months. When discharged, the corneal ulcer had healed with only a slight opacity, as the ulceration had been very superficial, apparently no deeper than the corneal epithelium, and gave him no trouble at all. When last seen, three months after injection, there was practically total anesthesia of the entire area supplied by the fifth nerve, and no return of "tic."

CASE 2.—A woman in Dr. Horsley's service at the Memorial Hospital, Richmond, had been a victim of trigeminal neuralgia for years and had had numerous peripheral operations, including resections and nerve trunk injections. She complained that all of her injections had been exceedingly painful and of little benefit. She was suffering intensely when I first saw her, and would cry out if even a motion were made to touch her face. The entire distribution of the nerve was apparently involved, but the mandibular division seemed to be the most affected, this area being exquisitely sensitive. She would cry out if the floor were jarred or the bed brushed against, and, in short, presented a typical trigeminal

neuralgia. Incidentally, she had become a morphin habitué. The injection was done under ether anesthesia, and the patient was seen the next morning sitting up eating breakfast, free from pain, and has remained so ever since (four years). Furthermore, she was freed from the morphin habit and returned to her home a very happy woman.

CASE 3.—A woman, aged 30, of a highly neurasthenic type, had suffered from painful "tic" on the left side for years, with occasional attacks on the right side. Nasal examination revealed constant contact of both middle turbinates with the septum. This was corrected without relief. She then visited Sluder and had an alcohol injection in the sphenopalatine ganglion on the left side without relief. Previous to this she had had division of the supra-orbital and of the mandibular through their respective foramina. In the latter part of November, 1914, the left ganglion was injected with 1 c.c. of 95 per cent. alcohol with immediate relief from pain lasting four months. She had total anesthesia of the entire area with abducent paralysis on the left side, the latter persisting through a second injection of 2 c.c. of alcohol four months after the first one. The relief from the second injection lasted about the same length of time, when severe pain recurred in the mandibular branch.

CASE 4.—A woman, aged about 60 was brought into the hospital suffering from tic douloureux on both sides, with spasmodic "tic" involving the muscles of mastication on the right side, the pain on this side being very great. Her history was that of long-standing trigeminal disorder on both sides. The ganglion on each side had been extirpated some years before by Cushing with considerable relief, but not a complete cure. On the right side numerous peripheral operations had been done without relief. The stump of the posterior root of the right ganglion was injected with 2 c.c. of 95 per cent. alcohol under ether anesthesia, with prompt relief from both spasmodic and painful "tic," which lasted about two and one-half years. A second injection was made in this case about four months ago with only moderate relief from pain, but curiously enough we had this time a slight exfoliation of corneal epithelium which did not occur after the first injection.

CASE 5.—A man who had had excruciating pain for years came into the clinic of Dr. H. B. Dechard of Dallas, Texas. An injection was done under local anesthesia, and was classical, the needle entering the ganglion at once. However, when the alcohol was injected, the patient was greatly nauseated, and complained of sudden deafness, dizziness, etc. The immediate results were total analgesia, total anesthesia and partial paralysis of the muscles of mastication which still persist (three years after operation). The only complication was a neuroparalytic keratitis, which ulcerated and did some damage to the eye, but from which the patient eventually recovered.

About this time my work was interrupted by a serious automobile accident which forced me to remain idle for two years. My sixth patient, therefore, was not seen until January of this year.

CASE 6.—A woman was sent to me by Hillard Wood with a history of long-continued painful "tic," with many futile attempts at relief. The injection was done under ether anesthesia, and the relief was prompt and apparently permanent. She had neuroparalytic keratitis which ulcerated and had not healed at last report (three months after operation). She also had abducent paralysis.

CASE 7.—A woman was injected, March 13, 1918, under ether anesthesia. Relief was prompt and apparently permanent. She had slight exfoliation of the corneal epithelium, but no ulceration.

Each of these patients had herpetic ulceration of the lips, tongue and buccal mucous membrane on the injected side, which invariably disappeared within two weeks. All of the patients complained in a greater or lesser degree of the various paresthesias and isolated spots of hyperesthesia originally described by Haertel.

ABSTRACT OF DISCUSSION

DR. HUGH T. PATRICK, Chicago: From the pictures I gather that Dr. Martin uses the method of Haertel, independently worked out by a New Orleans surgeon whose name I forget, in both instances for purposes of local anesthesia. To use the method for neuralgia was a second thought. Like all other methods of deep injection it is uncertain. Owing to marked differences in size and shape of the skull, the foramen may be very difficult to find, and one never knows just where the point of his needle is. I have never used the Haertel method because of the inherent dangers, although I think it might be the operation of choice when simpler and safer methods have failed. The Harris method of injecting the ganglion I have used successfully several times, though in some heads it is impossible. In my opinion we are not prepared to say that injection of the ganglion or of the sensory root cures trifacial neuralgia. Personally, I believe that it does not, though, of course, it may give relief for five years or more.

After making more than 1,000 injections in several hundred patients my opinion is that if the patient is relatively young and in good physical condition, the radical operation should be done, provided it be done by a high-class surgeon with experience in this operation. For the very old and for those with grave organic disease one of the injection methods is indicated.

DR. JOSEPH C. BECK, Chicago: I would like to take issue with Dr. Patrick on his last remark, that there is a question of choice between the radical operation or injection. I should say, first try the injection, no matter what the condition is, and then if that fails do the radical operation, because we always have time for that. Dr. Martin certainly has had a great deal of experience in injection of the foramen ovale and speaks with more authority than I can. I have a record of forty-seven injections of the foramen ovale—that is forty-seven times, not forty-seven cases. Three injections were successful, and two were successful by the radical operation—one just the cutting of the sensory root—as recently recommended by Frazer.

In regard to the stylet, I use the Sluder needle, with a wire in it. In feeling for the foramen I depend on the flat plate at the base of the skull. These landmarks of the teeth for direction are all well enough but, as Dr. Patrick said, heads differ, and we must feel for the foramen at the external pterygoid plate close to the base of the skull. You must also consider the amount of fat there is on the face. Some people have 3 inches of fat on their face. The roentgen ray will give much information as to just how far the malar bone protrudes. The malar bone will give quite a lot of information as to how far you should go, and it is well to have a roentgenogram. I have never encountered any cerebrospinal fluid in any case that I injected. I have gotten a few drops of blood from the needle, and, of course, there was no injection made in those cases at that time. Nothing was said about the spilling of a large amount of fluid and the effect on the neighboring nerves. The sixth nerve is very close and I have seen paresis of the abducens follow that lasted for two months after the injection of alcohol for tic douloureux. I have tried the Harris method in three cases, but the point I would like to make is, that in a case where we fail with injection the operation Dr. C. H. Frazier recently described is the operation of choice.

DR. H. H. MARTIN, Savannah, Ga.: I want to take exception to nearly everything that Dr. Patrick has said. His entire argument falls down when he admits that he has never done this operation, has not seen it done, and is unwilling to attempt it. There is only one way to learn to do the operation and that is to do it many times on the cadaver. You must do it and keep on doing it until you have acquired sufficient skill to know just where the needle point is at all times. Often the needle will slip into the foramen with the most astonishing ease; but sometimes you will have to grope for it. I have only treated nine cases and out of the nine all but two have remained free from pain for four years. If that is not a cure, what is? Unfortunately, I met with an automobile accident in 1915, and my work was interrupted

for two years, which accounts for the hiatus in my case reports. In addition to the nine cases of genuine trifacial neuralgia I did a lot of injections in negro cases by paying them two dollars for the privilege. I also tried cocain injections into the ganglion for operating on alveolar abscesses and other local conditions, and in that way I got a whole lot of practice on living subjects. I think this operation is much more simple and safe than anything else that has been devised. I thank Dr. Patrick for telling me whose method I use, for I did not know, Haertel originally entered through the mouth, but later adopted the technic described in this paper. I think it is much more satisfactory to use a needle with the markings on the needle rather than on the slide. I use a needle of sufficient diameter that the markings can be made with safety. I use 2 c.c. of alcohol, diffusing a portion in and around the sensory root of the nerve and the balance in the corpus of the ganglion as the needle is withdrawn.

Military Medicine and Surgery

THE ROENTGENOLOGIC STUDY OF EMPYEMA CAVITIES

FRANKLIN A. STEVENS, M.D. (Boston)

Lieutenant, M. C., U. S. Army

BILTMORE, N. C.

The surgical treatment of chronic empyema cavities and sinuses should be guided by two laboratory methods: The first, which is relatively the most important, is the bacteriologic examination of the discharge, and the second is a careful roentgenologic study of the existing pneumothorax. A proper correlation of these findings is necessary, however, to obtain satisfactory results; even though the bacteriologic control guides the surgeon in the correct use of neutral solution of chlorinated soda (Dakin's solution) and indicates that the cavity is sufficiently sterile either to allow healing or to permit a radical operation, the knowledge obtained by means of the roentgen ray is an absolute essential. It not only detects abnormalities in the lung tissue, but also demonstrates the size, shape and location of the draining cavity and affords some knowledge of the walls that surround it. This can be accomplished, however, only by a carefully standardized technic which is an accurate means of diagnosis and is at no time detrimental to the patient.

It is obvious that stereoscopic plates are needed to locate points within the chest; but the interpretation of the various densities in a draining empyema is a

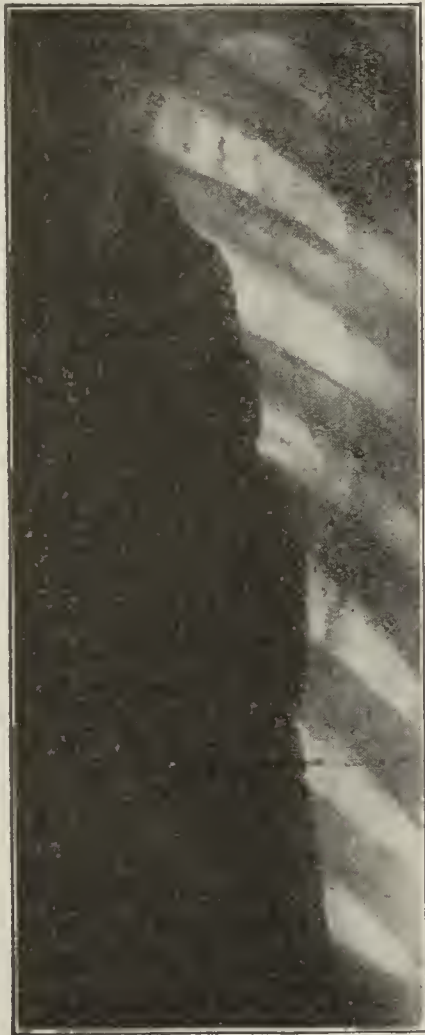


Fig. 1 (Patient V. C.).—Injection of bismuth paste with incomplete filling of a chronic empyema cavity.

far more difficult problem. Simple large cavities bounded by lung and axillary thoracic wall are easily outlined because the bronchi and their branches, thickened by long continued inflammation, can be sharply traced to the lung border. In cavities of bizarre shape with ramifications between and around the lobes, the delineation is much more difficult and can be accomplished only by completely filling the cavity with some substance opaque to the roentgen ray. A probe may be inserted and either observed in position or withdrawn and measured to estimate the depth of the sinus, but lateral measurements cannot easily be demonstrated in this way. The most practical method is the introduction of either a solution or paste containing some metal or alkaline earth, either as a salt or as a finely divided suspension. Various combinations of these salts and excipients have been used and their technical defects studied.

There is no one method that satisfies every requirement. Combinations of petrolatum and waxes as a carrying medium, especially when employed with bismuth, offer such mechanical disadvantages and are attended with such danger to the patient that they should be abandoned for diagnostic purposes. Very frequently the extent and gravity of secondary operations are not indicated because the roentgen-ray injections show the cavities incompletely outlined. Even before this stage of the treatment, the partial filling of the cavity erroneously leads the surgeon to believe that the lung is expanding. This incomplete filling is due to the stiffness of the paste which, as it cools, prevents the escape of air from the deeper recesses of the cavity. In the warm semiliquid state the mass fills only the most dependent part, and if the patient is placed on the well side during the process of injection, only that part of the cavity lying near the vertebral column is filled. Another important objection to the use of bismuth paste is the difficulty encountered in removing it when tortuous sinuses and pockets have been injected, and it is in these cases particularly that chronic bismuth poisoning so frequently results. The injection of even a moderately heavy paste also requires so much pressure that it alters the outline of the cavity, causes pain, and probably impedes the reparative processes. These faults are remedied by the use of fluid mediums.

The solutions in common use are potassium iodid and thorium nitrate. While they are advantageous so far as the filling of the entire sinus or cavity is concerned, alarming results often occur from absorption when they are used in large cavities. Potassium iodid, although easily obtained and prepared, is very irritating, and the pain experienced by the patients prohibits its routine use. Thorium nitrate does not produce such a reaction; but even if chemically pure,



Fig. 2 (Patient V. C.).—Cavity filled with thorium nitrate solution, showing the exact size.

chills, fever and hematuria are frequently observed after large quantities have been used. As a result of these observations, it is evident that the proper material should be either a suspension of an insoluble substance or a colloid of some metal. Colloids are frequently difficult to prepare and lack certain advantages to be mentioned later. Although bismuth subnitrate is followed by harmful effects if left in the cavity indefinitely, these are eliminated if it can be removed promptly. To accomplish this end its use can be permitted only in suspension in a liquid medium of sufficient body to maintain its homogeneity for a reasonable length of time. Cottonseed oil, aside from its cheapness, has all these requisite qualities, and a sterile mixture of this oil with 20 per cent. bismuth subnitrate and 3 per cent. powdered acacia is found to meet all requirements.

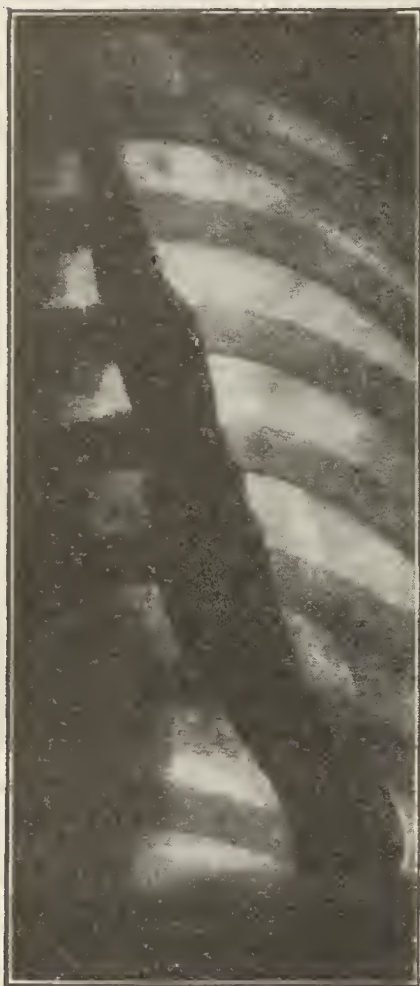


Fig. 3 (Patient M. R. S.).—Bismuth paste injection only partially outlining the cavity.

The filling of an empyema cavity must be done with a knowledge of its general direction, as it is then possible to place the patient with the deepest point of the cavity in the most dependent position. The warm suspension of bismuth and oil is drawn into a sterile syringe and, without touching the wound at any time, is allowed to flow slowly down the walls of the cavity. This effects the gradual displacement of the air from the deeper parts. Since most of the resections have been done posteriorly, the patient is laid across the table with his head and body hanging down, supported by an attendant. The quantity is recorded and more is allowed to run in until air bubbles no longer escape and breathing causes an overflow. Plates taken at this time show the cavity well filled, but the opening through the chest wall is not demonstrated. To overcome this, the wound is tightly packed with narrow strips of gauze previously dipped in bismuth petrolatum paste and sterilized. The patient is carefully raised on the table face down, and the exposures can then be made without the loss of the mixture; the resulting shadow corresponds exactly to the cavity. As far as possible, all patients should be taken in the same position, so that the operator may become accustomed to the same chest markings. The head is turned to the left with the right cheek down; the hands are placed under the thighs with the elbows extending just off the edge of the table. In order that the cavity may not be abnormally distended, it is important that no pressure be used in the injection. Immediately after the first pair of plates is exposed, the tampon is removed, and when the bulk of the bismuth suspension has drained out, a second pair is taken with a thin film of bismuth still adherent over the cavity. This procedure gives an exact quantitative

measurement of the contents, and in addition allows the study of the cavity as it exists when not injected. The study of the plates after these injections shows that the shadow is nearly as dense as that obtained with bismuth paste; but because of this density it is difficult to estimate the distance between the lung and the parietal pleura. With the bismuth oil injection, however, this disadvantage is overcome, because sufficient bismuth adheres to the walls in the second pair of plates so that an exact picture of the cavity in all its dimensions can be obtained.

Many injections were made with paste during a period of three months in the treatment of more than 100 cases. On closely viewing the plates at a later time it was discovered that many of them were very misleading. Most of the cavities had apparently decreased very much in size, but on careful examination the walls of the sinuses could be traced some distance beyond the shadow of the injected bismuth paste. Because of this discrepancy they were again roentgenographed with thorium, and as was expected, it was found that it was impossible to obtain a correct outline unless the cavities were completely filled. In practically every case in which the cavity was of any size or depth, the cubic contents were far in excess of that anticipated, and the roentgenograms even showed that it was unsafe to attempt to estimate the size and shape of these wounds unless they were completely filled. Some had been reported as "partially injected pneumothoraces," evidence which was of little value to the surgeon.

Figures 1 and 2 were made at intervals of four days and illustrate the marked discrepancy between a paste and liquid medium.



Fig. 4 (Patient M. R. S.).—Cavity completely outlined with bismuth oil injection.

The patient had a chill with marked hematuria for a few days following because of the thorium employed, and it was for this reason that an oil-bismuth suspension was substituted in all subsequent work.

Figures 3, 4 and 5 were taken in a second case at an interval of four days. The paste has been forced along the vertebral portion of the cavity, and in the upper part there is a large irregularly shaped accumulation of air that has not escaped. The bismuth oil injection completely fills the wound, revealing a cavity so shallow that one can see through it with ease. In Figure 5, taken immediately after the oil was removed, the outline is still very definite, and stereoscopically the lung and pleura are found lying in close approximation.

There is no retention. With the knowledge that 30 c.c. of the mixture were required in this injection, a very definite idea of such a cavity is obtained.

An attempt was made to discover whether the pres-

ence of this fluid, even under no pressure, caused a distortion. A series of plates was made in the same manner as the three just mentioned. Those made with paste were obviously incorrect. On observing the sinuses filled with oil and bismuth it was noted that although they conformed to the curvature of the chest wall, many were abnormally far from the ribs. This is frequently observed in chests with a very thick parietal pleura. The third pair in each of the series illustrated the collapsed sinus after the oil had escaped. There was sufficient bismuth still



Fig. 5 (Patient M. R. S.).—Cavity sharply outlined after the oil and bismuth have escaped.

adherent to give a definite outline, and the decrease in size was evident, demonstrating the slight distention of the cavity with the injected mass in place. Difficulty was experienced in securing photographs taken in the same position. Since the ventral prone position has been used in the oil injection, it was not always possible to select similar positions from among the previously injected bismuth plates.

Tax on Child Labor Suggested.—That an exorbitant tax should be levied on merchandise or any production of child labor as the only logical method of eliminating the evil was the chief point brought out in a rousing address by Owen R. Lovejoy, general secretary of the National Child Labor Commission, at the opening session of the fifty-first annual meeting of the Maryland State Teachers' Association, which convened, November 29, in Baltimore; while a federal, centralized educational system discussed by Dr. William Chandler Bagley, professor of education at the Teachers' College, Columbia University, also struck a responsive note among the hundreds of educators present. In view of the fact that the results of the recent selective draft classification and examinations disclosed that 750,000 persons, all male, were illiterate, Dr. Lovejoy laid stress on the fact that child labor is largely responsible for that deplorable condition. These figures do not include the illiterate females in this country. Although the issue has not yet been adopted by the association, Dr. Rozell Berryman, Baltimore, treasurer, said that it conformed with the unanimous view of the teachers, and that it will ultimately be adopted in the resolutions. This means that a concerted effort will be made to that end in having such tariffs and taxes apply. A national system of education as is in vogue in England and France was strongly advocated by Dr. Bagley, who declared that only in that way could any comprehensive and effective system be evolved.

THE EAR IN "STUNT" FLYING *

LEWIS FISHER, M.D. (PHILADELPHIA)

Major, M. C., U. S. Army

AND

H. W. LYMAN, M.D. (ST. LOUIS)

Captain, M. C., U. S. Army

MINEOLA, L. I., N. Y.

Crashes that occur during "stunt" flying are usually the result of something having gone wrong with the pilot. Hence, it is a pertinent matter for medical investigation. Just what this something is, is not always clear. Poor judgment, a sense of bravado, carelessness, "stunting" at low altitudes, and sudden faintness are among the reasons generally offered in explanation of these accidents. Direct testimony of the pilot is not always available, since many of the crashes result fatally. Neither are pilots who have crashed and survived always able to give a clear and concise account or analysis of the causes of the accident.

Underlying them all, however, there runs a story of momentary loss of faculties, resulting in a manipulation of controls without deliberate judgment. Most accounts of crashes read, "The pilot went into a tail spin and failed to come out." The story of Lieut. J. M. M. is quite typical of those collected by this department. While flying, he went into a tail spin. This produced such overpowering dizziness that, not knowing what he was doing or why, he grabbed the "joy stick" and pushed it forcibly over and threw himself into another tail spin in the opposite direction. Before he could come out of this he crashed.

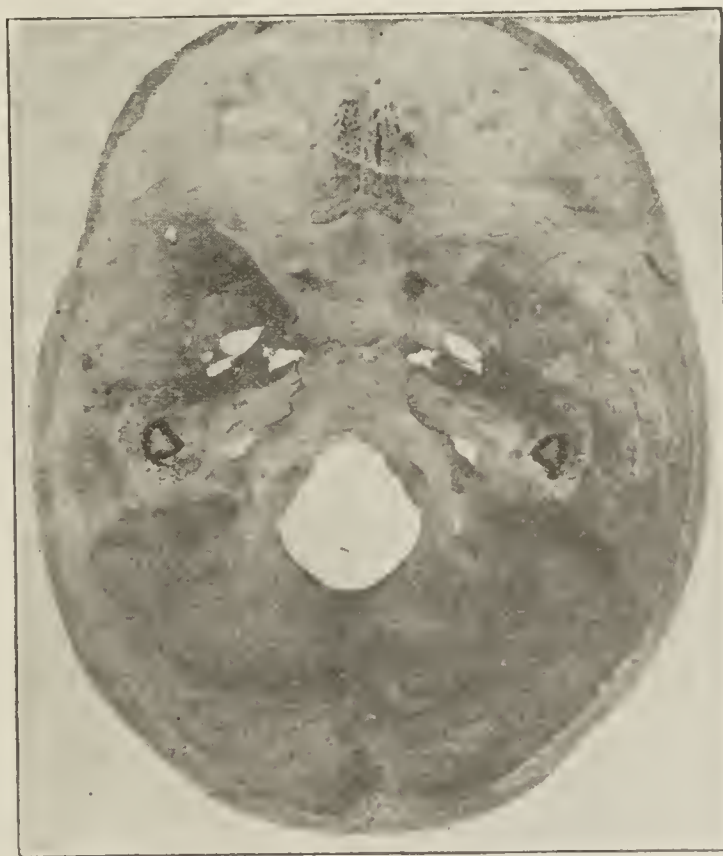


Fig. 1.—Base of skull from above, showing semicircular canals in situ.

So many of the accounts of crashes given by pilots who do survive emphasize dizziness (or vertigo) that the organ responsible for dizziness when an individual is whirled around, namely, the ear, was necessarily made the subject of investigation by the otologic

* From the Department of Otology, Medical Research Laboratory, Hazelhurst Field, Mineola.

department of the Medical Research Laboratory at Mineola. Experiments which involved the whirling of individuals point conclusively to the fact that stunt flying is essentially an ear problem.

By visualizing the position of the pilot as he is whirled in the various stunt evolutions, we found that



Fig. 2.—Three cardinal planes of vertigo: horizontal, frontal and sagittal.

by reproducing a similar whirling in the apparatus it was possible to simulate all the subjective effects of the actual stunt.

Lieut. J. F. D. (150 hours in the air) was placed in a certain position in the apparatus and whirled. He volunteered the information that his sensations were identical with those experienced when coming out of a tail spin. When placed in the apparatus in a certain different position and whirled, he stated that his sensations were those experienced when coming out of a tight spiral. Lieut. W. E. R., an experienced pilot, when placed in the apparatus in the same position as Lieut. D.'s first experiment, made the statement that his sensations were identical with those of his predecessor, saying, "That is exactly like coming out of a

tail spin." When placed in another position and whirled, he said, "Now I feel like coming out of a loop." These facts were confirmed by similar experiments on other aviators.

Since being whirled in an aeroplane produces effects identical with those resulting from being whirled in a laboratory device, such as the turning chair, or other forms of apparatus designed for that purpose, we are furnished with an accurate and convenient means of studying the various vertigo effects of ear stimulation produced by evolutions in the air, and the deductions derived from this experimental stimulation are true and applicable to stunt flying. The facts gleaned were so exactly in accordance with our knowledge of the ear as a "motion-sensing

mechanism" that they were simply corroborative of certain well known otologic principles. Now what are these established facts or principles?

1. In each ear we have three semicircular tubes, or canals, containing fluid, so placed that they are at right angles with one another (Fig. 1). Because of this arrangement, no change of position of the individual is possible without producing some movement of fluid in one or more of the canals. Movement of the fluid in these canals sends messages to the brain which are there interpreted as body movement. Hence, the ears constitute the motion-sensing organs of the body.

2. When an individual is whirled, be it in the laboratory or in an aeroplane, there is produced a circulation of this fluid in certain definite canals and planes. Now, if the turning is suddenly altered or stopped, or if the aeroplane comes out of a rotating maneuver, the fluid in the canals continues to move in its former plane by sheer force of its momentum. The circulation of the fluid by momentum is interpreted by the brain as body movement; but not being in accordance with fact, the body having ceased to revolve, it constitutes vertigo or dizziness, and is disturbing to the individual.

Labyrinthine vertigo, therefore, is a false sensation of motion similar to the visual illusion of motion observed when one is watching a moving train from the window of a stationary coach, both being unavoidable phenomena of normal special sense mechanisms which, however, the subject easily learns to disregard.

One must not fall into the error, however, of thinking that the lack of a normal ear mechanism would be



Fig. 3.—Spinning nose dive.

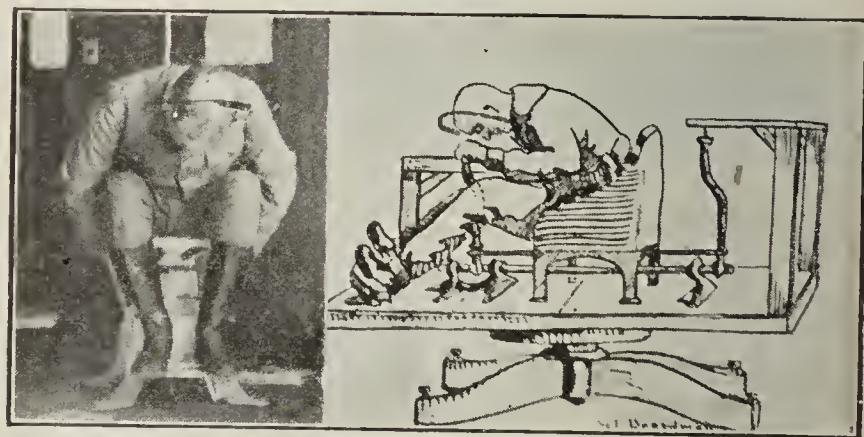


Fig. 4.—Position in turning chair to simulate spinning nose dive.

advantageous to the flier, because of the immunity to vertigo which this condition would confer. The absence of such an essential organ as a motion-perceiving apparatus is too great a handicap to the man traveling in an "air medium" to justify him even in thinking for a moment that he could dispense with it for the sole benefit of a vertigo immunity, especially since the normal individual can acquire such an immunity without much difficulty.

VERTIGO EFFECTS OF EAR STIMULATION LEARNED IN THE AIR

1. There are three cardinal planes of vertigo: horizontal, frontal and sagittal (Fig. 2).

2. A sense of being turned in a horizontal plane—horizontal vertigo—is less disturbing than a sense of being whirled in a vertical plane—vertical vertigo. Each semicircular canal, if stimulated, produces a vertigo in its own plane. Therefore, with the individual in an upright position, stimulation of the horizontal canal is much less disturbing than stimulation of the vertical canals.

3. When a disturbing or disabling vertigo is induced in the vertical semicircular canals, the effects can be greatly ameliorated by bringing the vertical canals in a horizontal position or plane, which can readily be done by bringing the head forward.

mechanism" that they were simply corroborative of certain well known otologic principles. Now what are these established facts or principles?

1. In each ear we have three semicircular tubes, or canals, containing fluid, so placed that they are at right

4. All types of vertigo, no matter how induced, are made less and less disturbing by continual repetition.

PRACTICAL APPLICATION OF VERTIGO STUDY TO STUNT FLYING

Let us consider how the knowledge of the various effects of vertigo gained in the laboratory can be correlated and applied to various stunts.

Spinning Nose Dive.—In this maneuver, the aviator, face downward, is whirled about an axis with his head and body practically parallel to the ground, as shown in Figure 3. In this position there is a stimulation of the vertical semicircular canals in a frontal plane, corresponding to turning in the chair in the position shown in Figure 4. When he "comes out" of the spin, the plane of vertigo which until now has been parallel to the ground becomes vertical in a frontal plane, that is, from side to side, so that instead of feeling that



Fig. 5.—Tight spiral.

he is turning horizontally he feels that he is whirling in an up and down plane. This being very disturbing, he is apt to lose himself momentarily and attempt to correct this illusionary movement and so throw himself into another tail spin in the opposite direction. When the same experience is carried out in the chair, that is, when he is turning with his head forward simulating his position during the tail spin, and attempts to sit erect, he similarly changes the horizontal vertigo, with which he started, into a sensation of whirling in an up and down plane. In attempting to correct this false impression, he throws his body to one side or the other with such violence that unless caught by the examiner he would fall to the floor. It is easy to imagine what havoc would be raised with the controls of an aeroplane under similar conditions. The obvious remedy in both cases is to keep the head down as it was in the beginning so that the vertigo remains in the horizontal plane.

Tight Spiral.—In this maneuver (Fig. 5) the aviator is whirled about an axis with his head and body practically parallel with the ground but facing the horizon. The stimulation occurs in the vertical canals but in a

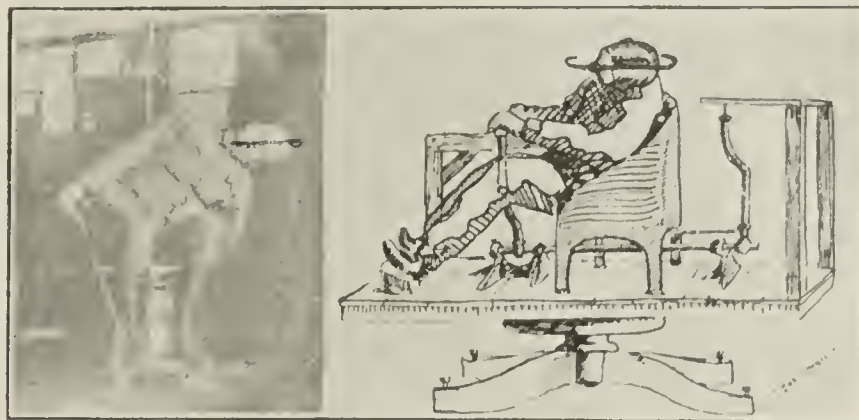


Fig. 6.—Position in turning chair to simulate tight spiral.

plane practically parallel with the ground as long as the spiral lasts. When he comes out, however, the plane of vertigo, horizontal until now, becomes vertical in a sagittal (from before backward) plane, so that he feels himself pitching forward or backward and may again meet disaster in attempting to correct for this illusion.

In the turning chair this maneuver can be simulated by turning the individual with his head sharply inclined over the shoulder (Fig. 6).

The obvious remedy for the aviator in this case is to tilt his head sharply to one side when coming out of the spiral, since by so doing he will prevent the vertigo from assuming an up and down whirl.

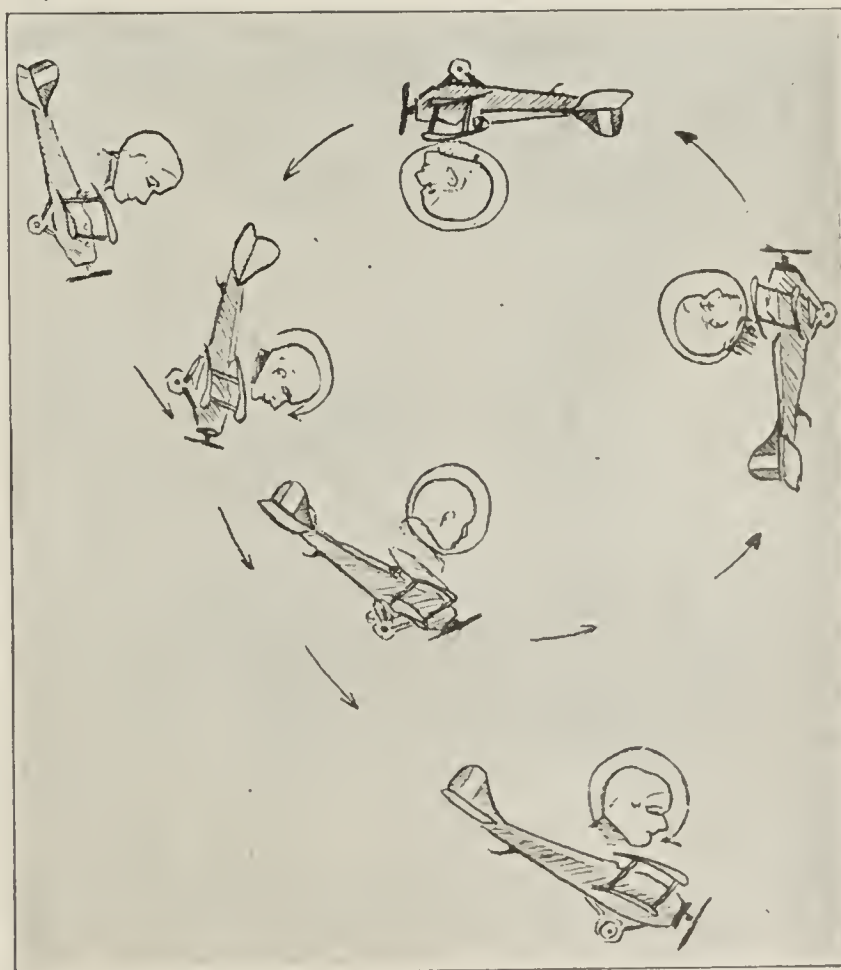


Fig. 7.—Loop.

Loop.—In this stunt, as shown in Figure 7, the vertical canals are stimulated in the sagittal plane (as in the spiral) but to a lesser degree. The correction is accomplished by tilting the head sharply over one shoulder (the position shown in Figure 6).

Immelmann Turn.—In this evolution, as shown in Figure 8, we have a compound maneuver. During the first or loop portion, the vertical canals are stimulated in the sagittal plane, followed in the second part by a stimulation of the vertical canals in the frontal plane. The effect of the first portion is lost during the remainder of the stunt, so that on emerging the aviator has only to deal with the vertigo induced by the last part, namely, the vertigo on the frontal plane. The obvious correction is to throw the head forward while "coming out." In a similar manner the vertigo induced by the "barrel roll," "falling leaf," "wing over," and other maneuvers can be readily analyzed.

It is, of course, true that the experienced stunt flier is not, as a rule, upset by vertigo induced by these stunts because of the many hours of practice he has had; but no matter how well trained and experienced he may be, he may occasionally find himself, especially in actual combat, doing whirling in a greater amount and at a greater rate of speed than his training has prepared him for, and an understanding of these principles might be the means of saving his life. As a matter of fact, stunt fliers develop instinctively certain maneuvers that neutralize the disabling effects of

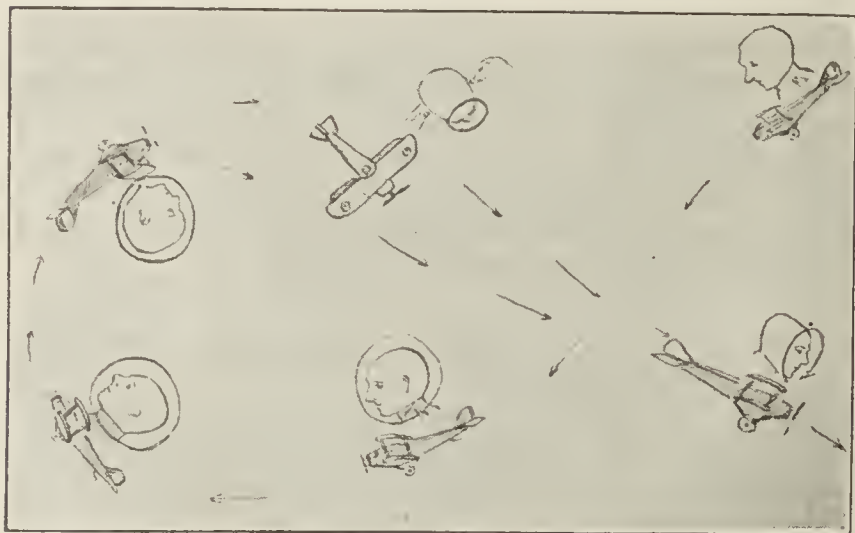


Fig. 8.—Immelmann turn. The circles indicate the plane of vertigo—sagittal first, then frontal.

vertigo; thus one flier found by practical experience that by leaning as far forward as possible, so that his head was practically inverted, a tail spin gave him practically no disabling vertigo. Another found that going into a straight nose dive immediately following a tail spin saved him from any uncomfortable dizziness.

These fliers have instinctively adopted means which at all times kept the vertigo in a horizontal plane—procedures based on sound otologic principles. Experienced aviators, on being put through the various stunts in the laboratory, when shown how easily the effects of vertigo are neutralized by certain changes in the position of the head, are of the unanimous opinion that such knowledge is of the greatest practical value, especially in stunting. It is obvious that to the less experienced this knowledge is of even greater importance.

The greatest usefulness of the knowledge that stunting is an ear problem lies in the fact that the flier may be educated to disregard the vertigo effects of his stunts in the laboratory instead of among the clouds, and without danger acquire a tolerance to evolutions to a degree impossible in the air. This can be accomplished by the use of an otologic apparatus

known as the orientator. In its construction it is like the cockpit of an aeroplane suspended in concentric rings, after the manner of a ship's compass. The movements (or changes of position) which are possible in all directions except actual forward progression are governed by the individual seated in the machine, using a set of controls resembling those of an aeroplane. Strapped in this machine, he is enabled to execute any evolution, such as the loop, spiral, etc., at any desired speed for any number of turns and thus acquire in absolute safety a tolerance for the disturbing effects of vertigo induced by these evolutions, instead of acquiring this tolerance and knowledge by actual flying with its consequent crashes and possible loss of life. In addition, it will enable him to adapt himself to new and most unusual conditions. He will learn to orientate himself in new and rapidly changing positions of the body, and to perform properly the complicated acts necessary to control an aeroplane while flying with his head down, etc., which entails an entirely reversed relation to external objects, a condition in itself most disturbing and pregnant with possibilities of disaster.

STATIC DEFECTS OF THE FEET

A METHOD OF ACCURATE DIAGNOSIS AND A
TREATMENT OF PROVED VALUE
IN THE ARMY

EDWARD A. RICH, M.D.

Major, M. C., U. S. Army; Supervising Orthopedic Surgeon
WASHINGTON, D. C.

The underlying principle in all satisfactory treatment of the common static defects of the feet is that of restoring weight-bearing to those parts of the feet to which weight-bearing naturally belongs. All other forms of treatment of the longitudinal and transverse arch defects, all treatments of foot pronations or ankle valgus and the neuralgias of the forefoot that do not rigorously enforce this principle, are merely forms of treatment that support or palliate. Real cures of the static defects depend basically on establishment of the principle, first by artificial, then by natural, means.

There are two modes of approach that can be made use of to reestablish permanently the normal foot functions and the enforced use of the normal weight-bearing areas. First, there are the surgical and mechanical measures which in a valuable way make use of mechanics and force at efforts of reconstruction. These various procedures, valuable and important as they may be in civil practice, have little place in the present discussion. Early in the war, official orders rightly removed the knife from the hand of the orthopedic surgeon in the training camp. Second, there is that mode of approach which, recognizing the abnormality of the foot, determines on shoe alterations intended either to correct the statics of wrong weight-bearing or to render the normal shoe "abnormal" to compensate for the foot abnormality. The latter method is merely the forgotten aims of the old-fashioned horseshoer or the lost arts of the obsolete shoemaker. Further, several of the static foot defects, such as talipes valgus, are congenital affairs that tend to yield toward the normal on the application of the correct shoe mechanics. This paper is an attempt to emphasize the latter therapeutic phase.

To look at this mode of approach in a popular way: A certain shoe, properly selected, can be considered a normal covering for a normal foot. If a foot, however, is deformed, in the sense of being statically or organically abnormal, a standard or stock shoe does not

"make a fit." *An abnormal foot demands an abnormal or nonstandard shoe.* Self-evident as the fact is, people have been crowding abnormal metatarsal defects, flat feet, cavus and pronated feet into normal store shoes. It is the same system as is the use of store spectacles or as would be the use of stock false teeth.

It does not seem feasible to revive shoemaking from individual lasts. However, to meet the great demand, the stock shoe has been a matter of long and careful study, with a view of remodeling. Civilian orthopedic surgeons and military boards have long given the matter of shoe alterations diligent attention, until today it can truthfully be said that the proper stock shoe can be so altered in its construction that it can be made to compensate for almost every abnormality common to the static defect.



Fig. 1.—Pedograph of normal foot: Normal impression of weight-bearing area surrounded by contour line of the upper foot. First standard base line (LM) connects a fixed point posterior to the inner malleolus (L), and the metatarsal-phalangeal prominence (M). Second standard base line (AG) is drawn midway between Planes 1 and 2 and at right angles to the axis of the foot. Supplemental data: Feiss line, one-half inch; normal subcutaneous fat. This and the following illustrations were prepared by the Anatomical Art Department of the Army Medical Museum.

ACCURATE DIAGNOSES OF STATIC FOOT DEFECTS

The diagnosis of the static foot defects has always been largely made by guess. Diagnostic aids have not been commonly sought or encouraged. Many surgeons, uninterested in the foot subjects, have jumped at conclusions from mere inspection, with the usual result that treatments applied have been misfits. To diagnose and classify the foot defects without graphic aids is exactly on a par with the attempt at diagnosis and classification of the chest derangements without a stethoscope.

It is a lamentable fact that great masses of soldiers appearing in military orthopedic clinics showing by pedograph an ankle valgus, popularly termed pronated foot, prove on accurate test to have cavus with often abnormally high longitudinal arches; but their histories show often that previous civilian treatment had for its aim the restoration of a fallen arch. There seems to be a vague misunderstanding of the characteristics of the static foot entities.

PEDOGRAPH AND SCAPHOID SCALE

Our two infallible aids in diagnosis are the pedograph and the arch scale for the scaphoid. The two are supplemental; neither is of much value of itself.

The pedograph is merely an imprint on paper of the weight-bearing surface of the feet, surrounded by a pencil mark of the contour of the upper foot (Fig. 1).

The pencil so describing this contour line is always held perpendicularly to the drawing paper (Fig 2). This impression of the weight-bearing areas of the feet, made in the standing position, with the weight equally distributed on the two feet, can be made in many ways. It can be taken with ink in the usual manner for finger prints. But by far the better way is to use the ingredients of ink in two separate solutions, first coating the plantar surface of the feet with an iron solution that scarcely stains the skin; making the impression (drawing in the foot contour), and then coating the impression with tannic acid, turning it in a few moments to a jet black. The solutions commonly in use are:

IRON SOLUTION		TANNIC ACID SOLUTION	
Tincture of ferric chlorid.....	45	Tannic acid by weight.....	10
Glycerin	5	Commercial alcohol	90
Commercial alcohol	50		

The foot impression portrays in an unmistakable way several general facts other than those pertaining to the foot itself. There are portrayed general constitutional and assimilative data, indications of character of a positive and negative nature, and more important unerring lateral lines bespeaking station, motor disturbances and ataxias (Fig. 3).

The addition of two straight lines to the pedograph makes its interpretation very simple. First is the first base line (Fig. 1 LM), drawn with a ruler along the inner foot contour, connecting the point L or that position representing the point on the contour line immediately posterior to the inner malleolus, and the point M, a position on the same contour line registering the prominence of the metatarsal-great toe joint. (In the case of gross enlargements of this joint, allowance is



Fig. 2.—Perpendicularly drawn contour line of upper foot. "Travis block" is serviceable in maintaining a perpendicular while describing the contour line.

made and the point M is assumed within the contour line.)

The next line added is the second base line. This line, AJ, is drawn at right angles to the axis of the foot, and in a plane half the distance from the base of the little toe (N) to the extension of the heel impression (O). The two base lines intersect at G.

SCAPHOID SCALE

The supplemental data for the proper interpretation of the pedograph pertain to the findings as to the actual height, by measurements of the lateral arch, as determined by the position of the lower border of the inner



Fig. 3.—Postural and assimilative data recorded by pedograph: A, posture in alcoholic intoxication: forefoot blur; B, posture in ataxias: blur on lateral aspects of impression; C, impression in extreme emaciation: normal arch.

surface of the scaphoid bone. A line, sometimes called Feiss' line, is mapped out with a thin straight-edge, preferably a short machinist's rule, connecting the posterior inferior aspect of the internal malleolus and the distal end of the first metatarsal, plantar surface (Figs. 4 and 5). The scaphoid, which will be remembered as the keystone of the lateral arch of the foot, is found easily by continuing directly downward in the front line of the shin to a point in front of the inner malleolus. The lower rounded border of the scaphoid bone is carefully described by a mark on the skin while the patient stands bearing weight equally on the two feet. In normal feet this point on the scaphoid is about one-half inch below the line described. In all cases of

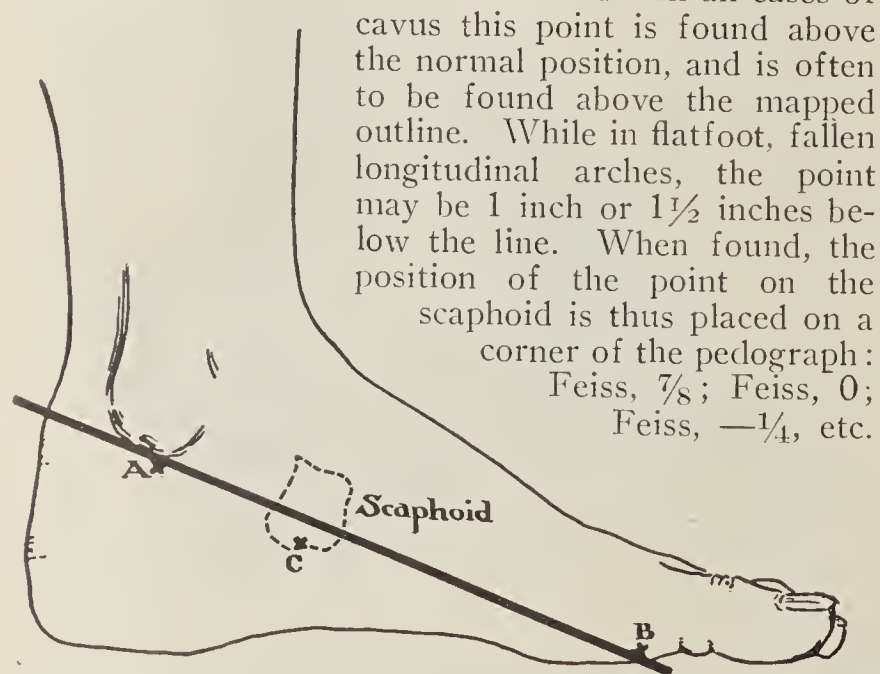


Fig. 4.—Arch scale for the height of scaphoid; sometimes the line is called the Feiss line. Normally the tubercle (C) should measure about one-half inch below the Feiss line.

Again in young persons a notation must be made as to the presence of the juvenile fat pad under the lateral arch, should such persist. Sometimes this fat pad does persist even into the thirties. Some individuals are abundantly blessed with very thick adipose

tissue under this arch. It is true, as would be surmised, that fatty tissues deposited beneath the arch might make considerable change in the pedographic picture. They might even produce the picture of a severe flat-foot. Brief mention in such cases should be made on the pedograph in such notations as "Fat pad present" or "Thick adipose tissue present."

READING THE PEDOGRAPH

The Normal Foot.—It is found that average normal weight-bearing gives us an impression which in width extends along the second base line about one-half the distance from the outer border of the pedographic impression (A) to the intersection with the first base line at G, or from point A to point D (Figs. 1 and 6). Variations about one-fourth inch either way are normal.

Fallen Longitudinal Arch.—Various degrees of falling of the longitudinal arch produce pedographic impressions entirely over to the first base line (Fig. 7). Such would be extreme, or third degree. Therefore we have dogmatically divided that part of the second base line between D and G into three equal parts (D-E; E-F; F-G), and empirically we find that feet producing impressions widening out to the neighbor-



Fig. 5.—Same line as in Figure 4 drawn on roentgenogram.

hood of E fall into a class of first degree flatfoot (Fig. 8). In the same way we discover that feet producing impressions widening to point F fall into a class of second degree flatfoot. Then any impression extending beyond the point F classes the feet as having third degree flatfoot. It must always be remembered, however, that this picture of the widening of the plantar impression must be read with due attention to the findings that are recorded on the margins—the height of the scaphoid and fat findings. Further, attention must always be first directed toward pictorial signs of valgus at the ankle as recorded by the contour line of the foot, an important point to be taken up below (Figs. 2 and 13).

Cavus, or Raised Longitudinal Arch.—In much the same way cavus is determined. When daylight can be seen beneath the weight-bearing foot we speak of third degree cavus (Fig. 9). So the space on the pedograph from A to D is divided also into three equal parts (A-B; B-C; C-D). Should a narrowed impression of a foot reach only to the point C, we would have a first degree cavus (Fig. 10). Should it reach only the neighborhood of point B, we would have second degree cavus (Fig. 11). And, as stated, with less impression still and light showing through, we have third degree cavus (Fig. 9).

Ankle Valgus and Some Considerations of the Contour Line.—Before considering that most common defect of ankle valgus, it will be necessary to premise with a statement or two regarding the contour line. This line records on the pedograph the integrity of the upper foot, the position of the main ankle and other tarsal joints on weight-bearing. The pencil making the contour line is always held perpendicularly. Contour lines are absolutely without value unless this standard position is maintained. To assist the worker, the Travis block is of great value. Figure 12 shows the level of the upper foot that the perpendicular pencil records as it encircles the foot, making the contour line.

Inspection of the pedograph of the normal foot reveals the fact that the inner contour line as it courses between the points *L* and *M* always passes entirely within, or to the impression side of the first base line, except where it bulges out around the inner malleolus (Figs. 1 and 6).

This inner contour line now assumes considerable importance.

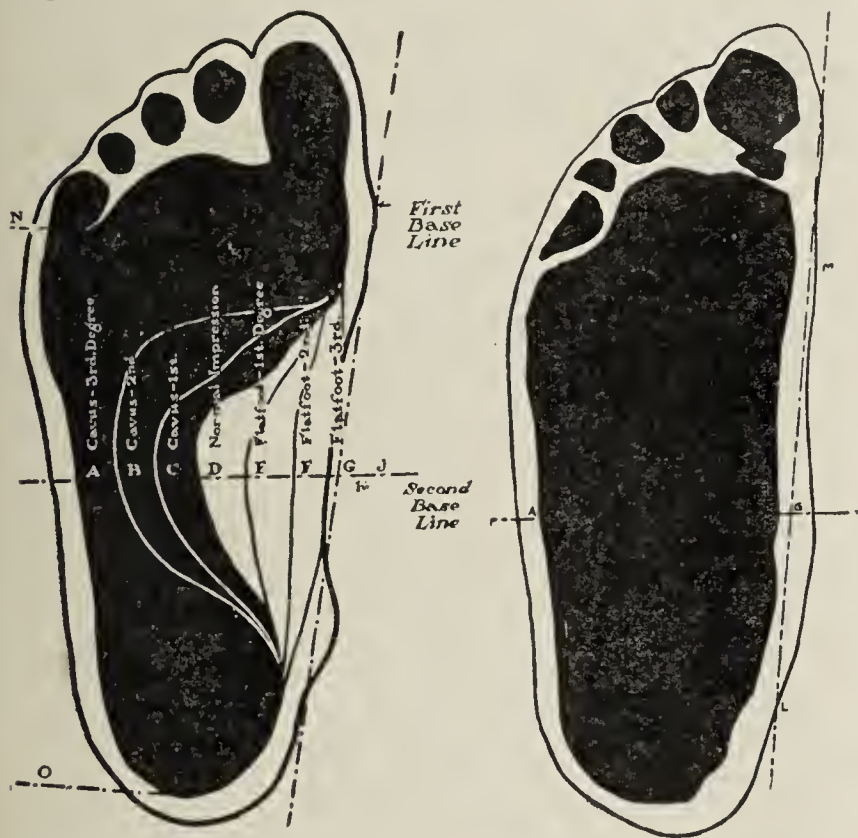


Fig. 6.—Scheme of pedograph interpretation: On second base line the point *D* (half the distance from *A* to *G*) marks the width of the normal impression. The space *AD* is subdivided into three sections to represent the impressions of the three degrees of cavus. The space *DG* is likewise subdivided to represent impressions of the three degrees of flatfoot.

Fig. 7.—Pedograph of third degree flatfoot (with pronation). Extreme falling of the longitudinal arch. Illustrates the common compound condition of flatfoot and ankle valgus, or foot pronation. Feiss line, $1\frac{1}{2}$ inches. No fat pad.

As the foot pronates, or assumes a position of ankle valgus—a matter which, contrary to much didactic teaching, takes place largely in the astragalotibial joint—the inner contour line registering the statics of the upper foot falls farther and farther outward toward and often well outside the first base line. The extreme types of true ankle valgus give us a contour line a good half inch to the outside, at the plane of the second base line (*J*, Fig. 13). Such a type of valgus is of third degree. In first and second degree valgus, contour lines of less deviation are recorded (*H* and *I*, Fig. 13).

The term “ankle valgus” is used advisedly. “Genu valgus” and “hallux valgus” have their place in nomenclature, so it is logical and right to encourage “ankle valgus” for a homologous process at the ankle. As inti-

mated above, some writers have advanced theories regarding the etiology of so-called pronation. It is asserted that most of the eversion of the foot takes



Fig. 8.—Pedograph of first degree flatfoot. Supplemental data: Feiss line, $1\frac{1}{2}$ inches. Thick subcutaneous fat.

Fig. 9.—Pedograph of third degree cavus. Space of $2\frac{1}{2}$ inches of nonweight-bearing between Planes 1 and 2. Feiss line, minus one-fourth inch.

place in certain minor tarsal joints. A previously described roentgenographic study of a hundred cases of ankle valgus in weight-bearing postures convinces me that fully 80 per cent. of the foot valgus is due to abnormal play in the main ankle joint. The causes for so large a percentage of ankle valgus among the statics of soldiers' feet is easily explained. First, one of the commonest defects in childhood is simple valgus—turn-

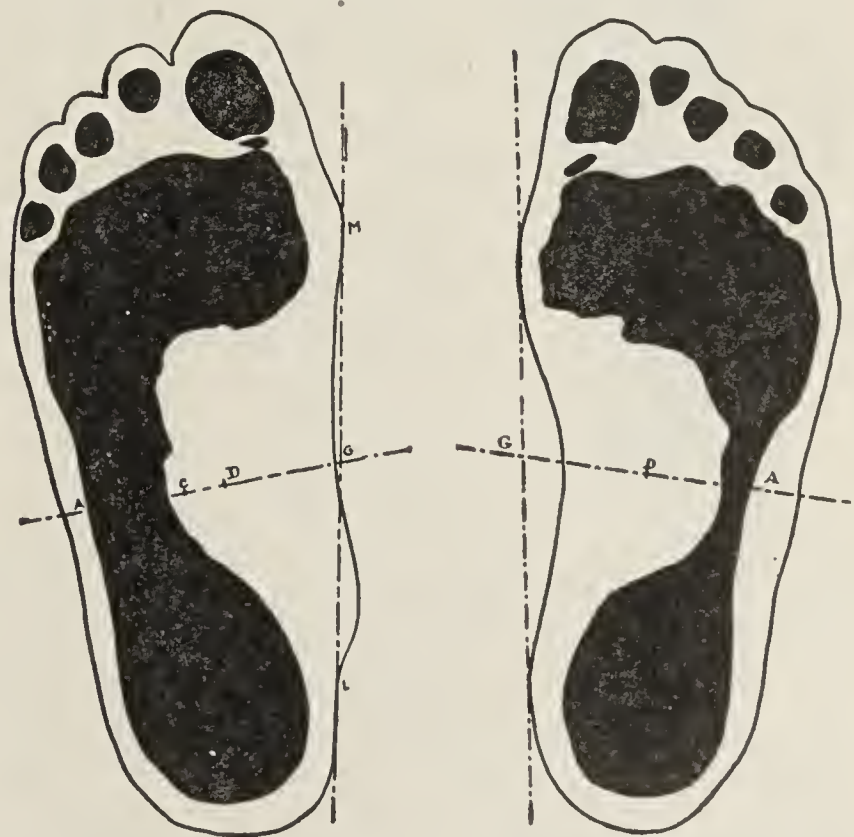


Fig. 10.—Pedograph of first degree cavus. Feiss line, 0. No fat pad.

Fig. 11.—Pedograph of second degree cavus. Feiss line, 0.

ing in of the ankle. As most of these cases are untreated, they persist. Again, the sprains of the ankle are most frequently injuries of the internal lateral

ligament. Ligamentous repair in so active a joint is often, and probably usually, incomplete, leaving as a sequela a tendency to valgus. Orthopedic surgeons who work intelligently on masses of soldiers in training



Fig. 12.—Planes of the upper foot recorded by the perpendicularly drawn contour line, shown by black markings on foot.

camps express surprise at the percentage of simple ankle valgus—with no longitudinal arch descent—to the cases of flatfoot. The ratio is as 5:11½.

The pedograph furnishes truthful and accurate data on which to render scientific diagnosis. It is the best guide we have to the intelligent treatment of all the static foot defects.

RESTORING WEIGHT-BEARING WHERE IT BELONGS

We are now in a position to consider the matter of treatment by way of shoe alterations or adjustments as

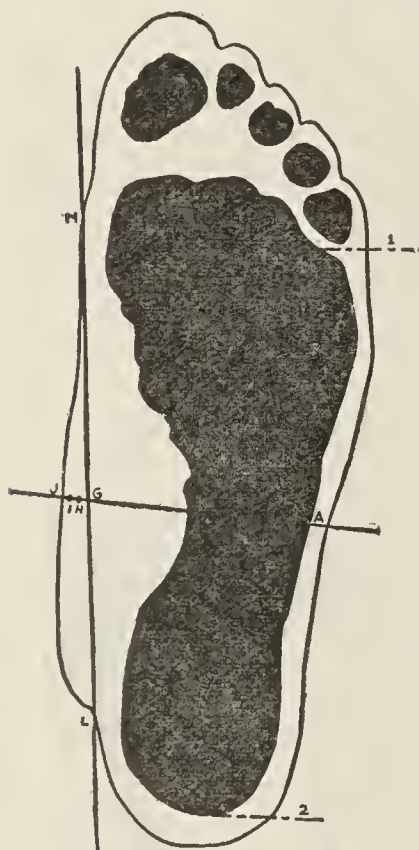


Fig. 13.—Ankle valgus, second degree. Feiss line, 1 inch. No fat present. Note that the inner contour line of the upper foot passes outside the first base line between L and M.

viewed by the discovered pathologic condition. Remembering our aim of restoring weight-bearing to those parts of the foot to which it belongs, let us first consider the most simple condition of cavus.

Cavus.—A third degree cavus gives us such a pedograph as Figure 9. In the center of the foot between Planes 1 and 2 of the figure there can be considered a normal weight-bearing area of several square inches in extent that is not, in the hollow foot wearing a common shoe, bearing any burden whatsoever. Such a cavus is often troublesome because of the shortened ligamentous plantar structures, and because the reduced weight-bearing areas of the dorsum must compensate and bear increased burdens of weight.

This type of foot is ex-

ceedingly common among our Southern troops, especially from the delta states. Such a foot always is potentially a weak foot. Common shoes never fit it. Fortunately, however, they can easily be so altered that they will be made to fit—the shank and sole can be built up with leather until weight is again distributed evenly on the intended weight-bearing areas. This alteration, the insertion of the rocker shank (Fig. 14), is made by splitting the

two layers of the shank and adjacent sole of the shoe, through and through, and the nailing in of a wide double wedge of leather of one or two thicknesses as needed, and of extent wide enough to span the arch of the cavus. The exact width is determined by measurements on the pedograph. As indicated in Figure 9, the approximate width of that particular rocker shank would be 2½ inches. If prepared rocker shanks are on hand, the alterations for a pair of shoes can be made in about eight minutes.

Alterations for Ankle Valgus.—With the same reasoning we approach the treatment of ankle valgus. The pedograph shows that in valgus the patient, instead of bearing weight on the usual planes A-B-C (Fig. 15), has shifted inward to some such new plane, as D-E-F. Contrary to teaching, the pedograph proves that ankle valgus or foot pronation is much more often a complication of hollow foot than it is of fallen arches. Often the arch is perfectly normal. The entire logic of treatment consists in constructing a solid—though

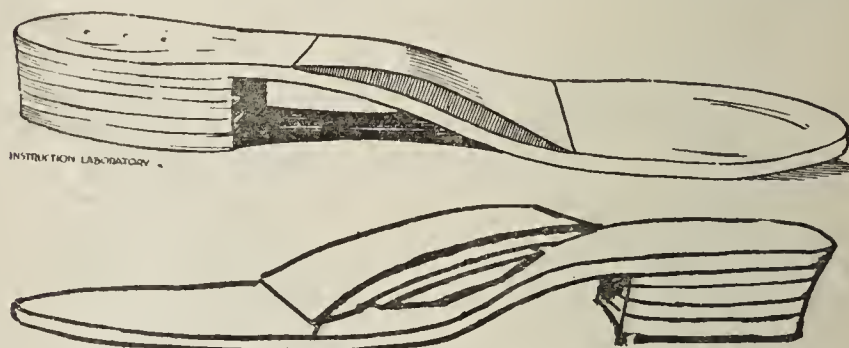


Fig. 14.—Position of rocker shank on the outer sole. The alteration for minor degrees of cavus. With more extreme types the rocker shank of two or more thicknesses of leather is demanded to redistribute weight-bearing. Lower illustration is diagrammatic of positions of leather inserts when multiple.

abnormal—foundation in the shoe under the deficient ankle so that weight-bearing is compulsory in the direction of the old plane A-B-C, or *where it belongs*. A wedged piece of leather in the shoe does the trick. The best means is the insertion of the tomahawk wedge. These wedges are long, narrow slips of sole leather of the shape shown in Figure 16, the common 8-inch wedge being adaptable for any of the ordinary shoe sizes. They are furnished the shoe shops in three

different thicknesses. The receiving shoe is prepared by splitting the layers of the inner side of the sole and shank and separating the inner half of the heel with a cold-chisel. Then the tomahawk wedge is inserted into the sole, shank and heel of the shoe, and nailed in place in such a manner that it raises the entire inner border



Fig. 15.—General planes of weight-bearing; A-B-C, normal planes; D-E-F, planes in ankle valgus.

of the shoe—and greatly stiffens the shank—a point of tremendous importance (Fig. 17). In old cases of valgus, attempts at treatment must be graded. In all cases the beginner errs by forcing correction too fast.

Alterations for Flatfoot.—Most all cases of flattening of the longitudinal arch are accompanied with pronation of the foot and abduction of the forefoot. It is probable that the pronation was the important factor in the descent of the arch. Hence the fundamental principle in treatment is first of all the same problem



Fig. 16.—Tomahawk wedge, the standard shoe alteration for ankle valgus, to shift weight-bearing to the outer side of the foot; supplied in three thicknesses.

as in ankle valgus. The tomahawk wedge is inserted in the same way and for the same purpose. Sometimes extra wedges of leather are inserted in the sole with the wedge to correct further the abduction.

In flatfoot the desired results cannot often be forthcoming from shoe alterations alone. The adjuvant treatment that is reasonable and most profitable consists in various forms of forcible correction and some temporary means of support. Frequently at first the arch has to be forced up into some approach to its original position, and the best means is the Schapps lever or a simple piece of pine 2 by 2 inches and 20 inches long with the edges smoothed. The lever applied by a belt about its end and by means of a figure of 8 about the ankle and outer side of the foot exerts

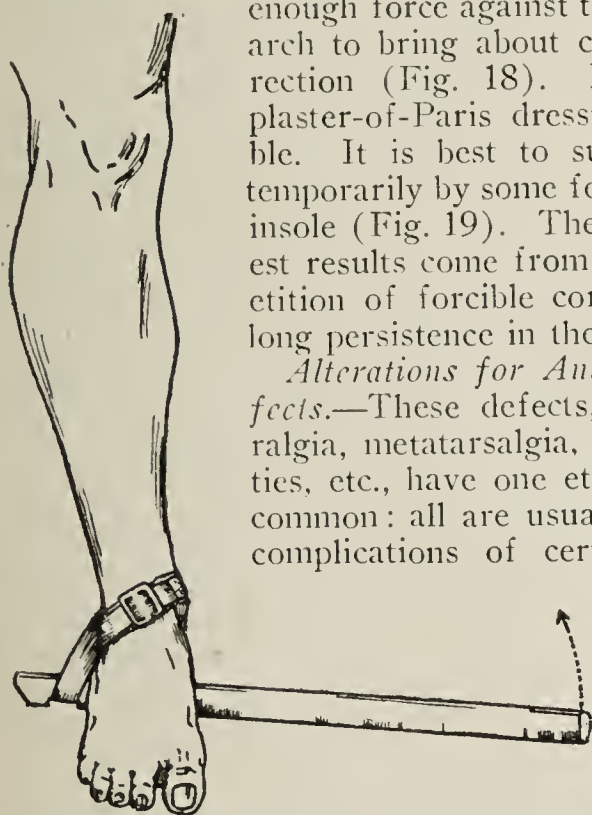


Fig. 18.—Application of Schapps lever for forcible correction of fallen longitudinal arch; protective towel and felt not shown.

enough force against the padded fallen arch to bring about considerable correction (Fig. 18). No adhesive or plaster-of-Paris dressings are advisable. It is best to support the arch temporarily by some felt pad or padded insole (Fig. 19). The best and quickest results come from the patient repetition of forcible correction and the long persistence in the wedged shoe.

Alterations for Anterior Arch Defects.—These defects, Morton's neuralgia, metatarsalgia, bunions, callosities, etc., have one etiologic factor in common: all are usually more or less complications of certain degrees of

cavus or high arch.

Evidently Nature intended weight-bearing on the distal halves of the shafts, as well as the ends, of the five

metatarsals, and did not intend to cast all the weight on the ends only of these metatarsals, Chinese foot fashion (Fig. 20 A). Naturally the higher the longitudinal arch of the foot the less weight there is borne on the metatarsal shafts, and the more on the phalangeal-metatarsal joints. Cavus in the foot breaks down the anterior arch, and secondarily produces the neuralgias and deformities.

The same general principle of restored weight-bearing pertains. First the proper shoe fitting is imperative. Then a shoe alteration known as the

anterior heel (Fig. 20 B) is employed to restore the burden to these shafts. This anterior heel is a simple piece of leather about $1\frac{7}{8}$ to $2\frac{3}{8}$ inches wide and as long as the width of the sole of the shoe. This piece is inserted between the sole and shank of the shoe, and between the two layers of leather, obliquely, in such a fashion that it is anchored by nailing or sewing just posterior to the heads of the metatarsals (Fig. 21).

On account of the frequency of these defects, this anterior heel is probably the most useful single shoe alteration in use. It is the counterpart of the Jones cleat, but is much more serviceable and of better appearance. Parenthetically, the anterior heel is a narrow rocker shank applied to a cavus for restoring statics for terminal conditions. Some workers construct the anterior heel higher for the center of the sole

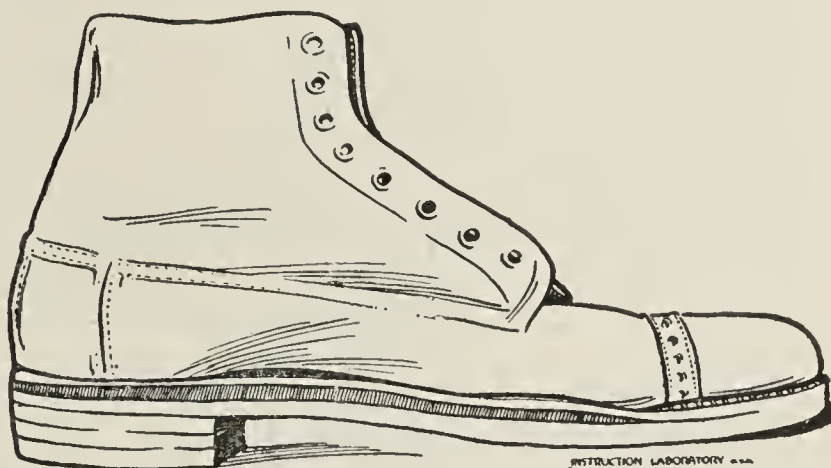


Fig. 17.—The tomahawk wedge in place.

than for the two sides. The application of this particular alteration is certainly most satisfactory.

Combined Static Defects.—While each of the foregoing simple static defects has been taken up separately, it must be borne in mind that very frequently two or more defects are found present in the same foot. Ankle valgus and cavus are commonly found together; flatfoot is usually accompanied by valgus; metatarsalgia often complicates all the other defects, etc.

The treatment of such combinations of defects consists in the blending of the alterations for the individual conditions discovered.

Alterations for Short Heel Cords.—The final static foot defect of common Army occurrence is the short heel tendon. Such conditions are often found among ranchers who have always worn high heeled boots. The Army shoe in these cases must have enough leather lifts added to compensate for the shortened tendon.

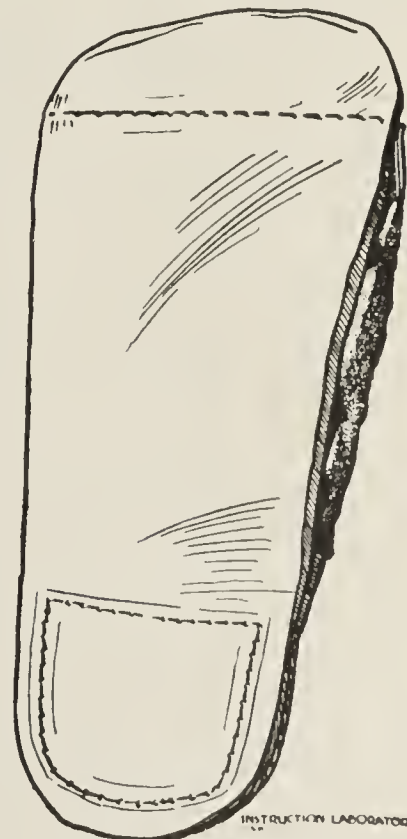


Fig. 19.—Temporary felt supporting insole, for use after forcible correction of flatfoot. Any form of support should be discontinued after two or three weeks.

SUMMARY

Cavus of the first, second or third degree calls for a rocker shank, Size A, B or C.

Ankle valgus of the first, second or third degree calls for a tomahawk wedge, thin, medium or thick.

Flatfoot of the first or second degree calls for tomahawk wedges, thin, medium or thick; forcible correction; and temporary felt support.

Anterior arch defects, metatarsalgia, Morton's neuralgia and anterior callosities call for anterior heels, Size 1, 2 or 3. The width should be specified.

CONCLUSION

The more experienced the worker in shoe alterations, the less adjuvant treatment usually is necessary to secure results. Mechanical care and skill are mightily important in every alteration, and the alteration is liable to fail with careless, indifferent workers. It must not be surmised that even the experienced do not have to change, raise, lower or alter the positions of their inserts. One of the oldest surgeons often has to revise his prescription as many as three or four times

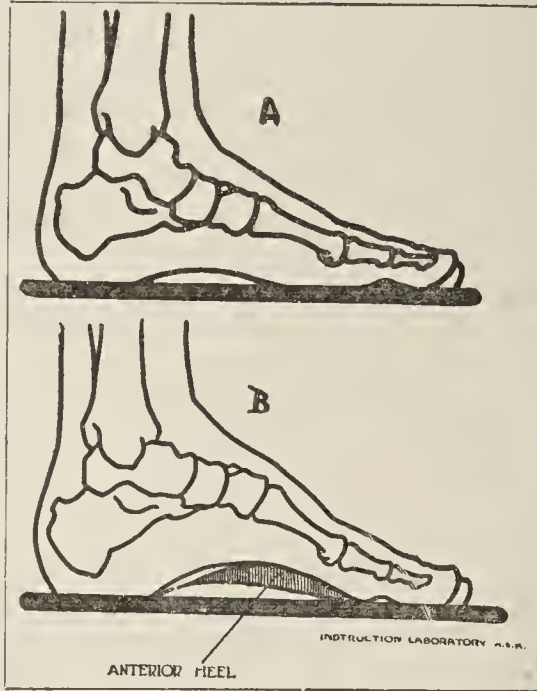


Fig. 20.—A, Normal foot; weight-bearing is transmitted to the metatarsals by the soft parts. B, hollow foot or cavus that always accompanies anterior arch defects; in this condition the introduction of the anterior heel to restore normal weight-bearing to the metatarsals is necessary.



Fig. 21.—Anterior heel in position. This shoe alteration is the most useful single alteration in use in the Army. It successfully meets almost all defects in the forefoot. It can be inserted between the layers of the soles of a pair of Army shoes in seven minutes; this includes individual adjustments.

in difficult compound cases before hitting on the right combination. The novice, the careless and those not mechanically inclined do not achieve standard results.

Effects of Too Much Speed in Military Training.—For a certain period the reports from General Pershing's army showed that the highest mortality from communicable disease was in the National Army and the lowest in the Regular Army. Thus it has been calculated that for a certain period deaths per thousand from pneumonia in the National Army, the National Guard and the Regular Army were in the proportion of 5.65, 4.80, 4.09. I believe that the variation in susceptibility can be ascribed directly to the variation in time of preparation and development which these different units have enjoyed, the development of the National Army having been characterized by intensive training and high speed. I believe that the accumulation of fatigue substances from overtraining for lengthy periods without proper attention to the time element brought about, in the soldiers that I saw, a condition analogous to what we see in the stale athlete, and it is not to be wondered at that the overtrained soldier should be particularly liable to pneumonia, scarlet fever, influenza, etc.—Lieut. D. F. Luby, *Naval Medical Bulletin*, October, 1918.

THE EPIDEMIC OF PNEUMONIA FOLLOWING INFLUENZA AT CAMP LOGAN, TEXAS

PRELIMINARY REPORT

J. N. HALL, M.D. (DENVER)

Major, M. C., U. S. Army; Chief of Medical Service

MURRAY C. STONE, M.D. (SPRINGFIELD, Mo.)

Major, M. C., U. S. Army; Chief of Laboratory Service

AND

JOHN C. SIMPSON, M.D. (HAMBURG, ARK.)

Captain, M. C., U. S. Army; Bacteriologist

CAMP LOGAN, HOUSTON, TEXAS

During the period from Sept. 13 to Oct. 8, 1918, inclusive, there were admitted to the base hospital 2,487 cases of influenza, and 416 cases of pneumonia developed, practically all from the influenza cases. The pneumonia has differed in character so widely from the types reported elsewhere that a record seems to be advisable.

Clinically, the disease was lobar pneumonia in all but fifty cases. Generally on the second to the fourth day of the influenza the temperature rose, usually, to about 104, occasionally with a distinct chill. Flatness over one lower lobe, often over both, was found at the first examination. In about half the cases suppressed respiration was noted, but crepitant râles could be elicited in nearly all cases and sharp bronchophony in a considerable number, even from the time of the first examination. Of the whole number of cases, in only four did the disease begin in an upper lobe, although in many of the fatal ones it spread to that region. The flatness was the most pronounced that we have ever seen in acute pneumonia, suggesting fluid rather than consolidated lung, and it generally followed the lines of the lobes involved. The aspirating needle was used rather freely, but fluid was found in only one case.

Because of the frequency of empyema in the hospital during the past winter, and because Major Stone found a little fluid in the pleural cavities in the earlier cases examined postmortem, Capt. J. H. Brown, M. C., Capt. J. E. Cooke, M. C., and Capt. T. P. Caplinger were detailed to examine every case of pneumonia after the fifth day of the disease, and to continue daily examinations in those cases presenting any suggestion of fluid. Yet but few cases were even suspicious. The temperature curve was that of ordinary lobar pneumonia; the pulse rate was rather lower than we have generally observed; crisis was almost unknown. The disease subsided in the patients that recovered with a rather sharp lysis, and recovery has been uneventful.

Approximately 18 per cent. of the cases so far admitted have proved fatal, in general, by the seventh day. Cyanosis has been rather prominent in fatal cases, but not of such degree as in the hemolytic streptococcal bronchopneumonia seen last winter.

Nosebleed was rather frequent. Dry pleurisy, accompanied by much pain, but not with notable effusion, was often noted in the serious cases; delirium was present to such a degree that, for example, nine patients in one fifty-bed ward had to be constantly watched, during the height of the disease. The sputum was commonly red, but less glutinous than the typical pneumonic sputum. Cough was moderate in degree. One case of parotitis and three of phlebitis of the left leg occurred. A most unusual complication has been

noted in five cases, namely, the development of surgical emphysema about the root of the neck, spreading downward to the nipple line exactly as in severe whooping cough. We had two examples of this in the severe cough of measles last winter, but no one connected with the hospital had known of it in acute pneumonia. In none of these cases was the cough even moderately severe. Major Stone has suggested that the presence of this complication may be related to the fact that the only case of empyema so far discovered perforated into a bronchus on the seventh day of the disease, at a time when we were purposely delaying operation as advised in recent communications from the office of the Surgeon-General, and in accordance with the lessons of our own experience heretofore. He suggests that the infecting organism apparently damages the lung tissues in such a way as to render perforation by air or pus more frequent than usual.

The few cases of bronchopneumonia presented no especial feature of interest. The epidemic has produced a great number, approximately 10 per cent., of abortive cases of pneumonia. The dullness over a lower lobe in the back with suppressed respiration and crepitant râles, with the usual fever, led us in the early cases to transfer the patients to the pneumonia wards at once. The sudden drop in temperature with recession of all physical signs within twenty-four to forty-eight hours led us to reclassify such cases as abortive pneumonia. Yet in a few cases the physical signs persisted as usual after the subsidence of fever.

During the present epidemic of influenza and pneumonia, 302 sputums have been examined for type determination of pneumococcus and the presence of hemolytic streptococcus with these findings:

Pneumococcus Type I, 1; Type II, 12; Type III, 16; Type IV, 273; hemolytic streptococcus, none.

In nine cases that have come to necropsy, cultures have been made from the involved portion of the lungs, the pleural cavities, the heart blood and the pericardium, and the following organisms found:

Lungs: pneumococcus, 4; influenza bacillus, 1; hemolytic streptococcus, 1; no growth, 3.
Pleural cavities: pneumococcus, 6; sterile, 3.
Heart blood: pneumococcus, 3; sterile, 6.
Pericardium: sterile, 9.

Seventy-nine uncomplicated cases of influenza have been studied by smears and cultures from the throat and sputum, with the following organisms found in either throat or sputum:

Influenza bacillus, 58; pneumococcus, 76; *Micrococcus catarrhalis*, 39; hemolytic streptococcus, 4.

POSTMORTEM FINDINGS

Thirteen cases of pneumonia were examined post-mortem between September 20 and October 5. The one on September 20 showed patchy consolidation affecting both lower lobes and was due to the hemolytic streptococcus. Another case showed several old tuberculous cavities in the right lower lobe, which lobe showed well defined consolidation. With these two exceptions all the other cases of the series, eleven in number, presented the typical picture of lobar pneumonia. Complete consolidation of one lobe was present in six cases, there being no instance in which less than this amount of lung was involved. Two lobes were completely involved in four cases, and three lobes in two cases. In every instance in addition to the massive lobar con-

solidation, partial involvement was present in other lobes. This was found four times in one other lobe, and seven times in two other lobes. This partial involvement was usually a more recent lesion, rather an intense engorgement than a consolidation, and in most instances was found on the side opposite from the older process. There was a decided predilection for the lower lobes, as nine upper lobes showed no gross changes, while this was true of but two lower lobes. The middle lobe was unaffected seven times.

A serofibrinous pleurisy was present eight times, but the fluid was small in amount except in one instance. A small serous exudate was found in two cases. Interlobar pleurisy was not uncommon. Beginning pericarditis was present in three instances. The diagnosis of lobar pneumonia was confirmed histologically.

HISTOLOGIC APPEARANCES FOUND IN THE LUNGS

In the portion of the lung last affected, and usually comprising a part of a lobe on the side opposite the oldest lesion, there appeared scattered areas of round cell infiltration chiefly in the neighborhood of small bronchi, with more or less normal lung tissue between. Many of the alveoli, however, were filled or partly filled with serum and leukocytes, and in some instances with a large amount of blood.

Sections from older lesions, that is, from lobes with complete or nearly complete consolidation, and grossly presenting a firm, dark red, slightly moist surface on section, showed marked engorgement of the capillaries and an exudate of blood, serum, leukocytes, and fibrin filling all the alveoli.

In a few instances the lesions were further advanced, the gross specimen being gray or reddish gray. These sections showed the alveoli uniformly filled with leukocytes and fibrin, and little or no blood. In some there was apparently a softening of the exudate and loosening from the alveolar walls.

MEASURES THAT DIMINISHED SEVERITY OF EPIDEMIC

Statistics show that our base hospital admission rate was the highest in any camp in the United States and that our death rate was the lowest. We are convinced that the low death rate is directly dependent on the care used to have all the sick sent to the hospital, as set forth in the high admission rate. We believe, therefore, that the chief reasons why this severe epidemic was not even more severe are as follows:

At the very beginning, Lieut.-Col. J. M. Willis, M. C., commanding officer of the base hospital, placed sufficient ward space at our disposal so that no overcrowding was necessary; even at the height of the epidemic, when we had nearly 400 cases of pneumonia on hand, a sufficient number of hospital corpsmen were furnished to give every patient brought in prompt attention; surgeons were detached from other departments of the hospital for temporary service on the medical side, and the Surgeon-General promptly sent us 100 additional trained nurses so that there was no lack of trained personnel in any department.

The camp surgeon, Lieut.-Col. J. A. Burket, supplemented the work of our commanding officer by having every suspicious case of influenza traced down at once, and nearly all were sent to hospital immediately. He also gave us great and timely assistance by transferring to us, for the emergency, a number of surgeons from his department.

A RECENT EPIDEMIC OF ACUTE RESPIRATORY INFECTION AT CAMP CUSTER, MICH.*

PRELIMINARY LABORATORY REPORT

WYNDHAM B. BLANTON, M.D. (RICHMOND, VA.)
Captain, M. C., U. S. Army

AND

ERNEST E. IRONS, M.D. (CHICAGO)
Lieutenant-Colonel, M. C., U. S. Army
CAMP CUSTER, BATTLE CREEK, MICH.

From a knowledge of what other camps were experiencing with the epidemic of so-called "influenza," and in anticipation of an outbreak of a similar infection in this camp, certain preliminary bacteriologic work was attempted. Several days before any cases of influenza were reported at Camp Custer, a study was begun to determine the prevalent mouth flora of healthy individuals. For this purpose cultures were made from the throats of enlisted men of the Fourteenth Sanitary Train. Smears and cultures on plain blood agar plates were made from the nose and nasopharynx; in all, 357 cultures were taken. The usual mouth organisms were recovered. In addition, 75 per cent. of the cultures showed a hemolyzing streptococcus. In only five cases, or in a little more than 1 per cent., was the influenza bacillus identified. Before these studies could be extended, the epidemic broke. However, this much was apparent: A high percentage of healthy individuals were carrying hemolyzing streptococci somewhere in their respiratory tract. The influenza bacillus was not present in greater numbers than one is accustomed to find this organism in normal throats.

INFLUENZA

Influenza patients who showed no physical signs of pneumonia were first studied. Throat cultures, blood cultures, blood counts and urinalyses were made.

Throat Cultures.—Smears and cultures of the throat were made in 366 cases. Plain blood agar plates were employed, and special care was taken to identify the influenza bacillus. Organisms recovered were: hemolyzing streptococci, 34 per cent.; nonhemolyzing streptococci, 33 per cent.; pneumococci, 12 per cent.; influenza bacilli, 8 per cent.

Blood Cultures.—One hundred and forty cultures were made on these patients at various stages of the disease. In all cases the cultures remained sterile.

Blood Counts.—Five hundred and eighty leukocyte counts were made with the results as shown in Table 1. Seventy per cent. of these counts showed 8,000 cells or less per cubic millimeter. This leukopenia was the most impressive feature of the blood count. The polymorphonuclear leukocytes showed but slight increase over the normal. There has been no conspicuous lymphocytosis, nor other noteworthy features of the blood count.

Urinalyses.—Twenty per cent. of the urines examined have shown albumin. In the majority of cases this was recorded as a faint trace. Casts were an infrequent finding, occurring in 4.7 per cent. of the cases.

PNEUMONIA

It became apparent with the development of a large number of cases of pneumonia that the greatest impor-

tance attached to their study. Blood cultures, sputum typings, blood counts and urinalyses were made in as many cases as possible.

Blood Cultures.—Five hundred and ten blood cultures in cases of pneumonia have been made to date. Of these, eleven have shown organisms as follows: hemolyzing streptococcus in ten cases, *Pneumococcus mucosus* once. In other words, only 2 per cent. of pneumonia patients have shown a bacteremia. These cultures were taken from the sickest patients, the majority of whom died shortly after. Many cultures were sterile which were taken only a few hours ante-mortem. In seven of the eleven cultures that have shown organisms, the blood was taken just prior to death. The evidence clearly points to the fact that the infection of the lungs is only exceptionally accompanied by a bacteremia and that the blood stream is not invaded up to a very late period in the disease. These findings agree with the apparent method of development of the pulmonary lesions and add weight to the belief that a preexisting bronchitis usually unassociated with marked sore throat gives rise to a bronchopneumonia by a process of direct extension. These results are not entirely in keeping with our experience with streptococcus pneumonias of last winter, which usually developed on the basis of a severe primary sore throat and were accompanied by positive blood cultures in 20 per cent. of the cases. It is of interest to note that of the first 430 blood cultures taken, only four showed organisms, less than 1 per cent.; while seven of the last eighty cultures have been positive; this agrees with other later developments in the epidemic.

TABLE 1.—RESULTS OF 1,580 LEUKOCYTE COUNTS MADE BEFORE AND AFTER THE DEVELOPMENT OF PNEUMONIA

Leukoeytes per C.Mm.	Prepneumonia Stage		Pneumonia	
	No. of Cases	Per Cent.	No. of Cases	Per Cent.
4,000- 6,000	96	16.5	288	28.8
6,000- 8,000	306	52.7	390	39.0
8,000-12,000	113	19.5	177	17.7
12,000-16,000	48	8.3	83	8.3
16,000-20,000	14	2.5	29	2.9
20,000-30,000	3	0.5	33	3.3
Totals.....	580	....	1,000	
Differential Counts: Occurrence of polymorphonuclear leukocytes: Per Cent.				
40-50	6	2.6	35	3.5
50-60	40	17.4	112	11.2
60-70	60	26.0	260	26.0
70-80	97	42.2	459	45.9
80-90	27	11.8	134	13.4
Totals.....	230	....	1,000	

Sputum.—The character of sputum produced by pneumonia patients was often unsatisfactory for typing because of the extremely critical condition of the patients at the time the collections were attempted. When sputum could be procured it was usually abundant, mucopurulent, and greenish yellow. A fair proportion of sputums were blood streaked, and quite a number were described as rusty. An attempt was made to trace some relation between the type of sputum and the organisms recovered from the sputum during life and the lungs postmortem. None appeared to exist. Rusty sputums were found as often in cases of streptococcus as of pneumococcus infection, and mucopurulent sputums occurred as frequently with one

* Compilation to and including Oct. 22, 1918.

organism as with another. As many sputums were typed as time would permit. From the original specimens smears were made, blood plates streaked, and Avery's rabbit's blood broth inoculated. Agglutinations and precipitations were done after from six to eight hours with the broth suspension. Bile solubility was determined and the results were checked by plain blood agar plates. In all, 740 sputums of pneumonia patients have been typed. The preponderance of streptococci is apparent, especially the nonhemolytic variety. Of the total of 451 streptococci recovered, 30 per cent. were hemolytic and 70 per cent. nonhemolytic. The

TABLE 2.—TYPES OF ORGANISMS RECOVERED FROM THE SPUTUM OF PNEUMONIA PATIENTS

	Number of Cases	Per Cent. of Total
Pneumococcus:		
Type I.....	11	1.5
Type II.....	16	2.15
Type III.....	16	2.15
Type IV.....	148	20.00
	— 191	— 25.8
Streptococcus:		
Hemolytic.....	126	17.0
Nonhemolytic.....	325	43.9
	— 451	— 60.9
Influenza.....	38	5.2
Unsatisfactory.....	60	8.1
Total.....	740	

common mouth pneumococcus was isolated in far higher percentage than usual, Type IV occurring 148 times. The remaining pneumococci were relatively infrequent. The influenza bacillus was identified in thirty-eight instances. In these cases the organism was seen in smears and subsequently recovered from the blood agar plates. In the majority of cases the influenza bacillus was associated with the streptococcus. In only eight instances was it found alone.

That these results do not accord entirely with the postmortem bacteriology of the lungs and blood is explained by the fact that many patients were moribund before the laboratory was aware of their sickness. From many of the patients sputum could not be had. Therefore, pneumonias caused by the more fatal types of pneumococcus had their bacteriology worked out postmortem, while patients with the less severe infections with the pneumococcus for the most part recovered, and the type was determined during life.

Blood Counts.—A study of 1,000 leukocyte counts in pneumonia patients disclosed a striking lack of reaction on the part of the bone marrow; 67.8 per cent. showed 8,000 or fewer leukocytes per cubic millimeter, and 85.5 per cent. were 12,000 or under per cubic millimeter. These counts agree with those obtained in the prepneumonia period. The secondary invasion of the lungs is apparently without effect in arousing the bone marrow, as is commonly the case in pneumonia. Leukocyte counts have, therefore, been of no value in indicating the onset of pneumonia.

Urinalyses.—Urinalyses on pneumonia patients showed the presence of albumin in 40 per cent., about double the incidence in uncomplicated "influenza" cases. Casts have likewise been a much more frequent occurrence, being present in 22 per cent. of the urines examined.

POSTMORTEM BACTERIOLOGY

The attempt has been made to secure as large a number of lung and heart's blood cultures as possible from fatal cases. A total of 280 fatal cases were thus

studied. When necropsies were not performed, lung and heart's blood punctures were made and smears and cultures procured. In all cases examined postmortem, two blocks of consolidated lung were taken in sterile Petri dishes under sterile precautions, and carried to the laboratory for cultures. Plain blood agar plates were streaked and broth cultures inoculated. A number of fresh smears were made from each lung. The heart's blood was cultured in every case. In smears and in cultures particular care was taken to identify all gram-negative bacilli. All bile-soluble gram-positive diplococci that did not come down in pneumococcic serums of Types I, II and III were put through mice for verification. In a number of instances agglutinations were obtained from the mice after failure with rabbit's blood broth suspensions, indicating the importance of the mouse method as a check in Group IV diagnosis.

The result of these cultures is shown in Table 3. No one organism stands out above the others as peculiarly the etiologic factor. Streptococci have been present 142 times in the lungs, and pneumococci seventy-eight times. Hemolytic and nonhemolytic streptococci have appeared about equally as the causative factor. Type II has occurred about twice as frequently as any other type of pneumococcus. Type III has been recovered eighteen times. Small gram-negative bacilli have been recovered five times from the lungs, and three times from the heart's blood. As a usual occurrence only one organism was found in a given case. In three instances in the lungs, the influenza bacillus was found in conjunction with the streptococcus. In two cases it was the sole organism recovered. In the heart's blood it was once present with the streptococcus, once with staphylococcus, and once alone.

The occurrence of such a variety of organisms in pneumonic lungs suggests that they are secondary invaders, the field being prepared by the lowering of resistance incident to a preceding disease, which in

TABLE 3.—BACTERIOLOGIC FINDINGS AT NECROPSY FROM THE LUNGS AND HEART'S BLOOD OF PNEUMONIA PATIENTS

	No. Recovered from Lungs	No. Recovered from Heart's Blood
Pneumococcus.....	78	77
Type I.....	8	6
Type II.....	34	33
Type III.....	18	16
Type IV.....	18	22
Streptococcus.....	142	110
Hemolytic.....	76	62
Nonhemolytic.....	66	48
Influenza.....	8	3
Unsatisfactory.....	30	29
Sterile.....	22	86

this epidemic was in most instances influenza, and that in each instance the invader is probably the organism of which each individual is at the time a carrier. The high percentage of positive heart's blood cultures, taken in conjunction with contradictory antemortem findings, indicates how rapidly and at what a late period in the course of the disease the defense factors in the blood of the patient break down to allow invasion.

Table 4 shows the sugar reaction of forty-two organisms recovered from the lungs and the heart's blood at necropsy and chosen at random. All of these organisms were bile insoluble, produced no hemolysis on blood mediums, occurred in chains or in pairs, and

retained the gentian violet when stained by Gram's method. The variability of inulin fermentation is particularly evident. The absence of mannite fermenters, strains corresponding to *Streptococcus fecalis*, is also noteworthy.

PATHOLOGY

Without exception the deaths from this respiratory epidemic have been due to secondary pneumonia. In no instance has a case come to necropsy in which death occurred from influenzal infection alone. The bodies have been those of well nourished young men, the termination having been reached too quickly for gross external changes. Many of the bodies have shown a moderate degree of corpulence. Reference to Table 5 will show the associated chronic lesions manifested.

TABLE 4.—SUGAR REACTION OF FORTY-TWO ORGANISMS FROM THE LUNGS AND THE HEART'S BLOOD

Streptococcus	Fermentation Reactions *					
	Saccharose	Inulin	Salicin	Mannite	Lactose	Raffinose
1	—	+	+	—	—	—
2	+	—	+	—	—	+
3	+	—	+	—	—	—
4	—	—	+	—	—	—
5	..	—	..	—	+	—
6	..	—	..	—	+	—
7	—	—	—	—	+	—
8	—	—	—	—	—	—
9	..	—	..	—	+	—
10	—	+	—	—	—	—
11	+	—	—	—	+	—
12	..	+	..	—	+	—
13	—	—	+	—	—	—
14	—	+	—	—	+	—
15	..	—	..	—	+	—
16	—	+	—	—	—	+
17	—	+	—	—	+	+
18	—	+	+	—	—	—
19	..	—	..	—	+	—
20	..	+	..	—	+	—
21	..	+	..	—	—	—
22	+	—	—	—	+	—
23	..	+	..	—	+	—
24	—	—	—	—	+	—
25	—	—	—	—	+	+
26	—	—	+	—	—	—
27	—	—	+	—	—	—
28	..	+	..	—	+	—
29	..	+	+	—	+	+
30	—	+	+	—	+	—
31	+	—	—	—	+	+
32	—	—	—	—	+	—
33	..	—	..	—	+	—
34	..	+	..	—	+	—
35	..	+	..	—	+	—
36	—	—	—	—	+	—
37	+	—	+	—	+	—
38	—	+	+	—	+	—
39	—	—	—	—	—	—
40	—	—	+	—	—	—
41	—	—	—	—	+	—
42	—	—	—	—	—	—

* In this table — indicates no fermentation, and + indicates fermentation.

These have occurred in sufficient number to warrant the belief that in a fair proportion of fatal cases the patients were seriously handicapped beforehand in the battle with their infection.

For the most part there has been a striking similarity in the appearance of the respiratory organs in the 123 bronchopneumonias coming to necropsy. The mucous membrane of the trachea and bronchi has appeared intensely red, swollen and covered with a mucopurulent exudate. The bronchial glands have been enlarged, soft and reddened on section. The majority of the lungs have been voluminous and heavy. As a general rule the posterior lobes have varied from the remaining lobes, and have presented a surface dark purplish red, sometimes smooth, sometimes roughened and dull from collections of fibrin. They have felt firm throughout, and only occasionally could areas of greater density be made out.

The remaining lobes have shown a greater proportion of air-containing tissue. They have usually presented pale, nonresilient emphysematous patches interspersed with dark red, firm and slightly depressed areas which were to be felt as irregular consolidations extending to various depths into the lung substance. Section of the lung through the lower lobes usually displayed an exceedingly moist cut surface, the slightest pressure forcing to the surface quantities of blood-tinged fluid. This may exist to such a degree as to obscure the underlying process. Again, the confluence of separate patches of consolidation may be so complete as to be confusing, but careful study has usually made evident the bronchial distribution of the process. As a general occurrence, however, patchy areas of consolidation clustered about the bronchi were easily made out. Mucopurulent plugs filled the bronchi and bronchioles. Section of the remaining lobes showed a much drier lesion. Here islands of dark red, often hemorrhagic, consolidated lung showed against a paler background of nonelastic emphysematous pulmonary tissue.

Only one case of lobar pneumonia has occurred. This was caused by a Type I pneumococcus. It appeared during the first days of the epidemic, and its occurrence was undoubtedly fortuitous. Four cases showed the changes of an interstitial bronchopneumonia. Here the white, thickened, pus-filled bronchioles surrounded by hemorrhagic, edematous or indurated areas of consolidation presented a very distinctive picture, entirely different from the great majority of the pneumonic processes seen.

Microscopically, a variety of pulmonary changes have been found, but nothing has been encountered beyond what one is accustomed to expect in bronchopneumonia. The accumulation of inflammatory cells may be patchy, or so massed as to present, in a limited number of sections, an appearance indistinguishable from lobar pneumonia. The exudate may be very dense or it may be thin; in either case edema and congestion have been marked, and so greatly compromised the remaining lung tissue. Polymorphonuclear leukocytes have, as a rule, greatly predominated in the exudate. In other sections, however, the presence of many mononuclear wandering cells and epithelial cells has been noted. Often great quantities of erythrocytes have been massed together in the air cells, sometimes presenting a very striking picture, especially when contiguous to the other air cells stuffed with the inflammatory exudate. Fibrin has not been a prominent part of the exudate except in one case. In a few cases, wide stretches of exudate appear from which all remains of alveolar walls have disappeared. In several such cases, focal areas of disintegration were in process, evidenced by poorly stained, fused masses of cellular debris in which many remains of destroyed nuclei appear. The terminal bronchioles usually contain the same type of exudate described in the alveoli. The mucous membrane is often separated off, and tangled fragments appear free in the exudate. Smears of the lungs usually showed enormous numbers of gram-positive diplococci. It was rare to find organisms arranged in chains. Microscopic study of the remaining organs has not led to any noteworthy disclosures. Eighty of the 123 cases of pneumonia examined postmortem showed an associated pleurisy. Thirty-four were described as serofibrinous, twenty-five as serofibrinopurulent, and twenty-one as fibrinous.

Strange as it may seem, there was no difference to be made out in the nature of the process caused by the streptococcus, pneumococcus or influenza bacillus. It was not difficult to distinguish Type III pneumococcus by the sticky exudate and the greater tendency toward confluence, but no matter what the infecting organism, each appeared to produce the same type of pulmonary lesion with equal facility.

Reference to Table 5 will show that there have been no particularly constant extrapulmonary complications. Nine cases have shown hemolytic jaundice, the majority of these appearing late in the epidemic. Four cases showed a massive interstitial emphysema, probably beginning in the multiple rupture of the emphysematous alveoli at the pulmonary hilum. There were four cases of pneumococcus meningitis developing in the course of the disease, only two of which came to necropsy, however. There have been relatively few splenic tumors. A firm, congested organ not a great deal larger than normal has been the rule. Acute

TABLE 5.—COMPLICATIONS OF ONE HUNDRED AND TWENTY-THREE CASES OF BRONCHOPNEUMONIA DISCLOSED AT NECROPSY

Pulmonary congestion and edema.....	93
Congestion of the spleen.....	71
Pleurisy	74
Serofibrinous	34
Serofibrinopurulent	20
Fibrinous	20
Cloudy swelling of the kidneys.....	21
Icterus	8
Lung abscess	5
Interstitial emphysema	4
Acute nephritis	3
Acute peritonitis	1
Meningitis, pneumococcus	2
Pericarditis, acute serofibrinous	3
Rupture of the rectus muscles.....	3
Cardiac dilatation	3
Cholecystitis	1
Abscesses of the kidneys.....	1
Myocarditis, acute	1
Abscess of the foot.....	1
Gastric ulcer	1
Status lymphaticus	1
Abscess of the right kidney.....	1
Congenital cystic kidneys	1
Pleural adhesions, marked	8
Pericarditis, chronic, adhesive	1
Cholelithiasis	1
Hydropericardium	1
Cirrhosis of the liver.....	1
Peritoneal adhesions	1
Endocarditis, chronic	1
Nephritis, chronic	1
Horseshoe kidney	1

changes in other parenchymatous organs have been inconspicuous. Marked acute nephritis occurred only three times. Rupture of the rectus muscles was found in four instances. The bone marrow of the femur in all cases studied has appeared to gross examination pale and unreactive.

There has been a noticeable and instructive change in the course and manifestations of the disease in the last days of the epidemic. The leukopenia has disappeared in large measure, twenty of the last thirty-five leukocyte counts having averaged 20,000 cells per cubic millimeter. A far higher percentage of blood cultures show positive results. Of the total of eleven positive findings, seven have been obtained in the last eighty cultures. Synchronous with these changes, necropsy findings have shown older processes in the chest, more fibrin and pus in the pleural cavities, collapsed lungs showing various stages of resolution and extension of the bronchopneumonia.

The average leukocyte count in the streptococcus pneumonias of last winter in this hospital was 17,000, and positive blood cultures were obtained in 20 per cent. of the cases. The duration of the present pneu-

monias to the time of death has been noticeably shorter than those studied last winter. There is possible significance in the fact that the few pneumonias of the present epidemic that presented a picture at necropsy most like those of last winter are those which have a period of longest illness, in this respect also corresponding to last winter's pneumonias.

In view of the high incidence of pneumonia in the Southern camps, the presence of large numbers of carriers of intestinal parasites has been suggested as possibly a predisposing factor. In search of such factors in the development of pneumonia in the recent Custer epidemic, the incidence of intestinal parasites was investigated. Out of 150 stools of pneumonia patients taken at random and examined, no ova or worms were found. Previous to the outbreak of influenza, a survey of several thousand Southern troops stationed at this camp showed intestinal parasites in 3 per cent. of the cases studied.

To determine the pathogenicity for laboratory animals of various strains of hemolytic and nonhemolytic streptococci recovered at necropsy, mice, rabbits and rats have been inoculated. Of thirty-three inoculated mice, twenty-two died within twenty-four hours, the original organism being recovered postmortem in each instance. Hemolytic and nonhemolytic streptococci were equally fatal. Fourteen rabbits and twelve rats were injected intravenously and subcutaneously with hemolytic streptococci. With the exception of one rabbit and one rat, both of which died of a rapid septicemia, complicated in the case of the rabbit by bronchopneumonia, all of these animals are still living.

SUMMARY

The patient is attacked by a severe acute infection of unknown etiology. In the prepneumonia stage the principal objective signs are those of a marked mucopurulent bronchitis, with high temperature, generalized pains, prostration and a leukopenia. If the process advances, the peribronchial lung tissue is quickly involved by direct extension. A massive bronchopneumonia, in many cases accompanied by acute pulmonary congestion and edema, rapidly develops, which as quickly resolves or goes on to an early termination. The marked leukopenias are probably only one phase of a general overpowering of the defensive forces of the organism. The rarity of concurrent septicemias is doubtless explained by the rapid course of the disease and the mode of origin from the bronchi. The influenza bacillus has played a minor rôle in the production of bronchopneumonia. The infective cause of the antecedent respiratory infection remains undetermined.

Aloes as a Local Sedative.—Friar's balsam, which contains aloes, is used as a sedative for bites, wounds and skin irritations, and is a good preparation for the purpose. F. W. Cock, M.D. (*Lancet*, London, Sept. 7, 1918), says a more pleasant form in which to use aloes for external sedative purposes is a saturated solution of aloes in tincture of tolu. It should be kept in a well stoppered bottle and shaken before using. For bites it should be applied once or twice before any scratching is done. It gives complete relief from the intense itching of harvest bug bites. Cock also recommends tincture of tolu for use in the croup kettle in bronchitis instead of compound tincture of benzoin, as being just as effective and more pleasant than the friar's balsam, in which latter the disagreeable odor of the aloes persists after the aromatic portion has volatilized.

TRANSFUSION IN THE DESPERATE PNEUMONIAS COMPLICATING INFLUENZA

PRELIMINARY REPORT ON THE SUCCESSFUL USE
OF TOTAL IMMUNE CITRATED BLOOD

C. W. ROSS, M.D.

Lieutenant, M. C., U. S. Navy

AND

ERWIN J. HUND, M.D. (SAN FRANCISCO)

Lieutenant, Junior Grade, M. C., U. S. N. R. F.

WASHINGTON, D. C.

The problems presented to the medical personnel supervising the care and treatment of the selected seriously ill civilian employees of the Mare Island Navy Yard were many. These cases represent a small percentage of the total illness of the community, since many of those not seriously attacked went to their homes and did not report to the emergency hospital; and our allotment was principally composed of neglected patients who did not do well with home treatment together with a small proportion of men who had no home or who were taken so suddenly and severely ill that they were unable to get home. The general status of the large majority of patients, with a resultant failure of accepted care and treatment, was most discouraging. The average patient was of the lower type as regards mentality, morality and personal hygiene, and in the main was physically deficient. A large proportion of the patients had been ill and without even simple care for from two to eight days before admission.

Fifty per cent. of the pneumonia patients had been ill for four or more days and presented a uniformly low white blood count, from 2,000 to 4,000, extreme toxic cardiopathies with vasomotor palsy, cyanosis, depressed respiratory activity, no localization of the pneumonic process, delirium and tremendous acidosis, with greatly deficient or absent urinary chlorids—conditions that remained uncorrected by the usual care and the desperate efforts of alkalization by intravenous, subcutaneous and colonic routes, and the stimulation of leukocytosis by the intravenous injection of magnesium sulphate and other supportive measures.

Previous work and excellent results by others with the use of serum from convalescent influenzal pneumonia patients suggested its use to us. However, the difficulty of keeping serum properly, and the uncertainty of testing the old serum as regards compatibility, made it inconvenient to our circumstance. The value of immune serum having been established, no objection to the use of total blood could be seen. The added advantages theoretically to be gained by the use of total blood are:

1. The increased coagulating power caused by the introduction of blood platelets. It was found that in advanced cases the coagulability of the blood was markedly decreased, and was undoubtedly an important factor in allowing this type of pneumonia to progress to a fatal termination.

2. The fact that additional immune bodies are contained in the leukocytes, as first advanced by Metchnikoff and later shown by practical application. Cases progressing to a fatal termination have shown an increasing leukopenia down to 2,000 and lower. We therefore decided to try transfusion of total blood of persons convalescent from two days to six weeks (height of immune content of blood) from pneumonia complicating influenza.

The simplicity, the safety and the brilliant results have been most encouraging.¹ In thirteen cases of the desperate type described, the following brief observations have been noted: Four patients, two of whom had been ill for more than ten days and were at the time moribund, died. Of the remaining nine, all showed definite localization of the pneumonic process with progressively increasing leukocytosis and resolution, rapid clearing of cerebrospinal, respiratory, cardiovascular and renal disturbances, diminished acidosis, and normal temperatures for from twenty-four to seventy-six hours.

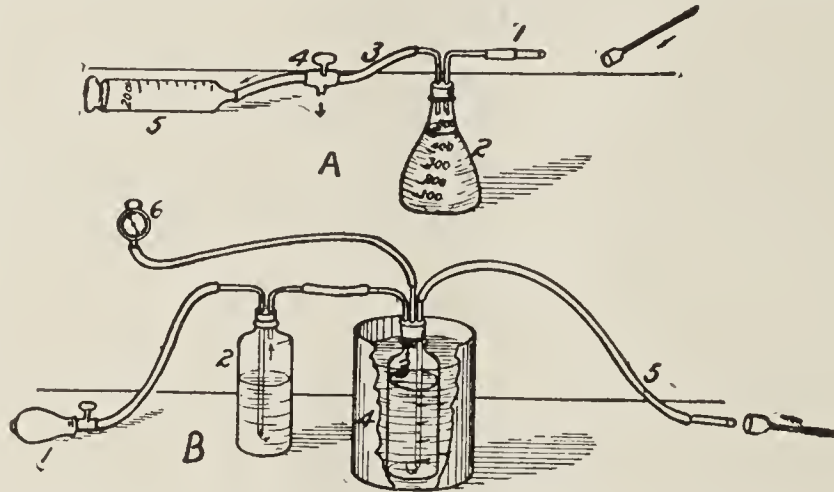
We are using from 200 to 400 c.c. of blood at a dose and repeating in from twelve to twenty-four hours if marked results are not obtained. With improved technic we are using it early in the course.

TECHNIC

The usual delirium of the patient, the absence of a surgically clean place for work, and the occasional delay suggested the

citrate method as the more practical. The work in emergency wards and tents demanded special care as regards avoidance of infection. This technic has made the procedure safe and simple:

The donors are persons who have had a definite influenza accompanied by a definite pneumonia; the time of selection is from three days to six weeks of convalescence (height of immune body content). Donors are selected from our own patients and from those in surrounding districts. Donors must be subjected to the Wassermann test and clinical examination for syphilis. The donor's and the recipient's blood is tested for isohemolysins and iso-agglutinins.² We have found several incompatibilities. All preliminary tests having been made, the blood is taken with a paraffined receiving apparatus from the veins about the antecubital fossa with the usual surgical technic. The apparatus shown in the accompanying illustration allows no exposure of blood to infected



Apparatus for transfusion: A, receiving apparatus: 1, receiving tube with very short rubber connection (all paraffined); 2, 500 c.c. Ehrlemeyer flask (paraffined); 3, suction tube for partially exhausting air from flask; 4, two-way stopcock; 5, 20 c.c. syringe; B, apparatus for giving blood to recipient: 1, bulb and valve (from sphygmomanometer); 2, wash bottle (containing mercuric chlorid, 1:500); 3, delivery bottle for citrated blood; 4, vessel containing water at temperature of 43 C.; 5, delivery tube; 6, pressure gage (to measure rate of flow and pressure).

1. Detailed case reports and statistics are to follow in a future report.

2. Compare Kolmer, J. A.: Practical Text-Book of Infection. Immunity and Specific Therapy, with Special Reference to Immunologic Technic, Ed. 2, Philadelphia, W. B. Saunders Company, 1918.

air. The paraffined receiving flask minimizes the danger of coagulation. A 1 or 2 per cent. solution of sodium citrate in physiologic sodium chlorid solution is used.

The blood is transferred to the closed apparatus for delivering the blood to the recipient. A vein is chosen on the arm and the usual technic followed. The pressure gage is of extreme value to control rate and pressure of flow. The citrated blood is kept at proper temperature by a water bath, as shown in the illustration. Exclusive of laboratory tests, it takes approximately forty-five minutes to perform a complete transfusion, taking and giving.

ERYTHEMA MULTIFORME

A CLINICAL AND LABORATORY STUDY OF FORTY-SEVEN CASES

WILLIAM H. GUY, M.D. (PITTSBURGH)

Captain, M. C., U. S. Army

CAMP TRAVIS, TEXAS

A definite cause may be ascribed to certain cases of the clinical entity that we call erythema multiforme. The rôle of certain drugs, antitoxins and serums has long been recognized. Cases developing following the ingestion of stale meat, fish, oysters, etc., have been seen sufficiently often to warrant the assumption of direct causation, theoretically being due to the absorption of products of decomposition, bacteria or their products. It would seem that a few reported cases have been due to uterine irritation, a neurosis, etc. Parker and Hazen studied a group of cases occurring in the course of such diseases as typhoid and diphtheria, and were inclined to favor a toxic theory. The theory of absorption of intestinal toxins has long been prominent in the literature. Lain, Chipman and others have recently associated erythema multiforme with focal infections about the teeth, tonsils and accessory air sinuses. Mahon, Vidal and others, from a purely theoretical standpoint, believed a number of cases to be of bacterial origin. Corlett reported a case following a gunshot wound in which a streptococcus was found. Epidemics have been reported by Gaul, Herxheimer, Duhring and others.

I wish to report certain phases of an endemic form of erythema multiforme at Camp Travis, Texas, during the months of February and March, 1918. In all, forty-seven cases were seen, the cutaneous pictures of which varied through all grades with mild erythematous lesions to those showing all manner of individual lesions or a preponderance of vesicular and bullous lesions on skin and mucous membranes. In most of the cases with extensive skin involvement the onset of the disease was heralded by a mild chill or chilly sensations, followed by a febrile reaction that continued over a period of from fourteen to twenty-one days. The temperature curve was irregular but showed a tendency to an evening rise and a morning remission, all ending by lysis. Many of the patients observed had a rise of temperature for two or three days only, the highest recorded temperature being about 100. Several had no abnormal temperature. There were purpuric lesions in approximately 10 per cent. of the cases. Only two gave a history of an attack prior to enlistment, while ten of the forty-seven returned to the hospital with a second attack, one with

a third. We early began to investigate every patient that was admitted to the hospital. Careful physical examinations failed to reveal anything noteworthy except that nearly all had hypertrophied and mildly inflamed tonsils. Several had open wounds, the result of recent vaccinations.

LABORATORY FINDINGS

All the urines were practically normal. A few showed a transient albuminuria.

The feces were negative.

In the red cells of the blood there was no change; in the white cells, a moderate leukocytosis, rarely over 11,000.

The hemoglobin was normal.

The differential count showed that the leukocytosis was due to an increase in the polymorphonuclears.

Blood cultures, taken at different times during the course of the disease, were all negative, as were cultures from vesicular and bullous lesions.

Throat swabs showed all the organisms usually found.

Cultures from deep tonsillar crypts showed in thirty cases a hemolytic streptococcus as the predominating organism. Superficial swabs were negative for this organism in the same cases. In nine cases a pyogenic streptococcus was found. In two cases in which the throat and tonsils were negative, the hemolytic streptococcus was isolated from recent vaccination wounds.

At the same time that the cases under consideration were being studied, there was in Camp Travis an epidemic of streptococcic respiratory infections, in the greater number of which the *Streptococcus hemolyticus* was recovered.

Repeated attempts to obtain pure cultures of the *Streptococcus hemolyticus* on defibrinated blood agar failed, and no growth was obtained on plain plus reaction agar.

Serum from infected individuals did not agglutinate the organism.

The opsonic index gave us no information.

It was noted that with the clearing of the exanthem we were unable to obtain the streptococcus with the same facility from the tonsil crypts, but that in those cases with second attacks the organism could again be found. Believing that this organism was possibly the cause of this particular group of cases, acting by elaboration of toxins from a focus in the tonsils, all patients in whom the streptococcus was found were referred for tonsillectomy as soon as the exanthem, temperature, etc., had subsided. In none of these cases was there a recurrence.

CONCLUSIONS

The presence of an endemic form of erythema multiforme, presenting, in addition to the cutaneous manifestations, certain phenomena common to all the acute infectious diseases, makes plausible an infectious theory of etiology. The presence of a hemolytic streptococcus deep in moderately inflamed tonsils, coupled with what scant knowledge we have of the pathogenicity of this particular organism, lends color to the theory. Absence of organisms in the blood stream and skin lesions would seem to indicate the action of toxins generated in a focus of infection rather than a localization of organisms in the skin. The results obtained by tonsillectomy in streptococcus carriers is not conclusive on account of the small number of cases, but it is at least suggestive.

Symptomatic Treatment.—This form of therapy—often disdainfully characterized as “merely symptomatic”—represents, in my view, the very acme of the medical art.—B. Fantus, M.D.

A CLOSED SYSTEM OF DRAINAGE FOR PENETRATING WOUNDS OF THE CHEST*

MARION A. BLANKENHORN, M.D.
(ORVILLE, OHIO)

Captain, M. R. C., U. S. Army
FRANCE

No satisfactory system of drainage for infected war wounds of the chest has been employed that does not produce a more or less open pneumothorax. It is well known that open pneumothorax seriously disturbs the mechanics of respiration and circulation, and exposes large areas of pleural membrane to infection. It is well known also that open pneumothorax is very seldom cured spontaneously.

Recent war surgery has demonstrated satisfactorily that the pleura is able to overcome a very extensive contamination and even a severe infection in a comparatively short time. But to do so the pleura must be in practically a normal condition otherwise, that is, free from accumulations of air or fluid.

Patients operated on early and left with open drainage invariably have done badly. Patients not operated on have developed empyema or become septic. The middle ground offers the best chance, and patients operated on at a selected time and closed again have done remarkably well.

It is not always possible to provide operation and closure at the critical hour; therefore many cases are seen, especially at the base, which demand drainage just as certainly as they demand being spared the embarrassment of an open pneumothorax, in particular those cases reacting violently to infection when there is a small hemothorax and no pneumothorax. In such a case the pleural membranes, respiration and circulation are relatively normal; but when an open

faces are obliterated and accumulations of serum or blood avoided.

Mechanical difficulties have been the chief obstacles in the way of closed drainage. I have seen various devices tried by several confrères in the Royal Army Medical Corps, but when unsuccessful it was usually due to the difficulty in making an anastomosis between

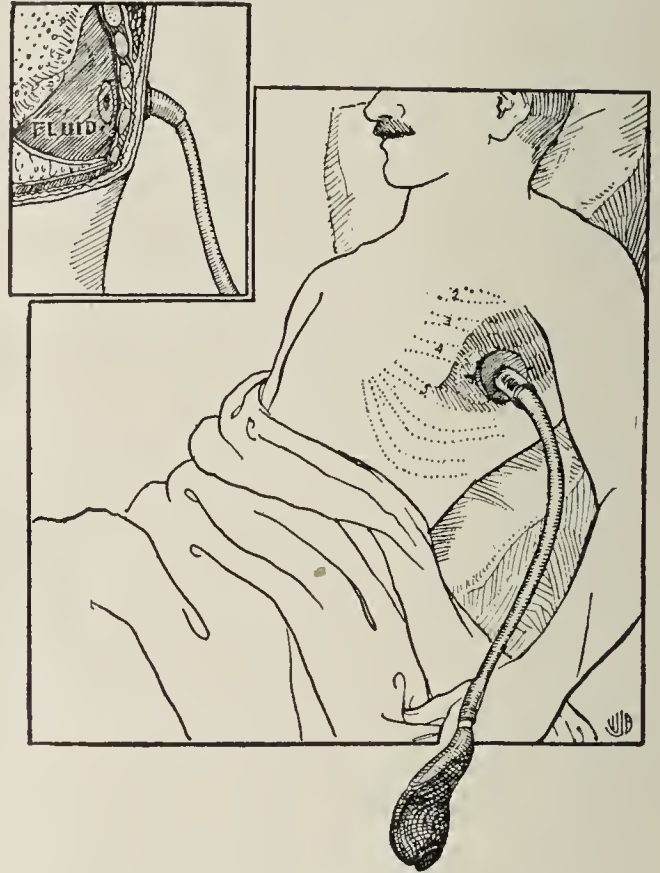


Fig. 2.—Method of securing normal expansion of lung and liberal drainage of pleural sinus.

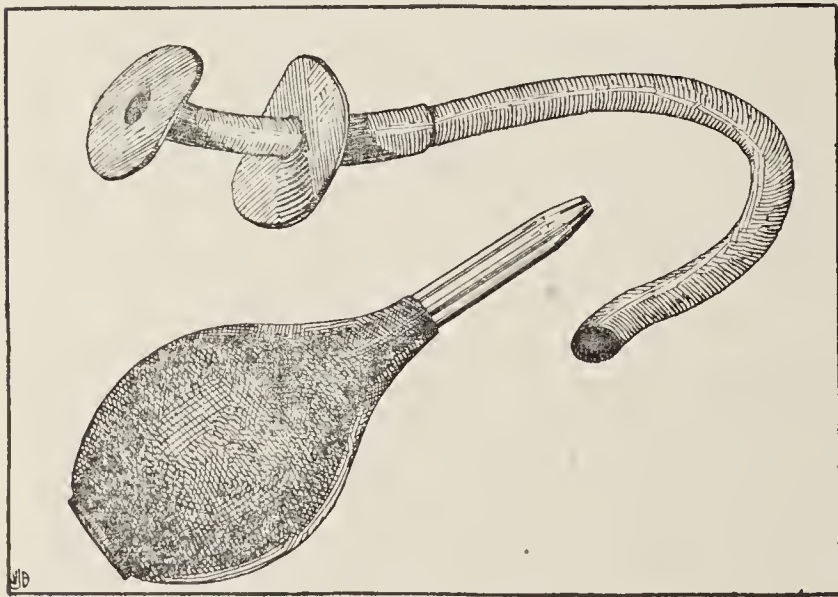


Fig. 1.—Brewer's tube.

pneumothorax is produced, all the membranes are exposed to infection alike, and the patient is seriously damaged by impaired respiration and circulation. It is quite certain that pleural membranes when in approximation combat infection better than when separated, probably for the same reason that wounds of the tissues heal best when all contaminated sur-

a rubber tube and the chest wall. At the Lakeside Unit we have used the Brewer tube with very satisfactory results. This is a rubber tube with flange arrangements (Fig. 1). It is inserted through a rib that has been resected for from one-half to three-fourths inch, and a stab wound through the pleura. It is not necessary to suture the tissues tightly around the tube, for an air tight junction can be made with adhesive tape and dressings together with the flanges of the tube. To maintain a continuous negative pressure on the chest, a stiff rubber bulb is collapsed and connected to the free end of the tube by a glass connection. In civil practice we were using Politzer bags, but at present the rubber bulbs of automobile horns are more available. At operation the surgeon can usually insert the tube through his stab wound with a very little inrush of air, and by manipulating the flanges of the tube prevent a pneumothorax of any appreciable size from forming. What air has entered the chest can be promptly pumped out with the bulb, a large surgical clamp on the tube being used as a valve. By keeping the bulb collapsed and dependent below the wound (Fig. 2), one can make the lung expand normally and at the same time provide a liberal drainage of the pleural sinus.

It has been found that the lung comes down very readily, and breath sounds can be heard almost at once over the space previously occupied by fluid. In all cases a tube will remain tightly in place at least five days, in which time the lung usually has become adherent to the chest wall, and all danger of a large pneumothorax is obviated. After the second or third day, irrigations at a low pressure can be made through the tube by means of the bulb without allowing any

* From No. 9 (Lakeside U. S. Army) General Hospital, B. E. F.

inrush of air. It is advisable to use very little pressure in irrigating lest the lung be torn loose from its newly formed adhesions to the chest wall. For the same reason, also, the patient should be protected from coughing during the first five days of the drainage. It is apparent that the treatment of these cases demands the early obliteration of the pleural sinus by adhesions; for when open pneumothorax persists, the lung is frequently collapsed and makes no progress, thus allowing a large expanse of pleura exposed to infection, and a cavity very hard to treat.

When the chest has been explored for a foreign body and drainage is found necessary, it is best to make a drainage through a separate opening, especially if the surgical wound is contaminated by the original wound of entry.

On chronic empyemas after gunshot wounds, or otherwise when there has been considerable fibrosis of the visceral pleura, a system of closed drainage with suction will expand the lung much better than blowing exercises; but the methods can be combined. In chronic cases after granulations have surrounded the wound, the tube can be removed, cleansed and replaced; but an air tight junction can be made with the help of adhesive tape.

The stiff rubber bulbs we are now using are found to crack and break if collapsed absolutely flat for a long time. Until better bulbs are available, it is best to collapse them partly, but empty and replace frequently.

Captain Paryzek, who has charge of wounds of the chest at the Lakeside Unit, has treated a number of cases by this method very successfully. His report in detail will soon be available.

RELAPSES AFTER APPARENT RECOVERY IN DELAYED TETANUS

W. L. WHITTEMORE, B.A., M.B. (Tor.)

Major, C. A. M. C.

SHORNCLIFFE, KENT, ENGLAND

Especial interest attaches itself to the two cases of delayed tetanus reported herewith, owing to the fact that after apparent recovery had taken place, there occurred at a later date similar though milder attacks of the same disease. These men were wounded, one three and a half months, and the other nine months previous to the onset of tetanus. In the second case, three months after the patient was wounded an operation was performed in the neighborhood of the healed wound which may have resulted in an acceleration of the development of the disease. In both of these cases the local symptoms and signs were in evidence two and three weeks before the onset of the secondary, generalized tetanus. Esau, I think, observed this characteristic in 1910 in cases of shorter incubation periods. From being mildly ill when the signs were localized, both men became dangerously ill when the symptoms became generalized, showing, in sequence, pain, stiffness, clonic contractures in the wound areas, increasing trismus, photophobia, terror of noise and movement, opisthotonos, with later an emprosthotonos, excessive dyspnea, and cyanosis. Eye complications developed—in one a bad keratitis, in the other an iritis and conjunctivitis. The intelligence remained comparatively unaffected until both had reached very critical stages in their illnesses.

REPORT OF CASES

CASE 1.—*History*.—Private L. H. B. (No. 69990), Canadian Field Artillery, aged 22, in the service twenty-four months, was wounded by shrapnel, Oct. 1, 1916, in eleven places, and was given antitoxin on the same day in the field ambulance station. He believes that he was not again inoculated against tetanus. In the left leg there were only two wounds, a small one just above the knee anteriorly which healed very quickly, and a larger one on the left buttock which was drained for two weeks. This wound healed in December, 1916, and appeared as a scar the size of a half crown, situated centrally and posteriorly on the left buttock. I draw attention only to these wounds, as they seem to have been the probable sites of the infection.

Jan. 15, 1917, the patient was discharged from a hospital in Birmingham to a Canadian convalescent hospital, where he was kept for twelve hours before being returned to his unit in the Canadian Field Artillery. The next day, Jan. 16, he complained of a slight stiffness of the leg from the hip down. He was soon given a ten days' furlough and when he returned, Feb. 24, he reported sick. Two days later the pain and stiffness in the leg had become more intense and had begun darting across the back. This continued for the next two weeks, and on March 10 his jaws began to be a little stiff. For the next five days he remained mostly in bed, occasionally feeling flushed and headachy. He did not vomit. He began to find out that he had difficulty in arising from the recumbent position. March 16, he awoke from sleep with his head and shoulders twisted over to the left side. The next day this pleurothotonus continued, and he complained of a general rigidity and found that he could walk only by taking very short steps. He was then, March 17, admitted to No. 11 Canadian General Hospital showing some opisthotonos and delirium. Any movement in bed appeared to throw him into convulsions and to cause great pain. He talked very thickly, opening his jaws with difficulty not more than half an inch. Muscle percussion set up clonic contractures. He perspired freely.

Treatment and Course.—Under a general anesthesia he was given 4,500 units of tetanus antitoxin, intraspinally, 3,000 units, intravenously, and 1,500 units, intramuscularly. His maximum temperature was 102, and his pulse was 134.

The next morning, March 18, rigidity was not quite so marked, and two days later there was so much improvement that it was possible to do lumbar puncture under local anesthesia. One day a serum rash appeared on the body, after inoculation. A complicating keratitis developed in one eye at this time. The opisthotonos gradually gave way to an emprosthotonos. During the thirteen days between March 18 and March 31 he had, altogether, 30,000 units of antitoxin intraspinally, 4,500 units intravenously, and 16,000 units intramuscularly.

April 1, the patient showed great improvement. Trismus had almost disappeared, the recti were less tense, and the temperature curve was running closer to normal.

April 10, he was given subcutaneous inoculation of 500 units of antitoxin—the first in two weeks—and this was followed by only a slight serum reaction.

A note, April 15, stated that the patient was greatly improved, was free from pain and was sitting out of bed. The keratitis seemed no better. His temperature had been normal for fifteen days.

May 29, the patient was transferred to a special hospital for further eye treatment, but the keratitis improved only slowly. His general condition was hardly improved until four months later, when he began to have tremors and some stiffness in the same leg, especially so after resting it.

Relapse.—This showed itself four months later, September 13, and within ten days the condition had become so aggravated that the patient could stand up and begin walking only with great difficulty.

On the eleventh day of the relapse, September 24, he felt some stiffness in the jaws. Two days later trismus was marked, and the deep reflexes were markedly exaggerated. He also complained of headache and general stiffness. He

was given 1,500 units of tetanus antitoxin intramuscularly. This was followed by a slight rise in temperature with the appearance of a rash, and by an improvement so far as pain and stiffness, were concerned. September 30, four days after the inoculation, he could open his jaws almost fully, and about one week later he felt quite fit except for a slight stiffness in the left leg. He was invalided to Canada this week. During this relapse, 15 grains of chloral three times a day were given for three days.

CASE 2.—History.—Private P. M. (No. 436758), aged 46, with two years' service in the 14th Canadian Battalion, was wounded by shrapnel in the face—left infra-orbital region—June 18, 1916. On the same day, in a field ambulance, he was given 1,500 units of tetanus antitoxin. In September of the same year an operation for the removal of a piece of bone at the site of the injury was done, and shortly afterward he began to be bothered by twitchings of the left eye, mild at first, but gradually growing worse, with occasional headaches. This continued for the next five months. About April 9 he felt a stiffness of the jaws which at first was thought to be due to a bad tooth, and later, by reason of a growing hyperexcitability of the patient, to hysteria. The headaches became worse, and a general body stiffness appeared. April 17, he took to his bed. The next day he was seen by Lieut.-Col. A. J. Mackenzie, C. A. M. C., who made a diagnosis of tetanus.

Treatment and Course.—Under a general anesthesia, the patient was given 5,000 units of tetanus antitoxin, intraspinally, 6,000 units, intravenously, and 2,000 units, intramuscularly.

April 19, he showed marked trismus, opisthotonos, photophobia, and aversion to movement. He complained of headache, and his respirations were labored and wet. Under a local anesthesia he was given 3,000 units of antitoxin, intraspinally, and 1,500 units, intramuscularly. His maximum temperature was 101, and his pulse was 124.

April 20, cyanosis was marked; he complained of severe pain in the head, and was irrational at intervals. Under a local anesthetic he was given 6,000 units of antitoxin intraspinally and 1,500 units intramuscularly. His maximum temperature was 102, and his pulse 136.

April 21, his respirations and color were very bad, the pulse thready. His maximum temperature was 101, and his pulse 136.

As there seemed less rigidity, April 22, the patient was given 4,500 units of antitoxin by the intramuscular route only. About three hours later he suddenly developed a respiratory and laryngeal spasm; his face turned almost black, the eyes protruded, and the hands and arms appeared mottled. A pulse was scarcely perceptible. Nothing else being immediately available, a penknife was used to open the veins in the arms, and about 24 ounces of blood were removed. The patient had no lower teeth and as, in the trismus, the upper teeth had become embedded in the lower gum, two upper front teeth were immediately pulled out. This opened up a passage way for an oxygen tube. The spasm passed off and the patient continued to improve the rest of the day. His maximum temperature was 100.2, and his pulse 180.

He could open his jaws about one-quarter inch the next day, April 23. There appeared a slight urticarial rash, and cyanosis seemed less marked. The recti were still tense. His maximum temperature was 100.2, and his pulse 136.

May 1, the patient had made progress, improving steadily though slowly. He was now quite rational and was sleeping better. His temperature had been normal for four days. He was given 1,500 units of antitoxin, May 1, and no reaction was felt. For a few days one eye had been showing a bad conjunctivitis with some iritis.

By May 8 the general condition had greatly improved, though the eye condition was still bad and some facial twitching persisted.

By May 22 the patient was walking a little, the facial twitching had almost ceased, and his eye appeared to be improving.

July 1, the patient, who was gaining in weight and relatively very fit, was boarded for invaliding to Canada.

Relapse.—This began while the patient was on ten days' leave of absence, and when he returned to this hospital, August 9, he had marked rigidity of the jaw muscles, the

masseters and pterygoids being mostly affected. The teeth—a new set of false ones—were firmly clenched together. There was slight general stiffness, occasional clonic contractures in the infra-orbital region; and an exaggeration of the deep reflexes. While away he had had some electrical treatment, and from his report evidently showed a hyperexcitability to galvanism and faradism. In this hospital, on his return, he was given 4,500 units, subcutaneously, of tetanus antitoxin and put on 15 grains of chloral three times a day. He was extremely nervous about his condition. His temperature was 99.7, and his pulse 106.

August 10, the patient was able to open his jaws about one-half inch, and his general condition seemed improved. He had a little difficulty in swallowing. He was given another 4,500 units of antitoxin intramuscularly, with no reaction following. His temperature was 98, and his pulse 86.

August 15, the patient still had some rigor of the muscles of the neck which he said made swallowing difficult. He was given 4,500 units of antitoxin intramuscularly. There was no reaction. His temperature and pulse were normal.

August 23, he was given 3,000 units intramuscularly with no reaction following.

August 25, the jaws opened freely and the general stiffness of the body was gone.

September 19, the patient left for Canada. His general condition was good, and he had no pain, stiffness nor twitching. His nervousness, too, had almost disappeared.

In the first case the temperature showed two steeples, reaching 104. These followed antitoxin inoculations. At no other time in either case did the temperature rise above 102.5. It is felt now by us that in the first case in the first attack fewer inoculations might have been given without harm in treatment or delay in recovery.

On the case sheets accompanying these men from the hospital it was suggested that they again be given subsequent inoculations of prophylactic sizes, as it is evident enough that even attacks of long-delayed tetanus, accompanied by therapeutic doses of anti-tetanic serum in large quantities, will not always confer immunity for more than a few months. In view of the diverse ways of tissue change, reorganization and destruction with a subsequent opening up of sources of buried infection, and in view of the uncertainty in the race for supremacy between an organism or its toxin against its antibodies, one wonders just when the last inoculation of antitoxin against this attenuated organism should be discontinued. Semple, in 1891, implanted tetanus bacilli on two pens, and in 1902 and in 1909 succeeded in getting pure growths from each one. This shows how long the organism may remain active.

CONCLUSIONS

1. The incidence of tetanus may be markedly delayed.
2. Relapses may occur after attacks of delayed tetanus.
3. The premonitory symptoms of tetanus are localized to the area of the wound and may be difficult to recognize, as has been pointed out in recent A. C. I. memoranda.
4. The relapse is not so long or so severe as the first delayed attack, which may be followed by myolitic symptoms lasting for weeks and months.

There arises the question of excision of the focus, even when there may be no foreign body, as a precautionary measure against tetanus.

Real Disinfection.—More labor, more soap and hot water, less smell, less spray, less camouflage.—*Weekly Bulletin*, Department of Health, New York City.

THE FAILURE OF A BACTERIAL
VACCINE AS A PROPHYLACTIC
AGAINST INFLUENZA

G. W. McCOY, M.D.
Director, Hygienic Laboratory
WASHINGTON, D. C.

V. B. MURRAY, M.D.
Assistant Surgeon, United States Public Health Service
AND

A. L. TEETER
Intern, Stanford University Hospital
SAN FRANCISCO

The necessity for accurate, controlled observations on preparations that are used as prophylactic agents for influenza is our reason for presenting the subjoined data.

The bacterial vaccine used in the present investigation was kindly furnished by Dr. F. O. Tonney, chief of the laboratory of the Chicago Health Department. While we are not intimately acquainted with the process of the preparation of the vaccine, we believe that it is an agent that should exhibit the immunizing properties, if any exist, of the micro-organisms used in its preparation.

Each cubic centimeter contains, approximately:

B. influenzae	500,000,000
Pneumococci Type I	500,000,000
Pneumococci Type II	500,000,000
Pneumococci Type III	500,000,000
Pneumococci Type IV	1,500,000,000
Streptococcus hemolyticus	1,000,000,000
Staphylococcus pyogenes-aureus	500,000,000

Two or more strains of each organism were used.

The dose used was 0.5 c.c. at the first injection, 1 c.c. at the second and 1.5 c.c. at the third. The interval between the injections was forty-eight hours.

The persons vaccinated were patients at a state institution for the insane. Only patients of 41 years of age or under were vaccinated, as it was anticipated that if influenza appeared in the institution the great majority of cases would be in persons in this age group, and furthermore there was not sufficient vaccine at hand to provide material for a larger number of persons.

In each ward of the hospital a list was made of all patients aged 41 or under, and each alternate patient was vaccinated, the remainder being considered as controls. Each group numbered 390. The vaccination was completed November 15, and fortunately the institution remained free from influenza until November 26, when cases began to appear, although at this time the epidemic had almost disappeared from the community at large. The cases were clinically like those that have been observed elsewhere, and there was the usual percentage of severe cases and of cases with serious pulmonary complications, some terminating fatally.

The accompanying tabulation shows the results in the two groups up to Dec. 9, 1918.

INCIDENCE OF INFLUENZA AND PNEUMONIA IN THE
VACCINATED AND THE CONTROLS

	Vaccinated	Not Vaccinated
Persons in group	390	390
Number developing influenza	119	103
Number developing pneumonia	23	17
Deaths	10	7

It appears clear from the evidence afforded by these observations that no protection was afforded by the vaccine.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

EMETINE BISMUTH IODIDE.—Emetinae Bismuthio-Iodidum.—Emetine Bismuthous Iodide.—Bismuth Emetine Iodide.—A complex iodide of emetine and bismuth, containing from 17 to 23 per cent. of anhydrous emetine and from 15 to 20 per cent. of bismuth.

Actions and Uses.—Emetine bismuth iodide has the action of emetine, but when taken by the mouth, on account of its insolubility, it is less likely to cause vomiting than the soluble salts of emetine administered orally.

It has been used with apparent good results in the treatment of chronic cases and carriers of amebic dysentery, even where the hypodermic administration of emetine had failed.

Dosage.—The commonly used dose has been 0.2 Gm. (3 grains) daily for four days, either in a single dose at the midday meal or in divided doses. The drug should be given as dry powder, enclosed in capsules or cachets as desired, or in the form of pills or capsules which resist disintegration in the stomach.

Emetine bismuth iodide is an odorless, orange-red powder having a slightly bitter taste.

It is but slightly soluble (with decomposition and liberation of emetine) in water, and dilute acids. It is decomposed by alkaline liquids and by strong acids.

Shake 0.1 Gm. of emetine bismuth iodide with 10 Cc. of tenth-normal hydrochloric acid volumetric solution during fifteen minutes. Filter and dilute 1 Cc. of the filtrate to 100 Cc. To a 5 Cc. portion add 1 drop of mercuric potassium iodide test solution, shake and allow to stand one minute. No distinct milkiness or turbidity should appear.

When assayed by the following method, emetine bismuth iodide contains from 17 to 23 per cent. of anhydrous emetine and from 15 to 20 per cent. of bismuth.

To about 0.5 Gm., accurately weighed, of emetine bismuth iodide in a glass stoppered flask add 10 Cc. of water and 3 Cc. of ammonia water, shake and allow to stand ten minutes. Add 50 Cc. of ether to the flask, shake for ten minutes and then shake every ten minutes during two hours. Decant 25 Cc. of the ethereal layer into a 25 Cc. graduated flask. Filter this through a pledget of cotton into a small beaker. Wash the flask and filter with ether. Allow the ether to evaporate spontaneously and dry over sulphuric acid. Take up the alkaloid with fiftieth-normal sulphuric acid volumetric solution and titrate back with fiftieth-normal sodium hydroxide volumetric solution using cochineal as an indicator. Each Cc. of fiftieth-normal sulphuric acid volumetric solution consumed is equivalent to 0.0048 Gm. of anhydrous emetine.

Place the flask, containing the residue from the emetine determination, upon the water bath and allow the remaining ether to evaporate. Transfer the aqueous liquid and precipitate to a beaker rinsing the flask with a few Cc. of concentrated hydrochloric acid. Add about 30 Cc. of concentrated hydrochloric acid to the beaker and boil. Dilute to about 300 Cc., again heat to boiling and filter. Add ammonia water until a slight turbidity appears. Add hydrochloric acid drop by drop until the solution just becomes clear. Heat to boiling, add 50 Cc. of 10 per cent. ammonium phosphate solution and boil for several minutes. Let stand for one-half hour. Transfer the precipitate to a tared Gooch crucible, which has been strongly heated for one hour in a nickel crucible before being weighed. Wash with hot water, dry, and heat in a nickel crucible to constant weight. Each Gm. of bismuth phosphate (BiPO₄) corresponds to 0.6863 Gm. of bismuth.

Emetine Bismuth Iodide-Abbott.—A brand of emetine bismuth iodide complying with the New and Nonofficial Remedies standards.

The Abbott Laboratories, Chicago. No U. S. patent or trademark.

Bismuth Emetine Iodide-Mulford.—A brand of emetine bismuth iodide complying with the New and Nonofficial Remedies standards.

The H. K. Mulford Co., Philadelphia. No U. S. patent or trademark.

Cachets Bismuth Emetine Iodide-Mulford, 2 grains.—Each cachet contains bismuth emetine iodide-Mulford 0.13 Gm. (2 grains).

CREOSOTE CARBONATE (See N. N. R., 1918, p. 87).

Creosote Carbonate-S. & G.—A brand of creosote carbonate, U. S. P.

Manufactured by Schering & Glatz, Inc., New York.

GUAIACOL CARBONATE (See N. N. R., 1918, p. 87).

Guaiacol Carbonate-S. & G.—A brand of guaiacol carbonate, U. S. P.

Manufactured by Schering & Glatz, Inc., New York.

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SATURDAY, DECEMBER 14, 1918

THYROID TOXEMIA AND EXOPHTHALMIC GOITER

Exophthalmic goiter has long been ascribed to a condition of hyperthyroidism despite the difficulties of interpretation which this hypothesis entails. Toxic symptoms, even including exophthalmos, can be induced by ingestion of large quantities of thyroid extract. This well established fact is, perhaps, the most compelling indication for the hyperthyroid theory. Nevertheless it has not sufficed to establish any acceptable or effective uniformity in the mode of treatment; and the dissatisfaction with the attempts to explain all the varied symptoms of exophthalmic goiter as the outcome of hyperactivity of the endocrine glands is manifest in current discussions of the pathogenesis and therapy of this malady.

Reviewing the criticisms of the theory of hyperthyroidism in relation to so-called exophthalmic goiter, Janney¹ has reminded us that the typical exophthalmic goiter contains only from a fiftieth to a twentieth of the total active iodine present in normal thyroids; whereas more, not less, iodine might reasonably be expected to occur in hyperfunctioning glands. Exophthalmic goiter has been reported not infrequently in families having hypothyroid members; sometimes both kinds of symptoms—supposedly hyperthyroid and hypothyroid—are observed in the same person.² Contrary to the implications of the hyperthyroid theory, cases of exophthalmic goiter without tumor are not extremely uncommon. Despite the theory, thyroid medication has been reported to benefit some patients suffering from the disease. Finally, similar metabolic disturbances may be present in both alleged hyperthyroid and hypothyroid conditions; the blood picture of exophthalmic goiter is practically identical with that of myxedema and cretinism, so that, as Janney comments, if these conditions are diametrically opposed, such a striking similarity in the metabolic and hematologic findings would scarcely be expected.

Accordingly, Janney¹ has proposed to discard the seemingly inadequate hyperthyroid explanation and substitute for it "dysfunction" of the thyroid to explain the phenomena. In the light of this we can now understand that some of the symptoms of exophthalmic goiter—the thyroid enlargement, cutaneous symptoms, scleroma, osseous changes, and special metabolic manifestations, such as hypoglycemia³—are identical with those of a hypothyroidism attributable to a poorly functioning gland. They are truly symptoms of thyroid deficiency which have usually been disregarded in the symptomatology. The more familiar manifestations—psychic stimulation, tremor, tachycardia, increased basal metabolism, etc.—are toxic symptoms which Janney assigns to the liberation of intermediate products of poisonous nature, perhaps owing to the incapacity of the glands to produce the normal thyroid hormone. In exophthalmic goiter, then, a toxic substance is circulating in the system. With a defective endocrine secretory function postulated, it becomes evident how hypothyroid and toxic symptoms may be discovered concomitantly.

With this tentative explanation it becomes clear, furthermore, how clinical improvement may follow suitable—not excessive—thyroid dosage in some cases, particularly when the thyroid deficiency is the etiologically prominent though perhaps not symptomatically conspicuous factor. It is also evident, on the other hand, that the introduction of a normal hormone from without to a dysfunctioning as well as underfunctioning endocrine organ "may not necessarily lead to a cessation of the chemopathologic processes causing the toxic symptoms" of exophthalmic goiter. Probably thyroid treatment of these toxic cases is inadvisable; but when the deficiency symptoms appear, thyroid therapy may actually be indicated,⁴ despite the objection which the still current hyperthyroid hypothesis interposes. Is it too much to expect that the stimulus of Janney's recently expressed views¹ will lead to new clinical and therapeutic investigations untrammelled by the handicap of preconceived notions?

THE MINIMAL FAT RATION

During the war the reminder to "save fats" confronted the American citizen many times a day in the form of public announcements through placards, billboards and popular literature, so that it naturally became a part of his war-time creed. One reason for heeding the admonition was furnished by the experience of persons who had been in Europe since the beginning of the war. Many of them were obliged to live on a scanty allowance of fats, and they have

1. Janney, N. W.: Studies in Thyroid Therapy: The Effects of the Thyroid Hormone as Determined by a Clinical, Metabolic and Dietetic Investigation: New Points of View on Thyroid Function in Health and Disease, Arch. Int. Med., August, 1918, p. 187.

2. Bertine, E.: Med. Rec., New York, 1916, 90, 895.

3. Thyroid Functions and Therapy, editorial, THE JOURNAL A. M. A., Nov. 30, 1918, p. 1826.

4. Halverson, J. O.; Bergeim, Olaf, and Hawk, P. B.: A Metabolism Study of Goiter, with the Effect of Thyroid and Thymus Treatment, Arch. Int. Med., December, 1916, p. 800.

reported how disagreeable the deprivation had become. If we may believe the conclusions of extremely careful observers, the lack of fat was perhaps the cause of much of the dietary discomfort in Germany and the element that made the German most dissatisfied with his rations. Indeed, we are told that even when the diet was sufficient, it was not satisfactory if very low in fat.

The apparent reasons for this need not be detailed in this connection. In part we must reckon with the derangement of the dietary habits of people accustomed to liberal supplies of fat. Lack of them alters profoundly the cuisine, the mode of preparation and flavor of familiar items of the diet. Psychologic factors are brought into play as soon as the eating habits of persons are considerably modified. From a more purely physiologic standpoint it must be remembered that the fats are the most concentrated by far among all the foods. They produce a peculiarly satisfying effect, expressed in the layman's statement that they "stay by" one and stave off the feeling of hunger.

By way of contrast and contrary to such extolled virtues of fats, it has recently been suggested that these foods may for the most part be dispensed with, without serious detriment to adult man.¹ In seeking a rational course we may expect to find wisdom in the proposals of the Interallied Scientific Food Commission, of which the American representatives were R. H. Chittenden and Graham Lusk. This group of representative physiologists concluded that the desirable daily minimal ration of fat for an average man should be 75 gm., or 2 $\frac{5}{8}$ ounces. This is considerably below the ascertained intake of men at hard work in cold climates. American lumbermen consume up to 388 gm. (13 $\frac{1}{2}$ ounces) a day, and Swedish woodcutters from 7 to 13 $\frac{1}{2}$ ounces, while the ordinary European is content with quantities varying from 1 $\frac{1}{2}$ to 5 $\frac{1}{2}$ ounces.

According to the *British Medical Journal*, Starling, who is also a member of the Interallied Commission, has reached the conclusion that although, strictly speaking, there is no evidence for an absolute physiologic minimum of fat in an otherwise abundant diet, the development of the human alimentary canal makes it necessary in practice to supply a considerable proportion of fat in food. In the diet of the infant at the breast, fat gives more than 50 per cent. of the total energy, and the child requires 2 ounces a day of fat up to 10 years. It appears to the *British Medical Journal* that the minimal figure for adults, given by the Scientific Commission, may be diminished without serious detriment to the health of the individual, though probably not without inconvenience and diminution of efficiency, but that it may be considerably increased without interfering with efficiency or with health.

THE PROGRESS OF PREVENTIVE MEDICINE

The most outstanding feature of the war from the medical standpoint has been the really remarkable results obtained in the prevention of disease. War on an unparalleled scale has been going on for more than four years, waged under conditions in themselves calculated to initiate and spread contagious diseases; yet with the exception of typhus fever in Serbia and the recent epidemics of respiratory disease there have been no extensive epidemics such as have occurred in previous wars. Typhoid fever which, up to the time of the Russo-Japanese War, had been the scourge of armies in the field, has been almost a negligible quantity. In the Boer and Spanish-American wars, typhoid killed and incapacitated thousands. In the Russo-Japanese War the real beginning was made and typhoid checked. In the war just over, it has been entirely robbed of its sting. As with typhoid, so with the other war pestilences. Trench fever after a short time was brought under control through scientific investigation. It has been not only by preventive measures in warding off epidemics but also by close attention to personal hygiene that health in the armies on the western front has been maintained at a high standard. Preventive medicine during the past twenty years has progressed apace, and its value has been greatly emphasized by its strong showing in the war. The experience thus gained should now be put to good use in civilian communities.

If masses of men enduring the stress and strain of modern warfare can be kept healthy by the enforcement of sanitary and hygienic measures, it will certainly be reasonable to suppose that the general health of a civilian population cannot fail to be greatly benefited by the adoption of similar methods.

In Great Britain a strong movement is under way for the prompt establishment of a ministry of health. The medical profession and most of the public are convinced, first, that much disease is preventable and, secondly, that it should be prevented. Moreover, members of the medical profession and the people are agreed that this object will be best attained by the formation of a ministry of health. However, the views of the man in the street and of the thoughtful medical man differ somewhat widely as to exactly what the functions of a ministry of health should be. The British public and apparently some medical men are imbued with the idea that such a ministry will provide the machinery whereby the sick may be treated at the cost of the state and that physicians engaged in this work will be a species of government servant. The medical profession, as a whole, on the other hand, regards the matter from quite a different aspect. It is recognized that a national department of health will be concerned chiefly with preventive medicine, and in the opinion of perhaps the majority of medical

1. The Daily Press and the "Futilities of Contemporary Science," editorial, THE JOURNAL A. M. 'A., Sept. 28, 1918, p. 1060.

men its ideal form will probably be that of a bureau in which scientific medicine will hold sway and, in consequence, the care for the health of the people will be conducted on strictly scientific lines.

The scope of preventive medicine has widened immensely; it is the branch of medicine fraught with almost unlimited potentialities and possibilities. Preventive medicine is not now restricted to purely sanitary measures, the supervision of drainage, sewage and water supply, the destruction of disease-bearing insects and so on. As a matter of fact, the science of preventive medicine comprises every method that may prevent disease. Personal and domestic hygiene are factors of the first importance in the improvement of public health. Because preventive medicine covers so much and because it is essential to the happiness and prosperity of a nation, the demand is arising in many civilized countries for the establishment of national departments of health. The only way by which the object can be achieved is by earnest and intelligent cooperation between the general public and the medical profession.

SCURVY AND ANTISCORBUTICS

The evidence that the antineuritic and antiscorbutic properties in foods are not identical, since they behave quite differently toward absorbents, was recently mentioned in these columns.¹ This raises the question as to the comparative etiology of the types of disorder corrected by the use of antineuritic and antiscorbutic foods, respectively. Polyneuritis, as it is exemplified in the disease beriberi, is today admitted to be a dietary deficiency disorder attributable to the lack of a specific vitamin in the regimen. Is scurvy a disease of a different sort, or does it also correspond to the type lately designated as an avitaminosis?

McCollum and Pitz² reject the vitamin hypothesis in explanation of the genesis of scurvy. They insist that the disease is the outcome of faulty intestinal conditions; that it is not due to any deficiency in the diet, but rather is the result of chronic constipation caused by the physical texture of a "scurvy-producing" diet. The contention of these investigators is based on observations on guinea-pigs, the classic animals for the production of experimental scurvy. These animals are alleged to need foods that produce a bulky mass of easily eliminated feces. Thus guinea-pigs that die of scurvy generally show an empty stomach and a gorged cecum, we are told; and it is further stated that the scurvy can be both prevented and cured by the administration of laxatives, without any other alteration in the diet.

If the existence of a condition of chronic intestinal stasis is sufficient to account for so serious a malady as scurvy, without taking into account any specific

qualities of the food, surely this information is of the first importance for human therapy and prophylaxis. It is hard to believe that the antiscorbutic effect of the conventional small portion of orange juice can reside solely in a laxative effect of this substance. However, contradictory evidence is beginning to appear in the scientific literature. Chick, Hume and Skelton³ of the Lister Institute of Preventive Medicine in London deny that chronic constipation is a constant concomitant of guinea-pig scurvy. Instances are cited in which modifications in diet, to which no extra laxative effect can be attributed, have cured or prevented the disease. Experiments are also described in which the administration of a laxative alone has failed to cure or prevent scurvy.

To many unbiased students the chief obstacle to the acceptance of a "vitamin hypothesis" for the genesis of scurvy has been the fact that the disease manifests itself even when milk is included in the dietary. Popularly, milk is at present looked on as an exceptionally abundant source of all forms of vitamins. We have already called attention to the researches of Osborne and Mendel⁴ showing that milk is not as rich in the water-soluble vitamin as one not familiar with the experimental evidence for this property of the food might assume. Now we are further told by the British investigators that "milk is evidently a food poor in the antiscorbutic accessory factor, and a ration large in comparison with that of other antiscorbutic materials is necessary to afford satisfactory protection from scurvy."

As a "working theory," it seems safer at present to postulate that experimental scurvy, such as can be induced in the guinea-pig, is due to the deficiency in the diet of a specific food factor of the vitamin type. The latest investigations lend favor to the hypothesis that it is analogous in etiology and general method of cure with human scurvy. Chick, Hume and Skelton, making application of these facts and the known sensitiveness of the antiscorbutic property of milk to heat, call attention to the risk, in infant feeding with cow's milk, of "tampering with a substance which even in the fresh condition is but feebly antiscorbutic." In order to give the child optimal conditions, it is urged that whenever milk is heated in any way, or dried, an additional source of antiscorbutic vitamin should be provided. Experience points to orange juice as the most suitable source, and the precaution of using it is the wisest measure so long as the scientists disagree.

3. Chick, Harriette; Hume, Eleanor M., and Skelton, Ruth F.: The Antiscorbutic Value of Cow's Milk, *Biochem. Jour.*, 1918, **12**, 131.

4. Osborne, T. B., and Mendel, L. B.: Milk as a Source of Water-Soluble Vitamins, *Jour. Biol. Chem.*, 1918, **34**, 537. More Milk for Vitamins, editorial, *THE JOURNAL A. M. A.*, Nov. 9, 1918, p. 1582.

Nonessential Consumption.—The best definition that I have heard of nonessential consumption is "all consumption not required for maintaining physical efficiency."—H. G. Moulton, *Economist*.

1. The Nonidentity of Antineuritic and Antiscorbutic Factors in Nutrition, editorial, *THE JOURNAL A. M. A.*, Nov. 30, 1918, p. 1826.

2. McCollum, E. V., and Pitz, W.: *Jour. Biol. Chem.*, 1917, **31**, 229.

Current Comment

THE GOVERNMENT AND THE HEALTH OF WORKERS

The economic independence of a country depends largely on the efficiency of its production. The efficiency of modern industry has resulted from the development and wise use of such factors as raw materials, machinery, production processes, transportation, trade relations and the like. A still greater efficiency will come when the same careful attention is given to human beings as factors in production. Scientific methods are being applied to reduce wastes to a minimum; and yet there are no wastes comparable in value and costliness with the waste of labor turnover. Though war is the arch destroyer, happily it compels conservation and construction. America's participation in the war has made us realize the value of human resources. Yet even here we have been more concerned about aeroplanes or shells that were found defective than about the hundreds of thousands of young men whom our draft boards found unfit for military service. Our industrial army is recruited from the same population as are our soldiers and sailors. Physical defect lessens the efficiency of a working man quite as it does that of a fighting man. Of course, a physically handicapped man who cannot be safely used in the Army may be efficiently placed in industry, but placement is another of industry's problems awaiting solution. The federal government is sensitive to the urgency of the problems relating to the health and physical fitness of working people and has created in the Department of Labor a Working Conditions Service, one division of which is cooperating with the United States Public Health Service in a study of industrial health problems.¹ The health hazards of modern industry present a much more difficult problem than do the accident hazards. The economic losses due to illness and decreased physical energy far outweigh those caused by accidents. It is not enough to discover the diseases directly traceable to occupation and to develop means for their prevention. There is the far more delicate and difficult task of determining the relation between health and efficiency and of preventing waste by promoting health. Extensive research should be, and we believe is, an essential part of the program that the government contemplates. Careful study should be made of plant sanitation, of the health of employees, of the medical work now being done in industry, of occupational injuries, of the relation of hours of labor to health and production, and of provisions for safety. Out of this effort ought to come established scientific principles on which the working conditions of the future may be based. We must not, however, lose sight of the fact that many of the defects of adults result from remediable conditions of children. It is to be hoped that in a comprehensive study of so important a question as the health of working people, the government will continue to give

especially careful consideration to the bearing that the hygiene of childhood might have on the health and efficiency of our adult population.

PRACTICAL ECONOMY

Last year, attention was called editorially to the large increase in the cost of production of *THE JOURNAL* on account of abnormally high prices of paper, supplies, labor, postage, etc. In addition, letter postage increased 50 per cent. To quote: "Under the new postage rate the cost for sending the customary bills for Fellowship and subscriptions and later receipts would total over \$4,000. One half of this can be saved if each Fellow and subscriber will remit without being individually notified by mail. It is believed that many will gladly do this. Under the circumstances, such notification will not be sent on the first of the year as heretofore." In lieu of sending bills, a remittance slip was inserted in *THE JOURNAL*. The result was most satisfactory. More than 20,000 sent in their dues and subscriptions without waiting for the bill. This year the same plan will be followed and next week a slip will be inserted in *THE JOURNAL*.

THE NATIONAL BOARD OF MEDICAL EXAMINERS

During the past two weeks the National Board of Medical Examiners¹ held its sixth examination, conducting it simultaneously in New York and Chicago. In Chicago, out of fifty-eight who applied—mostly interns in hospitals—only thirteen appeared to take the examination. The explanation is that these interns could not leave their hospital duties for the time required, and that substitutes for the hospital duties could not be obtained. That so few recent graduates in medicine avail themselves of the privilege of taking this examination is surprising, since in after years the National Board's certificate is sure to mean much to them. This certificate has already received recognition, either by board rulings or by amendments to the medical practice acts, in eleven states;² and in several others, efforts to amend the practice acts will soon be made. The holder of this certificate is eligible for the Medical Corps of the United States Army and the United States Navy, subject only to his passing the required physical examination. As a result of the war there is bound to be a closer union between the medical men of the Allied nations, making it probable that in time this certificate will receive recognition in foreign countries. Even now, the National Board is planning to make a trip to France, where the examination of a number of American physicians can be witnessed by representatives of England, France and Italy, with the hope that, based on the certificate of this board, reci-

1. A descriptive statement regarding this board is contained in the Report of the Council on Medical Education to the House of Delegates of the American Medical Association. See *THE JOURNAL*, June 15, 1918, p. 1846.

2. These states are Colorado, Delaware, Idaho, Kentucky, Maryland, New Hampshire, North Carolina, North Dakota, Pennsylvania, Rhode Island and Vermont.

procuity in medical practice can be arranged with those countries. The certificate already stands as a badge of merit to its possessor. Up to, but not including, the present examination, the board has examined ninety-three applicants, of whom seventy-two passed and twenty-one (22.6 per cent.) failed. This high percentage of failures shows at once the thorough character of the examination. For, considering the fact that only graduates of Class A medical schools are admitted to the examination, this percentage of failures is high. Applicants must also have completed an internship in a hospital.

THE CITRIC ACID IN MILK

"Milk is vital to national health and efficiency." We can conserve wheat and meat, sugar and fats, and be none the worse for it, but we must use milk, says the Food Guide of the United States Food Administration.¹ The chemist is still far from knowing all about this unique food. Only a few persons adequately realize that, in addition to the familiar nutrients, milk contains in small quantities a considerable number of organic substances. Thus there are phosphatids² and those subtle, little understood constituents at present termed vitamins. It is thirty years since citric acid was discovered as a normal constituent of cow's milk.³ Although the substance is often mentioned in textbooks on the chemistry of milk, the statements usually made are of the vague sort that characterize information transmitted in the traditional way. Of the accuracy of the assertion that citric acid is present in milk there can no longer be any doubt. At the laboratory of agricultural chemistry in the University of Wisconsin, Sommer and Hart⁴ have recently isolated and identified the compound anew, and have ascertained the content to amount to approximately 0.2 per cent. of the milk, or 2 per cent. of the milk solids. Citric acid is a recognized constituent of various "acid" fruit juices and vegetables, the familiar antiscorbutic properties of which have actually been ascribed to it.⁵ Sommer and Hart have pointed out that if citric acid actually is an antiscorbutic and if there was a decrease in the content of this acid on heating milk, this fact might be used to explain, as often stated, why heated milk should be more conducive than raw milk to the production of scurvy. However, the experiments show that citric acid is not destroyed in the heating of milk even in an autoclave at 15 pounds pressure for one hour. Furthermore, the citric acid salts of milk are not changed to an insoluble form on heating. Thus the question of the physiologic function of citric acid in the diet remains unanswered.

Medical Mobilization and the War

Personnel of the Medical Corps

For the week ending December 6, there were in the Medical Corps 31,104 officers, a decrease of ninety-three since the previous week. This personnel includes three major-generals, five brigadier-generals, 205 colonels, 441 lieutenant-colonels, 2,426 majors, 10,103 captains and 17,921 lieutenants. There were in active service 30,379, a decrease of twenty-nine since the previous week. Discharges to date include 3,674 officers.

Promotions for Medical Officers

On December 3 Col. Walter D. McCaw and Major-Gen. Robert E. Noble were nominated for brigadier-general in the Medical Corps of the Regular Army. The rank of major-general held by Brigadier-General Noble was for the period of the emergency only.

Field Hospital Arrives in Russia

Field Hospital and Ambulance Company No. 4, commanded by Major John H. H. Scudder, M. C., U. S. Army, Philadelphia, which left the Philippines, September 6, for duty with the American Expeditionary Forces in Siberia, arrived in Vladivostok, September 14.

Awards for Heroism

The Distinguished Service Cross has been awarded to Lieut. James G. Hall, M. C., U. S. Army, assigned, 360th Infantry, "For extraordinary heroism in action near Montoville, Sept. 12 and 13, 1918. In spite of severe wounds, including two broken ribs, received in his first day of action, Lieutenant Hall stayed at his post for thirty-six hours administering first aid to wounded throughout the combat. Numbers of lives were saved by his devotion to duty."

Surgeon-General Relinquishes Control of Medical Schools and Intern Service

A circular letter dated December 2 from the Surgeon-General to deans of medical schools gives notice that the control over them through the Medical Enlisted Reserve Corps has been relinquished. The control was based on the draft, and medical students were enrolled in the Medical Enlisted Reserve Corps so that they might be retained at their studies so long as their scholarship remained satisfactory. The cessation of the draft makes this control no longer necessary and it has been relinquished. It is stated, however, that since students voluntarily enrolled in the Medical Enlisted Reserve Corps "for the duration of the emergency," they will be subject to the terms of their enrolment until it has been officially declared that the "emergency" has ceased. For all practical purposes, however, the students are on the same basis as civilians. It is only "in time of actual or threatened hostilities" that they would be called to active service, the probability of which is so remote that it may be disregarded. The Medical Department surrenders to the schools all supervision over their students from an educational standpoint.

The Surgeon-General has also relinquished the supervision of intern service in hospitals. Attention is called, however, to the fact that, where internships have been approved by the Surgeon-General, an agreement was entered into between the interns and the hospitals in which they were serving, and that a cessation of supervision by the Surgeon-General will not in any way impair the obligations imposed by these agreements.

Wounded and Sick Soldiers from A. E. F. to Be Placed in Hospitals Near Homes

The Surgeon-General announces that the Hospital Division has perfected plans for the care of sick and wounded soldiers from overseas in hospitals in the sections from which they were inducted and which will not be more than 300 miles from the relatives of the patients. The Hospital Division now has seventy-five of these hospitals with a capacity of 104,231 beds which were turned over to the Surgeon-General by the general staff; these do not include the fifteen hospitals

1. This excellent booklet, entitled "Food Guide for War Service at Home," was prepared under the direction of the U. S. Food Administration, with a preface by Herbert Hoover, and is published by Charles Scribner's Sons, New York, 1918.

2. The Lecithins of Milk, editorial, THE JOURNAL A. M. A., Nov. 13, 1915, p. 1734.

3. Soxhlet, F., and Henkel, T.: München. med. Wehnschr., 1888, 35, 328.

4. Sommer, H. H., and Hart, E. B.: Effect of Heat on the Citric Acid Content of Milk, Jour. Biol. Chem., 1918, 35, 313.

5. Funk, Casimir: Jour. State Med., 1912, 20, 341. Gerstenberger, H. J.: Am. Jour. Med. Sc., 1918, 155, 261.

located at the ports of debarkation at New York and Newport News which have a bed capacity of 22,066.

These hospitals are located in sixteen districts as follows:

No. 1.—General Hospital No. 10, Boston, Mass.; General Hospital No. 16, New Haven, Conn.; General Hospital, East Norfolk, Mass.; General Hospital No. 30, Plattsburg Barracks, N. Y.; Base Hospital, Camp Devens, Mass.

No. 2.—General Hospital No. 1, Williamsbridge, N. Y.; General Hospital No. 38, East View, N. Y.; Base Hospital, Camp Upton, N. Y.

No. 3.—General Hospital No. 3, Colonia, N. J.; General Hospital No. 4, Fort Porter; General Hospital No. 5, Fort Ontario, N. Y.; General Hospital No. 8, Otisville, N. Y.; General Hospital No. 9, Lakewood, N. J.; General Hospital No. 11, Cape May, N. J.; General Hospital No. 13, Dansville, N. Y.; General Hospital No. 37, Madison Barracks, N. Y.; Base Hospital, Camp Dix, N. J.

No. 4.—General Hospital No. 2, Fort McHenry, Md.; General Hospital No. 7, Roland Park, Md.; General Hospital No. 31, Carlisle, Pa.; Walter Reed General Hospital, Takoma Park, D. C.; Base Hospital, Camp Meade, Md.

No. 5.—General Hospital No. 17, Markleton, Pa.; General Hospital No. 22, Richmond, Va.; General Hospital No. 24, Pittsburgh, Pa.; Base Hospital, Camp Lee, Va.

No. 6.—General Hospital No. 12, Biltmore, N. C.; General Hospital No. 18, Waynesville, N. C.; General Hospital No. 19, Azalea, N. C.; General Hospital No. 23, Hot Springs, N. C.; Base Hospital, Camp Greene, N. C.; Base Hospital, Camp Sevier, S. C.; Base Hospital, Camp Wadsworth, S. C.; Base Hospital, Camp Jackson, S. C.

No. 7.—General Hospital No. 6, Fort McPherson, Ga.; General Hospital No. 14, Fort Oglethorpe, Ga.; Base Hospital, Camp Gordon, Ga.; Base Hospital, Camp Hancock, Ga.; Base Hospital, Camp Wheeler, Ga.; Base Hospital, Camp McClellan, Ala.; Base Hospital, Camp Sheridan, Ala.

No. 8.—Base Hospital, Camp Sherman, Ohio.

No. 9.—General Hospital No. 25, Fort Benjamin Harrison, Ind.; General Hospital, No. 35, West Baden, Ind.; Base Hospital, Camp Zachary Taylor, Ky.

No. 10.—General Hospital No. 36, Detroit, Mich.; Base Hospital, Camp Custer, Mich.

No. 11.—Cooper-Monatha Hotel, Chicago, Ill.; General Hospital No. 28, Fort Sheridan, Ill.; Base Hospital, Camp Grant, Ill.

No. 12.—Army and Navy General Hospital, Hot Springs, Ark.; General Hospital No. 33, Fort Logan II, Roots, Ark.; Base Hospital, Camp Pike, Ark.; Base Hospital, Camp Beauregard, La.; Base Hospital, Camp Shelby, Miss.

No. 13.—General Hospital No. 26, Fort Des Moines, Iowa; General Hospital No. 29, Fort Snelling, Minn.; Base Hospital, Camp Dodge, Iowa.

No. 14.—General Hospital, Fort Bayard, N. M.; General Hospital No. 20, Whipple Barracks, Ariz.; General Hospital No. 21, Denver, Colo.; Base Hospital, Camp Cody, N. M.; Base Hospital, Fort Riley, Kan.

No. 15.—General Hospital No. 16, Corpus Christi, Texas; Base Hospital, Camp Logan, Texas; Base Hospital, Camp Travis, Texas; Base Hospital, Fort Sam Houston, Texas; Base Hospital, Camp MacArthur, Texas; Base Hospital, Camp Bowie, Texas; Base Hospital, Fort Sill, Okla.; Base Hospital, Fort Bliss, Texas.

No. 16.—General Hospital No. 27, Fort Douglas, Utah; Letterman General Hospital, San Francisco, Calif.; Base Hospital, Camp Kearney, Calif.; Base Hospital, Camp Fremont, Calif.; Base Hospital, Camp Lewis, Wash.

The 50,000 wounded which it is expected will be sent to these hospitals at the end of four months will be transported from the hospitals at the ports of debarkation in special hospital trains when unable to travel in Pullman sleepers. There are four of these trains composed of seven cars each with a capacity of 172 to each train. Special hospital kitchen cars, of which there are twenty, will be attached to the Pullmans containing patients.

Since it has acquired the base hospitals the Hospital Division has recommended that the following properties which were to have been used as general hospitals, be returned to their owners:

- New Field Museum, Chicago, Ill.
- Exposition Park, Rochester, N. Y.
- State School for the Deaf, Columbus, Ohio.
- Richman Brothers Building, Cleveland, Ohio.
- Deutsches Turnverein, Cleveland, Ohio.
- High School, Cincinnati, Ohio.
- City Sanatorium, St. Louis, Mo.
- Ford Building, Milwaukee, Wis.
- Brockman Store Building, Milwaukee, Wis.
- Badger State Sales Co. Building, Milwaukee, Wis.
- Woodstock Apartments, Milwaukee, Wis.
- State School for the Blind, and Galloway Hospital, Nashville, Tenn.
- Sophie Newcomb School and Tulane University buildings, New Orleans, La.
- Byberry Farms, Philadelphia, Pa.
- New Orleans Elks' Hospital.
- Seaview Hospital, New York City.
- Ford Building, Des Moines, Iowa.
- St. Catherine's Home, Des Moines, Iowa.
- North Brothers Island, N. Y.
- Catholic Orphan Society, New York City.

HONORABLE DISCHARGES AND RESIGNATIONS, MEDICAL CORPS, U. S. ARMY

ALABAMA

Ashford—Box, C. C.
Brewton—Farish, L. B.

ARIZONA

Bisbee—Durfee, R. B.
Kingman—White, T. H.

ARKANSAS

Hartford—Butler, V. V.
Little Rock—Ball, W. F.

CALIFORNIA

Loma Linda—Herzer, F. E.
Long Beach—Robinson, T. C.
Los Angeles—Smith, R. N.
Stolz, H. C.
Monrovia—Pottenger, J. E.
San Diego—Magee, A. C.
Wessels, A. B.
Santa Barbara—Luton, G. R.
South Pasadena—Metcalf, C. F.
Whittier—Tebbetts, H. N.
Wilmington—Kay, G. L.

CONNECTICUT

Willimantic—Jenkins, C. A.

GEORGIA

Carrollton—Fitts, C. C.
Columbus—Sappington, J. S.

ILLINOIS

Bible Grove—Webster, E. C.
Chicago—Burk, W.
Sepple, E. G.
Wilkins, C. D.
Dundee—Maha, F. J.
Galesburg—Longbrake, G. A.
Iuka—Carneal, T. E.
Jacksonville—Woltman, H. C.
Rochester—Fortune, H. C.
Roodhouse—Hamilton, L. O.

INDIANA

Bloomington—Holland, J. E. P.
Indianapolis—Jackson, J. L.
Rockville—Sweany, R. B. T.
Terre Haute—Frisz, J. A.

IOWA

Clinton—White, H. A.
Sigourney—Kemp, M. E.

KANSAS

Belle Plaine—Rudolph, J. F.
Independence—Smith, T. E.
Madison—Lose, F. D.

KENTUCKY

Boston—Harned, H. S.
Dublin—Ray, D. H.
Hickman—Hubbard, J. M.

MAINE

South Windham—Moulton, O. C.

MASSACHUSETTS

Palmer—Cheney, H. C.

MICHIGAN

Detroit—Hirschman, L. J.
Flint—Willoughby, L. L.
Mount Clemens—Lenfesty, F. K.
Sturgis—Burdeno, F. R.

MINNESOTA

Duluth—Chapman, T. L.
Minneapolis—Fox, J. M.
Smith, A. E.
Rochester—Bumpus, H. C., Jr.

MISSOURI

Columbia—Shaeffer, W. R.
Crosstown—Garner, K. C.
Moscow Mills—Parker, R. H.
Smithville—Hill, E. C.
St. Louis—Eberlein, E. W.
Stein, W. F.

NEW HAMPSHIRE

Newmarket—Monge, A. J.

NEW JERSEY

Hackettstown—Randall, R. W.
Jersey City—McGiverin, E. D.
Newark—Smith, J. J.
Toms River—Brouwer, F.

NEW MEXICO

Las Cruces—Gerber, C. W.

NEW YORK

Astoria—Brown, L. M.
Bayside—Houghton, H. A.
Brooklyn—Eis, B. N.
O'Reilly, J. A.
Washnitzer, F.
Buffalo—Bauckhaus, H. H.
Lothrop, E. P.
McKee, T. H.
New York—Ellner, D.
Peet, E. W.
Port Henry—Canning, T. H.
Rochester—Lloyd, J. J.
Wolff, W. B.

NORTH CAROLINA

Raleigh—West, L. N.

NORTH DAKOTA

Kenmare—Critchfield, L. R.
Ewing, F.
Kintyre—Simon, J.

OHIO

Barnesville—Sheppard, D. O.
Cleveland—Mahrer, H. A.
Davton—Courtwright, L. R.
Tiffin—Leister, R. B.
Vanlue—Metzler, W. M.

OREGON

Oregon City—Mount, G.
Portland—Odell, J. M.

PENNSYLVANIA

Beaver—Wilson, F. S.
Bridgeville—Hopper, A. W.
Lititz—Yoder, M. H.
Philadelphia—Bricker, S.
Divisnon, A. H.
McNee, R. L.
Pittsburgh—Pool, S. N.
Reading—Gruver, M. E.
Scranton—Cornell, H. D.
Washington—Lynch, H. P.
Webster—Rupert, D. A.
Wilkes-Barre—Collmann, X. K.
Wilkesburg—Dixon, J. W.
Woodlawn—Bryson, W. S.

SOUTH CAROLINA

Charleston—Mitchell, J. C.
Columbia—Whitten, B. O.
Georgetown—Gaillard, W. M.
Scotia—Lawton, F. A.
Townville—Hobson, J. M.

SOUTH DAKOTA

Langford—Cook, J. F. D.

TENNESSEE

Memphis—Simpson, W. L.

TEXAS

Bells—Shanks, R. C.
Houston—Scott, J. W.
Texarkana—Peterson, A. L.
Weizer—Potthast, O. J.

UTAH

Salt Lake City—Henneberger, C. E.
Hinkley, E. E.

WEST VIRGINIA

Parkersburg—Gaynor, H. E.
Ripley—Ryder, T. E.
Wheeling—Cracraft, L. K.

WISCONSIN

Darion—O'Brien, H. N.
Mosinee—Towle, G. E.

ORDERS TO OFFICERS OF THE MEDICAL CORPS, U. S. ARMY

Alabama

To Camp Devens, Mass., base hospital, from Fort Oglethorpe, Capt. J. H. EDMONSON, Birmingham.

To Camp Sevier, S. C., to examine troops for cardiovascular diseases, from Camp Crane, Lieut. A. L. KELLY, Birmingham.

To Fort Snelling, Minn., from Camp Crane, Lieut. S. C. WOOD, Birmingham.

To *Newport News, Va.*, from Camp Bowie, Lieut. J. T. CALLAWAY, Birmingham.
To *Richmond, Va.*, from Fort Oglethorpe, Capt. A. W. RALLS, Gadsden.

California

To *Detroit, Mich.*, from Camp Crane, Lieut. J. H. SCHAEFER, Los Angeles.
To *Lakewood, N. J.*, for instruction, from Camp Crane, Lieut. A. H. CURRIE, Los Angeles.
To *San Francisco, Calif.*, Letterman General Hospital, from Camp Fremont, Lieut. V. L. ROCHE, San Francisco.
The following orders have been revoked: To *Camp Crane, Pa.*, base hospital from Camp Fremont, Capt. P. PATEK, San Francisco; Lieut. T. L. BLANCHARD, San Jose.

Connecticut

To *Camp Beauregard, La.*, from Fort Oglethorpe, Lieut. W. E. CRAMM, Mansfield Center.
To *Camp Sheridan, Ala.*, to examine troops for cardiovascular diseases, from Lakewood, Lieut. H. A. SOLOMON, Waterbury.
To *Fort Sheridan, Ill.*, from New Haven, Major H. G. MAUL.

District of Columbia

To *Plattsburg Barracks, N. Y.*, from Camp Jackson, Lieut. D. G. DICKERSON, Washington.
To *Washington, D. C.*, Surgeon-General's Office, from Raleigh, Major J. J. KINYOUN, Washington.

Florida

To *Camp Sevier, S. C.*, to examine troops for cardiovascular diseases, from Camp Crane, Lieut. C. R. MARNEY, Tampa.
To *Camp Shelby, Miss.*, base hospital, from Camp Joseph E. Johnston, Lieut. L. F. CARLTON, Tampa.

Georgia

To *Fort McHenry, Md.*, from Camp Crane, Capt. E. G. ADAMS, Greensboro; L. V. McVAY, Saltpa; Lieut. J. A. McGARITY, Augusta.
The following order has been revoked: To *the retired list*, from Fort Riley, Major R. S. WOODSON, Atlanta.

Idaho

To *Rochester, Minn.*, Mayo Clinic, for instruction, and on completion to his proper station, from Camp Dodge, Lieut. E. W. FOX, Arco.

Illinois

To *Camp Sevier, S. C.*, to examine troops for cardiovascular diseases, from Camp Crane, Lieut. T. S. HUGGARD, Chicago.
To *Camp Upton, N. Y.*, from Camp Crane, Capt. E. W. POTTHOFF, Oak Park.
To *Camp Wadsworth, S. C.*, to examine the command for cardiovascular diseases, from Camp Jackson, Capt. W. H. BUHLIG, Chicago.
To *East Potomac Park, D. C.*, from Army Medical School, Lieut. J. STEVENSON, Chicago.
To *Fort Riley, base hospital*, from Fort Oglethorpe, Lieut. J. R. BUCHBINDER, Chicago.
To *Fort Sheridan, Ill.*, from Camp Grant, Lieut. M. B. KARATZ, Chicago.
To *Markleton, Pa.*, from New Haven, Lieut. R. G. PESCHMAN, Chicago.
To *Richmond, Va.*, from Camp Crane, Capt. C. A. ALBRECHT, Chicago.
To *Rochester, Minn.*, Mayo Clinic, for instruction, and on completion, to his proper station, from Camp Custer, Capt. A. N. CLAGETT, Chicago; from Camp Grant, Capt. J. H. BRYANT, Galesburg; from Camp Sherman, Capt. W. C. SMITH, Chicago.
To *Vancouver Barracks, Wash.*, as tuberculosis examiner, from Denver, Lieut. V. MAURICAU, Rockton.
To *Wichita Falls, Texas*, Call Field, from San Antonio, Capt. R. H. KUHN, Chicago.

The following orders have been revoked: To *Camp Sheridan, Ala.*, base hospital, from Fort Oglethorpe, Lieut. W. H. McCANDLESS, Sterling. To *Camp Zachary Taylor, Ky.*, Lieut. H. A. LONG, Effingham.

Indiana

To *Fort Snelling, Minn.*, from Fort Sam Houston, Lieut. M. S. DAVIS, Marion.
To *Garden City, N. Y.*, as tuberculosis examiner, from New Haven, Lieut. C. J. STEVENS, Rockville.
To following order has been revoked: To *Camp Jackson, S. C.*, from Camp Custer, Lieut. H. H. ISAACS, Tangier.

Iowa

To *Detroit, Mich.*, from Camp Crane, Lieut. W. W. MURPHY, Lewis.
To *Fort Des Moines, Iowa*, from Fort Oglethorpe, Capt. F. R. HOLBROOK, Des Moines.

Kansas

To *Camp Zachary Taylor, Ky.*, base hospital, from Fort Oglethorpe, Capt. C. S. TRIMBLE, Emporia.
To *Detroit, Mich.*, from Fort Riley, Lieut. W. H. POPE, Selden.
To *Topeka, Kan.*, Washburn College, from Kansas City, Mo., Capt. C. E. COBURN, Kansas City.

Kentucky

To *Fort Sheridan, Ill.*, from Fort Oglethorpe, Capt. J. A. O. BRENAN, J. D. TRAWICK, Louisville.
To *Greencastle, Ind.*, De Pauw University, from Indianapolis, Lieut. A. STEWART, Frankford.
To *Newport News, Va.*, from Fort Oglethorpe, Lieut. T. M. DORSEY, Louisville.

Louisiana

To *Camp Zachary Taylor, Ky.*, base hospital, from Fort Oglethorpe, Lieut. J. S. DUNN, New Orleans.

Maine

The following order has been revoked: To *Cape May, N. J.*, from Camp Dix, Lieut. C. D. GRAY, Portland.

Maryland

To *Camp Meade, Md.*, base hospital, from Fort Oglethorpe, Lieut. E. G. HALL, Baltimore.
To *Camp Sevier, S. C.*, to examine troops for cardiovascular diseases, from Camp Crane, Capt. H. N. SISCO, Baltimore.
To *Fort Snelling, Minn.*, from Camp Crane, Lieut. A. A. PARKER, Pocomoke City.
To *Lakewood, N. J.*, from Garden City, Lieut. J. T. KING, JR., Baltimore. For instruction, from Camp Crane, Lieut. F. C. ELEDER, Baltimore.

Massachusetts

To *Camp Sherman, Ohio*, base hospital, from Fort Oglethorpe, Capt. G. L. VOGEL, Boston.
To *Camp Upton, N. Y.*, from Camp Crane, Lieut. G. A. WILKINS, Revere.
To *Camp Zachary Taylor, Ky.*, to examine troops for cardiovascular diseases, from Lakewood, Lieut. T. E. BUCKMAN, Boston.
To *Detroit, Mich.*, from Camp Crane, Lieut. N. B. McWILLIAMS, Williamstown.
To *Lakewood, N. J.*, from Camp Crane, Lieut. E. A. ADAMS, Newton.
To *Plattsburgh Barracks, N. Y.*, from Camp Jackson, Lieuts. M. W. PECKIN, Marblehead; D. F. DOWNING, Westborough.
To *Richmond, Va.*, from Camp Crane, Lieut. E. J. GRAINGER, Winthrop.
To *Walter Reed General Hospital, D. C.*, for instruction, from Camp Devens, Capt. A. U. F. CLARK, Westboro.
The following orders have been revoked: To *Camp Dix, N. J.*, from Fort Oglethorpe, Lieut. E. R. GOOKIN, Boston. To *Lakewood, N. J.*, from Camp Devens, Major S. J. MIXTER, Boston.

Michigan

To *Camp Custer, Mich.*, Major L. J. HIRSCHMAN, Detroit.
To *Camp Sherman, Ohio*, from Camp Crane, Lieut. L. J. PINNEY, Detroit; from Camp Perry, Capt. G. J. SCHALLER, Detroit.
To *Fort McHenry, Md.*, from Camp Crane, Lieut. C. E. VREELAND, Detroit.
The following orders have been revoked: To *Camp Abraham Eustis, Va.*, from Fort Oglethorpe, Lieut. H. S. CARR, Niles. To *Camp Lee, Va.*, from Fort Oglethorpe, Lieut. J. H. HOUTON, Flint.

Minnesota

To *Camp Sherman, Ohio*, base hospital, from Fort Oglethorpe, Capt. L. A. NELSON, St. Paul.
To *Fort Sheridan, Ill.*, from Camp Grant, Lieut. W. O. OTT, Rochester.
To *Rochester, Minn.*, Mayo Clinic, from Camp Crane, Major J. C. MASSON, Rochester. For instruction, and on completion to his proper station, from Camp Grant, Capt. C. I. OLIVER, Graceville.
The following order has been revoked: To *Camp Crane, Pa.*, base hospital, Capt. F. M. MANSON, Worthington.

Mississippi

To *Fort Thomas, Ky.*, as surgeon, from Camp Shelby, Lieut.-Col. J. T. AYDELOTTE.

Missouri

To *Pittsburg, Kan.*, State Normal School, from Kansas City, Mo., Capt. R. B. BREWSTER, Kansas City.
To *Rochester, Minn.*, Mayo Clinic, for instruction, and on completion to his proper station, from Camp Pike, Capt. P. H. SWAHLEN, St. Louis.
To *Salina, Kan.*, Kansas Wesleyan University, from Kansas City, Mo., Capt. H. D. CARLEY, St. Louis.
To *Wichita, Kan.*, Fairmont College, from Kansas City, Mo., Lieut. W. G. THOMPSON, Holden.
To *Wichita Falls, Texas*, Call Field, from San Antonio, Lieut. C. C. COATS, Winston.

Montana

To *Rochester, Minn.*, Mayo Clinic, for instruction and on completion, to his proper station, from Camp Grant, Capt. J. G. THOMPSON, Helena.

Nebraska

To *Camp Zachary Taylor, Ky.*, base hospital, from Fort Oglethorpe, Lieut. L. L. NELSON, Norfolk.
To *Detroit, Mich.*, from Camp Gordon, Capt. I. S. CUTTER, Omaha.
To *Fort Crook, Neb.*, from Camp Las Casas, Capt. J. A. STRONG, Kearney.
To *Fort Snelling, Minn.*, from Camp Dodge, Capt. J. P. WILLIAMS, Lincoln.

New Hampshire

To *Danville, N. Y.*, from Fort Leavenworth, Capt. H. W. CLEASBY, Lancaster.

New Jersey

To *Camp Upton, N. Y.*, as camp surgeon, from Camp Dix, Lieut.-Col. L. R. POUST.
To *Richmond, Va.*, from Camp Lee, Capt. C. MILLS, Morristown.
To *Rochester, Minn.*, Mayo Clinic, for instruction, and on completion to his proper station, from Camp Custer, Lieut. J. H. LOWREY, Newark.
To *Walter Reed General Hospital, D. C.*, from Hoboken, Lieut. L. P. BELL.

New Mexico

To *Dallas, Texas*, from San Antonio, Lieut. H. K. RIDDLE, Reserve.

New York

To *Boston, Mass.*, from Camp Crane, Lieut. F. W. PALMER, Buffalo.
To *Camp Abraham Eustis, Va.*, as orthopedic surgeon, from Camp Sherman, Major A. H. PARSONS, Great Neck. As tuberculosis examiner, from Camp Lee, Major F. ARGUS, Buffalo.
To *Camp Custer, Mich.*, from New Haven, Major J. S. BILLINGS, New York.
To *Camp Devens, Mass.*, to examine the command for cardiovascular diseases, from Lakewood, Lieut. L. FRISCHMAN, Yonkers.
To *Camp Dix, N. J.*, from New Haven, Major B. F. KNAUSE, Brooklyn.

To Camp Hancock, Ga., to examine troops for cardiovascular diseases from Lakewood, Lieut. C. E. TUBB, Poughkeepsie.

To Camp McClellan, Ala., to examine troops for cardiovascular diseases, from Lakewood, Lieut. L. L. SHAPIRO, New York.

To Camp Meade, Md., base hospital, from Camp Crane, Capt. H. W. JACKSON, JR., New York. To examine troops for cardiovascular diseases, from Lakewood, Capt. R. G. SNYDER, New York.

To Camp Shelby, Miss., with the board examining troops for cardiovascular diseases, Lieut. L. T. MANN, New York.

To Camp Upton, N. Y., from Garden City, Capt. C. G. O'CONNOR, Brooklyn.

To Camp Wadsworth, S. C., to examine the command for cardiovascular diseases, from Camp Crane, Capt. B. LATTIN, New York.

To Camp Zachary Taylor, Ky., to examine troops for cardiovascular diseases, from Lakewood, Lieut. H. A. COHEN, New York.

To Dansville, N. Y., from Walter Reed General Hospital, Lieut. W. J. A. DONAHUE, Huntington.

To Detroit, Mich., from Camp Crane, Lieut. R. H. OPPENHEIMER, New York.

To Fort McHenry, Md., from Camp Crane, Lieuts. L. J. BUTLER, Albany; P. W. FETZER, New York.

To Fort Snelling, Minn., from Camp Crane, Lieuts. M. L. POLLACK, Staten Island; J. W. W. DIMON, Utica.

To Garden City, N. Y., as tuberculosis examiner, from New Haven, Lieut. G. G. HATZEL, New York.

To Hoboken, N. J., from Camp A. A. Humphreys, Capt. J. C. FISK, New York.

To Lakewood, N. J., from Camp Crane, Lieuts. G. KORNFELD, Brooklyn; J. J. YOUNG, New York. For instruction, from Camp Crane, Lieut. J. W. BURTON, Alpine.

To New York, Bellevue Hospital, as instructor, from Hoboken, Major J. A. HARTWELL, New York.

To Plattsburg Barracks, N. Y., from Camp Devens, Capt. C. R. MARSH, Oneonta; from Camp Jackson, Lieut. P. M. CHAMPLIN, Syracuse.

To Richmond, Va., from Camp Crane, Major H. L. K. SHAW, Albany; from Fort Oglethorpe, Lieut. D. H. MILLS, Oneonta.

To West Baden, Ind., from Fort Oglethorpe, Capt. J. J. O'DWYER, New York.

To White Plains, N. Y., from Camp Jackson, Major R. H. McCONNELL, New York.

The following orders have been revoked: To Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Camp Hancock, Lieut. J. B. L'EPISCOPO, Brooklyn. To Camp Abraham Eustis, Va., from Fort Oglethorpe, Lieut. G. P. MICHEL, Buffalo.

North Carolina

To West Baden, Ind., from Camp Hancock, Lieut. W. MONCURE, JR., Hamlet.

Ohio

To Camp Crane, Pa., from Hoboken, Lieut. E. B. MALLOY, Akron.

To Camp Dix, N. J., to examine the command for cardiovascular diseases, from Lakewood, Lieut. J. A. GARVIN, Cleveland.

To Camp Sherman, Ohio, base hospital, from Camp Dix, Lieut. A. N. SMITH, Columbus.

To Camp Zachary Taylor, Ky., to examine troops for cardiovascular diseases, from Lakewood, Lieut. E. C. DAVIS, Cleveland.

To Fort McHenry, Md., from Camp Meade, Capt. A. M. STEINFELD, Columbus.

To Fort Riley, Lieut. W. R. CHYNOWETH, Dayton.

To Fort Sheridan, Ill., from Fort Oglethorpe, Capt. R. S. REICH, Cleveland.

To Fort Snelling, Minn., from Camp Crane, Lieut. J. T. KENNEDY, Cincinnati.

To San Antonio, Texas, Brooks Field, from Kelly Field, Lieut. J. M. PUMPIREY, Mount Vernon.

To West Baden, Ind., from Camp Crane, Capt. W. F. LAUTERBACH, Dayton; from Camp Wadsworth, Capt. A. N. WISELEY, JR., Ada.

The following order has been revoked: To Camp Crane, Pa., base hospital, from Camp Sherman, Lieut. H. SHUBE, Cleveland.

Oklahoma

To Fort Sam Houston, Texas, base hospital, from Camp Bowie, Lieut. W. K. WEST, Oklahoma City.

To West Point, Miss., Payne Field, from Fort Oglethorpe, Capt. D. A. MYERS, Lawton.

Pennsylvania

To Camp Abraham Eustis, Va., as tuberculosis examiner, from Camp Lee, Capt. E. G. WEIBEL, Erie.

To Camp Grant, Ill., as assistant to the camp surgeon, from Fort Benjamin Harrison, Capt. A. H. MOORE, Philadelphia.

To Camp Sevier, S. C., to examine troops for cardiovascular diseases, from Camp Crane, Lieut. E. T. JONES, St. Clair.

To Camp Sherman, Ohio, base hospital, from Fort Oglethorpe, Lieuts. H. R. MATHER, Johnstown; J. M. CONWAY, Pittsburgh.

To Camp Zachary Taylor, Ky., to examine troops for cardiovascular diseases, from Lakewood, Lieut. T. M. MABON, Pittsburgh.

To Detroit, Mich., from Camp Crane, M. B. MAGOFFIN, Pittsburgh.

To Fort Sheridan, Ill., from Fort Oglethorpe, Lieut. F. J. GABLE, Reading.

To Fort Snelling, Minn., from Camp Crane, Lieuts. J. L. ZIMMERMAN, Hershey; D. BEVERIDGE, Washington.

To Garden City, N. Y., as tuberculosis examiner, from New Haven, Lieut. W. C. JOHNSON, Philadelphia.

To Lakewood, N. J., from Camp Crane, Capt. L. M. HARTMAN, JR., York; Lieut. M. KEMP, Catasauqua. For instruction, Lieut. T. H. BEDROSSIAN, Philadelphia.

To Richmond, Va., from Camp Crane, Lieut. C. A. GUNDY, Lewisburg.

To San Antonio, Texas, Brooks Field, from Kelly Field, Capt. W. S. SHIMER, Philadelphia.

To Walter Reed General Hospital, D. C., from the Surgeon-General's Office, Col. R. H. HARTE, Philadelphia.

Philippine Islands

To Washington, D. C., Surgeon-General's Office, from the Philippine Department, Major C. L. BEAVEN.

Rhode Island

To Camp Abraham Eustis, Va., from Camp Joseph E. Johnston, Major J. F. HAWKINS, Providence.

Tennessee

To Americus, Ga., Souther Field, from San Antonio, Lieut. E. C. SEALE, Nashville.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion to his proper station, from Camp Pike, Lieut. O. P. WALKER, Memphis.

To West Baden, Ind., from Camp Crane, Lieut. H. K. ALEXANDER, Nashville.

Texas

To Camp Meade, Md., from Camp Colt, Lieut. O. H. TALLEY, El Paso.

To Dallas, Texas, from San Antonio, Lieut. R. M. MILNER, Yoakum.

To Fort Sheridan, Ill., from Camp Grant, Lieut. H. O. JONES, Denison.

To Fort Snelling, Minn., from Fort Sam Houston, Capt. C. F. CLAYTON, Lubbock.

To Richmond, Va., from Fort Oglethorpe, Capt. S. R. MILLIKEN, Dallas.

To Vancouver Barracks, Wash., as tuberculosis examiner, from Denver, Lieut. C. R. GOWEN, Carlsbad.

To following order has been revoked: To Camp Bowie, Texas, Capt. J. A. KYLE, Houston.

Utah

To Rochester, Minn., Mayo Clinic, for instruction, and on completion to his proper station, from Camp Pike, Lieut. G. H. CHRISTY, Vernal.

Vermont

To Camp Wheeler, Ga., as orthopedic surgeon, from Boston, Lieut. D. R. BROWN, Lyndonville.

To Franklin, Ind., Franklin College, from Indianapolis, Capt. N. J. DELEHANTY, Rutland.

The following order has been revoked: To Camp Dix, N. J., from Fort Oglethorpe, Lieut. D. J. CARROLL, Vergennes.

Virginia

To Americus, Ga., Souther Field, from San Antonio, Capt. B. BARROW, Barrows Store.

To Camp Wadsworth, S. C., base hospital, from Camp Crane, Lieut. E. R. FERGUSON, Roanoke.

To Markleton, Pa., from New Haven, Lieut. N. J. GOULD, Norfolk.

To Richmond, Va., from Camp Lee, Lieut. H. D. HOWE, Hampton.

The following order has been revoked: To Boston, Mass., for instruction, from Camp Lee, Lieut. R. J. WILKINSON, Richmond.

West Virginia

To Camp Abraham Eustis, Va., as tuberculosis examiner, from Camp Lee, Lieut. F. W. WIEHE, Wheeling.

To Lakewood, N. J., for instruction from Camp Crane, Lieut. C. P. S. FORD, Hansford.

The following order has been revoked: To Boston, Mass., for instruction, from Camp Zachary Taylor, Lieut. J. C. SCHULTZ, Huntington.

Wisconsin

To Camp Beauregard, La., to examine the command for cardiovascular diseases, from Camp Jackson, Capt. A. J. PATEK, Milwaukee.

To Camp Devens, Mass., base hospital, from New Haven, Lieut. F. M. HARRIS, Fond du Lac.

To Camp Sherman, Ohio, from Camp Crane, Lieut. E. A. GATTERDAM, Wauwatosa.

To Fort Sheridan, Ill., from Camp Grant, Lieut. J. A. HERATY, Milwaukee.

To Liberty, Mo., William Jewell College, from Kansas City, Mo., Capt. W. E. GROUND, Superior.

To Vancouver Barracks, Wash., as tuberculosis examiner, from Denver, Lieut. L. F. RUSCHHAUPT, Milwaukee.

To Walter Reed General Hospital, D. C., for instruction, from Fort Leavenworth, Capt. J. C. ELSOM, Madison.

ORDERS TO OFFICERS OF THE UNITED STATES PUBLIC HEALTH SERVICE

Surg. HUGH S. CUMMING, detailed by the President for duty in Europe to investigate sanitary conditions at ports from which troops will be returned.

Surg. L. P. H. BAHRENBURG, proceed to Jefferson City and Columbia, Mo., and other necessary points to exhibit films in connection with the control of venereal disease.

Surg. HUGH DE VALIN, proceed to Astoria, Oregon, to determine public health value of contemplated improvements.

Passed Asst. Surg. F. A. CARMELIA, proceed to Harrisburg, Pa., for conference relative to discontinuance of influenza control work in the state of Pennsylvania.

Proceed to Wheeling, W. Va., for conference relative to discontinuance of influenza control work in the state of West Virginia.

Passed Asst. Surg. HOWARD F. SMITH, assume charge under Surgeon Frost of epidemiological studies of influenza in the state of Maryland.

Asst. Surg. W. F. WAGENBACH, proceed to Norfolk, Va., for temporary duty.

Asst. Surg. H. S. MUSTARD, proceed to necessary points outside of Philadelphia, Pa., for inspection work in connection with the hygiene and sanitation of the Emergency Fleet Corporation.

Prof. E. B. PHELPS, proceed to Milwaukee, Wisconsin to investigate the pollution by industrial waste the water supply of that city.

Acting Asst. Surg. G. M. CONVERSE, detailed by the President for duty in Europe under Surgeon Cumming to investigate sanitary conditions at ports from which troops will be returned.

Pharm. F. J. HERTY, proceed to the Marine Hospital, Baltimore, Md., for temporary duty.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

DISTRICT OF COLUMBIA

Personal.—Dr. L. M. Hynson is absent from the city on a belated vacation.—Lieut.-Col. E. G. Seibert was home recently on furlough from Mineola, L. I.

New Superintendent for Garfield Hospital.—Dr. A. W. Smith, for the past year or two superintendent of Garfield Memorial Hospital, will be succeeded the first of the year by Dr. Carl S. Keyser of this city.

Address on War Surgery.—Col. Bailey K. Ashford, M. C., U. S. Army, now attached to the general staff, recently addressed the Medical Society of the District of Columbia on the "Histopathology and Treatment of War Wounds." As Colonel Ashford's duties in France took him to all parts of the front and required his study of methods in vogue at all surgical centers his address was of intense interest and seemed to bring the very atmosphere of the war operating room across the sea to his auditors.

Medical Society Election.—The following officers for 1919 were elected by the Medical Society of the District of Columbia at a meeting held December 4: president, Dr. William Gerry Morgan; first vice president, Dr. Ada R. Thomas; second vice president, Dr. A. R. Shands; recording secretary, Dr. H. C. Macatee; corresponding secretary, Dr. J. Russell Verbrycke, Jr.; treasurer, Dr. C. W. Franzoni. The following were elected members of the executive committee for a term of three years: Drs. A. W. Boswell, Philip S. Roy and Charles S. White. Dr. Morgan in a speech of acceptance of the presidency not only expressed his appreciation of the honor involved, but announced his intention of using every endeavor to carry to completion the erection of a home for the medical society. This is a project begun under the presidency of Dr. E. Y. Davidson about two years ago; in spite of the deterrent effect of the war, steady progress has been made in paying for a building site, and there is every reason to believe that the year 1920 will see the society in possession of a home of its own. A very interesting and pleasing incident of the same meeting was the reelection of Dr. C. W. Franzoni as treasurer for his forty-fifth term; the society instructed the secretary to cast the unanimous ballot of the society for Dr. Franzoni and adopted the resolution by a rising vote.

ILLINOIS

Chicago

Personal.—Dr. Edward F. Garraghan has been appointed attending laryngologist at Cook County Hospital, to succeed Dr. Joseph C. Beck, who is at present commandant of the Czech-Slovak Hospital in Cognac, France.

Tuberculosis Institute Luncheon.—The Chicago Tuberculosis Institute gave a luncheon at the Hotel LaSalle, December 11, at which Dr. Robert H. Babcock, Chicago, presided, and Dr. Donald B. Armstrong, Framingham, Mass., gave an account of the Framingham Community Health and Tuberculosis Demonstration.

Illegal Practitioner Fined.—Dr. Bertha C. Day Raymond of 2675 East Seventy-Fourth Street was arrested by the Department of Registration and Education of the State of Illinois, December 3, on the charge of practicing medicine without a license. She pleaded guilty in the municipal court of Chicago and was fined \$25 and costs.

Work Against Drug Traffic.—Indictment of seven alleged dealers in opium and morphin were returned by the federal grand jury, December 6. The indictments were secured by Assistant United States Attorney Epstein, under the Harrison Drug Act, which provides a penalty of five years imprisonment or \$2,000 fine. The men indicated are as follows:

Wesley S. Johnson, New York, arrested with 30 ounces of morphin sulphate in his possession.

Thomas Cross, known as "Safety Deposit Tom," because he kept his drugs in various banks; recently served two years in Leavenworth, and now arrested as Johnson's chief aid.

Charles Brown, 644 North La Salle Street; an old offender peddling drugs in the north side resorts.

Albert Trilling, nicknamed "Ciggie," concealing drug.

Louis Christian, alias "Whitey," smuggler of drug into the Bridewell through aid of women.

Clarence Safford, also a notorious peddler.

Samuel Shields, an exconvict and drug peddler.

The indicted men are said to have had the city divided into districts for the sale of morphin to drug addicts.

LOUISIANA

State Board to Have Its Own Building.—The state board of health has purchased the property at 422 Chartres Street, opposite the New Orleans Court House, to be used as an annex to the board offices. The building will be romodeled and a laboratory is to be constructed on the roof.

Demobilization Resolutions.—At the meeting of the Orleans Parish Medical Society, November 25, resolutions were adopted petitioning the secretaries of the Army and Navy to consider the shortage of medical men on account of the war needs prior to the signing of the armistice, and the presence and recrudescence of influenza, with the object of demobilizing as expeditiously as may be consistent with the efficiency of the service, as many as possible of the medical officers in camps in this country and abroad.

MARYLAND

Released from Hun Camp.—After being interned in a prison camp at Rastatt, Germany, for nearly six months, Capt. Charles W. Maxon, Baltimore, has been released and has reached the American lines. He states that he was well treated, but said that the Germans were greatly in need of physicians, which condition prolonged his confinement.

Slight Increase in Influenza.—The report of fifty-three new cases of influenza during a period of twenty-four hours showing an increase of twenty-nine compared with the record for the previous twenty-four hours, led Health Commissioner Blake to sound a general note of warning. He states that the situation is not alarming and that all of the cases are mild ones, but warns the public to avoid going recklessly into crowded places as this causes the disease to spread.

Many Wounded Soldiers Arrive at Fort McHenry.—A contingent of 256 soldiers arrived at General Hospital No. 2, Fort McHenry, from overseas, via Newport News. An extra force was added to the receiving ward to tally the records and names of the men. Last week 150 or more men arrived at the hospital from overseas and this week two shipments were received, one of which consisted of 146 men from Newport News, and a contingent of 140 wounded from Hoboken. A majority of these are orthopedic cases and represent a more serious type of wound than the military physicians have been receiving. It is expected that patients will arrive until the hospital is filled to its capacity which comfortably accommodates approximately 1,400 men.

MASSACHUSETTS

Hospital in Nantucket.—The Underwood Memorial Hospital, Nantucket, erected by H. O. Underwood, Belmont, in memory of his wife, has been completed at a cost of \$50,000 and given to the town of Nantucket.

Personal.—Fred W. Archer, Boston, has been appointed a member of the State Board of Registration and Pharmacy, to succeed William S. Beyary, Melrose.—Dr. Roscoe D. Perley, Melrose, and Dr. Frank S. Bulkeley, Ayer, have been appointed medical examiners (coroners) for Middlesex County.—Dr. John B. Beebe, Great Barrington, has been appointed medical examiner (coroner) and Dr. Clifford S. Chapin, Great Barrington, assistant medical examiner (coroner) for Berkshire County.—Dr. Joseph C. E. Tasse, Worcester, who has been seriously ill at his home for five weeks, is reported to be improving.

MONTANA

Personal.—Dr. Paul A. Remington, for six years assistant surgeon at the Northern Pacific Beneficial Association Hospital, Missoula, has been appointed chief surgeon of the Northern Pacific Hospital, Tacoma, Wash., the largest maintained by that association, and took charge, September 10, succeeding Dr. Saxe W. Mowers.

Hospital Items.—The new hospital erected by the State University of Montana, at Missoula, at a cost of \$7,000, for the use of the S. A. T. C., with accommodation for fifty patients, is now completed. The building is 128 feet wide, and 20 feet in depth, and has four wards, and an isolation ward, beside the necessary offices and service rooms.—The Isolation Hospital, Anaconda, recently completed at a cost of

\$11,000, was opened to receive visitors, November 23. The building is in the form of a maltese cross, the administration room being in the center, the arms of the cross forming four isolated wards, each containing accommodation for six patients.

NEW YORK

Weiss Found Not Disloyal.—Dr. George C. Weiss, Mount Vernon, formerly health commissioner of that city, was placed on trial, November 25, for a second time, charged with violation of the espionage law, and was found not guilty. In the first trial the jury disagreed.

Personal.—Dr. Mary T. Greene, Castile, has been appointed a member of the Board of Child Welfare, for Wyoming County, to succeed Dr. Henry E. Pierce, deceased.—Dr. William G. Bissell, Buffalo, on November 21, was elected president of the state board of medical examiners.—By unanimous vote of the city council of Niagara Falls, the bill of Health Officer Scott for \$603 due him as registrar of vital statistics was ordered paid.

Hospital Directors Elected.—At the annual meeting of the directors of the Elizabeth A. Horton Memorial Hospital held in Middletown, N. Y., November 25, Dr. Theodore D. Mills, Middletown, was elected president of the corporation which will have charge of carrying out the terms of Eugene Horton's will, regarding the erection of a hospital in memory of his mother and for which he provided a fund of \$600,000. Dr. Daniel B. Hardenbergh, Middletown, was also elected a director of the corporation. A committee was also elected to select a site for the institution.

New York City

County Society Election.—At the annual meeting of the Medical Society of the County of New York, held November 25, the following officers were elected; president, Dr. Charles Howard Peck; vice presidents, Drs. Charles H. Chetwood and George Gray Ward, Jr.; secretary, Samuel S. Dougherty; assistant secretary, Dr. J. Milton Mabbott, and treasurer, James Peterson.

Resolutions Regarding Major Bissell.—The executive committee of the Medical Board of Bellevue Hospital, at a meeting held December 3, adopted a resolution setting forth its profound sorrow and regret at the death of Major Joseph Biddleman Bissell, M. C., U. S. Army, chief of the surgical service at Fort McHenry, Md., and visiting surgeon and surgical director of the fourth division of Bellevue Hospital.

Academy of Medicine Elects.—At its anniversary meeting, December 5, the New York Academy of Medicine elected the following officers: president, Dr. George David Stewart; vice presidents, Drs. Reginald H. Sayre and Charles H. Peck; recording secretary, Dr. Royal S. Haynes, and trustee, Dr. Walter B. James. Lieut.-Col. Raffaele Bastianelli, professor of surgery of the University of Rome, was elected to honorable fellowship in the academy.

Injunction Asked.—A permanent injunction has been asked by the head of the Flatbush Chamber of Commerce, restraining the city officials from reopening the Barren Island garbage plant. The argument was supported by an affidavit from the president of the board of trustees from Bellevue and Allied Hospitals, after having discovered the effect that the noxious odors from the garbage plant have had on the patients in the Hospital for Crippled Children, which is located on Rockaway Peninsula.

Life Insurance Presidents Meet.—The Association of Life Insurance Presidents which met at the Hotel Astor, last week, listened to a paper by Major-Gen. William C. Gorgas, read by William D. Wrightson, in which were pointed out the lessons in sanitation that the soldiers of the United States have gained in their camp life. He expresses the conviction that when these men return home they will be desirous of applying these same measures to their home communities in so far as such application is possible. In his opinion the greatest sanitary lesson of the war is the effect of crowding in large units. He suggests that both overcrowding and segregation might be avoided by constructing the cantonments of huts 20 feet by 20 feet in plan containing not more than six men. He believes that the death rate from disease in our Army in this war will be far less than the best death rate that has gone before us—it will probably be somewhere near 9 per thousand up to October 1. After that date there will be an increase over this figure owing to the appearance of influenza in the camps. Another paper presented by Dr. Frederick L. Hoffman on compulsory health insurance showed that this measure had proved a complete failure as a function of the state in Germany.

NORTH DAKOTA

Personal.—Dr. Oliver E. Distad, Williston, who started for China in October and was taken ill with pneumonia at Seattle, sailed for China, November 22.—Dr. A. G. Long, recently appointed acting director of the public health laboratory at the University of North Dakota, Grand Forks, has assumed his new duties. He succeeds Dr. John W. Cox, University, resigned.—Dr. Joseph T. Newlove has been appointed health officer of Minot, to succeed vice Dr. Harry G. Knapp whose term has expired.

OHIO

Protest Against Reduction.—Dr. Walter E. List, superintendent of the Cincinnati General Hospital, has made a protest to Financial Director Holmes against the reduction of \$22,000 in the appropriation for the hospital for 1919, as compared with the amount appropriated for 1918.

Physicians' Offices Closed.—The Mayor of Warren, November 25, issued a proclamation ordering the closure of all physicians' offices during the prevalence of influenza. For the time being, excepting emergency cases, persons who desire to consult physicians can see them only by appointment.

Fund Allotted for Health Board.—The United States Public Health Service announced, November 20, that the sum of \$51,832.61 had been allotted by the federal government to the state of Ohio, for the use of the department of health in that state, for the prevention, control and treatment of diseases.

To Improve Rural Health Protection.—The legislature will consider plans for reforming the administrative health machinery in small local districts, as the rural districts and small towns of the state are not giving adequate health protection under the existing laws. It is proposed to group the health districts of the state into larger units, and thereby to provide means of employing a sufficient number of competent health workers.

Personal.—Dr. Earl A. Martin, superintendent of the Cincinnati Tuberculosis Sanatorium, resigned, November 30, resignation to take effect as soon as a successor is appointed. Dr. Martin expects to enter the mission field as a medical missionary.—Dr. Oscar H. Sellenings, Columbus, who has been engaged in child welfare work in France under the auspices of the American Red Cross, with headquarters at Marseilles, has returned to the United States.—Dr. Charles B. Finefrock, Port Clinton, has been appointed coroner of Ottawa County, to succeed Dr. Mason J. Skiff, Oakharbor, who has resigned.—Dr. Martin F. Vereker has been elected health officer of Hamilton.

Deprecate Child Labor.—The state department of health and state council of national defense have united in a drive to keep children out of industrial occupation and in school. The officials dwell on the responsibility of communities to provide scholarships or other aid for children financially unable to continue in schools, and on the necessity of teachers making schools attractive to the children. During the war the growing tendency toward the employment of child labor was noted and while the government refused to sanction the employment of children in war work, nonessential industries were beginning to look on children as the reservoir of cheap labor. The war time labor situation had not demanded the employment of children, and with the close of the war the employment of children becomes still more inexcusable.

PENNSYLVANIA

Gift of Scholarship.—The Pennsylvania Training School for Feeble-minded Children eventually will receive \$5,000 for the maintenance of a scholarship from the estate of the late Benjamin H. Smith.

Venereal Dispensary Opens.—The Department of Health of the Commonwealth of Pennsylvania announces the opening of a genito-urinary dispensary in Shenandoah, under the charge of Dr. Christian Gruhler. The dispensary is open on Tuesdays and Fridays from 8 to 10 p. m.

Personal.—Dr. William H. Emery, Coatesville, while driving from his home toward Downingtown, November 29, lost control of his car and crashed into a telegraph pole. The machine was demolished and Dr. Emery was taken to the Chester County Hospital suffering from concussion of the brain and serious cuts and bruises.—Dr. Henry J. Bell, Pittsburgh, was attacked by robbers, November 26, and beaten and robbed.

Philadelphia

Receive New Professors.—The Medical Club of Philadelphia gave a reception at the Bellevue-Stratford Hotel, December 13, in honor of Dr. Jay F. Schamberg and Lieut.-Col. J. Torrance Rugh, M. C., U. S. Army, newly elected professors in Jefferson Medical College.

Staff Election.—The staff physicians of St. Mary's Hospital at their meeting, November 23, elected the following officers: Dr. Joseph H. Ross, president; Dr. Louis F. Love, vice president; Drs. William P. Grady and George C. Kieffer, secretaries, and Dr. Ellwood R. Kirby, medical director.

Personal.—Dr. Collin Foulkrod has been elected to fill the vacancy on the staff of the Maternity Hospital caused by the death of Clarence H. Gray.—Major Jackson Stewart Lawrence, M. R. C., attached to the 368th Infantry, colored regiment, was given the distinguished service cross, the highest field honor for bravery, by General Pershing, for saving the life of a negro soldier without regard for his own safety.—Capt. Thomas C. Ross, in command of Ambulance Company No. 110, 103d Sanitary Train, was wounded early in September while giving aid to the wounded under fire.—Dr. William T. Shoemaker, who went to France with Base Hospital No. 10 from the Pennsylvania Hospital, has been made consulting ophthalmologist to all American hospitals in England. Dr. Shoemaker's appointment carries the rank of lieutenant-colonel.

Reconstruction Conference.—A conference under the auspices of the Division of Hygiene and Engineering of the Department of Labor and Industry was held at the Bellevue-Stratford Hotel, December 6. Representatives of the National Association of Industrial Physicians and Surgeons, from all sections of the country, are holding their seventh annual conference in conjunction with the labor and industry meeting. Dr. Francis D. Patterson, Harrisburg, chief of the Department of Hygiene and Engineering of the Department of Labor and Industry, presided. Problems of physical reconstruction and industrial rehabilitation of war and industrial cripples were considered. Major R. Tait McKenzie, formerly of the British army, now director of physical education at Pennsylvania University, read a paper on "Mechanical Aids to Reclamation"; Dr. Alfred Stengel read a paper on "The Reclamation of the Diseased," and T. B. Kidner, vocational secretary of the Invalided Soldiers' Commission of Canada, read a paper on "Vocational Training for the Handicapped."

WASHINGTON

Personal.—Dr. Jerry E. Vanderpool, health officer of Walla Walla and Walla Walla County, resigned, November 30, his resignation to be effective as soon as a successor can be named.

WISCONSIN

Smallpox in Oshkosh.—It is announced that eleven cases of smallpox have been discovered at Oshkosh, seven of which were at first diagnosed as influenza. The seven houses in which these cases were found have been placed under strict quarantine.

College Raised Its Million.—The Marquette University of Milwaukee has succeeded in raising its medical school endowment fund of \$1,000,000, one-third of which was donated by the Carnegie Foundation for the Advancement of Teaching. The income from this fund is to go for the salaries of teachers and maintenance and cannot be used for buildings, additional funds for which are now being sought.

Antituberculosis Society Meeting.—The annual meeting of the Wisconsin Anti-Tuberculosis Association was held in Milwaukee, December 13 and 14. The essential subject of discussion at this meeting was the establishing of free and pay tuberculosis clinics in every suitable county in the state. A public health program for the ensuing year was also presented which gave particular emphasis to tuberculosis. The changed conditions, and in particular the uncovering of a large number of cases of incipient tuberculosis in discharged soldiers and draft rejects, have convinced the association that the next link to be formed in the chain of defense against tuberculosis is the dispensary.

CANADA

Plans New Medical Building.—The Faculty of Medicine of Western University, London, Ont., is planning the erection of a new medical college building at an estimated cost of \$100,000.

Personal.—Major Thomas D. Archibald has been transferred from the command of the Whitby (Ont.) Military Hospital to the new St. Andrews Military Hospital, Toronto.—Capt. Fred G. Bantling, M.B., Alliston, Ont., is reported to have been wounded.—Dr. Walter S. Downham, who has been acting medical officer of health, London, Ont., since the resignation of Dr. Hibbert W. Hill, has been recommended by the board of control for permanent medical officer of health.

Hospital News.—New regulations have been adopted by the board of governors of the Kingston (Ont.) General Hospital for the reorganization and extension of the visiting staff. The idea is to make the institution a teaching hospital in connection with Queen's University Medical Department.—The Canadian Hospital ship *Araguaya* has begun its tenth voyage to Canada. It is in command of Col. D. A. Whitton, Ottawa.—The Board of Control, Toronto, has recommended a grant of \$16,000 for the Hospital for the Incurables.—The new Orthopedic Military Hospital in Toronto will be opened early in 1919, and it is proposed to use it for teaching purposes as well as being the central orthopedic hospital for soldiers in Canada. It is to have accommodation for from 1,500 to 2,000 patients.—The Toronto Free Hospital for Consumptives is seeking a grant of the Toronto Board of Control of \$31,000 to clear off the deficit engendered during the last hospital year.—The reception hospital in Toronto has been inspected and reported on by the medical officer of health, Dr. Charles J. C. O. Hastings. He finds that the building is old and dilapidated, and totally unfit for purposes for which it is used. Here have been watched incipient cases of insanity, and it looks as though the city will have to provide better accommodation.

Ontario Medical Practice Act.—The government called the various cults and the representatives of the medical fraternity in Ontario last week for the purpose of discussing the report of the commissioner, Mr. Justice Hodgins. The medical profession was satisfied with the report in general, but proposed, or suggested, the following definition of the practice of medicine: "The practice of medicine shall mean and include the diagnosis, healing, alleviation or attempt to diagnose, treat or relieve any ailment by advice, assistance or any means with or without the use of drugs or mechanical means." The osteopaths thought they should be given a department in the universities of the province, and the power to appoint the instructors in anatomy and physiology. The minister of education asked what a speaker for that body meant when he referred to osteopathic anatomy and scientific anatomy; what was the difference? The reply was that osteopathic anatomy was the scientific anatomy. Col. Alexander Primrose, C.M.G., Toronto, president of the Academy of Medicine, told of his observations in England and France where neither the British nor Canadian forces allowed any one but a qualified surgeon or physician in the C. A. M. C. and the R. A. M. C., as they had specially trained physicians and surgeons for all branches of manipulative surgery. He advised the government to inquire into his statement.

GENERAL

Gorgas in New Activities.—Major-Gen. William C. Gorgas, M. C., U. S. Army, retired, who recently returned from France, will undertake work as director of war field work for the Rockefeller Foundation and will soon sail for Central and South America.

American Association for the Advancement of Science.—The seventy-first meeting of the American Association for the Advancement of Science will be held in Baltimore, Dec. 23 to 28, 1918. The opening general session will be held in McCoy Hall, 311 West Monument Street, December 26, when Dr. Goodnow, president of Johns Hopkins University, will deliver an address of welcome, and Dr. Theodore Richards of Harvard will speak on the conservation of the world's resources. Regular meetings of the sections will be held from Thursday morning, December 26, to Saturday, December 28.

Division of Industrial Hygiene and Medicine.—Physicians, sanitarians and nurses who are desirous of establishing industrial connections may now register for this purpose with the Division of Industrial Hygiene and Medicine. This division, with personnel detailed by the United States Public Health Service, is acting for the Working Conditions Service of the Department of Labor in the investigation and supervision of the health of industrial workers. In connection with these activities the division proposes to carry on a service whereby employers who wish to obtain medical personnel for

their establishments may be put in touch with available physicians, sanitarians and nurses. To facilitate this service a register will be kept by the division, and physicians, sanitarians and nurses desiring to become affiliated with industrial establishments are asked to communicate with the Division of Industrial Hygiene and Medicine, 202 Ouray Building, 805 G Street, Northwest, Washington, D. C., mentioning qualifications, type of industrial connection preferred and salary expected.

Poliomyelitis Report.—The Public Health Service has recently published a report of epidemiologic studies of poliomyelitis occurring in 1916 in New York City and northeastern United States, with intensive studies of the disease in certain cities and counties in New Jersey, Connecticut and Rhode Island. Present knowledge in regard to the epidemiology of poliomyelitis is summarized. The publication is *Public Health Bulletin 91*, by Drs. Claude H. Lavinder, Staten Island, N. Y.; Allen W. Freeman, Columbus, Ohio, and Wade H. Frost, Washington, D. C. Another bulletin of interest from the Public Health Service is *Public Health Bulletin 95*, by Dr. Joseph G. Wilson, New York City, on infectious diseases in children, the study covering about 6,000 cases among immigrant children. The main conclusion reached as the result of this study is that it is practicable to treat contagious and noncontagious diseases in the same hospital and with the same nursing force, and even in the same wards provided the wards are cut up into small cubicles and the proper nursing technic is enforced. There is practically no danger of cross infection.

Influenza.—While a number of communities throughout the United States report the subsidence of influenza and the removal of restrictions, since the last week in November there has been a notable recurrence of the outbreak in a good many states. In many instances it has been found desirable to return to the restrictions with reference to public gatherings, schools, churches, amusements, etc., and in a number of places masks are required in public places. In most instances, it is believed, the disease is not so severe in its nature and the death rate is lower than in the first intense wave of the epidemic, and with the education gained by the public in the former wave less trouble is experienced in handling the disease. Indiana is one of the states which seems to be hit hardest by the recrudescence. Ohio also reports many new cases throughout the state, but with a percentage of fatalities running only about one half that of the earlier outbreak. It is the hope of the authorities in that state that by precautionary measures among the 40 per cent. of the people susceptible to the disease it may be strung out over as long a period as possible, thus causing less disruption of the ordinary routine of business and life in general. Wisconsin, Kansas, Michigan, New York state and Illinois, particularly Chicago, report general increases in the number of cases. *Public Health Reports*, November 29, continues the publication of state summaries of the disease. It is probable that a number of cases of influenza above the normal endemic figures will continue throughout the winter, with a considerable number of pneumonia cases, the regular season for which is just beginning. At the meeting of the American Public Health Association in Chicago during the present week influenza was one of the important topics of discussion.

FOREIGN

Malaria Control on the Island of Cyprus.—On the island of Cyprus an antimalaria campaign has been in progress since 1913. In the annual medical report for the island for 1917 it is said that the number of persons with malaria treated was reduced from 10,035 in 1912 to 2,709 in 1917, and the percentage of large spleens in schoolchildren was reduced from 17.2 in 1913 to 6 in 1917. The work has consisted in cleaning and improving drains and streams, making new drains, filling in, screening or covering wells, stocking wells with fish, filling in or draining pools, cutting and removing grass, etc. Drugs were used to some extent.

CORRECTION

Influenza at Rome.—THE JOURNAL of August 17, in describing the measures taken against influenza in Europe, mentioned the closing of the schools and moving picture shows at Roine. The *Policlinico* commented later on this, that "contrary to the usual accuracy of THE JOURNAL, this news item was without foundation," adding, "And this is the way history gets written." The news item was taken from a foreign journal, but it seems that last summer the epidemic was too mild at Rome for such strenuous measures. The

November numbers of our Italian exchanges, however, relate that these very measures were being enforced at Rome at date of writing. History got itself written too previously, it seems, but the facts finally managed to catch up with it.

BUENOS AIRES LETTER

BUENOS AIRES, Oct. 26, 1918.

Epidemic of Influenza

The steamships *Demerara* and the *Infanta Isabel* arrived at Buenos Aires with numerous cases of influenza on board, and there had been several deaths during the voyage. The public health authorities allowed the passengers to disembark without taking any prophylactic measures whatever. Fifteen days later numerous cases of influenza developed in the city, especially in the mail service, in which there were over 100 cases in one day. By another week the infection had spread throughout the entire city thence to numerous points in the interior of the country. It is estimated that there have been 250,000 cases in Buenos Aires alone. Fortunately the disease has been of a mild type, no deaths occurring except nine fatal cases in the Hospital Muñiz. Quite recently the mortality has increased a little, but it is still low. The symptoms are generally headache, pains in the muscles, sore throat, high fever and prostration. In the majority of the cases improvement is evident by the second to the fifth day, but pronounced depression and anorexia are left. The graver cases developed pulmonary or gastro-intestinal symptoms. Almost all the fatalities were from pneumonia or broncho-pneumonia. The Pfeiffer bacillus was encountered in most of the cases examined. In the pneumonia cases, it was associated with the pneumococcus.

The indecision of the public health authorities has been the object of much criticism. The Departamento Nacional de Higiene has been without a head for several months.

Infantile Mortality

Under the auspices of the Sociedad Argentina de Pediatría three special meetings have been held to discuss problems relating to infantile morbidity and mortality in Argentina. In the last few years they have presented a certain increase. The mortality of children less than a year old represents 21 per cent. of the total mortality. The figure in reality is low in the capital and on the coast, but it is considerable in the provinces of the interior. It was decided to appoint a special committee to advise the most important measures to be taken.

The University Elections

The curious reform in the statutes of the universities, which has recently received official sanction, accords to the students the right to vote for the election of the dean and of the members of the Consejo Directivo de las Facultades, the voting delegates from the students to equal in numbers the number of the regular professors of the various faculties. These new conditions have led to an extraordinary electoral agitation. The students have made out lists of candidates whom they expect to elect. They are solidly backing all persons known to be opposed to the present university authorities, and those who for any reason they think have been victims of injustice. Sensible persons are hoping that this reform will not last long.

LONDON LETTER

LONDON, Nov. 19, 1918.

The Influenza Epidemic

Though fresh cases of influenza continue to occur, the epidemic has spent its force and the number of patients under treatment has greatly diminished. The complication of pneumonia is less often fatal than it was at first. The Royal College of Physicians has drawn up a memorandum for the information of the public. It is pointed out that the present epidemic is virtually world-wide, irrespective of race, community or calling. Similar world-wide epidemics occurred in 1803, 1833, 1837, 1847 and 1890. The long intermission since the last widespread epidemic had made an early reappearance probable, but the conditions of epidemic prevalence of influenza are too obscure to allow of precise prediction. This outbreak is essentially identical, both in itself and in its complications, including pneumonia, with that of 1890. The disproportionate occurrence of a special symptom, a well-recognized phenomenon in the case of epidemics, for example, nosebleed in the present epidemic, does not invalidate this statement. The nature of the virus is still uncertain. It is possibly beyond the present range of microscopic vision. The bacillus discovered by Pfeiffer has in the past been

regarded as the probable cause, though on insufficient evidence. There is no doubt as to the primary part it plays in the disease, important though it probably is as a secondary infecting agent. Pfeiffer's bacillus, the pneumococcus, and, above all, in this epidemic the streptococcus, seem to be responsible for most of the fatal complications of influenza. Infection is conveyed from the sick to the healthy by the secretions of the respiratory surfaces. In coughing, sneezing, and even in loud talking, these are transmitted through the air for considerable distances in the form of a fine spray. The channels of reception are normally the nose and throat; hence the importance of avoiding thronging of every sort. The period of incubation is about forty-eight hours, or even somewhat less. Good nourishing food, and enough of it, is desirable. War rations are fully adequate to the maintenance of good health, though they may not afford just the particular articles that each fancy demands. Alcoholic excess invites disaster; within the limits of moderation each person will be wise to maintain unaltered whatever habit experience has proved to be most agreeable to his own health. As the primary cause of influenza is unknown, no form of inoculation can be guaranteed to protect against the disease. Moreover, the lack of enduring protection after an attack shows that a vaccine could not protect for more than a short period. No drug has as yet been proved to have any specific influence as a protective.

Medical Demobilization

The Central Medical War Committee has recommended that medical officers who have served away from the area of their practices since the beginning of the war should be released before others serving temporarily with the forces. The Ministry of National Service has advised that this principle be adopted, and the Army Medical Department has agreed that officers who have served since the beginning of the war shall be released first from the army, while those who have qualified since the war began shall be withdrawn last.

Barbarities Committed by German Physicians

In the House of Commons, Sir George Cave, the home secretary, who recently went on a mission to Germany to arrange for the exchange of British for German prisoners, referred to the cruelties perpetrated on British prisoners in the camps and salt mines and those employed behind the lines to dig trenches and set up wire. He also said: "There are others, even in the hospitals, where, surely, humanity ought to reign. No doubt there are many humane physicians in Germany, but there are others who make a cruel distinction between British prisoners and other prisoners of war; and even among nurses many are found, who, far from helping suffering prisoners, have stooped to inflict insult and injury on them. The hospitals, as is shown by the condition of our men who are arriving in Holland and Switzerland, are in a very bad state, and our wounded do not get proper treatment." As previous letters to THE JOURNAL have shown, this conduct of the German medical profession is far from exceptional. In a letter to the *Times*, Mrs. Vincent Smith gives a harrowing account of the treatment of her aged father, Colonel Baddeley, British consul at Bruges, who after enduring all sorts of persecution in his house was taken to Germany. When he arrived at Aix-la-Chapelle his condition so aroused the pity of the Red Cross women that one brought him some soup, but a physician nearly knocked the cup out of her hand and asked her what she meant by having pity on an Englishman, and ordered the sentries to take him away. The same physician later came on the station platform and collected a crowd and cursed the old gentleman and his daughter in English. When they arrived at the camp at Giessen there was one physician who was "a good sort," but another, a professor, a perfect brute. He told the Red Cross men they were never to speak to Mrs. Smith or to do anything for her or to give her medicine.

Penalty for Soldiers Refusing to Submit to Treatment

In the naval and military war pensions bill, which is now passing through the House of Commons, there is the following clause: If any disabled officer or man, on being so required in the prescribed manner, refuses or without reasonable cause fails to submit himself for medical examination, or if any disabled officer or man, as respects whom it has been certified that treatment in an institution or otherwise is necessary in his interest, refuses or without reasonable excuse fails to undergo such treatment in accordance with such directions as may be given in that behalf by or with the approval of the minister, the minister may, if he thinks fit, order that any pension or allowance to which that

officer or man would otherwise be entitled shall cease to be payable either in whole or in part for such period as may be specified in the order. Mr. Hodge, minister of pensions, said that there was power to punish a man to the extent of withholding half his pension if he refused treatment; but if a man's pension was taken away, the punishment, if he was a married man, fell on his wife and child. He hoped that the power asked for under the bill would of itself be sufficient to induce men to accept treatment.

Rations for Tuberculous Persons

A new dietary scale for the tuberculous has been issued by the government. The following are the maximal weekly amounts for each male over 10 years of age residing in a sanatorium or special ward set apart for the treatment of tuberculosis: meat (including suet) 56 ounces; fish and poultry, 16 ounces; bacon, 8 ounces; bread, 64 ounces; flour, 8 ounces; sugar, 8 ounces; butter and margarin, 10 ounces; lard and edible fats, 3 ounces; potatoes, 80 ounces; vegetables (fresh), 28 ounces; milk, 14 pints; jam, syrup, etc., 8 ounces; cereals, 12 ounces; oatmeal, 8 ounces; peas, beans and lentils, 8 ounces; tea, 2 ounces, and cheese, 4 ounces. Since patients suffering from marked constitutional disturbance may be unable to take peas, beans and lentils or the full amounts of potatoes and bread specified, an adult male patient certified by the medical officer of the institution to be so suffering and to require additional milk shall be entitled to not more than 7 pints of milk weekly (or the equivalent in dried milk prepared from whole or separated milk) in addition to the amount specified. Females over 10 years of age and children under 10 are entitled to four fifths and three-fifths, respectively, of the amounts laid down for males over 10, except that in every case the patient will be entitled to 8 ounces of sugar and 3 ounces of edible fats weekly.

Prostituted Science

In his presidential address to the Faraday Society, Sir Robert Hadfield said that the war had been largely one of the metallurgist, the engineer and the chemist. To the enemy scientists had been left the ignoble rôle of prostituting knowledge to the basest of uses. No matter how clever had been their inhuman ideas with regard to poison gas, petrol flame throwers, etc., the enemy's men of science in time to come would look back and find everything to be ashamed of and nothing of which they could be proud. On the other hand, the scientific men of all the Allies had not only clean hands but also clean minds. While it had been necessary for us in self defense to meet and counterattack the many horrible devices of the enemy, there was not a man in the whole of the British Empire who would have introduced one of these terrible devices. Huns of all classes were equally to blame for this war. Of what use, therefore, was it to talk about a league of nations at this hour of the day? It would be a league of fools if it included Germany after her unparalleled atrocities, inhumanity and bestiality. To admit the Hun to any council of nations would be like inviting a burglar or a murderer to join a Y. M. C. A. council.

PARIS LETTER

PARIS, Nov. 14, 1918.

Prophylaxis and Treatment of Complications of Influenza

At a recent meeting of the Académie de médecine, Dr. Louis Weiller recommended the use of dilute solutions of beechwood creosote in the prophylaxis and treatment of the pulmonary complications of influenza. Every twelve hours the patient is given in an enema a glass of lukewarm milk containing about 1 drop of creosote for each year of age for children, and 25 to 30 drops for adults. The mixture should be well shaken and the enema retained for at least two hours. In cases of pulmonary complication, the dose should be increased by 2 to 5 drops for children and 4 to 8 drops for adults. The complication subsides rapidly. The intervals should be lengthened when the temperature becomes normal, and two days after the cessation of the pyrexia, the treatment is stopped. Albuminuria, so frequent a symptom in pneumococcic infections, is not a contraindication for this treatment. As adjuvant medication, acetate of ammonia may be given by mouth, and antiseptics of the nasopharynx should not be overlooked.

The Influenza Epidemic

The epidemic of influenza is on the wane in Paris. For the week ending November 2, 1,119 deaths from influenza were registered as against 1,263 for the preceding week. Adding to these figures the deaths caused by acute diseases of the respiratory apparatus, the result is 1,539 deaths as

against 1,778 for the preceding week. M. Mesureur, directeur de l'Assistance publique, reports that the hospital admissions have fallen off about 50 per cent., and the wards are no longer crowded with patients.

Dr. Louis Mourier, undersecretary of state for the Service de Santé militaire, reported to the Commission d'hygiène that in the army the epidemic is subsiding, and that most of the cases of today do not present the gravity met with formerly.

Letter from General Petain to the American Red Cross

General Petain, commander in chief of the Armies of the North and Northeast, addressed a letter to Colonel Gibson, commissioner for France of the American Red Cross, in which he acknowledged receipt of the notice that the American Red Cross had voted a new credit of 10 millions for the relief of French soldiers and officers, and extended his personal thanks and the thanks of the armies under his command for this kindness. He made acknowledgment of the valuable moral and material aid rendered by the American Red Cross, and did not fail to extend his appreciation to the people of the United States as a whole.

Interallied Social Hygiene Congress

The Comité national de l'éducation physique et de l'hygiène sociale, presided over by M. Henry Paté, has decided to organize, with the assistance and under the patronage of the government, an interallied congress of social hygiene, whose object will be the reconstruction of the devastated regions. This congress will be held in Paris early in 1919, and will have an interallied social hygiene exposition.

Office of Food Controller

The under-secretary of state of provisioning has established a food controller's office for the purpose of facilitating the work of the authorities in regulating prices, and in securing and distributing food to the civil population, calling to its assistance experts on syndical organizations, sales and production.

Making Tuberculosis a Reportable Disease

The matter of making tuberculosis a reportable disease having again been made a subject for discussion by the public authorities, the Conseil d'administration du Syndicat des médecins de la Seine, has issued the following statement: "The Conseil d'administration believes that it is absurd to make tuberculosis a reportable disease before ample proper means for treating these patients have been provided (dispensaries, sanatoriums, special hospitals, farm colonies, etc.). The compulsory declaration of the disease, to which the Syndicats médicaux have on numerous occasions made objection, is not even justified by the usefulness of the disinfection, made by order of the law, of the home of the patient. Such disinfection is of value only when made at the time the patient leaves the domicile. Applied under any other conditions, the tuberculous patient becomes an object to be dreaded, an outcast, and this disinfection, moreover is inefficacious. The only effectual disinfection is that done by the patient or those around him, repeated every day; all these persons must be instructed in hygiene in this line. Tomorrow as well as today, the attending physician will apply only the measures taken in the interest of the patient and his family, and he will not have any respect for administrative decisions or ordinances which may conflict with one or the other."

American Red Cross Hospitals in Vicinity of Paris

Military Hospital No. 7 of the American Red Cross has been opened at Malabry near Plessis-Robinson, about ten kilometers from Paris. The hospital is placed in a park by permission of the département de la Seine, valid for the duration of the war. The hospital opened with about 600 beds. The American Red Cross now maintains in and around Paris seven hospitals: the former American Ambulance at Neuilly; the hospital of Dr. J. A. Blake; the hospital of the Whitelaw Reids; the military hospital of Joinville-le-Pont; the Auteuil hospital; the Neuilly hospital for diseases of the skin, and the new Malabry hospital.

Donation to Academy of Medicine

Dr. Dragovitch has donated to the Académie de médecine bonds of the value of 2,000 francs, bearing 5 per cent. interest, for the purpose of founding two prizes, one for the best work on the etiology and treatment of mental diseases, and the other on the etiology and treatment of diseases of metabolism.

Deaths

Major Joseph Biddleman Bissell ♂ M. C., U. S. Army, New York City, College of Physicians and Surgeons in the City of New York, 1883; aged 59; chief surgeon of U. S. General Hospital No. 2, Fort McHenry, Md.; clinical professor of surgery in University of Bellevue Hospital Medical College; a member of the American Urological Association; for nearly twenty years a member of the surgical staff of Bellevue and St. Vincent's hospitals; consulting surgeon to the Hospital for Deformities and Joint Diseases, and to the German Hospital and Dispensary; surgical director of the Radium Institute of New York, and president of the American Radium Society; died in Mount Sinai Hospital, New York City, December 1, from septicemia.

Lieut. Thomas Jefferson Palmer ♂ M. C., U. S. Army, McAlester, Okla.; University of Illinois, Chicago, 1905; aged 39; a veteran of the war with Spain; who, after a course of training at the Medical Officers' Training Camp, Fort Riley, Kan., was assigned to duty with Field Hospital No. 27, Sixth Division; and sailed for France, June 28; while on duty, September 10, at a French Hospital on the Western Front, was gassed, and died October 28, at Base Hospital No. 14, Bordeaux, France.

John Down Heritage, Glassboro, N. J.; University of Pennsylvania, Philadelphia, 1863; aged 81; assistant surgeon, Eleventh New Jersey Infantry during the Civil War; taken prisoner at the battle at Ream's Station, and afterward confined in Libby Prison, Richmond; in 1873 elected grand chancellor of the Knights of Pythias of New Jersey; died at his home, November 20.

Watson Lovell Wasson ♂ Waterbury, Vt.; University of Vermont, Burlington, 1901; aged 44; professor of mental diseases in his alma mater; a specialist in psychiatry; superintendent of the Vermont State Hospital for the Insane, Waterbury; died in that institution, November 24, from pneumonia.

James Smith Ford, Loomis, N. Y.; College of Physicians and Surgeons in the City of New York, 1910; aged 32; a member of the Medical Society of the State of New York; senior assistant physician of the Loomis Sanatorium; died in that institution, November 21, from pneumonia following influenza.

Asst. Surg. Bertram L. Cunningham ♂ Lieut. (j. g.), U. S. N. R. F., Jamaica, N. Y.; New York Homeopathic Medical College, 1913; aged 30; on duty at the Medical Office, Third Naval District Headquarters, New York City; died in New York City, October 21, from bronchopneumonia following influenza.

Lieut. Samuel Dennison Shannon ♂ M. C., U. S. Army, Baltimore; University of Maryland, Baltimore, 1915; aged 26; who entered the Medical Corps in May, 1917, and was later transferred to the British Medical Service, died in the Red Cross Hospital, London, November 5, from influenza.

Capt. James McFarland ♂ M. C., U. S. Army, Burlington, N. J.; University of Pennsylvania, Philadelphia, 1911; aged 31; who entered the service in April, 1917, and after a tour of duty at Camp McClellan, Ala., went to France in June, 1918; died, October 24, from wounds received in action.

Eldora Alice Thomas, Chicago; University of Illinois, Chicago, 1913; aged 33; for several years a medical missionary in Sierra Leone, West Africa; more recently house physician at the University Hospital, Chicago; died in that institution, November 26, from valvular heart disease.

Roy Herman Renn, Williamsport, Pa.; Jefferson Medical College, 1906; aged 40; a member of the Medical Society of the State of Pennsylvania; while hurrying to the train after making a professional call at Nisbet, Pa., November 28, died suddenly from heart disease.

Joseph Felix Corrigan, St. Leo, Fla.; College of Physicians and Surgeons in the City of New York, 1871; aged 72; one of the founders of the New York Foundling Asylum, and for many years house physician at Bellevue Hospital; died at his home, November 28.

Amelia M. Augur, Cooperstown, N. Y.; Northwestern University, Woman's Medical School, Chicago, 1880; aged 62; died in the City Hospital, Binghamton, October 31, as the result of injuries received when she was run down by a motor truck, in Endicott.

Col. Samuel M. Horton ♂ M. C., U. S. Army (retired), Albany, N. Y.; Jefferson Medical College, 1861; aged 80;

who entered the Army as assistant surgeon in 1861, and was retired June 6, 1894, on account of disability in line of duty; died in Albany, recently.

Lieut. Frederick George Carow ♂ M. C., U. S. Army, Brooklyn; Jefferson Medical College, 1917; aged 30; on duty with the One Hundred and Fifty-Second Depot Brigade, Camp Upton, N. Y.; died in the camp hospital, October 16, from pneumonia.

Edward Everett Peck, Caldwell, N. J.; Bellevue Hospital Medical College, 1879; aged 64; a member of the Medical Society of the State of New Jersey; mayor of Caldwell; was found dead in his garage, November 22, from cerebral hemorrhage.

Lieut. LeCount Rochambeau Lovellette ♂ M. C., U. S. Army, Chicago; University of Illinois, Chicago, 1917; aged 25; on duty in the base hospital at Fort Sam Houston, San Antonio, Texas; died at his post, December 2, from lobar pneumonia.

John Gustavus Winkelman, Brooklyn; New York University, New York City, 1879; aged 62; formerly a member of the staff of Kings County and St. Catherine's Hospitals; died at his home, November 24, from heart disease.

Omar Clinton Henry, Minerva, Ky.; Hospital College of Medicine, Louisville, Ky., 1905; aged 37; a member of the Kentucky State Medical Association; died at his home, October 13, from pneumonia following influenza.

Lieut. Albert Fabian Welin ♂ M. C., U. S. Army, Rio Vista, Calif.; Leland Stanford Jr. University, Palo Alto, and San Francisco, 1915; aged 28; died at Camp Kearney, Calif., October 31, from pneumonia following influenza.

Ralph Almeron Parker, Greene, Me.; Bowdoin Medical School, Brunswick and Portland, Me., 1904; aged 57; at one time a member of the Maine Medical Association; died at his home, October 13, from heart disease.

John Patrick Rowan, Brooklyn; Long Island College Hospital, Brooklyn, 1898; aged 41; a member of the staff of the Brooklyn, St. Peter's, Holy Family, St. Mary's and St. Catherine's hospitals; died, November 27.

Sarah C. Lowry, Portsmouth, Ohio; Laura Memorial Woman's Medical College, Cincinnati, 1896; aged 45; died at her home, Kitt's Hill, Scioto County, Ohio, November 20, from pneumonia following influenza.

Leora Franklin Hicks ♂ Amo, Ind.; Medical College of Indiana, Indianapolis, 1901; aged 44; on duty at the base hospital, Nitro, W. Va.; died in that institution, October 27, from pneumonia following influenza.

Charles Thomas Amason, Doles, Ga.; Louisville (Ky.) Medical College, 1893; aged 59; at one time a member of the Medical Association of Georgia; died at his home, November 12.

Newton Elliott Smith, Fayette, Mo.; Washington University, St. Louis, 1903; aged 38; a member of the Missouri State Medical Association; died at his home, October 12, from pneumonia following influenza.

Charles T. Thomas, Lebanon Junction, Ky.; Medical College of Evansville, Ind., 1881; aged 65; a member of the Kentucky State Medical Association; died at his home, October 19, from bronchopneumonia.

Daniel A. Holliday, Fairmont, Ind.; Kentucky School of Medicine, Louisville, 1893; aged 59; formerly a member of the Indiana State Medical Association; died at his home, November 24, from heart disease.

Lieut. Thomas Reed Ferguson ♂ M. C., U. S. Army, Kirkwood, Pa.; Jefferson Medical College, 1906; aged 33; died in the Lancaster, Pa., General Hospital, October 2, from pneumonia following influenza.

Sylvester E. Goss, Wyaconda, Mo.; College of Physicians and Surgeons, Keokuk, Iowa, 1888; aged 56; a member of the Missouri State Medical Association; died at his home, October 4, from heart disease.

Otto C. McDannell, Lowell, Mich.; College of Physicians and Surgeons, Keokuk, Iowa, 1867; aged 74; a member of the

Michigan State Medical Society; died at his home, November 20, from influenza.

Austin LaMonte, Carmel, N. Y.; University of Michigan, Ann Arbor, 1861; aged 81; a member of the Medical Society of the State of New York; died at his home, November 9, from arteriosclerosis.

William Lundy Brown, Los Angeles; Bennett Medical College, Chicago, 1875; aged 68; at one time a member of the Medical Society of the State of California; died at his home, November 21.

William C. Jamison, Fairmont, W. Va.; Baltimore University, 1888; aged 67; at one time a member of the West Virginia State Medical Association; died at Weston, W. Va., November 23.

Andrew Orr Hastings, Toronto, Ont.; University of Victoria College, Coburg, Ont.; 1886; L. A. H., Dublin, 1887; aged 63; died at his home, November 21, from a nervous breakdown.

James Farnsworth Rodgers ♂ Bowling Green, Ky.; Rush Medical College, 1886; aged 61; died in the Deaconess Hospital, Louisville, Ky., August 31, from carcinoma of the stomach.

Isaac P. Primrose, Nelsonville, Ohio; Starling Medical College, Columbus, 1865; aged 86; a member of the Ohio State Medical Association; died at his home, November 23.

Cheever S. Clark, Canton, Ohio; University of Maryland, Baltimore, 1887; aged 60; a member of the Ohio State Medical Association; died at his home, November 22, from arteriosclerosis.

Will L. Allen ♂ National City, Calif.; King Eclectic Medical College, Des Moines, Iowa, 1889; aged 59; died at his home, November 18, from chronic nephritis.

Andrew Mason Taylor, Caney, Kan. (license, Kansas, 1901); aged 84; a practitioner for sixty years; died at his home, November 25, from arteriosclerosis.

Alfred Dow Long ♂ San Diego, Calif.; Harvard Medical School, 1907; aged 42; died in the Elwyn Sanitarium, National City, Calif., November 17, from uremia.

Jonas Larson ♂ Cozad, Neb.; John A. Creighton Medical College, Omaha, 1915; aged 33; died at his home, November 10, from pneumonia following influenza.

Antonio Rubino, Paterson, N. J.; University of Naples, Italy, 1893; aged 51; died in the Barnert Memorial Hospital, Paterson, November 22, from influenza.

William L. L. Foster, Waco, Neb.; Barnes Medical College, St. Louis, 1898; aged 45; died at his home, November 22, from pneumonia following influenza.

DeWitt Clinton Laverty ♂ Middletown, Pa.; Jefferson Medical College, 1877; aged 60; died in the Harrisburg Hospital, November 14, from appendicitis.

Charles G. Dawley ♂ Los Angeles; University of Southern California, Los Angeles, 1903; aged 39; died at his home, October 9, from bronchopneumonia.

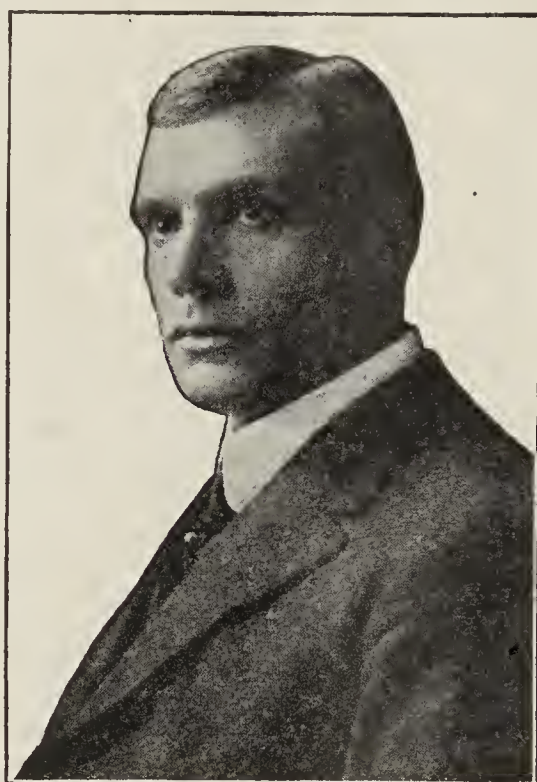
Aaron A. Nefe, Lookout Mountain, Tenn.; Cincinnati College of Medicine and Surgery, 1869; aged 65; died at his home, November 8, from influenza.

Capt. Pleas Daniel Barnhill ♂ M. C., U. S. Army, Brenham, Texas; University of Texas, Galveston, 1876; aged 52; died October 31, from arteriosclerosis.

Hyman R. Wiener ♂ Harrisburg, Pa.; University of Maryland, Baltimore, 1912; aged 29; died in the Harrisburg Hospital, October 14, from influenza.

Walter Charles Paine, New Holland, Ill.; Rush Medical College, 1895; aged 52; died at his home, October 13, from pneumonia following influenza.

Linnaeus Jones Hunter, New York City; New York University, New York City, 1889; aged 56; died at his home November 27, from pneumonia.



Died in the Service
IN FRANCE

MAJOR SHADWORTH O. BEASLEY,
M. C., U. S. ARMY, 1876-1918
(See The Journal, last week, p. 1930)

Lanea Cornelius, Quapaw, Okla.; Hahnemann Medical College, Kansas City, Mo., 1910; aged 33; died at his home, November 7, from pneumonia.

John Meikle Caldwell, Springerville, Ariz.; Detroit College of Medicine and Surgery, 1916; aged 26; died in October at Springerville, from influenza.

Robert Alexander McClelland ✶ Yorkville, Ill.; Rush Medical College, 1878; aged 64; died at his home, November 29, from cerebral hemorrhage.

John Robert Mason, Lancaster, Tenn.; University of Nashville, Tenn., 1905; aged 36; died in Baltimore, November 20, after a surgical operation.

George W. McDowell, Rockford, Ill.; Hahnemann Medical College, Chicago, 1889; aged 52; died at his home, November 22, from myocarditis.

Henry William Rose, Brooklyn; New York Homeopathic Medical College, New York City, 1876; aged 69; died at his home, November 29.

Hammel House Wright, Little Rock, Ark.; (license, Mississippi, 1910); aged 33; died in Little Rock, October 11, from pneumonia.

B. J. Hardeman, Martin, Tenn. (license, Tennessee, 1889); died at the home of his daughter in Martin, November 18, from influenza.

Stephen L. C. Bredin, East Orange, N. J.; University of Pennsylvania, Philadelphia, 1855; aged 83; died at his home, November 18.

George Lang, Valdosta, Ga.; Savannah, Ga., Medical College, 1861; aged 79; a Confederate veteran; died at his home, November 15.

Maurice C. Jacobs, Kansas City, Mo.; Eclectic Medical Institute, Cincinnati, 1866; aged 80; died at his home, November 16.

Kenneth M. Stell, Cunningham, Texas; Chicago College of Medicine and Surgery, 1911; aged 37; died at his home, October 22.

William Francis Lewis, Anoka, Neb.; Rush Medical College, 1884; aged 57; died at his home, November 22, from pneumonia.

John Henry Blomenkamp, Barada, Neb.; Rush Medical College, 1911; aged 32; died at his home, November 26, from influenza.

Fortunatus James Sconzo, Brooklyn; Long Island College Hospital, Brooklyn, 1917; aged 26; died at his home, October 9.

Mary V. Cosford, Spokane, Wash.; Eclectic Medical Institute, Cincinnati, 1885; aged 62; died at her home, October 28.

Charles Stirling, Oakland, Calif.; University of Illinois, Chicago, 1888; aged 63; died at his home, November 28.

W. T. Reagan, McNeil, Ark. (license, Arkansas, 1905); aged 36; died at his home, November 27, from influenza.

Cyrus W. Babcock, Buffalo, N. Y. (license, New York, 1866); aged 81; died at his home, November 7.

James Roy Mains ✶ Powell, Wyo. (license, Wyoming, 1904); aged 41; died at his home, October 23.

Marriages

CAPT. JOHN HAROLD CARROLL, M. C., U. S. Army, New York City, on duty with the American Expeditionary Forces in England, to Miss Jean MacGregor, C. A. M. C., on duty with Fifteenth Canadian General Hospital, Taplow, England, in London, September 12.

ASST. SURG. FRANKLIN MYERS GOODCHILD, Lieutenant (junior grade), U. S. Navy, New York City, assigned to duty at the U. S. Naval Hospital, Brooklyn, to Miss Frederika Riesberg of Park-Hill-on-Hudson, N. Y., in New York City, November 16.

LIEUT. LEE WALLINGFORD DARRAH, R. A. M. C., Brookville, Pa., on duty with the British Expeditionary Forces in France, to Miss Margaret Moysey of Knightsbridge, London, England, November 7.

GEORGE W. HARPEL, Rochester, N. Y., to Miss Grace Tower Tier of Philadelphia, at Llanerch, Pa., November 19.

HOMER BURLINGTON SHOUP to Miss Cora Harper, both of Sharpsville, Ind., at Logansport, Ind., November 23.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

EMETIN BISMUTH IODID ACCEPTED FOR N. N. R.

Report of the Council on Pharmacy and Chemistry

The Council has voted to accept emetin bismuth iodid for New and Nonofficial Remedies and to include Emetin Bismuth Iodid-Abbott and Bismuth Emetin Iodid-Mulford as accepted brands. It has authorized publication of the following report on emetin bismuth iodid.

W. A. PUCKNER, Secretary.

Historical: Emetin bismuthous iodid was introduced by A. G. DuMez in 1910. It varies considerably in composition according to its preparation. The sample analyzed by DuMez contained about 29 per cent. of emetin. The compound is insoluble in water and dilute acids, but is decomposed by alkalis. On the basis of these solubility characters, DuMez in 1910 suggested that it should pass the stomach unchanged, and thus have a lesser tendency to produce vomiting and diarrhea; but that it would presumably be decomposed and absorbed in the alkaline intestines.

DuMez did not have any clinical trials made, and his suggestion was neglected, until it was revived by Dale in 1916. Dale took up the subject because of the unsatisfactory results from the hypodermic emetin treatment in chronic cases, and carriers, of amebic dysentery. He assumed that the intestinal ameba at least might be reached more directly by oral administration than by the circulation. He therefore prompted the clinical trial of the DuMez compound, with promising results.

Administration: Dale employed a dosage of 3 grains of emetin bismuth iodid (corresponding to about 1 grain of emetin) daily, for 12 days. This dosage has been followed by subsequent observers. Dale gave the daily quatum at a single dose, during or after a full meal. Some of the others have given it in divided doses, and at different times. Apparently the midday meal is best, since the after-effects then cause the least inconvenience.

Dale also suggested a keratin-coated pill. As the coating of pills with keratin is now generally recognized to be of little value as a means of preventing the disintegration of pills by the gastric juice (Reports Coun. Pharm. & Chem., 1911, p. 58) salol-coated pills or capsules should be tried and also the wax mass proposed by N. S. Davis (THE JOURNAL, Oct. 14, 1916, p. 1160) and the procedure of Ballenger and Elder (THE JOURNAL, Jan. 17, 1914, p. 197).

Efficiency: All the clinical observers report satisfactory results. The disappearance of amebas from the stools is generally complete and apparently permanent even in chronic cases and carriers, and in patients in whose cases the hypodermic injections had failed. The compilation of Waddell and co-workers (1917) is most comprehensive. It shows about 18 per cent. of failures in carriers. This may be considered an excellent showing. The method in acute cases also is at least equal to the hypodermic administration of emetin hydrochlorid.

Side-Actions: The statements in regard to these vary somewhat, as might be expected. It is clear, however, that the preparation is far from nonirritant and produces much more gastro-intestinal disturbance than does the hypodermic method. Waddell *et al.* report that practically all patients respond either by purging or vomiting or both; the two phenomena being generally of inverse severity.

Low and Dobell state that "some of these [symptoms] recall to one's memory the old ipecacuanha days," although the symptoms are generally not quite so severe. Unfortunately there are no published records of parallel observations on the severity of these symptoms, comparing the plain ipecac treatment, by Simon's method for instance, with the

emetin-bismuth compound and with the adsorption preparation ("Alkresta Ipecac").

Waddell *et al.* state that the vomiting starts in about one hour, the diarrhea in three hours. They can be checked only by opiates. Practically no tolerance is acquired. The vomitus generally has the red color of the drug, showing that the keratin coating had dissolved in the stomach. Evidently this confers but little protection. The severity of the nausea and vomiting varies considerably for different patients. This variation is not to be accounted for by variations in the drug, for this was of the same origin in most of the series. Presumably the variable reaction of the stomach may be an important factor in gastric solution and local irritation by the drug. However, it must be remembered that the emesis is largely of central origin (Eggleston and Hatcher, 1915), and therefore could not be avoided by any method that would permit the absorption of the emetin.

Evidently, the side-effects of the drug are still very undesirable, although they do not preclude its use and are less disagreeable than with the old methods of oral administration. In view of the distinct field of usefulness for the oral method from the standpoint of efficiency and convenience, the emetin bismuth iodid preparations have been accepted for New and Nonofficial Remedies.¹ It is desirable that further methods of insuring gastric insolubility be sought. It is also worth while to determine if smaller daily doses may not perhaps be efficient.

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2. Dale, H. H.: 1916, Lancet, July 29, p. 183; J. Roy. Army Med. C., **27**, p. 241.
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5. Imrie, C. G., and Roche: 1917, Lancet, Jan. 6, p. 17.
6. Leboeuf, A.: 1917, Presse Med., July 9, p. 391.
7. Waddell, W., *et al.*: 1917, Lancet, July 21, p. 73.
8. Crowell, B. C.: 1917, J. A. M. A., **69**, p. 6.
9. Stephens, J. W. W., and MacKinnon: 1917, Ann. Trop. Med., **10**, p. 397.

Correspondence

GENITAL GONORRHEA IN EARLY CHILDHOOD

To the Editor:—The article by Dr. Haines on "Acquired Genital Syphilis in the Infant" (THE JOURNAL, Feb. 9, 1918, p. 370) prompts me to report five cases of gonorrhea in early childhood that came to my notice at my former dispensary clinic in Chiangmai, Siam. I believe that this is a fairly rare condition anywhere. All five cases were in girls ranging from 2 to 7 years of age.

A Chino-Lao girl, aged 2 years, complained of painful micturition. I suspected urinary calculus of the bladder, as this is very common; but examination showed the whole vulva smeared with a thin, creamy pus, a microscopic examination of which disclosed the gonococci in large numbers. I then questioned the father, who with practically no hesitation said that he had gonorrhea and that he had expressed some of the pus from his penis onto his finger and then deliberately rubbed it into the vagina of his daughter. When asked why, he said that if he could only give his infection to a virgin he would be cured at once of his gonorrhea. I understand that such a superstition is common among the negroes of America and may be an explanation as to the source of infection in Dr. Haines' case.

Three little sisters, ranging in age from 4 to 7 years, all seen within ten days of each other, children of a well-to-do Eurasian, presented the same symptom of a purulent discharge from the vagina, and all had gonococci by microscopic examination. The source of infection here was the nurse girl, who performed the act of masturbation with her little charges.

The 5-year-old daughter of a well-to-do Siamese had the same experience as the three sisters. The microscopic findings were positive. This was also a case of congenital syphilis.

1. See New and Nonofficial Remedy Department of this issue.

In all five cases the treatment consisted in keeping the parts free from pus and applying a 2 per cent. silver nitrate solution once a day, with from 2½ to 5 grains of a hexamethylenamin solution by mouth three times a day. All the patients responded very quickly and were apparently cured in from ten days to a fortnight.

C. W. MASON, M.D., Chieng Rung, Yunnan, China.

INFLUENZA IN HORSE AND MULE

To the Editor:—Physicians are aware of a disease in horses and mules called "influenza." It is misnamed, because it is not due to the same cause as influenza of man. However, it may be of interest to know that this disease in horses and mules bears a wonderfully striking resemblance to influenza in man, both in the influenza itself and in its complications.

Influenza in the horse and mule is confined almost exclusively to so-called green horses, namely, those shipped to infected sales stables for the first time. One attack usually produces immunity, but not always. The disease is more or less common during the shipping season every year, but the complications vary greatly from year to year as to their frequency and the virulence of the secondary infection. Such a history is not unlike that of influenza of man.

The cause of influenza in the horse and mule has not been determined, although it is probably a filtrable virus. If the influenza remains uncomplicated, it is of little or no consequence and is referred to as a shipping fever or shipping cold; every few years, however, a general epizootic or local enzootics occur with secondary infections often resulting in the death of many animals. Pneumonia and other respiratory complications are most common, although in some instances intestinal and nervous complications may exist. A bipolar staining organism of the pasteurilla group has often been found in the complications.

As a specific disease, the trouble has prevailed throughout this country for a great many years, and many people still recall the serious form it took in 1870-1872, under the general term "epizootic" and the more specific "pink eye." Again, in 1900-1901, a more or less serious outbreak occurred. During the past few years, the complications have varied from year to year. Six years ago this fall and coming winter, some horse dealers located at various sections of the country lost as much as 50 per cent. and more of their shipments. Last fall and winter, losses were frequently quoted from 5 to 25 per cent. of shipments. The Army has likewise been a very heavy loser at all of its concentration and remount depots.

The symptoms of influenza in the horse when uncomplicated are rising temperature to a greater or less degree with a similar increase in the pulse rate and respiration, and loss of appetite to a certain extent, with some indisposition and depression. The mucous membrane of the eye shows more or less watery secretion and yellowish red color (pink eye).

The necropsy findings in uncomplicated influenza are usually limited to a catarrhal condition of the mucous membranes of the respiratory tract and of the eye. When complicated, as previously stated, varying forms and degrees of pneumonia are common, accompanied by frequent pleurisy with effusion. In other cases, the complication is largely that of edema of the lungs, or the edema may be confined to the larynx or extend throughout the whole of the respiratory tract. Again, in some instances, the predominating complication is marked by a very acute inflammation of the intestine, which previously led to a profuse diarrhea. In still other cases, the most marked findings have been an inflammation of the meninges of the brain and spinal cord.

Prophylaxis against the influenza is to be largely effected by sanitary measures in keeping susceptible animals unexposed to the infection, and the disinfection of infected premises. Little has been accomplished in the production of a vaccine or serum preventing the influenza, but apparently good results have been secured in preventing the complications when using vaccines composed of the various organisms found in the different complications.

The treatment of influenza calls for very little other than good hygienic and sanitary measures during the course of

the disease, but such measures are only of limited value in the influenza complications. Here again, apparently good results, however, have been attained when the animals are treated early with an immune serum produced by the organisms in the complication. Such serum to be effective, of course, must be administered early in the course of the trouble.

G. A. ROBERTS, D.V.S., Raleigh, N. C.
Veterinarian, Department of Veterinary Medicine, North Carolina College of Agriculture and Mechanic Arts.

GERMANY'S GUILT FOR INTRODUCING WAR GASES

To the Editor:—In an editorial in THE JOURNAL, November 23, you refer to the suggestion that asphyxiating gases be used in warfare as having been rejected by the British government by reason of the inhumanity of the procedure. The actual facts are that at the first Hague convention in 1899, when twenty-six nations were represented, a proposal to prohibit the use of such gases was made and twenty-four nations agreed, the dissenting nations being Great Britain and the United States. In 1907, the matter was again brought up. This was the second general convention. Great Britain gave way and the United States stood alone in refusing to agree to the prohibition.

The chairman of the convention—a Dutch delegate—begged Admiral Mahan—the opponent of the resolution—to sign for the sake of humanity, but he declined. His reasons for this action are given in Hull's book, "The Two Hague Conferences." They are, in my opinion, unanswerable. For further details see James Brown Scott's work on the Hague conferences.

Inasmuch as a Hague rule provides that when belligerents are all signatories to any agreement they should observe this, but if any one takes in an ally that is not signatory the agreement lapses, it follows that the moment the United States entered the war, all agreements in regard to the non-use of asphyxiating gases would have been canceled.

HENRY LEFFMANN, M.D., Philadelphia.

[COMMENT.—Germany was the first nation to violate international agreement on the use of asphyxiating gases, employing these in a surprise attack in the battle of Ypres, April 23, 1915, long before the United States entered the war.—ED.]

REDUCTION OF RESPIRATION FOR INSOMNIA

To the Editor:—I start with the assumption that every insomnia patient has been carefully examined for any pathologic condition, especially for intestinal disorders, and that all medical and surgical conditions have been met.

The suggestions offered herein are for that class of patients that cannot forget their business when they want to sleep and should be asleep, or those who have troubles or worries from which they are unable to travel or take a vacation. My first efforts began about ten years ago, along the popular line of mental gymnastics, in an attempt to control the mental states. Since the dreaming state lies between consciousness and sound sleep, just at the threshold of sleep the idea was to make them dream themselves to sleep. Directions were to avoid reasoning and analysis, to direct any train of thoughts into the absurd and grotesque. Mention is made of this method because it has some value; about 20 per cent. of patients will admit benefit from it alone, and it can be practiced in conjunction with the second experiment. This second method deals with a more primitive physiologic function, which also has a typical threshold phase and is fortunately subject to control of the will, even by those whose minds are fairly racing with themselves.

I am sure that every surgeon, or anybody connected with an operating room, has noticed that patients put to sleep pass through a semiconscious stage in which respirations are slow and shallow; it is often hard to detect them at all until more is given. The same occurs with gas, which does not irritate the respiratory tract. Natural sleep is ushered in in the same manner; the shallow, slow, threshold phase can be

studied in this case without the excitement stage. It is through this natural physiologic pathway that we should attempt to lead our subjects and imitate Nature's process.

The subject should be placed in the best possible environment, with good ventilation. He should be quiet and warm, and should be directed to find a comfortable position and stay in it. He should breathe slowly and shallowly, not too slowly at first until the body becomes accustomed or adjusted to being quiet and in the recumbent position. After allowing about ten minutes for this, he should breathe less and less. Different subjects apply the same principle differently; they learn little tricks that suit their own case. Probably the best method is for him to take a fair respiration and hold after exhalation as long as he can with comfort, then slowly take another, exhale and hold again. He should be directed to continue in this manner. The subject may at first feel that he cannot control or diminish his respirations, but a little patience and effort will in a short time (within two weeks) prove that he can.

I have tried this method of respiratory control in about twenty cases during the past year. Results have seemed so good and its applications so simple that I am anxious for others to try it out fairly and report their success.

G. J. MAUTZ, M.D., Fort Riley, Kan.
First Lieutenant, M. C., U. S. Army.

THE PROPHYLAXIS OF INFLUENZA

To the Editor:—At the end of the first week of the influenza epidemic at Newport (Sept. 15, 1918), while the disease was raging with great severity, 1,000 men were removed from the receiving barracks to the Vanderbilt farm (Camp Admiral Oman), 7 miles out of town. Here they were placed in large pyramidal tents, eight men to each tent.

During the first three days, ninety-three new cases of influenza developed among the men at the camp. September 19, the fourth day at the camp, no new cases developed and the epidemic practically terminated, only an occasional sporadic case of influenza developing thereafter.

The men at the camp mushroomed their tents every sunny day, ate at mess tables placed in the open, and were allowed no liberty during the first five weeks at the camp. It was noticed at the same time that the men in tents at the training station suffered equally with those in the barracks. The explanation of these two apparently diametric experiences lies in the fact that the men in tents at the training station ate in mess halls, where there is more or less group gathering.

The lesson to be learned from the medical experience at Camp Admiral Oman is that epidemic influenza can be checked to a great extent by plenty of fresh air and sun and by the preventing of group gathering and crowding, such as takes place in theaters, churches, etc., in civilian life and in barracks and mess halls in military life.

CHARLES H. CARROLL, M.D., Newport, R. I.
Lieutenant, Junior Grade, U. S. N. R. F.

ADVANTAGES OF A NATIONAL DEPARTMENT OF HEALTH

To the Editor:—I believe THE JOURNAL has always favored a national health department or some arrangement by which the national government would have more power to enforce regulations tending to the prevention of disease and handling health problems for the good of the public in general. Conservation of life is more essential than conservation of labor, food, etc. I believe that if you could in some way bring more prominently to the people's mind the fact that during the first year of the war, barring battle fatalities, the death rate in the Army and Navy from disease was only one third as great as that in civil life of men of the same age before the war began, the public would favor such a department. I believe that if the recent epidemic of influenza had been handled by the government in all parts of the United States as it was in the Army and Navy, we would have saved thousands of lives and millions in money to the government and

the people. What we would have saved the United States in this one epidemic would have taken care of a special health department for several years to come.

J. H. WOLFE, M.D., Los Angeles.

ORIGIN OF THE USE OF IODIN FOR SKIN STERILIZATION

To the Editor:—Concerning the old inscription "Made in Germany" I wish to record a memorandum:

Generally, perhaps, it is assumed that the use of tincture of iodine for skin disinfection originated with Grossich and was first recorded by him in the *Zentralblatt für Chirurgie*, Oct. 31, 1908, p. 1289. As a matter of fact, I began the use of tincture of iodine for the purpose of skin disinfection in the latter part of the year 1905, in my surgical service, and called attention to it in an article entitled "Some of the Uses of Iodin in Surgical Practice" (*THE JOURNAL*, April 14, 1906, p. 1102). Again, I published an article calling attention to the same method in *American Medicine*, November, 1906.

I reviewed the history of the iodine method of skin sterilization in a paper read before the American Association of Obstetricians and Gynecologists at Louisville, Ky., in September, 1911, and published in the *American Journal of Obstetrics*, 1912, 65, 6.

J. E. CANNADAY, M.D., Charleston, W. Va.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

WEARING UNIFORM AFTER DISCHARGE

To the Editor:—Will you please publish whether or not medical officers can continue to wear their uniforms and insignia after discharge? I would suggest that the Medical Reserve Corps should be open for enlistment to any ex-medical officer who desires to enter, with the privilege of wearing the full regalia with, perhaps, the exception of wearing the U. S. R. on the coat collar instead of the U. S. now worn.

F. M. O'KELLEY, Sikesman, Mo.

Ex-Captain, M. C., U. S. Army.

ANSWER.—As noted in *THE JOURNAL* last week in the discussion concerning the demobilization of medical officers, a questionnaire has been or will be sent to medical officers on which they may indicate their desire to remain in the service. Those who are qualified may be admitted to the regular Medical Corps or to the Medical Section of the Officers' Reserve Corps. An earlier ruling of General March stated that all men honorably discharged from the service might continue to wear their uniforms for a period of three months. A later ruling states:

The provision of section 125, national defense act, approved June 3, 1916 (Bull. No. 16, W. D., 1916), which permits any person who has been honorably discharged from the United States Army, Navy, or Marine Corps, Regular or Volunteers, to wear his uniform from the place of discharge to his home, within three months after date of such discharge, is held to apply to reserve officers when transferred from the active to the inactive list. Reserve officers, therefore, will be permitted to wear their uniforms from the place of last duty to their homes within three months of the date on which they were transferred to the inactive list.

THE USE OF LIPOVACCINES AGAINST PNEUMONIA

To the Editor:—I read in *THE JOURNAL*, Nov. 23, 1918, p. 1734, an item relative to vaccination against pneumonia. Where may the lipovaccine against the pneumococcus be procured?

D. W. RELIHAN, M.D., Smith Center, Kan.

ANSWER.—The lipovaccines described are manufactured by the Army Medical Laboratory. So far as we know, they are not yet available commercially, but are now in the experimental stage. The following articles on the subject of lipovaccine have appeared in *THE JOURNAL*:

Whitmore, E. R.; Fennel, E. A., and Petersen, W. F.: Experimental Investigation of Lipovaccines, Feb. 16, 1918, p. 427.

Whitmore, E. R., and Fennel, E. A.: Experimental Investigation of Lipovaccines, March 30, 1918, p. 902.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALABAMA: Montgomery, Jan. 14. Chairman, Dr. S. W. Welch, Montgomery.

ARIZONA: Phoenix, Jan. 7. Sec., Dr. Allen H. Williams, 219 Goodrich Bldg., Phoenix.

COLORADO: Denver, Jan. 7. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

DISTRICT OF COLUMBIA: Washington, Jan. 14-16. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

FLORIDA (E): Jacksonville, Dec. 16-17. Sec., Dr. G. A. Munch, 1806 Franklin St., Tampa.

HAWAII: Honolulu, Jan. 6. Sec., Dr. J. R. Judd, Honolulu.

MINNESOTA: Minneapolis, Jan. 7-10. Sec., Dr. Thomas McDavitt, 741 Lowry Bldg., St. Paul.

NEW MEXICO: Santa Fe, Jan. 13. Sec., Dr. W. E. Kaser, East Las Vegas.

NEW YORK: Jan. 28-31. Albany, Buffalo, New York City and Syracuse. Mr. Herbert J. Hamilton, Asst. Prof. Exams., New York Dept. of Education, Albany.

NORTH DAKOTA: Jan. 7. Sec., Dr. G. M. Williamson, 860 Belmont Ave., Grand Forks.

OKLAHOMA: Oklahoma City, Jan. 7-8. Sec., Dr. J. J. Williams, Weatherford.

OREGON: Portland, Jan. 7. Sec., Dr. H. S. Nichols, Corbett Bldg., Portland.

PENNSYLVANIA: Philadelphia, Jan. 7-9. Sec., Mr. Nathan C. Schaeffer, State Capitol, Harrisburg.

RHODE ISLAND: Providence, Jan. 2-3. Sec., Dr. B. U. Richards, State House, Providence.

SOUTH DAKOTA: Pierre, Jan. 14. Sec., Dr. P. B. Jenkins, Waubay.

UTAH: Salt Lake City, Jan. 6. Corres. Sec., Dr. G. F. Harding, 405 Templeton Bldg., Salt Lake City.

WASHINGTON: Spokane, Jan. 7-9. Sec., Dr. C. N. Suttner, 415 Old Nat'l Bk. Bldg., Spokane.

WISCONSIN: Madison, Jan. 14. Sec., Dr. J. M. Dodd, 220 E. 2d St., Ashland.

North Carolina June Examination

Dr. H. A. Royster, secretary of the Board of Medical Examiners of North Carolina, reports the oral, practical and written examination held at Raleigh, June 24-28, 1918. The examination covered 15 subjects and included 72 questions. An average of 80 per cent. was required to pass. Of the 52 candidates examined, 49 passed and 3 failed. Eighteen candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Howard University (1917)	83.8; (1918) 80, 84.4, 84.7.		
College of Physicians and Surgeons, Keokuk	(1877)		80
Tulane University	(1910)		88.8
Johns Hopkins University	(1918)		89.4
University of Maryland (1918)	80.1, 85.7, 89.7.		
Boston University	(1917) 83.8; (1918)		84
Harvard University	(1918)		87.7
Columbia University	(1918)		89.8
North Carolina Medical College	(1909)		85.4
Jefferson Medical College (1918)	83, 84.1, 85, 85.1, 85.8, 85.8, 86.4, 86.5, 87.6, 88, 89.4, 89.7, 93.6, 94.		
University of Pennsylvania (1918)	81.3, 85.7, 85.8, 86.8, 87.7, 87.8, 88, 88.7, 88.8, 90.5, 91.6, 92.3.		
Woman's Medical College of Pennsylvania	(1918)		90.1
Chattanooga Medical College	(1903)		80
Meharry Medical College	(1917)	80, 80	
Tennessee Medical College	(1902)		80
Medical College of Virginia (1901)	80; (1917) 80.4; (1918)		87.6
College	FAILED	Year Grad.	Per Cent.
Leonard Medical School	(1912)		71.4
North Carolina Medical College	(1918)		72.1
Medical College of Virginia	(1918)		76.7

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Atlanta School of Medicine	(1913)		Georgia
Northwestern Woman's Med. School	(1893)		Indiana
Rush Medical College	(1902)		Illinois
Baltimore Medical College	(1912)		Virginia
College of Physicians and Surgeons, Baltimore	(1886)		Mississippi
Maryland Medical College	(1908)		W. Virginia
University of Maryland	(1905)		Maryland
University of Michigan Medical School	(1916)		Michigan
Washington University	(1902)		Missouri
University of the City of New York	(1890)		New York
Medical College of Ohio	(1896)		Ohio
Medical College of the State of S. Carolina	(1913)		S. Carolina
Memphis Hospital Medical College	(1913)		New York
University of Tennessee	(1893)		Tennessee
Medical College of Virginia	(1899) (1917)		Virginia
University College of Medicine	(1910)		Virginia
University of Virginia	(1889)		Virginia

Massachusetts September Examination

Dr. W. P. Bowers, secretary of the Massachusetts Board of Registration in Medicine, reports the oral, practical and written examination held at Boston, Sept. 10-12, 1918. The examination covered 13 subjects and included 70 questions. An average of 75 per cent. was required to pass. Of the 29 candidates examined, 20, including 9 osteopaths, passed, and 9, including 6 osteopaths, failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Chicago Hospital College of Medicine	(1918)	75
Boston University	(1918)	79, 81.8
Harvard University	(1917) 79.3; (1918) 77.1, 77.3, 83.		
Tufts College Medical School	(1917) 75; (1918) 75.7, 77.7	
Long Island College Hospital	(1880)	75
FAILED			
University of Maryland	(1916)	73
Middlesex College of Medicine and Surgery	(1918)	57.7
Laval University	(1917)	60

Dr. Bowers also reports that 6 candidates were licensed at the special examinations held for Emergency Influenza Service, from Sept. 27 to and including Oct. 8, 1918. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Johns Hopkins University	(1903)	83.5
Harvard University	(1882) 79.7; (1918)	80.7
University of Michigan Medical School	(1918)	79.5
Eclectic Medical Institute	(1904)	*
Ohio State University College of Hom. Med.	(1918)	81.4

*No grade given.

Colorado October Examination

Dr. David A. Strickler, secretary of the Colorado State Board of Medical Examiners, reports the written examination held at Denver, Oct. 1, 1918. The examination covered 8 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 13 candidates who took the physician's and surgeon's examination, 11, including 5 osteopaths, passed, and 2, including 1 osteopath, failed. Two candidates were dismissed on request, and one candidate was refused examination on account of bad moral character. Twenty candidates were licensed on credentials. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery	(1918)	90.7
Loyola University	(1917)	82.1
Baltimore Medical College	(1907)	81.8
Eclectic Medical University	(1917)	82.6
St. Louis University	(1918)	85.5
John A. Creighton Medical College	(1917)	81.7

FAILED			
Chicago Hospital College of Medicine	.....	(1918)	64.5

College	LICENSED ON CREDENTIALS	Year Grad.	No. Licensed
American Medical Missionary College	(1903)	1
Chicago Homeopathic Medical College	(1901)	1
College of Physicians and Surgeons, Chicago	(1893)	1
Hahnemann Med. Coll. and Hospital of Chicago	(1912)	1
Northwestern Medical College	(1883)	1
Northwestern University	(1896) (1908)	2
Rush Medical College	(1889)	1
Keokuk Medical College	(1897)	1
Tulane University	(1905)	1
University of Minnesota	(1917)	1
Barnes Medical College	(1909)	1
College of Physicians and Surgeons of St. Joseph	(1881)	1
Medico-Chirurgical College of K. C.	(1902)	1
St. Louis University	(1905)	1
University of Missouri	(1876)	1
John A. Creighton Medical College	(1903)	1
Medical College of Ohio	(1907)	1
Memphis Hospital Medical College	(1895)	1
Vanderbilt University	(1902)	1

Minnesota October Examination

Dr. T. S. McDavitt, secretary of the Minnesota State Board of Medical Examiners, reports the oral, practical and written examination held at Minneapolis, Oct. 1-4, 1918. The examination covered 15 subjects and included 80 questions. An average of 75 per cent. was required to pass. Seven can-

didates were examined, all of whom passed. Nine candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery	(1918)	83
Rush Medical College	(1918)*	91
College of Physicians and Surgeons, Baltimore	(1910)	81
University of Michigan Medical School	(1918)	91
University of Minnesota	(1918)† 88,	89
University of Pennsylvania	(1917)	92

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Chicago	(1908)	Illinois
Northwestern University	(1916) (1917)	Illinois
Johns Hopkins University	(1912)	S. Dakota
Boston University	(1909)	Texas
University of Michigan Medical School	(1912) (1917)	Michigan
Barnes Medical College	(1911)	Illinois
University of Nebraska	(1911)	Nebraska

* Received certificate for four years' work; degree will be granted after completion of internship.

† Received M.B. degree on completion of four years' work; M. D. degree will be granted on completion of internship.

Book Notices

ANATOMY OF THE HUMAN BODY. By Henry Gray, F.R.S., Lecturer on Anatomy at St. George's Hospital Medical School. Twentieth edition, revised and reedited by Warren H. Lewis, B.S., M.D., Professor of Physiological Anatomy, Johns Hopkins University. Cloth. Price, \$7.50. Pp. 1396, with 1247 illustrations. Philadelphia: Lea & Febiger, 1918.

In the review of so well known a book, nothing more is necessary than to record the changes that have been made. In this edition the special sections on embryology and histology have been distributed among the subjects under which they naturally belong. New matter on physiologic anatomy, laws of bone architecture, and the mechanics and variations of muscles has been added, occupying much of the space formerly devoted to applied anatomy. The sections on ductless glands and the nervous system have been largely rewritten. By means of diagrams and descriptions, the sympathetic nervous system is presented in a more rational manner than heretofore. The central connections of the spinal and cranial nerves are also emphasized. Many new illustrations have been added, especially in the section on the central nervous system.

THE HUMAN SKELETON: AN INTERPRETATION. By Herbert Eugene Walter, Associate Professor of Biology, Brown University. Cloth. Price, \$1.75. Pp. 214, with 175 illustrations. New York: The Macmillan Company, 1918.

This is an admirable, succulent and refreshing study of the human skeleton. It is not a study of "dry bones," but is instinct with life in every page. The medical student will find in it constant references to comparative anatomy and the evolution of various bones or their individual parts which will surely arouse his interest and explain the biologic relation of the lower animals to man. The teacher of anatomy will find a freshness of style which helps to make anatomy not only a useful study but an interesting one. The author has also a genial sense of humor, which is as welcome as it is rare in books of this sort. The illustrations are excellent and sometimes new and very informing. They often teach quite as much as the text.

The Growth of Medical Science.—We sometimes speak of the science of medicine; this is euphemism. Often we say medicine is an art founded on science. We like to think of practice as built on the solid foundations of anatomy, physiology and pathology, and these as resting on the bed rock of biology, chemistry and physics. This is camouflage. A better figure is that of a house being gradually moved from ancient piling to granite foundation; from empiricism to experimentalism; from superstition to science. It behooves those who live in the house during the moving operations not to step on the rotten planks in the floor.—E. P. Lyon, *Texas State Journal of Medicine*.

Medicolegal

Injury to Employee from Vaccination

(*Krout v. J. L. Hudson Co. et al. (Mich.)*, 166 N. W. R. 848)

The Supreme Court of Michigan sets aside an award of arbitrators that was affirmed by the industrial accident board in proceedings brought for the recovery of compensation for injury alleged to have been sustained by an employee from vaccination. The court says that the claimant was employed as a fitter for the J. L. Hudson Company, respondent, when a general vaccination of the employees of the company was performed by a physician who was an official of the board of health of the city of Detroit, who acted at the request of the board of health. He testified that the request of the board was communicated to the officers of the company, and that those officers through subordinates conveyed the request to the several departments. The claimant, together with several hundred other employees, submitted to the operation. It was her claim that within half an hour after the operation she felt pain in her arm extending upward into her neck, and that this condition continued for four days when she was obliged to discontinue work. Two days later she called a physician who diagnosed her trouble as "acute mastoiditis, lymphatic infection." Five days later he operated on her. The claimant remained in the hospital some two or three weeks and was convalescent for a considerable period thereafter. While the physician who did the vaccinating had himself vaccinated approximately 100,000 persons and testified that he never knew or heard or read of a case of acute mastoiditis being caused by vaccination, it was the opinion of the claimant's family physician that the mastoiditis was the result of a lymphatic infection, the germ of which (streptococcus or pneumococcus) found entrance to the system through the vaccination.

Assuming, then, as found by the industrial accident board, that the mastoiditis was caused by the invasion of the germs through the vaccination wound (though the testimony contained in the record seemed strongly to discredit this theory), there was still an absolute lack of evidence tending to show that the germ secured lodgment in the claimant's arm in the course of her employment. It seems quite clear to the court that the claimant failed to show any connection between her employment in the store of the respondent and the infection following the vaccination. There was nothing in her employment which made her more susceptible to the reception of the germ infection than if she were walking on the street or attending a theater or church. In other words, the risk of infection was such and such only as that to which the general public is exposed. The claimant's injury, if it could be traced to the vaccination, arose, not out of her employment with the respondent, but through the active agency of the Detroit board of health, which for the benefit of the claimant as well as for the benefit of the general public requested her to submit to the operation. The right of the board of health to insist on general vaccination was not involved. The claimant submitted to the operation, though, she asserted, under protest.

No Reason Why Chiropractor Should Be Excepted

(*Williamson v. State (Ala.)*, 78 So. R. 308)

The Court of Appeals of Alabama, in affirming a conviction of defendant Williamson of the offense of treating diseases of human beings by the system of treatment known as "chiropractic," without having a certificate of qualification from the state board of medical examiners, says that, on the admitted facts, the court could well have directed a verdict for the state, and there was nothing in the record of which the defendant could complain. Since the ruling in *Bragg's Case*, 134 Ala. 170, 32 So. 767, the statutes have been amended so as to deny to all persons the privilege of engaging in the calling or profession of treating or offering to treat diseases of human beings by any system of treatment whatsoever who have not obtained a certificate of qualification from the state board of medical examiners. The authority of the board to

issue certificates of qualification is not limited to those who desire to enter the profession as homeopathic doctors, but extends to all schools or systems of treatment. The chiropractor is not excluded or discriminated against, and has the same right to apply for a certificate of qualification as does the homeopath or osteopath, and, if granted a certificate of qualification, there is nothing in the law that denies him the right to pursue his method of treatment. The statutory provision concerning persons who propose to engage in the practice of treating disease as a profession and for a livelihood is a police regulation designed to protect the public from the ignorant and incompetent, and it is a matter clearly within legislative competence to prescribe a test by which qualification may be determined, and to confer authority on a designated board to conduct the proper examination through which the test may be applied. This the legislature has done. There being no discrimination against the defendant or his school of practice, there was no reason why he should be excepted from the operation of this police regulation.

Irresistible Impulse as a Defense to Crime

(*Hankins v. State (Ark.)*, 201, S. W. R. 832)

The Supreme Court of Arkansas says, in this homicide case, that in *Bolling v. State*, 54 Ark. 588, 16 S. W. 658, it approved the rules in *McNaghten's Case*, 10 Clark & F. Reps. 199, namely:

That to establish a defense on the ground of insanity it must be proved by a preponderance of the evidence that at the time of committing the act the accused was under such defect of reason, from disease of the mind, as not to know the nature and quality of the act that he was doing, or, if he did know it, that he did not know that he was doing wrong.

That if the defendant labors under a partial delusion only, and is in other respects sane, he must be considered in the same situation as to responsibility as if the fact with respect to which the delusion exists were real.

But in approving these rules of *McNaghten's Case* the court did not hold that the doctrine of irresistible impulse caused by disease of the mind would not be a good defense in cases in which the evidence adduced warranted it.

The *McNaghten* rules were announced in answer to questions propounded by the House of Lords requesting the judges to declare the law of England as to "alleged crimes committed by persons afflicted with insane delusion, in respect of one or more particular subjects or persons." Thus the questions and the answers assumed as a fact that a person might be insane on "one or more particular subjects or persons." Although this idea had prevailed since the days of Sir Matthew Hale, and obtained in England when the *McNaghten* rules were announced, it now appears that some distinguished authors on medical jurisprudence have come to the conclusion, following the lead of Lords Lyndhurst and Brougham, that, as a scientific fact, it is impossible for a person to be "insane on one or more particular subjects or persons, without being insane on all." Hence they say the rules of *McNaghten's Case* are wrong and should be wholly ignored. Now it does not follow that the *McNaghten* rules are unsound even though there be no such thing as partial insanity. The doctrine that the mind is an integer, and, if unsound on one subject from disease, is unsound on all, was announced by Lords Lyndhurst and Brougham in civil cases concerning the capacity to make a will. This court has not approved the doctrine to that extent in civil cases.

The learned authors on medical jurisprudence and the very few courts which have adopted the views that in the trial of criminal cases in which the defense of insanity is set up the entire question of responsibility is to be left to the jury with no other instructions than that, if the act was the product of mental disease, they should acquit, otherwise convict, have been led into this egregious error, as this court takes it, by treating insanity and irresponsibility as if they were convertible terms. By so doing they treat the entire issue in criminal cases, when the defense of insanity is set up, as one of fact, whereas the real issue in such cases is a mixed one of law and fact. It is an issue of fact for the jury to determine whether the accused at the time of the alleged act was afflicted with a mental disease, and an issue of law as to whether the mental disease is such as will

render him irresponsible. Therefore the issue of responsibility or irresponsibility in such cases should be submitted to the jury under proper instructions.

If the doctrine of the New Hampshire court that there are no legal rules or tests should be adopted throughout the American Union, it would be nothing short of a national calamity, because that innumerable multitude of mental abberants, commonly called cranks, would then find, over the insanity route, an easy path to immunity from any crimes they might commit. Hence the only safe and practical way of dealing with the subject is found in the legal tests or rules as formulated in McNaghten's Case, as far as they go, and by an addition thereto of the doctrine that irresistible impulse will excuse when caused by disease of the brain.

Impairment of Sight by Wood Alcohol an "Accident"

(*Fidelity & Casualty Co. et al. v. Industrial Accident Commission et al. (Calif.)*, 171 Pac. R. 429)

The Supreme Court of California holds in a case in which a show card sign writer had been for about a year and a half in the habit of using dyes dissolved in wood alcohol and forced through a fine needle by air pressure, though ordinarily he used this appliance only a very small portion of the time, but during the holidays near the end of the period there was a very much greater use of the apparatus, and directly after the holidays, when the pressure of work had somewhat slackened, he used an extraordinary quantity of wood alcohol in cleaning the apparatus and in washing and cleaning his hands, and on January 7 his eyes and optic nerve were exposed to and came into contact with the vapor of wood alcohol in unusual quantity, involving the sudden impairment of his vision, that the injuries so received constituted an "accident" that arose out of and happened in the course of his employment, and were not the result of an occupational disease, within the meaning of the workmen's compensation act, which provided that, without regard to negligence, liability should exist against an employer for any personal injuries sustained by his employees by accident arising out of and in the course of the employment. The court says that many cases might be cited from other states having similar statutes and from England, in which like unforeseen, unexpected and unintended injuries to employees have been classed as "accidents" and held sufficient to justify awards, such as injuries sustained by persons while lifting heavy objects, or through exposure to drafts or chilly air, or icy water in mines, or through the rupture of blood vessels brought on by unusual heat or overexertion, or through the inhalation of poisonous gases, and the like.

Rule as to Privileged Communications Applied to Roentgenologist

(*Shaw v. City of Nampa (Idaho)*, 171 Pac. R. 1132)

The Supreme Court of Idaho applies the rule as to privileged communications to a roentgenologist, in this personal injury case, under the following circumstances, as stated by the court: "When the plaintiff was injured, she employed a physician who immediately took her to another town, where he employed a physician to take a roentgen-ray picture of her broken arm. After the picture was taken and developed, the second physician or roentgenologist consulted with the first or plaintiff's regular physician relative to the interpretation of the picture and the treatment to be administered. Counsel for the plaintiff objected to the roentgenologist's testifying as to any facts learned while he was thus employed, which objection the supreme court holds was properly sustained. It appeared from the evidence, the court goes on to say, that the roentgenologist did more than perform mere mechanical work as a photographer, and that he used his knowledge and experience as a physician in interpreting the meaning of the picture, and advised with the plaintiff's regular physician as to what treatment should be given, the plaintiff paying the roentgenologist for his services. The trial court was justified in excluding such evidence as privileged communication, under the Revised Codes of Idaho, Section 5958, Paragraph 4.

Society Proceedings

COMING MEETINGS

American Physiological Society, Baltimore, Dec. 30-Jan. 1.
Society of American Bacteriologists, Boston, Dec. 30-Jan. 1.
Southern Surgical Association, Baltimore, Dec. 17-19.
Western Surgical Association, Chicago, Dec. 20-21.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

Nov. 15, 1918, 24, No. 4

- 1 Development of Seminal Vesicles in Man. E. M. Watson.—p. 395.
- 2 Early Morphogenesis of Human Thyroid. E. H. Norris.—p. 443.
- 3 Lymphatico-Venous Communications in Common Rat and Their Significance. T. T. Job.—p. 467.

Archives of Internal Medicine, Chicago

Nov. 15, 1918, 22, No. 5

- 4 *Physiology of Stomach. Control of Hunger by Drugs. H. Ginsburg and I. Tumpowsky.—p. 554.
- 5 *Case of Paroxysmal Tachycardia Characterized by Unusual Control of Fast Rhythm. E. P. Carter and A. M. Wedd.—p. 571.
- 6 *Concentration of Urea in Human Blood. L. Kast and E. L. Wardell.—p. 581.
- 7 *Effect of Ethylhydrocuprein on Experimental Pneumococcus Infections of Rabbits. J. H. Lewis.—p. 593.
- 8 *Experimental Study of Serum Therapy in Trichinosis. M. C. Hall and M. Wigdor.—p. 601.
- 9 *Metabolism in Hemochromatosis. C. W. McClure.—p. 610.
- 10 Experimental Bacteremia. J. W. McMeans.—p. 617.
- 11 Primary Atrophy of Pallidal System of Corpus Striatum: Pathology of Paralysis Agitans. J. R. Hunt.—p. 647.

4. Control of Hunger by Drugs.—The authors report on the effects of various common drugs on the hunger contractions by the use of the balloon method. Atropin sulphate in doses from $\frac{1}{80}$ to $\frac{1}{40}$ grain hypodermically invariably inhibited contractions and counteracted the effect of pilocarpin and physostigmin in this regard. Pilocarpin, from $\frac{1}{12}$ to $\frac{1}{8}$ grain, hypodermically, augmented the contractions, accompanied by diminished pulse rate. Physostigmin produces stimulation, particularly by intravenous administration. Coincident with the gastric manifestations, the pulse rate fell as low as 50 beats per minute, and gradually returned to normal with abolition of the gastric effects. Profound inhibition occurs with doses of 1 c.c. of 0.5 per cent. solution of cocaine per kilogram. A stimulating effect from camphor is observed only when the drug is administered intramuscularly. In large doses the contractions appear to become more frequent and intense, and the period of activity is prolonged.

As widely employed as strychnin is for its tonic value, there has been no experimental evidence for its supposed gastric effect. With doses of $\frac{1}{60}$ to $\frac{1}{60}$ grain subcutaneously, stomach tonus was increased, but at the same time the general excitability of the animal was increased so that the increased height of the writing level may have been due to the increased tonus of the abdominal muscles. At the same time, however, there appears to be a definite increase in the hunger contractions themselves. Inhalation of 5-minim pearls of amyl nitrite, often repeated, after short intervals, causes only a temporary inhibition which disappears as soon as the drug is removed from the nostril. Administration of epinephrin causes prompt and marked inhibition of the hunger contractions. Using ampules of ergot intravenously, a temporary inhibition usually followed by lowered tonus was noted, although contractions ensued. Intramuscular injection in one instance gave a tremendous steplike rise, with extremely high tonus level, followed by a short rest, and then another active period. The effect of pituitary preparations was remarkably like that of epinephrin.

5. **Paroxysmal Tachycardia.**—Carter and Wedd report a case of an ectopic rhythm originating in the upper level of the atrium near the pacemaker, conspicuously under the control of subjective inhibitory reflexes, but utterly uninfluenced by vagal stimulation. There was no demonstrable evidence of any accelerator influence or control over the tachycardia.

6. **Concentration of Urea in Human Blood.**—Of 244 hospital patients whose blood had a urea nitrogen concentration of less than 35 mg. per 100 c.c., 206, or 84 per cent., had a concentration of not more than 20 mg. per 100 c.c. Of these 206 cases only eighty-three, or 40 per cent., showed other evidence of renal impairment; but of the remaining thirty-eight cases, twenty-nine, or 77 per cent., showed other renal symptoms. Kast and Wardell conclude that 20 mg. per 100 c.c. may be taken as the upper normal limit of urea nitrogen in the blood of hospital patients, and that for diagnostic purposes the estimation of the blood urea is a satisfactory index of the functioning power of the kidney.

7. **Effect of Ethylhydrocuprein on Experimental Pneumococcus Infections.**—According to Lewis, ethylhydrocuprein can be given to rabbits intravenously and continuously over protracted lengths of time at the rate of 10 mg. per kilogram per hour, without apparent toxic effects. When injected intravenously into rabbits at the rate of 10 mg. per kilogram per hour for seven hours, ethylhydrocuprein produces a slight bactericidal action of the serum. A much higher bactericidal action is produced when it is injected at the rate of 15 mg. per kilogram per hour for seven hours. The effect of a fatal dose of pneumococcus on rabbits is not affected by the continuous intravenous injection of ethylhydrocuprein, in spite of the fact that the animal's blood may be distinctly bactericidal *in vitro*. The continuous intravenous injection of a soluble bactericidal therapeutic drug has theoretical advantages over the usual single or intermittent dosage. Lewis suggests that the failure of the method with ethylhydrocuprein is probably due to the nature of the drug and not to the method.

8. **Experimental Study of Therapy in Trichinosis.**—Hall and Wigdor carried out a number of experiments in testing the prophylactic and curative value of serum from animals recovered from trichinosis. Their experiments bear out the conclusions of Schwartz to the effect that serum from animals convalescent from trichinosis, when injected into other animals or fed to them mixed with trichinous meat, does not inhibit the customary development of trichinae. On the other hand, theoretic considerations, the clinical observations of Salzer, and the longevity data from their experiments lead Hall and Wigdor to the conclusion that such a serum may be of decided value in combating the toxic features of trichinosis, a conclusion which is in general agreement with Salzer's belief in the value of such a serum.

9. **Metabolism in Hemochromatosis.**—A retention of food iron was found by McClure in the metabolism experiment in a case of hemochromatosis. The hypothesis that there is an abnormal retention of iron in hemochromatosis is held to be consistent with the experimental findings. The basal metabolism and the respiratory quotient, determined by indirect calorimetry, were normal. These findings show that there was no gross disturbance in the intermediary metabolism.

Boston Medical and Surgical Journal

Nov. 21, 1918, 179, No. 21

- 12 Art of Medicine. Oration Delivered at Harvard College Commencement in July, 1783. E. Eliot.—p. 638.
- 13 Delay in Surgical Treatment of Cancer. C. C. Simmons.—p. 639.
- 14 Ozone in Swimming Pool Purification. W. A. Mauheimer.—p. 642.
- 15 *New Treatment for Paralysis Agitans. W. B. Swift.—p. 644.
- 16 Types of Men as Observed Among Recruits. J. M. Taylor.—p. 646.

15. **New Treatment for Paralysis Agitans.**—The method of treatment used by Swift consists in muscular movements of a simple nature gone through very slowly, at the rate of about 1 foot to the second, with strong mental concentration on the movement while it is in progress. First come movements of the right foot, then of the left, then of the legs successively, then of the right and left arms in order, then of both arms, and finally of the hands and fingers. The object is not muscular development but development of nervous

control over the muscles. The movements should be regular and they should be prescribed definitely. No particular value need be attached to any special set of exercises, because the nervous control is the same in one as in another; however, all the exercises must be done very slowly, at the rate of about 1 foot of movement to the second, if any benefit is to result.

Three cases of definite improvement are mentioned by Swift to show what the method has actually accomplished. One patient complained of a very severe tremor and of great difficulty in getting to sleep at night. Six months of treatment reduced the tremor perceptibly and made it possible for her to get to sleep in fifteen minutes. After only three weeks of treatment a man overcame his tremor to such an extent that he could read his newspaper while holding it in his hands, a thing impossible to him before. A third patient, after three months of treatment, reported that her tremor was reduced by about one third.

Canadian Medical Association Journal, Toronto

November, 1918, 8, No. 11

- 17 *Treatment of Infected Wounds Under Battle Conditions Arriving Late, Without Previous Surgical Treatment. G. W. Crile.—p. 961.
- 18 Meckel's Diverticulum—Cases Causing Intestinal Obstruction. R. Graham.—p. 966.
- 19 *Wounds of Chest; New Method of Treatment of Infected Hemothorax. W. Hutchinson.—p. 972.
- 20 Mouth Infection as Source of Systemic Disease. B. A. Murray.—p. 988.
- 21 "Preventive Medicine." F. H. Wetmore.—p. 993.
- 22 Terminal Disinfection. W. H. Hattie.—p. 1001.
- 23 Why Federal Legislation is Necessary in Order That Venereal Diseases May be Effectively Dealt With in Canada. P. H. Bryce.—p. 1005.
- 24 Advantages of Early Diagnosis and Treatment of Syphilis. G. O. Scott.—p. 1012.
- 25 Prevention of War Neuroses. T. H. Ames.—p. 1018.

17. **Treatment of Infected Wounds Under Battle Conditions.**—This is a report of a "group research" by the Lakeside Unit on the treatment of infected wounds at a base hospital during a battle. In this series, the patients were on the operating table for their first surgical treatment on an average of fifty-eight and one-third hours after injury, the shortest period being twenty-four hours, the longest 150 hours. Every wound that had not progressed to abscess and new tissue formation was treated by complete surgical revision. In large wounds, no attempt was made to excise *en bloc* within the line of uninfected tissue, but the devitalized tissue was dealt with in an opportunist manner. But little skin was excised. Ample exposure was always made, usually by vertical incisions.

After surgically meeting the indication for today, namely, complete revision, the "tomorrow" of the wound was considered, and certain cases were treated by incision of fascia overlying swollen muscles; incision of the skin and superficial fascia, placed where it seemed certain that within the first and second postoperative days swelling and tension would appear; that is, the operation that was anticipated as being necessary day after tomorrow was done now, but owing to these anticipatory or prophylactic incisions, little or no swelling occurred later. When completed, the wound was flat and soft and anticipatory; the obstacles to its biologic defense had been removed. When the wound was surgically completed, it contained many bacteria. It was in the state of a heightened defense clinically. There was active phagocytosis and increased blood supply everywhere; and the infecting bacteria had not gained virulence by selective struggle against antiseptics.

In the period there were admitted, 1,274 patients. Of these, 660 were walkers, and 614 were stretchers. Of the 614 stretcher cases, 194 required no operation, because they were medical cases, or because the wounds were taking care of themselves, and 420 required operation. Of the 420 operative cases, sixty-seven were marked for delayed primary suture; forty-four superficial wounds were immediately sutured. Of the forty-four immediate sutures, all were successful; of the successful cases, there were two fractured humeri and one fractured radius. Of the sixty-seven delayed primary sutures, 91 per cent. healed without requiring removal of any stitches; 6.1 per cent. were partial successes; 2.9 per cent. were failures. Among the total number, ninety-three were compound fractures. There were four, or 0.9 per cent., deaths. There

was no case of bacteremia or septicemia. No case was rejected for operation because it was thought that the infection had gone too far. The patients not suitable for delayed suture were quickly ready for evacuation.

The results from this work show that surgical revision of wounds untreated for fifty-eight and one-third hours causes no harm and does much good. It is felt that with further experience a greater percentage of delayed infected wounds, including compound fractures, will be closed both primarily and delayed. The presence or the absence of chemical antiseptics (flavine, Wright's hypertonic pack, alcohol, dichloramin-T, chlorcosane) made no notable impression on the clinical course after operation. Crile says that these results are a tribute to the judgment of the surgeons in the forward area who selected the cases for evacuation without operation and who elected not to pack gauze nor insert drainage tubes into these wounds, but merely dressed them.

19. Treatment of Infected Hemothorax.—Impressed by the great improvement in the results obtained by the cleaning out and closing of knee joints which had become infected by wounds, over the results obtained by the old method of drainage, Hutchinson applied this principle to the treatment of infected hemothorax. The method applied is as follows: As soon as the hemothorax is found to be infected, clinically and bacteriologically (nor merely bacteriologically), the patient is taken to the operating room and placed in a partially sitting position on the table. He is then turned a little toward the good side so that the post axillary line is brought well into view. The best anesthetic to use in these cases, Hutchinson says, is nitrous oxid and oxygen. If the patient is in a very bad condition, Hutchinson uses a local anesthetic up to the time of resecting the rib and then a general anesthetic. Chloroform and ether should never be administered. A portion of rib, long enough to allow the hand to be passed through the opening, should be removed and the blood allowed to flow out. The clot is then removed by the hand, all parts of the cavity explored and light adhesions broken down. Then by means of large pieces of gauze on dressing forceps, the remainder of blood and clot is removed. After this, the cavity is washed out with saline and again mopped out and a running suture inserted in such a way as to include the pleura and intercostal muscles. This suture should be left quite loose so that a small quantity of some antiseptic can be poured into the pleural cavity. This antiseptic should be spread all over the walls of the cavity by means of a small piece of gauze on long dressing forceps. As soon as this has been done, the running suture is drawn tight, thus closing the pleural cavity completely. The muscles and skin are then closed and a dry dressing applied.

Forty-eight hours after the operation, the chest should be aspirated, thus removing a quantity of serum and air. Three or four aspirations are necessary during the course of convalescence. The antiseptics Hutchinson used in these cases include eusol solution, a suspension of bipp in liquid paraffin in the following proportions, bipp one-half ounce, liquid petrolatum 6 ounces, flavine solution 1:5,000, and physiologic sodium chlorid solution, the amount left in the chest being 3 ounces. Of twenty-nine cases treated in this manner, sixteen remained closed, thirteen reopened. The bipp gave the best results.

Iowa State Medical Society Journal, Des Moines

Nov. 15, 1918, 8, No. 11

- 26 Relationship of Respiratory Infection to Digestive Disturbances in Infants and Children. A. H. Byfield.—p. 385.
- 27 Pellagra in Iowa—With Case Reports. F. A. Ely.—p. 388.
- 28 Importance of Sanitation in Zone Immediately Surrounding the City. F. A. Steelsmith.—p. 392.
- 29 Fracture of Hyoid Bone. W. W. Pearson.—p. 395.

Journal of Immunology, Baltimore

July, 1918, 3, No. 4

- 30 *Immunizing Properties of Bacterial Vaccines Prepared After Various Methods. M. W. Perry and J. A. Kolmer.—p. 247.
- 31 *Bactericidal Action of Whole Blood, New Technic for Its Determination. G. D. Heist, S. Solis-Cohen and M. Solis-Cohen.—p. 261.
- 32 Complement Fixation with Protein Substances. R. L. Kahn and A. McNeil.—p. 277.

- 33 *Relation Between Proteolysins and Hemolysins. A. McNeil and R. L. Kahn.—p. 295.

- 34 *Influence of Arsphenamin and Mercuric Chlorid on Complement and Antibody Production. I. Toyama and J. A. Kolmer.—p. 301.

30. Immunizing Properties of Bacterial Vaccines.—All vaccines of *B. typhosus* prepared in various ways and including living, autolyzed, chemical and heat-killed and alcohol-killed sensitized sediment, usually produced slight leukocytosis and slight increase of temperature when administered to rabbits by subcutaneous injection in doses according to body weight and comparable to those given to persons; the alcohol-killed sensitized sediment produced these nonspecific reactions in highest degree. Agglutinin and complement fixing antibodies were produced in highest degree by the administration of living and autolyzed vaccines followed in order by the mercuriophen-killed, tricresol-killed, heat-killed and alcohol-killed sensitized sediment vaccines. While the agglutination and complement fixation reactions showed in some instances a tendency toward specificity on the part of these antibodies for the particular antigen (vaccine) of *B. typhosus* responsible for their production, the results generally do not indicate definitely the development of specificity to this degree. An antigen of *B. typhosus*, prepared by cultivating the micro-organism in plain neutral broth for forty-eight hours and sterilizing the culture with 0.1 per cent. of commercial (40 per cent.) aqueous solution of liquor formaldehydi in a cold dark place over a period of four to five days, proved of particular value in macroscopic agglutination tests. The various vaccines of *B. typhosus* which Perry and Kolmer used as antigens in the complement fixation tests may be arranged as follows in order of antigenic sensitiveness: living and autolyzed; mercuriophen-killed; tricresol-killed; alcohol-killed sensitized sediment and heat-killed.

31. Bactericidal Action of Whole Blood.—If small numbers of living pneumococci are seeded, by a suitable method, in pigeon's blood before it coagulates, the pneumococci fail to multiply. On the contrary, if pneumococci are seeded in mouse's or rabbit's blood before it coagulates the pneumococci grow with great vigor. The evidence points to the presence in the uncoagulated blood of the pigeon of a bactericidal factor which is absent from the blood of the mouse or rabbit. Fresh defibrinated blood of both immune and susceptible species is an excellent culture medium for the pneumococcus, which shows that the bactericidal factor disappears during the process of coagulation. Pneumococci fail to multiply in the blood of a rabbit which has been suitably inoculated with killed pneumococci, the reaction being specific to type. The blood of a man who has recovered from lobar pneumonia prevents the growth of pneumococci belonging to the type which caused his disease. The globoid bodies of poliomyelitis grow readily in uncoagulated human blood. They fail to grow when seeded in uncoagulated rabbit blood. Many of the nonpathogenic bacteria usually met with as contaminations in bacteriologic work, as, for instance, *B. subtilis*, fail to grow when seeded in uncoagulated blood. The tentative hypothesis advanced by the authors to cover the facts observed by them is that when small numbers of bacteria are seeded in blood before it has had time to coagulate only those bacteria grow and multiply which are pathogenic for the animal from which the blood is taken.

33. Relation Between Proteolysins and Hemolysins.—An attempt was made by McNeil and Kahn to find whether proteolytic substances are produced in rabbits on protein injections, if a procedure simulating the production of hemolytic substances in these animals be resorted to. Proteolysis was determined by observing the increase in amino-acid nitrogen after digesting mixtures of the immune serum, the specific protein and complement for a given period. The results gave no evidence of any increase in amino-acids under these conditions, which would indicate that hemolysis and proteolysis are probably two distinct phenomena.

34. Influencing Complement and Antibody Production.—The general result of the experiments made by Toyama and Kolmer indicates that while massive doses of arsphenamin and mercuric chlorid tend to suppress antibody production and cause a decrease in hemolytic complement, smaller doses tend to increase the production of antibody (agglutinins)

and augment the complement content after a primary decrease. The authors suggest that it is probable that both drugs administered in the treatment of syphilis owe part of their therapeutic efficacy to their influence on increasing antibody production and complement.

Journal of Medical Research, Boston

September, 1918, 39, No. 1

- 35 *Immunity and Tissue Transplantation. Influence of Immune Serum on Reactions About Transplanted Tissues. M. S. Fleisher.—p. 1.
- 36 Benzidine as a Peroxidase Reagent for Blood Smears and Tissues. G. S. Graham.—p. 15.
- 37 *New Indicator for Direct Reading of Hydrogen Ion Concentration in Growing Bacterial Cultures. J. Bronfenbrenner.—p. 25.
- 38 Methods of Isolation and Identification of Members of Colon-Typhoid Group of Bacteria. Late Fermentation of Lactose. J. Bronfenbrenner and C. R. Davis.—p. 33.
- 39 *Syngenesioplasmic Transplantation of Thyroid in Guinea-Pig. L. Loeb.—p. 39.
- 40 *Bacteriology of Tuberculous Kidneys. L. H. Spooner.—p. 59.
- 41 *Multiple Transplantations of Thyroid and the Lymphocytic Reaction. L. Loeb.—p. 71.
- 42 *Increased Susceptibility of Roentgenized Guinea-Pigs to Inoculation with Tubercle Bacilli. E. Kellert.—p. 93.
- 43 *Properties of Pneumotoxin and Its Probable Function in Pathology of Lobar Pneumonia. C. Weiss.—p. 103.
- 44 Pigmentation of Nerve Cells. Nonfatty, Melanotic Pigment in Dog and Rabbit Produced by Chronic Depression. D. H. Dolley and F. V. Guthrie.—p. 123.

35. **Immunity and Tissue Transplantation.**—A series of experiments was carried out by Fleisher in which the influence of the immune serum on regeneration, leukocytic and connective tissue reaction was studied. Pieces of guinea-pig kidney were transplanted into the subcutaneous tissue of the abdomen of animals, and removed and studied at various periods. At least four pieces of kidney were examined at one, two, four, five, seven, ten, twelve and fourteen days after transplantation; in many cases a very much larger number of pieces was examined. It was noted that in passively immunized animals about homoiotransplants the same reactions occur as in normal animals; about heterotransplants there is possibly a slower clearing of the peripheral portion of the tissue of leukocytes, but otherwise the reactions, even the leukocytic reactions, are like those in normal animals. When tissue is brought into contact with immune serum for a short time before transplantation, there is possibly a slight and brief slowing of connective tissue reaction and regeneration in homoiotransplants. In heterotransplants there is interference with regeneration, which is, however, probably due to the interval elapsing between removal from the living animal and transplantation into the host, and also a slower invasion by leukocytes.

The results of these experiments would suggest that substances in the body fluids of immunized animals have but little influence on the regeneration of transplanted tissue, and that the slowing of leukocytic invasion is in large part due to an action of the serum. The results further suggest that the more marked leukocytic reaction seen about transplants in either immune heterologous animals or immune homologous animals is a direct and independent manifestation of the immunity to the tissue. If these conclusions be correct it appears that, in immunity to tissue transplantation, tissue reactions and especially the reactions of leukocytes play a more important part than do the reactions called forth or produced by the body fluids.

37. **Reading of Hydrogen-Ion Concentration in Bacterial Cultures.**—Bronfenbrenner and Davis use a mixture of equal parts of 0.5 per cent. watery solution of China blue with 1 per cent. solution of rosolic acid in 95 per cent. alcohol. They call it "CR." CR can be added directly to mediums, and permits easy, direct estimation of hydrogen-ion concentration in the culture at all times. Its colors on both sides of neutrality are very brilliant, and therefore a very small amount of indicator is sufficient to give to the medium the desired intensity of color. Bronfenbrenner and Davis keep the indicator in a concentrated solution and add 1 c.c. of this stock solution to each 100 c.c. of medium before sterilization. Heating does not affect this indicator. While the indicator solution keeps sterile on account of alcohol it contains, the heat-

ing in sterilization drives it off. Even in the concentration twenty-five times that in which it is present in the medium, CR indicator shows no trace of bactericidal action.

39. **Syngenesioplasmic Transplantation.**—The transplantation into early related individuals of the same species is termed syngenesioplasmic transplantation by Loeb, a term analogous to those used in the case of transplantation into the same animal, into other individuals of the same species and into different species. He transplanted the thyroid in guinea-pigs from mother to children, from sister and brother to sister or brother, and in one case from child to mother. He followed the fate of the transplanted tissues during different periods after transplantation. After syngenesioplasmic transplantation of thyroid in guinea-pigs, the results obtained are intermediate between those obtained after autotransplantation and homoiotransplantation. These findings agree with previous results obtained in the rat and with different organs. After syngenesioplasmic transplantation, the thyroid behaves in the majority of cases, for a certain period of time, like an autotransplanted tissue, but in most cases gradually an intense lymphocytic infiltration takes place which secondarily destroys the healthy acini. These experiments are a further proof of the rôle of the lymphocytes in the destruction of tissues under the influence of syngenesiotoxins and homoiotoxins.

In a smaller number of cases of syngenesioplasmic transplantations, the fibrous tissue also is increased, the fibroblasts behaving similar to the fibroblasts in cases of homoioplasmic transplantation. While in these latter cases the lymphocytic infiltration may be relatively diminished in intensity, the acini are usually not so well preserved as a result of pressure by fibrous tissue. The rapidity with which the transplants attract lymphocytes in various kinds of transplantations is graded, and these gradations correspond to the gradations in the relationships between cell proteins and constituents of the body fluids in donor and host.

40. **Bacteriology of Tuberculous Kidneys.**—The positive proof of the existence or nonexistence of mixed infection in tuberculous processes can be obtained only by a careful bacteriologic examination of such lesions. Inasmuch as a study of pulmonary processes is unsatisfactory, for obvious reasons, Spooner selected the kidney. Eleven tuberculous kidneys were examined. One of these contained a deep sinus, and was secondarily infected. This was excluded from the statistics. In the remaining ten, positive cultures of the tubercle bacillus were obtained in five. There was no growth on any medium in the remaining five, and none on plain and anaerobic mediums in the five positive cases after a period of three months.

In five, or 50 per cent., a pure growth of the tubercle bacillus was obtained. In no case was any organism of secondary infection recovered. In only two cultures was any other growth found. Such growth was always found in a great minority of the cultures examined. Two kidneys, although probably actively tuberculous consisted merely of large pockets of pus and caseous tissue. For this reason the tubercle bacillus could not be recovered. "Pus sacs," referred to in literature for years as evidences of mixed infection, were sterile, without exception.

Tissue implantations yielded positive results in 66 per cent. of the positive cultures; pus in 33 per cent. The growth of the organism in every case was evident in two to five weeks after the original inoculation. In every instance coverglass preparations showed typical acid-fast bacilli.

Cultures from seven urines of patients suffering from tuberculosis of the kidney were examined. In three instances the urine obtained by catheter from the bladder showed growth of organisms other than the tubercle bacillus. In two cases no growth could be obtained. In four cases the urine obtained from the ureter on the infected side showed no growth on ordinary culture mediums after forty-eight hours' incubation. In all of these cases, pus was present in the urine, and tubercle bacilli were demonstrated in smears. Hence Spooner concludes that the urine of tuberculous kidneys, obtained from the ureter, like the tissues of these kidneys, shows no evidence of mixed infection. The bladder urine is often contaminated by other organisms, yet the ureter specimens remain sterile on plain mediums. The clinical diagnosis of

renal tuberculosis is suggested by the presence of acid-fast bacilli in the urine. If a pus-containing urine, obtained from the ureter, shows no growth on simple culture mediums after forty-eight hours' incubation, another and very important link is added to the chain of diagnosis of tuberculosis of the kidney.

41. Multiple Transplantations of the Thyroid.—Loeb says that in multiple transplantations of the thyroid the individuality differentials of the thyroids of different animals are preserved; they may find expression in a reaction of the host towards the transplant, which is similar in the case of lobes derived from the same animals and differs in the case of lobes derived from different animals. The lymphocytic reaction in the second transplant is not markedly accelerated or intensified over control transplants, even in cases in which the first transplantation had been multiple; this is especially noticeable in experiments in which the second transplant had remained in the host during a period of three or four days. In a considerable number of cases of multiple transplantation, the first transplants were found to a great extent, or completely, destroyed. It is at present uncertain to what extent this is due to unfavorable conditions of a more or less accidental character or to the production of immune substances.

Loeb's results make it very probable that the lymphocytic reaction is, in part, at least, a response of the host to primary homoiotoxins (syngenesiotoxins) and that it is not entirely the result of the development of immune substances. It is probable that the cell constituent which, directly or indirectly, gives rise to the original formation of homoiotoxins (syngenesiotoxins), may also act as antigen and call forth the production of immune substances which, after combination with the antigen, act on the host cells in a way similar to the primary homoiotoxins (syngenesiotoxins).

42. Increased Susceptibility of Roentgenized Guinea-Pigs to Tubercle Bacillus Inoculation.—The technic used by Kellert was: 5 milliamperes; time, 10 minutes; spark gap, 7 to 8.5 inches. A Wappler generator and Coolidge tube having a moderately sharp focus were used. The bottom of the box containing the animal was placed at a distance of twelve inches from the center of the target. A thin wood cover closed the box. The animals were injected with tubercle bacilli either intraperitoneally or subcutaneously, and for each radiated animal a nonrayed one was provided as a control. Exposures were made on the day of inoculation or the following day. After exposure the radiated animal and control were kept in the same cage under similar conditions. Kellert found that radiated guinea-pigs are rendered more susceptible to contaminating and to secondary infection, and that the method is of no practical value in routine diagnosis and is unreliable unless carefully controlled by the use of the accepted methods which have become standard in laboratory practice.

43. Properties of Pneumotoxin.—Concerning the share of pneumotoxin in the pathology of lobar pneumonia, Weiss suggests that prolonged chilling of the body due to exposure initiates the continuous liberation of large quantities of toxin by the action of normal body enzymes on pneumococci normally localized in the lung alveoli and that this accounts for the initial toxemia. The formation of the exudate is considered to be in part due to an increased permeability of the endothelial cells of the lung for various serum albumins, globulins, fibrinogen and enzymes as the result of the injury exerted by the toxin on their cement substance. The toxin is also regarded as a lymphagogue. It hinders the autolysis of the exudate and the favorable action of antipneumococcus-immune bodies and thus aids in the formation of toxic proteoses and peptones. With the production of excess amounts of specific antibodies and of bactericidal and phagocytic substances, the deleterious and autolysis-inhibiting influences of the toxins and proteoses are neutralized. Autolysis of the exudate is now unhindered and the products are nontoxic amino acids. The equilibrium of this system being governed by the laws of mass action, the change from febrile toxemia to the afebrile atoxic state is necessarily an abrupt one—crisis. Hemoptysis and icterus in pneumonia are regarded as partly or entirely the result of the hemolytic activity of pneumotoxin.

Medical Record, New York

Nov. 23, 1918, **94**, No. 21

- 45 Psychoneuroses of the War. H. Wakefield.—p. 881.
- 46 Tonic Spasm as a Cause of Disability, and the Remedy. J. M. Taylor.—p. 891.
- 47 Gingival Septicopyemia. W. F. Dutton.—p. 893.
- 48 Nature of Cancer, with Special Reference to Uterine Disease. H. Crutcher.—p. 895.
- 49 Chronic Obscure Fever in Children. J. Epstein.—p. 897.
- 50 Occupation for Tuberculous Patients. M. Kahn.—p. 899.

Modern Hospital, Chicago

November, 1918, **11**, No. 5

- 51 At the Sign of the Blue Cross. C. W. Forward and G. F. Lees.—p. 349.
- 52 Educational Work for Children at Lakeside Hospital. A. R. Warner, Cleveland.—p. 354.
- 53 Extending the Influence of a Hospital: Teaching of Diagnosis by Means of Case Records. F. M. Painter.—p. 355.
- 54 Institutions for the Care of Epileptics. W. T. Shanahan.—p. 364.
- 55 Hospital Accounting. C. A. Porter and H. K. Carter.—p. 371.
- 56 Bahama General Hospital and Asylum. T. Milne.—p. 376.
- 57 New Four-Patient Cottage at Barlow Sanatorium. W. C. Klotz.—p. 378.
- 58 A Practical Remedy for Hospitalization. M. T. McEachern.—p. 379.
- 59 Relation of Laboratories to Hospitals. W. C. MacCarty.—p. 381.

Nebraska State Medical Journal, Norfolk

November, 1918, **3**, No. 11

- 60 Indications for and Results of Use of Metal Bone Plates, Bone Graft, and Conservative Methods in Treatment of Fractures. A. F. Jonas.—p. 329.
- 61 Complemental Jejunostomy. A. I. MacKinnon.—p. 335.
- 62 Results of Tonsillectomy. L. B. Bushman.—p. 338.
- 63 Infantile Scurvy. W. O. Colburn.—p. 340.
- 64 Sidelights on Carcinoma. O. C. Morrison.—p. 342.
- 65 Thrombosis and Embolism of Mesenteric Vessels. B. B. Davis.—p. 345.

New York Medical Journal

Nov. 23, 1918, **108**, No. 21

- 66 Nasal Complications of Epidemic Influenza. G. W. MacKenzie.—p. 885.
- 67 Surgical Pathology of Epidemic Influenza. J. W. Kennedy.—p. 887.
- 68 Influenza in U. S. Marine Hospital. Z. I. Sabshin.—p. 888.
- 69 Prophylaxis of Influenza. B. Frankel.—p. 894.
- 70 Influenza and Suprarenal Glands. J. H. M. A. Von Tiling.—p. 895.
- 71 Danger of Mask for Protection Against Influenza. J. C. Minor.—p. 895.
- 72 *A Wassermann Modification. M. Shaweker.—p. 896.
- 73 Three Cases of Eye Injury. D. Roy.—p. 898.
- 74 Phenol in Tetanus. D. Delfino.—p. 900.
- 75 Wounds and Shell Shock and Their Cure. F. B. Turck.—p. 901.

72. A Wassermann Modification.—Besides the diluents, only three reagents are used by Shaweker, namely, patient's serum, which must be fresh; acetone insoluble antigen, and guinea-pig cell suspension. The patient's serum serves the triple capacity of complement, amboceptor and reagent. Antigen is made after the method of Noguchi and used in strength of one fourth of the anticomplementary unit. When active serum is used, the acetone-insoluble antigen must be used to reduce the chances of false prototropic fixation. The cells are collected by cardiac puncture of an anesthetized guinea-pig. The blood is citrated and given two or more subsequent washings with normal salt solution. Natural agglutinins have not been observed. The patient's serum is used in doses of 0.1 c.c. to each tube and should be fresh, free from cells, and not hemolyzed. In testing a spinal fluid, 0.1 c.c. of a known negative serum must be used to furnish complement and amboceptor. The titrations required in this modification are to determine the anticomplementary unit of the antigen used and the cell load which can conveniently be handled by the 0.1 c.c. of patient's serum used. The icebox fixation is used for the first step, four hours to over night being the time allowed. One or two shakings of tubes is sufficient.

Wisconsin Medical Journal, Milwaukee

November, 1918, **17**, No. 6

- 76 Cardiac Disturbances from Standpoint of Military Service. J. S. Evans.—p. 213.
- 77 Health Insurance. J. R. Commons.—p. 218.
- 78 Further Objections to Compulsory Health Insurance. E. H. Ochsner.—p. 224.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal

Nov. 2, 1918, 2, No. 3018

- 1 *Purulent Bronchitis Complicating Measles and Rubella. W. M. MacDonald, T. R. Ritchie, J. C. Fox and P. B. White.—p. 481.
- 2 Differential Diagnosis of Scarlet Fever, Measles and Rubella. J. S. Warrack.—p. 486.
- 3 *Incubation Period of Influenza. P. MacDonald and J. C. Lyth.—p. 488.

1. **Purulent Bronchitis Complicating Measles and Rubella.**—An epidemic of exanthematous disease (418 cases) complicated by purulent infection of the bronchi attacked several hundred men. In the large majority there was a copious frothy or mucopurulent bronchorrhea, in seventy-five there was a severe purulent bronchitis, and of these twenty-six died. Taking into consideration only the definite cases of septicemic bronchitis the mortality amounted to one third of the men attacked, but, as practically all the cases showed signs of a much more severe bronchial catarrh than ordinarily occurs in measles, and as the sputa in these cases contained the same organisms as in the more severe ones, the authors believe that it is reasonable to regard them all as cases of multiple infection, and, by doing so, to reduce the mortality to about 7 per cent. Bronchitis with purulent expectoration was common to all the cases, but the severe type consisted rather of a septicemia accompanied by various lung lesions which were not constant but ranged from bronchial catarrh to bronchopneumonia, pleurisy, basal congestion, or lobar pneumonia. No one of these types prevailed, but the seriously ill patients who survived long enough passed through all these phases in succession, although patients usually died before definite lobar pneumonia was well established.

The most striking feature of the physical examination in the early stages was the absence of signs suggesting a marked or extensive involvement of the lung tissue in patients who presented all the clinical features of a severe pneumonia. In the mild cases the breath sounds were harsh and were accompanied by some sharp or sonorous rhonchi and by a few medium crepitations at the base of the lungs. In the more severe cases the signs of bronchitis were more marked and passed into those of bronchopneumonia with patches of dulness on the posterior aspect, deficient or, less frequently, bronchovesicular breathing, and usually some pleural friction. Signs of pleural effusion were rare and empyema never supervened. Evidence of consolidation (at one or both bases, more often the right, and occasionally at one apex) was present in most of the fatal cases for a day or two before death, but in some these signs were absent or very slightly marked. Toward the end coarse bubbling râles could be heard all over both lungs.

The use of drugs was confined to symptomatic treatment in the way of combating the great strain placed on the heart, oxygenating the lungs, and so aiding the reduced area of normal lung tissue in its functions, helping the drainage of the pus from the lungs by expectoration, and hindering the growth of pyogenic organisms in the lungs by local applications. For this purpose heart stimulants such as brandy, strychnin, and digitalis, ammonium carbonate, oxygen warmed and alcoholized, stimulant expectorants, and antiseptic inhalations were tried.

Three different vaccines were used; no one of these three included all the organisms which appear to be responsible for the clinical symptoms. A. A mixed stock vaccine, consisting of 1,250 million Pfeiffer's bacillus and 250 million Friedländer's bacillus per cubic centimeter. B. A vaccine consisting of two preparations containing (a) *Streptococcus lanceolatus* and (b) *Streptococcus pyogenes-longus*. C. A vaccine consisting of two preparations, containing (a) *Staphylococcus aureus* and (b) pneumococcus, a streptococcus and a gram-negative bacillus. Vaccine A was given always in doses of 300 million Pfeiffer's and 60 million Friedländer's with an interval of four days before a second dose. There was never any untoward reaction. Vaccine B was given in

most cases in doses of 25 million *Streptococcus lanceolatus* and 25 million *Streptococcus pyogenes*, though in a few the dose was increased to 125 million *Streptococcus lanceolatus* and 33 million *Streptococcus pyogenes*. No untoward results were experienced from these doses.

Of 36 patients treated with vaccine, 10 died. Of 25 patients untreated with vaccine, 16 died. Of 20 patients treated with Vaccine A alone, 3 died. Of 6 patients treated with Vaccine B alone, 4 died. Of 7 patients treated with Vaccines A and B, 2 died. The good results of the vaccine were seen in an improved general condition rather than in the rapid subsidence of any special symptoms.

3. **Incubation Period of Influenza.**—Citing their own cases, the authors claim that the incubation period for both was forty-one hours.

Lancet, London

Nov. 2, 1918, 2, No. 18

- 4 Spirochetosis Icterohemorrhagica. B. Dawson.—p. 575.
- 5 Doctrine of Consumption in Harvey's Time and Today. P. Kidd.—p. 582.
- 6 *Pyemia Due to Organisms of B. Coli Group. J. I. Enright and P. H. Bahr.—p. 585.
- 7 Small Localized Epidemic of Influenza in Hospital Ward. M. G. Foster and H. A. Cookson.—p. 588.

6. **Pyemia Due to Organisms of B. Coli Group.**—Cases of a peculiar pyemia, with special involvement of the kidneys, apparently caused by *B. coli* or one of its congeners, have been observed during the last year in Cairo. It was some time before the puzzling pyrexia with its attendant symptoms was recognized as a specific one. Nine cases in all were diagnosed in life, six others were recognized pathologically postmortem. In all but three of the cases which came to necropsy a dysenteric ulceration of the large intestine, and especially of the rectum, was present in all degrees of superficial necrosis and deep ulceration. Out of the six patients under treatment, three gave no history of a chronic diarrhea or dysentery; the remainder had had many such attacks.

The authors surmise that the organisms originally gained entrance to the blood stream through a breach of the mucosal surface in the lower part of the large intestine. The pyemic attack is usually ushered in by severe frontal headache, anorexia, vomiting, and an acute pain localized to one or both kidney regions. This pain radiates along the inguinal canal and terminates in the penis, or may be localized to the scrotum. Blood is often passed in the urine in the initial stages. There is generally some difficulty in micturition, though there may be at the same time no frequency or alteration in amount of urine. There may be no symptoms of vesical trouble whatsoever. Usually the patient looks extremely ill, and is mentally dull; he sweats profusely. The temperature is invariably high (103-104 F.), the pulse weak and rapid (110 or higher). At the outset there is invariably a severe rigor which lasts about ten minutes. The temperature remains elevated for five days and then takes on an undulating and a remittent character. All the urgent symptoms disappear; after a few days of convalescence the patient is able to resume his duties.

After a further seven to fourteen days the temperature suddenly shoots up and is followed by a rigor and vomiting; the former succession of symptoms is repeated seriatim. These relapses, averaging five days, alternating with apyrexial periods of eight to fourteen days, recur with remarkable regularity. The patient grows weaker and progressively more emaciated. Finally he dies of toxemia, it may be with ascites and a profuse diarrhea with fecal incontinence. At this stage the liver and spleen are definitely enlarged.

In cases which progress favorably under treatment the pyrexial cycles continue but diminish in intensity, and the apyrexial periods become gradually more prolonged, as long as five weeks. Such patients rapidly put on flesh, and after a convalescence of three months, during which there is no elevation of temperature, were discharged from hospital. Among diseases most closely resembling it are malaria, undulant and relapsing fevers. In its early stages dysentery, generalized tuberculosis, phlebotomus fever, or one of the enteric group may be suspected.

Practitioner, London

November, 1918, 101, No. 5

- 8 Symptoms Which Precede and are Associated with General Arteriosclerosis. O. K. Williamson.—p. 241.
- 9 Clinical Value of Minimum Blood-Pressure Records. L. T. Thorne.—p. 260.
- 10 *Relation of Blood-Pressure to Psycho-Neuroses. P. Bousfield.—p. 266.
- 11 *National Medical Service. W. A. Brend.—p. 271.
- 12 Recent Work of Anesthetics. J. Blomfield.—p. 279.
- 13 Scurvy (Concluded). H. V. O'Shea.—p. 283.
- 14 *Ergot and the Prostate. O. Y. Murphy.—p. 291.
- 15 Pseudo-Acute Abdomen with Temporary Increase of Arterial Tension. W. B. Cosens.—p. 293.

10. **Blood Pressure and Psychoneuroses.**—Observation has convinced Bousfield that the blood pressure is not only of some value in the differential diagnosis of the psychoneuroses, but that it is also of considerable importance in their treatment. In a pure neurasthenia, unless complicated by organic disease, the blood pressure is usually subnormal. In a conversion hysteria, it is generally normal; in an anxiety-neurosis, it is more often than not considerably above the normal. Bousfield believes that the headache in the anxiety neurosis is caused very often or exaggerated by the slight raising of the blood pressure. By lowering the blood pressure, and thus relieving one of the most distressful symptoms, improvement of the general condition by psychotherapeutic methods takes place more rapidly.

In instances in which a patient can only be seen for about one hour during the week, Bousfield nearly always gives one one-hundredth grain of nitroglycerin nightly for a week, followed, perhaps, by half that dose during the next week. In neurasthenia, improvement follows raising the blood pressure. In such patients, and this seems of some slight value, courses of treatment were either suggestive or psycho-analytic. An interesting fact elucidated by Bousfield during his investigation was that those who suffered from great sweating were, as a rule, those in whom the blood pressure was not relieved so readily by nitroglycerin.

11. **National Medical Service.**—The various schemes for national medical service proposed by different English medical men are criticized by Brend in an analytical way. He says that the general point which it is sought to make is that, owing to the great variety and conditions from locality to locality, anything in the nature of a centralized uniform medical service is impracticable. It is impossible to conceive of satisfactory results following from a service which lays down the same requirements for a rural district and a crowded industrial area. An essential qualification for success is a wide degree of elasticity in accordance with local circumstances. It is submitted, therefore, that the best prospects of increasing the usefulness of the general practitioner to the community will be afforded by dismissing the idea of a national medical service, and considering instead the idea of local medical services, which shall vary according to the needs and type of each locality.

In order that this scheme might be realized, it would be necessary in every district to establish a local authority on which the practitioners of the district would be represented widely. This need not necessarily be a new authority; it might, for example, be simply a subcommittee of the present sanitary authority, to which practitioners were added. But it should be understood that the doctors were not members of this authority simply for the purpose of protecting their own interests but were to be regarded as actually responsible, along with the rest of the committee, in establishing an adequate medical service in their district. The authorities then have an entirely free hand to survey its needs and provide for them accordingly. In some districts, as already pointed out, the practitioners would probably concur in a whole-time salaried service being formed; in others, it would be realized that the great bulk of the work was already done by private practice and there was no need to interfere with this, but that it was necessary to supplement it in various directions. Again there would be freedom to make the additional provision either by the appointment of a certain number of whole-time men or of part-time men, or by payment of private practitioners by a capitation fee.

Whatever scheme is adopted, the consequent legislative changes will be very extensive; and in a position where any course is fraught with difficulties, and where weighty arguments can be brought forward against any proposal, it is Brend's opinion that the minimum of difficulty and the best prospect of success will be attained by permitting a very high degree of local autonomy in this matter.

The war undoubtedly has raised the status of the doctor. It has now been made clear to all that the medical profession must be regarded as an integral part of the national defense against aggression by foreign foe. Professional men of all types—lawyers, merchants, architects, teachers—have all worthily contributed their share as men; the padre and the doctor alone have been called on to play their parts still in their professional capacities. Nor is this change limited to increased recognition of his importance; the actual value of the doctor as a curer of sickness has been substantially increased. Where formerly it may have been that his weekly medical journals accumulated unopened in his consulting room; now, at the mess, in hospital, or in the field, he has been associated with his colleagues, some perhaps high up in the scale of medical eminence, and he has had opportunities of hearing all forms of treatment discussed and has seen new developments of medicine put into practical application. There must be very few men who have not realized that, purely from the point of view of adding to their medical knowledge, they have benefited substantially by their experience in the army medical corps.

14. **Ergot and the Prostate.**—In two cases of enlargement of the prostate reported by Murphy, one a senile enlargement and the other a traumatic inflammation in a young adult, the administration of ergot apparently reduced the obstruction caused by the enlarged prostates. Murphy urges the more frequent use of ergot in these cases. He gives 1 dram every four hours.

Sei-I-Kwai Medical Journal

Sept. 10, 1918, 37, No. 9

- 16 Content of Fatty Acids and Cholesterol in Brain. T. Nagayama.—p. 35.
- 17 Study of Ferment's Trypsin. Y. Masal.—p. 36.

Archives de Médecine des Enfants, Paris

November, 1918, 21, No. 11

- 18 *Endocrine Glands and the Bones. V. Hutinel.—p. 561. Cont'n.
- 19 Mongolian Blue Spot in Brazil. C. Ferreira.—p. 600.
- 20 *Pancreatic Infantilism. J. Comby.—p. 602.

18. **The Endocrine Glands and the Bones.**—In this installment of this general review of the pathology of childhood, Hutinel discusses what is known to date of the synergy of the ductless glands, the pluriglandular syndromes, and the malformation of bones and other tissues under the influence of abnormal endocrine functioning: athrepsia and hypotrophy in young infants, and rachitis, the lymphatic state and anemia in older children. These are all dystrophies. The organization of the cellular elements is sluggish and stops before reaching its normal consummation. The elements persist in the intermediate stage and are neither cartilage nor bone. Rachitis in syphilitics is rachitis the same as in other conditions, but as it affects an already sensitized bone, the damage is greater.

20. **Pancreatic Infantilism.**—Comby compares what Byrom Bramwell and others have written on this subject, with a recent communication by Bullrich. (Summarized in *The Journal*, Sept. 28, 1918, p. 1098.) Bullrich's case seemed to be a typical example of pancreatic insufficiency, but necropsy disclosed that others of the endocrine glands were involved in the clinical picture far more than the pancreas. Pancreas treatment would have had little chance to benefit the patient in such a case. Comby queries whether there are two different syndromes with the same symptomatology, or whether the same affection might in different cases affect merely the pancreas or invade others of the ductless glands.

Bulletin de l'Académie de Médecine, Paris

Oct. 1, 1918, 80, No. 39

- 21 *The 1918 Epidemic of Influenza. A. Netter.—p. 275.
- 22 *Errors in Diagnosis of Influenza. R. Wurtz and F. Bezançon.—p. 286.

- 23 *Influenzal Pulmonary Edema. P. Ravaut.—p. 290.
24 Whole Cinchona in Treatment of Influenza. R. Dubois.—p. 291.
25 The Arterial Pressure in Addison's Disease. R. Porak.—p. 293.

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- 26 International Scientific Relations Committee Report.—p. 317.
27 Prophylaxis of Influenza. Committee Report.—p. 317.
28 *Prophylaxis of Contagious Diseases. H. Vincent and Lochon.—p. 348.
29 Compulsory Notification of Tuberculosis. M. Pamard.—p. 358.
30 Saccharomyces Dermatitis. H. Hudelo and others.—p. 360.

21 to 23. See Paris Letter, p. 1596.

28. **Prophylaxis of Influenza.**—Vincent reports favorable experiences with masks, and comments on the relative immunity of infants to influenza. In the discussion that followed, Henrot recalled that he had urged in 1874 the general adoption of a protecting mask he had devised for diphtheria and malaria. It was put on and worn like spectacles. His proposal and device were pooh-poohed at the time, although he cited favorable experiences reported by Tyndal in an epidemic in Lancashire after the wearing of masks had been made compulsory. Henrot and his pupils found the masks useful at certain necropsies, and they have been using them thus for forty-four years.

Bulletins de la Société Médicale des Hôpitaux, Paris

July 26, 1918, **42**, No. 27

- 31 Tuberculosis in Professions in Greece. P. Rondopoulo.—p. 807.
32 Facial Diplegia after Lethargic Encephalitis. Sainton.—p. 808.
33 Peduncular Sequels of Lethargic Encephalitis. Lortat-Jacob and G. L. Hallez.—p. 811.
34 *Cauterization plus Occlusion for Lupus. F. Balzer.—p. 814.
35 Heart Disease and Fitness for Service. Gouget.—p. 826.
36 *Echinococcus Cyst of Liver without Gallstones. Gouget.—p. 831.
37 *Spirochete Jaundice and Sclerous Nephritis. A. Pissavy.—p. 835.
38 Tuberculous Lacrimal Gland and Lid. Achard and Leblanc.—p. 838.
39 *Retention in Acute Diseases. C. Achard and A. Leblanc.—p. 845.
40 *Spirocheturia and War Nephritis. Salomon and Neveu.—p. 852.
41 *Meningitis in 1918. P. Nobécourt and C. Richet, Jr.—p. 858.
42 Chest Complications of Malignant Granuloma. M. Favre.—p. 864.
43 Case of Typhoid plus Paratyphoid B. G. Etienne.—p. 866.
44 Pneumonia Preceded by Pneumococcus Septicemia. P. P. Lévy and J. de Léobardy.—p. 871.
45 *Transfusion of Blood in Meningococcemia. L. Ribadeau-Dumas and E. Brissaud.—p. 875.
46 *Nephritis, Aortitis and Gangrene in Early Syphilis. C. Laubry and L. Marre.—p. 882.
47 Ingestion of Gelose Gelatin to Form Protecting Coating for Stomach. F. Ramond, Robert and A. Petit.—p. 886.
48 Transient Lethargy with Azoturia and Azotemia. E. May.—p. 888.

34. **Treatment of Lupus.**—Balzer reports some typical cases to show the benefit which may be realized by application of silver nitrate, zinc or chromic acid to the lesions of tuberculous lupus, protecting them afterward against secondary infection by an occlusive dressing. This also serves to reduce the virulence of the microbes already in the lesion.

36. **Echinococcus Cysts in Liver Simulating Gallstone Mischief.**—The woman of 50 related that she had expelled some gallstones the year before, and, naturally, the jaundice, pains and obstruction of bile were ascribed to cholelithiasis. The liver fissured during the operation and a purulent fluid escaped, but no gallstones were found. The patient succumbed the same day. The diagnosis had wavered between gallstones and a neoplasm; Gouget had been impressed with the abrupt onset of symptoms and the extreme prostration accompanying the pyretic jaundice by the second week. Evidently a fixation test for echinococcus would have given the clue, but this would not be applied in such a case unless every case of cholelithiasis were systematically subjected to it. The liver and bile passages were honeycombed with pus, and a large echinococcus cyst was found in the upper part of the liver, the farthest removed from the biliary passages. Hydatid fragments were found in the common bile duct, and had evidently been responsible for the colics, but the jaundice was probably the consequence of the parenchymatous hepatitis. Accumulating experience has shown the rarity of direct compression as the cause of the obstruction in such cases.

37. **Sclerous Nephritis with Spirochete Jaundice.**—The evidently recent development of the sclerous nephritis, with other features of the case reported, seem to sustain the

assumption that the kidney changes were the direct result of the spirochetosis itself. The reason why such changes have not been observed more often with spirochetosis is probably that the latter does not prove fatal at the time. When the kidney disease is observed a few months later, no one thinks of connecting it with the spirochetosis. In the present case the man succumbed to an intercurrent bowel disease, so the spirochetosis damage was discovered at the moment.

39. **Retention in Acute Diseases.**—Achard and Leblanc have applied various methods of exploration of kidney functioning in acute diseases in the last few years, and tabulate the findings in twenty-three cases, mostly of typhoid and pneumonia. The retention of water, urea and chlorids may be due to an acute complicating infectious nephritis but, as a rule, the urine shows a high urea content, up to 40 per thousand or over, in some cases, and the kidneys seem normally permeable. The excessively high urea content of the blood is due merely to the oliguria, and possibly to the disassimilation of nitrogen; this is rendered probable by the contrast in some cases between the high figure of the azotemia (2.78 and 1.86 in two cases) and the high urea output (15.7 and 23.2 in these two cases). As the crisis passes and convalescence is installed, a phase of excessive activity on the part of the kidneys follows. This seems to be a general phenomenon, but its intensity varies from moment to moment, and it may be brief or may persist a long time. Whenever it occurs, there are always indications of a disturbance in the balance of the fluids of the organism: The organism is in a state of crisis, usually secondary to a state of more or less pronounced retention. During this phase, Ambard's ureosecretory constant may be much modified temporarily. Under Widal's influence, the rôle of the kidneys in retention of salt has been regarded as predominant, but Achard and Leblanc insist that to date no conclusive proof has been offered that the state of retention is due to functional insufficiency of the kidneys—a specific impermeability for sodium chlorid. This assumption is merely an attempt to explain the facts observed, and it often does not conform to them. It is actually paradoxical to admit the coexistence of a secretory disturbance of this kind along with a perfectly normal concentrating power on the part of the kidneys. It is far more probable that certain factors acting in the inmost depths of the tissues play an important part in the metabolism of water. The researches of Mayer and Schaeffer on the lipocytic coefficients of the organs seem to throw new light on the question of the capacity of the organism for hydration, as they reported in the *Journal de physiologie et de pathologie générales*, May, 1913, and January, 1914.

40. **Spirocheturia and War Nephritis.**—Salomon and Neveu have systematically examined the urine for spirochetes in every case of acute nephritis since August, 1916. They found spirochetes in eleven cases of war nephritis with a tendency to edema, but none could be detected in fourteen otherwise similar cases. The spirochetes resembled those of the ictero-hemorrhagic type but were a little longer, thinner and with more twists. They were found only on repeated examinations, and did not seem to be pathogenic for guinea-pigs.

41. **Meningitis in the Army.**—Among the twenty-eight cases of meningitis observed between last December and May, 1918, several different strains of meningococci were involved, even in the same focus. The mortality was over 56 per cent. The disease had subsided entirely for six months before last December. Then the cases developed at scattered points, and American soldiers were most numerous affected. Infection with the meningococcus B seems to be particularly virulent, and a polyvalent serum has little effect on it.

45. **Transfusion of Blood in Treatment of Meningococcemia.**—The young soldier's meningococcemia seemed to develop in a series of cycles of allergy of four or five days' duration each, with chills and high fever, eruption and diarrhea, with a brief interval of relief between the cycles. There was a phase of meningitis at one time but it was transient, and the cyclic course was not modified. Each cycle left the patient more debilitated. Serotherapy brought an anaphylactic shock when given by the vein after failure of intraspinal administration. Vaccine therapy and a fixation abscess failed likewise.

Finally, 50 c.c. of citrated blood from a healthy man were infused and the general condition improved at once. The following three days, 20, 10 and 20 c.c. were transfused and the improvement continued, no meningococci being found in the blood. Suspension for two days was followed by return of fever, and no benefit from transfusion of 40 c.c. of blood the fifth day, but 20 c.c. the seventh day brought great improvement, and it continued under repeated transfusion of 20 c.c. of blood the sixth, eighth, ninth, twentieth and twenty-first days, always in the morning. Two weeks later the patient had gained 11 pounds; the reds increased from 2,140,000 to 3,900,000 under the influence of the transfusions. In less than six weeks from the first one, the man left the hospital completely cured. He might have recovered without the transfusion, but it would have been a much slower process and there might have been complications which he escaped by this means. When the transfusion was done at evening, it displayed no beneficial action, but in the morning it warded off the chills, etc. There was no specific action, as the donor had never had meningococcus infection, but it seemed to prevent the development of the anaphylactic phenomena caused by the presence of the meningococci in the blood. The alexin in the blood always showed an increase after the transfusion.

46. Syphilitic Nephritis and Gangrene.—The nephritis developed in the man of 43 one year after the primary chancre which had been given thorough specific treatment. The nephritis required hospital treatment, and the albuminuria was brought down from 12, 16 or 18 gm. to 5 or 6, when suddenly symptoms of aortitis became manifest, both thoracic and abdominal. The abdominal aortitis simulated acute appendicitis at first, but the circulation in the legs became defective, with embolism and patches of dry gangrene compelling amputation of one leg. After this, under arsphenamin treatment the man regained his health and earning capacity. The syphilis in this case must have been of a peculiarly malignant type. On account of the aggravation of the nephritis symptoms under the first injections of mercury, the mercury was suspended as the patient seemed to be doing sufficiently well under dieting and repose. But this proved to be a grave mistake, as otherwise the aortitis might have been warded off. Syphilitic nephritis should be given thorough treatment, regardless of transient exacerbation under it. In another case, the nephritis, with 30 gm. of albumin, was finally cured after a number of dramatic fluctuations, by prolonged mercurial and iodid treatment. In the case reported the final recovery was realized only under large doses of arsenobenzol kept up for eighteen months, regardless of the transient exacerbations immediately after each injection.

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Sept. 21, 1918, 8, No. 38

- 49 *Ether Dressings. P. Descomps and A. Richard.—p. 229.
50 Suprarenalitis after Dinitrophenol Poisoning. P. Merklen and Malloizel.—p. 233.
51 *Echinococcus Chyluria. P. Remlinger.—p. 235.
52 Acute Nephritis with Scabies. G. Milian.—p. 237.

49. Ether Dressing.—Descomps and Richard say that irrigation of wounds with ether has proved its usefulness to such an extent that it seems destined to survive the war as a simple, convenient and effectual complement to dry asepsis. Especially in rural practice, where infrequent changes of dressings must be the rule, it will have a wide field of usefulness, they think. The fats and certain alkaloids in the wound are dissolved by the ether and are drawn up and out of the wound by the capillary attraction of the dressing, so that they no longer are absorbed by the organism or serve as a culture medium for the microbes. The ether also destroys the red corpuscles in the wounds, which leaves the phagocytes free to conquer the microbes. Its principal action therefore is in promoting the autosterilization of wounds, so that it may be regarded as a dressing which supplements the simple, fundamental dry dressing of the aseptic technic. The inflamed region is covered with two or three layers of gauze and this is moistened with the ether three times a day. Above this is a sheet of impermeable tissue and a thick pad of carded cotton. The whole is fastened with gauze, loose in

the center and tight around the edges. The ether is renewed through a rubber tube or tubes left for the purpose under the dressing or by working a tube in each time. They use from 10 to 40 c.c. of fresh ether each time. The patient feels a sensation of cold when the ether reaches the tissues. The outer end of the tube is kinked to retard evaporation. The ether diffuses all through the wound which is a great advantage over hypochlorite solutions, which are distributed only by gravity. The ether dressing being practically a dry dressing is free from the disadvantages of a fluid. But the chief usefulness of the ether is in preparing a wound for primary suture. Nothing else can approach it for this, they say.

51. Echinococcus Chyluria.—Remlinger reports the cases of a man and of a woman who eliminated in the urine the membranes and vesicles from an echinococcus cyst above the bladder. No operation was attempted in either case and the general condition has kept fair to date. The chyluria was probably due to compression in both cases. It had existed long before there was anything to suggest echinococcus disease.

Presse Médicale, Paris

Sept. 19, 1918, 26, No. 52

- 53 *Syphilitic Peritonitis. M. Letulle.—p. 477.
54 *Dead Bone in Cases of Fractures. R. Leriche and Policard.—p. 479.
55 *Infantile Scurvy. J. Comby.—p. 480.

Oct. 3, 1918, 26, No. 55

- 56 *Elimination of Spirochetes in Urine. Garnier and Reilly.—p. 505.
57 Microbian Flora of Influenza. Orticoni, Barbie and Leclerc.—p. 508.
58 *Convergence of Eyeballs After Shell Concussion. P. Descomps, J. Euzière and P. Merle.—p. 509.

53. Syphilitic Peritonitis.—Letulle insists that syphilis attacks the peritoneum much oftener than is generally recognized. He found a positive Wassermann reaction in seventy-four of 154 cases of cirrhosis of the liver, and treatment as for syphilis cured the peritonitis in many of these. This syphilitic peritonitis is largely responsible for the ascites, and as it is curable, this element in the clinical picture can be eliminated. Every case of cirrhosis with ascites should be suspected of syphilis, even when there is a known history of alcoholism or tuberculosis. It follows logically that every case of cirrhosis of the liver should be given systematic and prolonged antisyphilis treatment. No harm will be done in any event, while great benefit may result in case syphilis has any share in the clinical condition. Letulle urges microscopic study of the peritoneum in syphilitics, and gives seven illustrations of different histologic findings liable to be encountered.

54. Dead Bone with Fracture.—Leriche and Policard report the results of research which demonstrate that the white denuded bone in a war wound is actually dead, and as much a foreign body as an engrafted segment of bone. It has the advantage over the latter, however, that it is in intimate anatomic connection with live bone, and the process of repair proceeds smoothly through the haversian canals. If these canals are obstructed—and this is the rule when there has been an infectious process at the spot—normal repair is hampered. The microscope thus confirms the clinical experience that an aseptic evolution of the wound in the soft parts is the best guarantee of correct and rapid healing of the fracture.

55. Infantile Scurvy.—Comby reiterates that every infant given a sterilized food, either milk or proprietary foods, for several months, without any fresh or living food, is menaced with scurvy. In the fifty-five cases he has encountered, in over forty-five an erroneous diagnosis had been made and the children had been given sodium salicylate for the assumed rheumatism, or they had been treated with electricity and massage for the supposed acute poliomyelitis, or given mercurial treatment for assumed syphilis, or incisions and trephining had been done for supposed acute osteomyelitis. Some had been put in a plaster cast or trough for coxalgia or Pott's disease. In the last few months he has encountered thirteen new cases, and in 90 per cent. the attending physician had failed to recognize the scurvy. One infant recently had been treated for six weeks for rheumatism and then for acute

poliomyelitis, no one heeding the one-sided diet. Comby ordered the child to be left quiet in its cradle, not bathing nor dressing it, nor moving it abruptly in any way. A teaspoonful of grape juice was given twice a day, and fresh milk, boiled, was given instead of condensed milk. In eight days recovery was complete. The children with scurvy are generally between 6 and 18 months old, and the painful pseudoparalysis of the legs is a prominent symptom.

56. Spirocheturia in Spirochete Jaundice.—The pathogenic spirochetes are not found in the urine as a rule until between the fifteenth to the twenty-third day of the disease, and they are not regularly present even then.

58. Convergence of Eyeballs After Shell Concussion.—This sign of organic injury from shell concussion occurs during equilibration tests. Descomps and his co-workers report ten cases, and they regard it as an indication of some minute focal brain lesion.

Correspondenz-Blatt für Schweizer Aerzte, Basel

Oct. 12, 1918, **48**, No. 41

59 *Charcoal in Chronic Intestinal Disease. E. Lenz.—p. 1361.

60 Prophylaxis of Influenza. A. Hotz.—p. 1372.

61 Experiences with Influenza in Civilian and Military Circles. H. R. Schinz.—p. 1374. Conc'n.

Oct. 19, 1918, **48**, No. 42

62 *Treatment of Severe Influenza with Convalescents' Serum. E. Liebmann.—p. 1393.

63 *Viscosimetry and the Blood Corpuscles. A. Alder.—p. 1405.

59. Charcoal in Chronic Intestinal Disease.—Lenz has been giving animal charcoal systematically in cases of chronic disease of the small intestine and other conditions in which absorption of bacterial and other products was poisoning the system. The charcoal is given as far as possible from the meals, and in the smallest amounts that prove effectual, in order to refrain from interfering with the digestive juices. From one to three heaping teaspoonfuls of the charcoal (from 5 to 10 gm.) are taken on retiring, stirred well into a glass of hot water or chamomile, linden flower or valerian tea. In acute phases, up to 20 gm. can be taken. In acute diarrhetic conditions during the war, from 80 to 100 gm. were sometimes taken daily. The prolonged treatment with small doses is kept up for a few weeks after tolerance for a more normal diet has been regained. In cases of chronic putrefaction and fermentation dyspepsia and catarrhal conditions in the small intestine, he keeps up this continuous mild charcoal treatment for years, with occasional suspension. When the charcoal tends to induce constipation, he orders an occasional course of alkaline saline mineral waters, a glass cold or hot on rising. This clears out the charcoal from the digestive tract so that the processes of digestion can proceed unhampered.

He has never witnessed any serious by-effects from this prolonged charcoal treatment. Occasionally the charcoal formed lumps in the stools, and there is of course a possibility of anthracosis. Mönch has also recently reported a case in which four days of charcoal treatment were followed by palpitations, rapid pulse and congestion of the face when any alcohol was taken. Lenz witnessed the subsidence of jaundice and of urobilinuria in two cases of gallbladder disease under the influence of the charcoal. The latter seems to spare the liver by binding the toxins in the bowel so the liver is spared the task of detoxicating them. Lichtwitz has reported brilliant success in treatment of pernicious anemia with charcoal, long continued and supplemented with frequent lavage of the stomach. This treatment is based on the assumption of gastro-intestinal auto-intoxication as the cause of pernicious anemia. This assumption is sustained further by Seyderhelm's discovery that pernicious anemia in horses is caused by the presence of gastrophilus larvae in the stomach.

62. Serotherapy of Influenza.—Liebmann reports from the medical clinic at Zurich, in charge of Eichhorst, twenty-three cases of severe pneumonia in influenza in which systematic treatment was applied with convalescent's serum injected subcutaneously or into a muscle. The clinical verdict is favorable although beneficial action was not apparent in every case. The refractory ones were all far advanced, some with septicemic phenomena, evidently from mixed infection.

In the other cases, after injection once or twice of 20 or 30 c.c. of convalescent's serum, the pneumonia, pronounced cyanosis and hemorrhagic sputum rapidly subsided and the threatening general condition promptly improved. Other patients with apparently lighter attacks were much longer in recovering than in those cases. In some instances the fever subsided rapidly although the cyanosis and delirium persisted for some time. Extreme caution is necessary to ensure that the serum to be injected is sterile; in one case streptococci were found in the blood on a second examination when it had been apparently sterile at the first examination. He insists that prudence requires three days' control of the cultures from the blood and overinoculation on agar. The serotherapy seems to have an antitoxic action rather than a bactericidal, as it did not ward off recurrences.

63. Viscosimetric Determination of Volume of Blood Corpuscles.—Alder shows how the viscosimeter is able to determine the volume of the blood corpuscles, the average size of the separate cells, and the concentration of the hemoglobin in the red corpuscles. His research has shown a most remarkable tenacity in the hemoglobin content of each cell. A given volume of corpuscles can thus be carrier of only a certain amount of hemoglobin. This physiologic property of each cell to always carry the maximum quota of hemoglobin seems to be constant through all pathologic conditions, and he regards it as extremely important from several points of view. The only way by which the organism is able to expose larger amounts of hemoglobin to oxidation in the lungs, is by increasing the numbers of red corpuscles. Even in pernicious anemia, the high color index is due merely to the fact that the cells are larger than normal. There is no appreciable disturbance in chlorosis, etc., until the hemoglobin content falls below the normal figure. Over 99 per cent. of the bulk of the corpuscles is formed of the reds. He took up the plasma in a pipet after the blood had been treated with herudin, and used the plasma to dilute a similar amount of the same blood. By comparison of the specimens then, the volume and the viscosity could be estimated, a system of parallel coordinates allowing the third quantity to be ascertained from the two known quantities. The findings coincide with those of the refractometer and other tests. The average of extensive researches by the different methods shows that the normal proportional bulk of the blood corpuscles is between 42 and 46 per cent., and the bulk of a single red corpuscle averages 88 cubic microns in normal conditions. The range in disease is wide, from 66 cubic microns in chlorosis to 119 and 165 in pernicious anemia. In hemolytic anemia the corpuscles were within the normal range.

Gazzetta degli Ospedali e delle Cliniche, Milan

August 11, 1918, **39**, No. 64

64 Mutilations of the Face: Necessity for Centralizing Measures for Reconstruction. A. Maggioni.—p. 621.

65 *Immediate Operation for Skull Wounds. A. de Castro.—p. 624.

August 15, 1918, **39**, No. 65

66 Calcium Sulphate in Therapeutics. C. Tosatti.—p. 634.

67 Varices of Subcutaneous Abdominal Veins. E. Greggio.—p. 636.

65. Skull Wounds.—De Castro reiterates that no matter how apparently insignificant a war wound of the skull, operative measures are imperative without delay. The skull wound should be cleared out according to the same principles as for any wound elsewhere. Titrated solution of calcium hypochlorite solution has proved extremely effectual for this in his experience. He makes a practice of exploring the wound with the finger, using a Kocher forceps guided by the finger to extract any foreign bodies. If a bullet cannot be readily found, he leaves it for a later intervention.

Pediatrics, Naples

October, 1918, **26**, No. 10

68 *Asthma in Children. L. M. Spolverini.—p. 569.

69 *Treatment of Chorea. R. Pastore.—p. 577.

68. Asthma in Children.—Spolverini is inclined to ascribe the tendency to asthma in children to deficient functioning on the part of the sympathetic system innervating the smaller bronchi. This paresis of these nerves allows the vagus nerve

to have predominant control, so that the outcome is practically vagotomy, although in reality the vagus is normal. This assumption is sustained by the favorable action of epinephrin in asthma, as this does not paralyze the vagus but merely stimulates its sympathetic antagonist. In his experience with nineteen cases of recurring asthma in children, from 6 months to 10 years old, he was impressed with the constant lymphatic status in all, as also the extremely irritable condition of the nerve terminals, both in the motor and vegetative innervation, and also the nervousness and uricacidemia noted almost constantly in one or both parents. He was further impressed with the benefit under suprarenal treatment, even outside of the attacks of asthma, and also under treatment with iodine and calcium preparations and mineral waters of the Fiuggi and Montecatini types. These children, more than any others, benefit from a return to nature. During the attacks of asthma, 1.5 gm. calcium bromid proved a valuable adjuvant to epinephrin. He gave both by the mouth, not venturing to give the epinephrin by the vein to children. The loss of normal balance in the endocrine system, which seems to be responsible for this asthma-producing neurosis, might be instructively studied on children, especially the assumed hyperproduction of hormones from the lymphatic glands, and the deficient suprarenal functioning.

69. Magnesium Sulphate in Treatment of Chorea.—Pastore reviews the literature on the treatment of chronic chorea by intraspinal injection of magnesium sulphate according to Marinesco's technic. Excellent results have been reported by a few but in Caronia's case there were extremely severe by-effects, the child collapsing at once after the injection, with paralysis of all the muscles and unconsciousness, respiration becoming rare, with pauses, and only the heart beat showing signs of life, the temperature dropping to 35 C. Artificial respiration was kept up systematically for about twenty-four hours, with continuous inhalation of oxygen, and the child recovered. There were no further manifestations of the chorea from immediately after the injection. Pastore here reports four cases in which the magnesium sulphate was given in small repeated doses, thus curing the chorea without danger. She made from five to seven intraspinal injections of from 0.1 to 0.2 gm. of magnesium sulphate in a 25 per cent. solution, to a total of 0.4 or 0.5 gm. The intervals were one or two days at first, and three or seven days toward the last. There was no appreciable reaction, and improvement was pronounced after the third injection in one child; after the sixth or seventh in two others. One child was not completely cured, although notably improved by the treatment. In this girl of 11, the third injection was followed for two days by intense headache, superficial respiration and sluggish pupil reactions, and the choreic movements returned, but improvement was pronounced under two more injections of the sulphate.

Riforma Medica, Naples

Sept. 21, 1918, **34**, No. 38

70 *Plastic Motor Surgery. A. Pellegrini.—p. 746.

71 Typhoid and Paratyphoid Occurring in the Vaccinated. V. Panto.—p. 749.

70. Motor Control of Artificial Limbs.—Pellegrini reports the details of four cases in which he remodeled the amputation stump to permit volitional kinetic control of the prosthesis. He also describes one case in which the amputation was done with a special technic for this purpose. A different method was followed in each case, as is described with illustrations, but all were comparatively simple and easy. His experience to date has been more favorable with the extra-terminal loop, but each stump has to be considered separately.

Rivista di Clinica Pediatrica, Florence

July, 1918, **16**, No. 7

72 *Pituitary Insufficiency. M. Pincherle.—p. 337. Concluded.

September, 1918, **16**, No. 9

73 The Population After the War. D. Pacchioni.—p. 449.

74 Growth and Pathology of Twins. A. Borrino.—p. 474. Concluded in No. 10, p. 521.

72. Pituitary Insufficiency.—Pincherle gives seven pages of bibliography, and tabulates 116 cases from the literature in

which the effect of pituitary treatment was recorded, as also seventeen reports on experimental lesions of the pituitary body. Comparing all this testimony with his own clinical experience amply confirms the connection between abnormal polyuria and backward physical development and pituitary insufficiency. Corroborating minor signs are the effects of pituitary treatment, the extreme tolerance for carbohydrates, the abnormally small sella turcica, anomalies in ossification, and Cushing's thermoreaction, low blood pressure, asthenia and drowsiness. In some of his cases only some of these minor points were evident, and he classifies them as "masked pituitary syndromes." They are important for research on the endocrine system, but the chief importance of their discovery lies in the possibility of improvement and cure under organotherapy. In one of his patients the arrival of puberty was accompanied by considerable development of fat, and menstruation was seriously irregular while some of the sexual characters were abnormal. Pituitary treatment in his cases reduced the excessive diuresis and polydipsia, but did not seem to modify durably the diabetes insipidus. The children increased in height and weight, but not all the signs of backward physical development subsided. Enough were modified, however, to encourage further experiments in this line with great promise. In all his cases albuminuria could be induced by forced lordosis, which indicated a low resisting power on the part of the kidneys.

Annaes Paulistas de Medicina e Cirurgia, S. Paulo

February, 1918, **9**, No. 2

75 *The Amebas Infesting Man. H. Aragão.—p. 25.

75. Ameba Parasites.—Aragão discusses the endamebas and their relation to tropical dysentery. The number of cases of the latter has increased constantly in S. Paulo in the last six years, from four to 543 reported cases. He admits only two species parasite in man, the one causing dysentery, and the harmless *E. coli*. Kittens seem to be the best animals for tests with the parasites. The latter can be introduced into the rectum; the encysted forms can be given by the mouth as they are not affected by the gastric juice. The dysenteric symptoms develop in from eight to thirty days. He discusses the features which differentiate the pathogenic from the harmless endameba, especially the small size of the cysts of the former and the small number of nuclei. From one to four is the rule and only exceptionally up to eight, while the cysts of the *E. coli* are about twice as large and have from eight to eighteen nuclei. Persons can be carriers of the dysentery ameba and cysts without ever having had dysentery. The danger from such carriers is obvious. Drugs do not act directly on the encysted forms of the endameba but they check the multiplication of the parasite into these forms. Epinephrin, which Bayma advocates in treatment of amebic disease, acts mainly by keeping down the production of the encysted forms. None of the drugs that act on the *E. histolytica* seem to have the slightest action on the *E. coli*. When there is mixed infection with both, the latter emerges unscathed from the treatment which destroys the histolytica. The latter will keep alive for twenty hours on ice or in feces in a tube of serum or ascitic fluid. They have been kept at room temperature in cool weather for ninety-six hours.

Differentiation is difficult if they are dead, especially when the specimen contains epithelial cells and dead leukocytes. If not dead, motility can sometimes be restored by placing the specimen in the incubator at 37 C. for half an hour or an hour. He recommends for the stain to dilute the 0.5 c.c. of feces in 2 or 3 c.c. of a 0.1 per cent. solution of gentian violet in physiologic solution to which has been added 0.3 per cent. of acetic acid. This keeps the elements of the specimen unaltered for several days. It only exceptionally occurs that the vegetative and the encysted forms are found together. Usually transformation to the encysted form occurs in all the parasites about the same time.

Archivos Latino-Americanos de Pediatria, Buenos Aires

May-June, 1918, **12**, No. 3

76 *Pulmonary Tuberculosis in the Newly Born. M. A. Ugen.—p. 213.

77 *Scurvy in Breast Fed Infant. J. Bonaba.—p. 218.

- 78 *Streptococcus Septicemia. I. Luisi.—p. 225.
 79 Tuberculous Meningitis after Mumps Meningitis. C. Pelfort.—p. 232.
 80 *Spasm of Glottis. J. Giampietro.—p. 237.
 81 *Tardy Inherited Syphilis of the Liver. A. Casaubon and S. Satanowsky.—p. 243.
 82 *Datura Poisoning. C. S. Cometto.—p. 260.
 83 Uncontrollable Vomiting in Infants. L. V. Blanco.—p. 267.
 84 *Chronic Bronchopneumonia with Recovery. J. P. Garrahan.—p. 272.

76. **Pulmonary Tuberculosis in the Newly Born.**—The two infants described were born a little prematurely and were suckled by their consumptive mothers. One developed signs of pulmonary tuberculosis in a month after birth; the other, not until the third month. Tuberculin tests elicited a positive reaction the fiftieth and the ninetieth days, the responses previously having been negative. Necropsy confirmed the clinical diagnosis.

77. **Scurvy in Breast Fed Infant.**—Bonaba reviews the few cases on record of scurvy in breast fed infants. In the case he reports from his private practice the child was 7 months old and previously healthy, and the parents were healthy also except that the mother was of a nervous temperament.

78. **Empyema from Streptococcus Septicemia.**—The girl of 4 developed the septicemia from an erysipelatous affection of the external genitals. It seemed to spread and involve almost all the organs, with grave toxic symptoms until bilateral empyema developed. This seemed to act like a fixation abscess, with complete recovery after evacuation of the pus and rinsing the pleura with oxygen.

80. **Spasm of the Glottis.**—After forty-nine paroxysms from spasm of the glottis in the first twenty-four hours and thirty-three the next day, the tendency rapidly subsided under a change of diet. The male infant was 5 months old and for two months had been fed irregularly on cow's milk. The prompt improvement and cure followed directly on regulation and change of the diet.

81. **Tardy Syphilis of the Liver.**—The four cases summarized were in children from 7 to 12 years old. One had been given a course of treatment for assumed tuberculous peritonitis as the liver and abdomen were much enlarged and there were frequent attacks of diarrhea and slight fever. Under mercurial treatment conditions promptly returned to normal, and there has been nothing since to suggest a tuberculous process. In two other cases intense pains in the right hypochondrium or attacks of jaundice were cured by mercurial treatment, but the chronically enlarged and knobby liver and spleen did not show much change in the two girls of 11 and 12. The fourth case was in a boy of 11; besides the chronic enlargement of liver and spleen there was a specific bone lesion in one tibia. The course of tardy syphilis of the liver is insidious and chronic, and when definite lesions are installed, they resist the most energetic mercurial treatment as in the last three of the cases described. There was no ascites in any of the children. The chronic liver disease permits long survival in such cases.

82. **Poisoning from Datura.**—The two children had been playing with the fruit of the *chamico*, said to be the popular name for *Datura stramonium*, which explained the delirium, the hallucination of spiders and snakes, the incontinence, extreme dilation of the pupils, convulsions followed by contracture, exaggerated by the slightest touch, and one of the children had a severe eruption suggesting scarlet fever. Both children collapsed when stood on their feet. The bowels were cleared out by injection of a pituitary extract and purgatives, sedatives were given and stimulants, camphorated oil, etc. There was an interval of twenty hours before medical aid reached the children, and the first suspicion from the clinical picture was that the children had rabies.

84. **Chronic Bronchopneumonia.**—Garrahan's patient was a girl of 8 who developed bronchopneumonia in the course of whooping cough. It persisted extremely grave for five months and then subsided completely, without sequels during the two years since. The child required oxygen daily for more than two months, and later in the acute exacerbations. The recurring pains in the spine were relieved by reclining on a hard bed. The vomiting and anorexia hampered nutrition but on milk,

soups and lightly alcoholized fluids some strength was regained, and by the second month purées and cooked fruits were given notwithstanding the fever; eggs and fish were added the third month. The final complete recovery shows that the dyspneic, febrile semicachexia in such cases does not necessarily entail an absolutely unfavorable prognosis.

Boletin de la Asociacion Medica de Puerto Rico, San Juan

September, 1918, 14, No. 120

- 85 *Prophylaxis of Transmissible Diseases. E. Font.—p. 247.
 86 Intravenous Mercurial Treatment of Syphilis. Cabrera.—p. 255.
 87 Perforation in Typhoid. F. H. Rivero.—p. 268.

85. **Prophylaxis of Transmissible Diseases in Porto Rico.**—The regulations in Porto Rico compel notification of contagious diseases, not only of the typical cases with certain diagnosis but also those in which the diagnosis is doubtful or the disease so atypical that there is merely suspicion as to its nature. The Public Health Service appointed a permanent commission for the study and investigation of the soil, environment, etc., of the transmissible diseases of all kinds, including those peculiar to the island. The commission is composed of the chief of the Negociado de Enfermedades Transmisibles and his assistant, a pathologist; the chiefs of the chemistry and bacteriology laboratories of the service; the chief sanitary engineer, and an entomologist. Every facility is afforded practitioners for the bacteriologic, chemical and biologic study of each case, and serums and vaccines are supplied free of charge for the indigent. The commission pays special attention to a written or verbal report on unusual cases, making every effort to conduct research that may add to the reputation of the medical corps of the island. Members of the commission go to make investigations on the spot, and have already made valuable contributions to the study of spirochetosis, filariasis, bilharziasis, pellagra, lepra, etc., on persons in quarantine. These investigations have determined, for example, the hitherto unsuspected presence of tropical frambesia in the island, a disease known to be extremely contagious, but which had previously escaped detection and been classed as the superficial lesions of syphilis. The fact that the treatment for the assumed syphilis cured the frambesia, was accepted as the confirmation of the diagnosis.

Brazil Medico, Rio de Janeiro

Aug. 31, 1918, 32, No. 35

- 88 Brazilian Gregarinas. G. C. F. Pinto.—p. 273.
 89 *Paralysis of Muscles of Neck. M. Gesteira.—p. 273.

Sept. 7, 1918, 32, No. 36

- 90 *The Diagnosis and Prognosis of Heart Disease. O. Clark.—p. 281.

89. **Paralysis of Muscles of Neck.**—Gesteira reports a case of what he calls Figueira's syndrome, the infant of 20 months being unable to hold her head erect. It sagged forward or backward. Lumbar puncture was negative, the cephaloplegia having developed in the midst of apparent health. In another infant it developed soon after diphtheria. The muscles regained normal tone in a few days in both, as also in Figueira's own cases. He ascribes the cephaloplegia to a sporadic atypical poliomyelitis infection, but other infections may be responsible.

90. **Heart Disease in Children.**—Clark emphasizes that medical inspection of schools over several years confirms that pure mitral regurgitation is never fatal if extremely violent physical exercise is avoided. One girl of 9 had strong fremitus and intense murmur during the whole of the diastole, loudest at the base of the heart. The child felt perfectly well and no pathologic antecedents were known. Two years later there was no further trace of the murmur. Clark relates further the case of a man of 71, who at 18 presented signs of mitral insufficiency, but has had no further symptoms from the myocardium during his long life of hard labor since. Physicians sometimes begin to listen to their own heart sounds, and discover a mitral murmur previously ignored and never causing appreciable disturbance. Other instances are related to prove that isolated mitral insufficiency is harmless, so long as exaggerated athletics are avoided. When it induces symptoms, we can be certain that there is concomitant

pericarditis, myocarditis or mitral stenosis. Among 3,000 children he has examined at Rio, he found eleven with severe heart lesions, congenital in three and consecutive to acute rheumatism in eight. In colder countries the average is said to be 12 per thousand, while in Rio, where rheumatism is rare, the average is only 3 per thousand.

Cronica Medico-Quirurgica, Havana

July, 1918, **44**, No. 7

- 91 Present Status of Leprosy. J. Chabas.—p. 389.
92 Some Medical Aspects of the War. F. M. Fernandez.—p. 413.

Gaceta Medica de Caracas, Venezuela

Aug. 31, 1918, **25**, No. 16

- 93 *Present Status of Spinal Anesthesia. L. Razetti.—p. 165.
94 Disturbances from Action of Chloroform on the Liver. D. Lobo and others.—p. 169.
95 Flagellate Parasite of Euphorbia Plant. J. Iturbe.—p. 173.

93. **Spinal and Chloroform Anesthesia.**—Razetti marshals the testimony for and against high and low spinal anesthesia. He concludes with an appeal for personal data from the surgeons and anesthetists of Venezuela, asking for reports on personal experiences, mishaps, preferred technic, etc.

Progresos de la Clinica, Madrid

September, 1918, **6**, No. 69

- 96 Present Status of Malta Fever. G. Pittaluga.—p. 133.
97 Congenital Cystohygrota Below the Ear. A. Perera.—p. 146.
98 *Fractures of Skull other than War Wounds. M. P. de Petinto.—p. 153.
99 *Intraspinal Treatment of General Paralysis. G. R. Lafora.—p. 192.

98. **Fractures of the Skull.**—This extensive article is accompanied by nearly a hundred illustrations, many of them colored, showing among others the cracks produced by a stone weighing 18,765 gm. dropped from a height of about 5 feet on the skull, the cadavers in different positions. Among the other material studied were the necropsy reports of the last eight years in criminal and accident cases. De Petinto's findings confirm that the direction of the fissures can be estimated where the character of the agent dealing the blow and the point of the skull receiving the blow are known. Also that the character of the agent and the site of the blow can be determined from the character of the fracture fissures. He reviews the literature on the subject, including some of the recent war experiences. The fissures always trend toward the opposite and symmetrical point of the skull, fracturing or going around the bone obstacles in their path. The fractures are always direct, but the base of the skull is so much more fragile than the vault of the skull that when the fissure reaches the base it is liable to do much more damage than resulted from the direct impact. The latter may even be overlooked completely. In a hundred skulls examined he found only two in which the primary injury had been at the base of the skull. The above laws apply only to adult skulls; other conditions prevail in the fetal and child skull, as he explains.

99. **Treatment of General Paralysis.**—Lafora declares that he never witnessed such remarkable and such permanent remissions in general paralysis as in cases he has been treating with intraspinal injections of arsphenaminized serum. The rapid clinical improvement was followed more slowly but surely by improvement in the laboratory findings.

Revista Ibero-Americana de Ciencias Medicas, Madrid

August, 1918, **40**, No. 168

- 100 Fractures and Dislocations of the Elbow. S. G. Hurtado.—p. 82.
101 Clinical Forms of Dilatation of the Stomach. A. Lara.—p. 85.
102 Diagnosis in Ano-Rectal Disease. F. M. Suarez.—p. 113.
103 Status of Treatment of Acute Myocarditis. A. Mut.—p. 125.

Revista Medico-Cirurgica do Brazil, Rio de Janeiro

July, 1918, **26**, No. 7

- 104 Treatment of Uncinariasis. L. W. Hackett.—p. 299.

Revista Medica Cubana, Havana

July, 1918, **29**, No. 7

- 105 *Seventy-One Laparotomies. E. R. de Aragon.—p. 351.
106 *Indication with Contracted Pelvis. D. F. Ramos.—p. 354.

105. **Danger of Purgative in Appendicitis.**—The only death in Aragon's seventy-one laparotomies last year was in a case of appendicitis in which a saline purgative had been given the woman behind the attending physician's back. Peritonitis followed, in spite of the prompt operation.

106. **Indications with Contracted Pelvis.**—Ramos declares that the dietetic, medicinal and operative measures introduced in recent years in management of childbirth represent the greatest progress realized in the medical sciences. We now can count on getting the offspring past the absolute or relative stenosis of the superior strait, while leaving the mother in good condition for further pregnancies. The twenty-eight cases he describes show the variety of the indications and the necessity for individualization.

Revista Medica del Uruguay, Montevideo

September, 1918, **21**, No. 9

- 107 *Autoplastics for Stenosis of the Nose. J. M. Alonzo.—p. 514.
108 Case of Autochthonous Favus. J. B. Foresti.—p. 518.
109 The Juxtavesical Ureter. L. Merola.—p. 521.
110 *Intraspinal Echinococcus Cyst. J. C. M. Fournier.—p. 523.
111 *Pregnancy Toxemia. H. F. Platero.—p. 534.
112 *Ureter Peril in Surgery. C. Stajano.—p. 545.
113 Inaccessible Vesico-vaginal Fistulas. A. Turenne.—p. 568.

107. **Plastic Operation on the Nose.**—The passages had become completely obstructed by cicatricial tissue after the young man had been kicked in the nose by a horse. Alonso bored the passages anew and lined them with skin. The grafts healed in place on one side but proved a failure on the other side, which in time healed. The lumen is less ample on this side and the stenosis displays a tendency to recurrence. But on the skin-lined side, practically normal conditions were restored. The grafts were Thiersch flaps with which a tampon of moist gauze was coated, top and all. The tampon fitted tight into the passage and was unmolested for five or six days. Then the central portion of the gauze tampon was pulled out, and the rest dropped off spontaneously not long after.

110. **Intraspinal Echinococcus Cyst.**—Fournier reports a case of paraplegia in a boy of 12 developing suddenly with no other symptoms except pains in the back for the last two weeks, and a similar attack of pains in the upper dorsal vertebrae for two weeks three years before. The motor disturbances were more an ataxia than paralysis; the spinal fluid seemed to be normal and the Wassermann and tuberculin tests elicited no response, but roentgenoscopy showed a process of rarefaction in the fifth dorsal vertebra and sixth rib, the seat of the pains and of some tenderness. A syphilitic osteitis at this point was assumed, but no benefit was derived from specific treatment, the paraplegia growing constantly worse. A successful operation revealed echinococcus cysts in the muscles close to the fifth and sixth dorsal vertebrae and in the posterior perimeningeal space, in the spinal canal, and also in the subpleural tissue on one side. The process was evidently of two or three years' standing and it had eroded vertebrae and yet had caused no persisting pains or root symptoms while the extreme hypotony of the paraplegia was in marked contrast to the exaggeration of the bone, periosteum and tendon reflexes and the foot clonus.

111. **The Eye Signs in Pregnancy Toxemia.**—Platero regards albuminuric retinitis as such a grave condition that he advises systematic examination of the fundus every twenty-five or thirty days after the sixth month of pregnancy. This is the only means to avoid disagreeable surprises. The albuminuric retinitis is usually accompanied by excessively high blood pressure, and is intimately connected with the auto-intoxication of pregnancy. The prognosis is always grave from the standpoint of vision, although the life is not in danger as with albuminuric retinitis under other conditions. The ophthalmoscopic examination should be supplemented by the determination of the blood pressure and the ureosecretory constant, Ambard's coefficient. Every pregnant woman with albuminuria, he reiterates, is in the grasp of intoxication, and in imminent peril of eclampsia or grave complications, insufficiency of the liver or kidneys, or retinitis. Treatment should aim at detoxication, lowering of the blood pressure and pro-

motion of diuresis. The pregnancy should be interrupted without further delay if vision does not return to normal under five days of medical treatment. He impresses on all pregnant women who consult him the necessity for certain dietetic restrictions, and declares that this spares the women the dangers of auto-intoxication. His experience has been conclusive in this line. He reports two cases in which the women spurned his dietetic advice and would not believe that their headaches, edema, and other disturbances were traceable to an improper diet, until vision began to be seriously impaired. He stopped all food but gave plenty of water, and purged, and drew 500 c.c. of blood. The urine showed 20 gm. urea, 2 gm. chlorids and 2 gm. albumin. Spontaneous delivery occurred in six days after the urea had dropped to 11.5 gm. and the albumin to traces and all the symptoms subsided. Conditions were graver in the second case, and a still-born fetus was expelled at term. Both women had borne several children and in both, the blood pressure dropped to normal after the venesection.

112. The Ureter Peril in Gynecologic Surgery.—Stajano discusses how to avoid injury of the ureters in gynecologic operations, comparing the normal and the pathologic anatomy of the region and especially the course of the ureters near the iliac vessels, the broad ligament and the crossing of the uterine artery, the para-uterine and the terminal segments. The ureter is at the mercy of any lesion developing in the pelvis, displacing or involving it. It is possible to avoid the ordinary dangers of injuring the ureter, but it is impossible to abolish all danger from this source as no one can foresee all the eventualities that may develop from the polymorphous and capricious lesions liable to become installed in the pelvis. He reports four cases of serious injury of the ureter during operations, cutting or ligating it by mistake.

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- 114 Complement Fixation with Trichophytosis. W. L. L. Carol.—p. 784.
- 115 *Autovisibility of Vessels in Retina. T. Wassenaar.—p. 792.
- 116 *Thread Test of Gastric Functioning. E. C. Van Leersum.—p. 794.
- 117 Influenza. L. Vos.—p. 796.
- 118 *Case of Quinin Poisoning. C. E. Van Der Horst.—p. 798.
- 119 Mental Disturbances in Influenza. G. F. Wesenhausen.—p. 799.

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- 120 Variable Behavior of Different Strains of Cholera Vibrios Toward Blood in Culture Medium. I. Snapper.—p. 848.
- 121 The Limits of the Visual Field. E. Marx.—p. 858.
- 122 *Obstetrics in War Time. A. W. Ausems.—p. 863.
- 123 Early Purulent Pleurisy in Influenza; Resection of Ribs Imperative. V. C. M. Leesberg.—p. 864.
- 124 Malaria and Quinin Poisoning. A. Nieuwenhuijse.—p. 866.

115. Autoperception of Retinal Vessels.—Wassenaar relates that in watching a revolving disk with segments of black and white there comes a time when the impression is perceived of a red or violet background with streams of green color moving across it. The phenomenon is most pronounced when the disk stands in full sunlight and is then moved suddenly into the shade. The retinal vessels then are perceived as darker twisting lines running towards the blind spot, which is distinctly visible. The absence of large vessels in the fovea region is shown anew by these tests.

116. Thread Test of Gastric Chemistry.—Van Leersum reports a case in which Einhorn's thread impregnation test permitted the exact localization of a peptic ulcer. Gastro-enterostomy had been done a year and a half before, but the pylorus had not been shut off. The vomiting and the pains, increased by eating and by exercise, and the occult blood in the stools testified to ulceration, although the marked tendency to hysteria had convinced the attending physician that the whole trouble was a gastric neurosis. The Einhorn thread showed a brownish discoloration for a stretch of 2 cm. low on the thread. Immediately below there was an abrupt change in tint to green, showing the action of bile. The assumption therefore was that the new ulcer was in the region of the gastro-enterostomy opening, which roentgenoscopy showed was no longer permeable. This proved to be the case, and after excision of the fistula region with its ulcer, and closure of the pylorus, clinical recovery followed. In a second case this discoloration of the thread between 45 and 50 cm. from

the lips, and the abrupt change to green below located the ulcer in the margin of the gastro-enterostomy opening. This patient had already had two operations for gastric ulcer, and refused to permit a third. The thread can be swallowed more readily if a scrap of cracker or meat is tied in the end. There is no need to use the duodenal bucket when the question is merely to locate the bleeding point. The length of the chest, etc., must be taken into account in estimating the location of the tumor from the thread. Einhorn's figures do not give a wide enough range. Van Leersum warns in conclusion that the ease and simplicity of this test commend it to such a degree that there is danger that physicians will use it exclusively and rely too implicitly on its findings. "L'histoire se repète," he says, "and especially in medicine, and this notwithstanding our dearly bought experience teaching us that we should never rely exclusively on any one test, any more than on the anamnesis alone."

118. Quinin Poisoning.—Horst describes a case similar to one reported by Nocht in which administration of quinin brought on symptoms like those of blackwater fever, only that the blood did not pass into the urine but there were multiple subcutaneous hemorrhages and bleeding from the gums. This hemorrhagic diathesis returned and subsided parallel to the therapeutic administration of the quinin on three separate occasions, with an interval of two years.

122. Obstetrics in Wartime.—Ausems says that he has always preached the advisability of a milk and vegetable diet for pregnant women. This avoids the danger of eclampsia while the fetus does not grow so large as when much meat is eaten. He does not approve of the Prochownick method of dieting as this weakens the woman, while the size of the fetus is not limited by it and labor is not shortened. But the long prevailing war scarcity of meat, fats and sugar has forced women to the simple milk-vegetable diet he has always advocated, and obstetricians are unanimous in extolling its influence on labor. Delivery is brief, and the fetus a little below the average size, but born in good condition by rapid labor. "The uterine contractions were more vigorous and delivery proceeded more rapidly and easily on this compulsory restricted milk-vegetable diet," he reiterates, "than when the women sat by the fleshpots of Egypt."

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- 125 *Induced Pneumothorax for Lung Gangrene. F. Tobiesen.—p. 1577.
- 126 *Influenza. V. Erlendson.—p. 1581; T. Wernøe.—p. 1584.
- 127 Recent Literature on Pathologic Anatomy of Influenza. E. Begtrup.—p. 1586.
- 128 The Pneumococcus and Influenza. R. Nielsen.—p. 1592; V. Bie.—p. 1595.

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- 129 Technic for Blood Platelet Count and its Significance. H. C. Gram.—p. 1651.
- 130 Antistreptococcus Serum in Treatment of Influenza. C. U. Maaløe.—p. 1659.

125. Induced Pneumothorax in Treatment of Gangrene of the Lung.—Tobiesen reports the case of a young man who developed a gangrenous process in the apex of one lung from aspiration of septic material. A large cavity resulted, but under artificial pneumothorax conditions were restored to clinically normal in the course of a few weeks. Under any other treatment months would have been required to accomplish the same result, if it could have been realized by other means. In another case a man of 46 developed a gangrenous focus of unknown cause and it kept constantly spreading by small foci. No benefit was derived from the attempts to induce artificial pneumothorax as adhesions, etc., counteracted these attempts. He reviews the scanty literature on pneumothorax induced for other than tuberculous processes.

126. Influenza.—Erlendson reports two cases of influenza in which symptoms of heart block developed the second and the eighth days of influenza, and several weeks elapsed before the earning capacity was regained. In several soldiers pleurisy developed as a complication of the influenza.

Wernøe reports three cases of paraparesis as a complication of what he calls *spansk Syge* in two men of 53 and 57, and a woman of 40. The latter is known to have a tendency to hysteria.

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THE VALUE OF MODERN BLOOD CHEMISTRY TO THE CLINICIAN *

ALEXANDER O. GETTLER, PH.D.

Assistant Professor of Chemistry, University and Bellevue Hospital
Medical College; Pathologic Chemist, Bellevue Hospital

AND

A. V. ST. GEORGE, M.D.

Pathologist, Bellevue Hospital

NEW YORK

The investigation of the chemistry of the blood during the past decade has brought us somewhat nearer to the elucidation of certain clinical problems. We know considerable of the etiology of diseases and still more of their end-results, their pathology. But as to the chemistry of their development and progress, little is known. Particularly is this true of the so-called endogenous, or, perhaps more correctly, the metabolic diseases. It is in the latter group that the most satisfactory chemical results have been obtained.

Certain metabolic alterations, notably the elimination of the catabolic products, are definitely determinable by laboratory methods; and no matter how divergent may be the views on points such as technique, interpretation of results, and consideration of normal or of physiologic factors varying the normal, the findings are valuable as indicating the nature of the disturbances in the process of the abnormal production or of the elimination of waste products. As to the actual seat of the disturbance in the body, one can but accept the results of blood and urine examinations as a link in the chain of evidence; and especially is this true of the early and the unusual or irregular cases of nephritis, cardiac or vascular disease.

In the chemical laboratory at Bellevue Hospital several thousand blood determinations are made annually, and embrace practically all disease conditions. From July, 1915, to April, 1917, approximately 15,000 analyses were made by one of us (Gettler) or under his direct supervision, and it is on some of these figures that our study, commenced a year ago, is based. We have examined all the charts and clinical records of these patients and, when available, the postmortem findings. Publication of the tables has been withheld because of the large space needed for them. Soon, however, we recognized the futility of attempting to group disease processes according to blood findings, with perhaps the exception of those diseases attended by disturbances in renal function, that is, the excre-

tion of waste products. It might be of value to determine the blood constituents in patients afflicted with such comparatively mild diseases as gastritis, or even more severe conditions, such as the pneumonias, etc.; but as a routine procedure, we do not believe that blood analyses, as now practiced, furnish definite ideas unless the individual has some complicating condition in his excretory apparatus. For example, we have a large number of determinations on pneumonia patients, many of them under 30 years of age. The greater number of these cases show no definite retention, even in the chlorids, though the latter, as was pointed out by Carter, are not uncommonly diminished in the urine. In those cases in which there was retention of the nitrogenous products, there usually was an accompanying renal involvement, brought about by toxic products affecting the kidneys. We can safely assume, therefore, that the complicating nephritic lesion was the prime cause of this retention, and not the pneumonia. In those cases in which there was no note of any accompanying renal or cardiac lesion, perhaps some undetermined complication was present. The same applies to other diseases, not only of the respiratory system, but of other parts. Among these, acute yellow atrophy, exophthalmic goiter, syphilis, intestinal obstruction, pernicious anemia, diabetes with coma, fever, persistent vomiting, acute hemorrhage, esophageal stenosis, toxemias of pregnancy, septicemia and streptococcic meningitis were often found to have a slight rise in nonprotein nitrogen, but not in every case.

From the fact that so many disease conditions show a slight rise, we have attributed the cause to four factors:

1. Retention due to impaired kidneys (permanent nephritis; transient, by toxic substances).
2. Retention due to impaired circulation.
3. Abnormally large production, by the breaking down of body protein.
4. Increased intake of nitrogenous material.

In other words, the possibility of complications involving one or another of the metabolic functions of an organ, even if only of a transitory character, and especially if it involve the cardiorenal system, is always to be borne in mind before arriving at any conclusions on blood findings.

We concluded, therefore, that routine studies are of value only in such cases as nephritis and cardiac disease, and in cases of diabetes, furunculosis, carbuncles and gout; and it is primarily on these conditions that we desire to report, although a few others are perhaps worthy of mention. No attempts were made to study these patients on any of the special forms of diet. The blood was usually taken thirty-six hours

* From the Department of Pathology, Bellevue and Allied Hospitals, Dr. Douglas Symmers, director.

after admission to the hospital, and after the patient had been on the restricted hospital diet, which is low in its protein content. The technic employed is the same as is now in general use. The values taken as normal are given in Table 1.

TABLE 1.—VALUES TAKEN AS NORMAL

	Mg. in 100 C.c.		
Nonprotein nitrogen	From	25	to 40
Urea nitrogen	From	10	to 18
Creatinin	From	0.1	to 0.8
Uric acid	From	0.5	to 3.0
Sugar	From	60	to 110
Alkali reserve	From	53	to 80%

When the chief excretory organ, the kidney, becomes impaired and fails to eliminate the waste products, it is obvious that the degree of retention of these products may be of value in diagnosis and also in prognosis; and more particularly is this true of early cases, as is shown by numerous examples of the following description:

A patient, aged 50, with negative family and personal history, had lived a normal, quiet life, with no excesses in diet, alcohol, exercise, etc. Examination revealed a slightly accentuated aortic second sound, but was otherwise negative. The systolic blood pressure was 135 and the diastolic 95. The urine was pale, straw colored, with a specific gravity of 1.008, and with occasional hyaline casts, but was otherwise negative; the average amount was 2,000 c.c. a day. The blood findings on restricted diet showed nonprotein nitrogen, urea and creatinin somewhat increased. The functional kidney tests were negative.

It is this type of case that bears watching and care. Whether we wish to ascribe these cardiovascular, nephritic and degenerative processes to one of several etiologies, or, for lack of better knowledge, are willing to accept the view expressed by Bishop, that it is a general "poisoning" of all the cells of the body, we know this much, that the majority of such patients are definitely aided by restriction of their nitrogen metabolism and by calling on the accessory avenues of excretion. Definite improvement is noted by a simple subjective and objective examination, and can be measured in figures by a study of the blood chemistry.

NEPHRITIS

Nephritic cases, which include only primary nephritis, form the largest and most interesting group in our series. It is obviously impossible to list all of our cases, as they run into hundreds. Therefore, we are giving only the range between which our values lie (Table 2).

TABLE 2.—RANGE OF VALUES IN NEPHRITIS, TAKEN FROM 600 DETERMINATIONS

Nonprotein nitrogen	From 40 to 460 mg. in 100 c.c. of blood
Urea nitrogen	From 20 to 375 mg. in 100 c.c. of blood
Creatinin	From 2 to 42 mg. in 100 c.c. of blood
Uric acid	From 3 to 17 mg. in 100 c.c. of blood
Sugar	From 75 to 160 mg. in 100 c.c. of blood
Alkali reserve	From 40 to 75 per cent.

Because of the unsettled renal nomenclature, we have used in our conclusions the old classification of nephritis, that is, acute parenchymatous nephritis, chronic parenchymatous nephritis, and chronic interstitial nephritis.

Conclusions.—1. All the waste nitrogen products, nonprotein nitrogen, urea, creatinin and uric acid, are present in increased amounts in cases of true nephritis, and generally, but not invariably, present in greater concentration in the blood of those cases

which are primarily considered as chronic interstitial nephritis (retention nephritis). This finding is in agreement with the results of practically all workers.

2. The degree of retention (when taking into account the functional efficiency of the cardiac muscle) is a direct criterion of the severity of the lesion.

3. We agree with Hopkins and Jonas that the sugar content in the blood is similarly increased in nephritis, and, at least in our cases, more marked in the patients suffering with the chronic parenchymatous form of the disease.

4. The alkali reserve is a valuable index of the degree of acidosis present. In our table, it runs considerably lower in the interstitial type of the disease. We would suggest that particular attention be paid to cases with low alkali reserve, as it becomes an important factor in the early recognition of uremia.

5. While we are not presenting figures, in attempting to correlate the clinical findings with the postmortem picture, we agree with Frothingham that there is no definite lesion of nephritis referable to a certain clinical picture. In other words, all the clinical and laboratory evidence in a nephritic patient may point to a certain form of the disease, but the postmortem examination is often not in agreement with the diagnosis made during life.

CARDIAC CONDITIONS

In our cardiac group we have included only those cases having primarily a true endocarditis or myocarditis, regardless of minor secondary involvements of other organs, and have eliminated all cases in which the question of primary cardiac involvement might be raised. It appears to us that the problem as to whether a person with heart disease has a complicating true nephritis, a nephrosis, or merely a renal congestion cannot be determined by chemical examination of the blood. The action of the heart, which is dependent on at least three important factors, namely, the condition of the heart muscle, the state of the nervous mechanism of the heart, and the peripheral influences under certain conditions, requires further study and more accurate physical methods of measurement before we can hope to establish its mechanical efficiency definitely.

TABLE 3.—RANGE OF VALUES IN CARDIAC CONDITIONS, TAKEN FROM ABOUT 350 DETERMINATIONS

Nonprotein nitrogen	From 35 to 220 mg. in 100 c.c. of blood
Urea nitrogen	From 18 to 180 mg. in 100 c.c. of blood
Creatinin	From 1.5 to 12 mg. in 100 c.c. of blood
Uric acid	From 2.5 to 7 mg. in 100 c.c. of blood
Sugar	From 70 to 135 mg. in 100 c.c. of blood
Alkali reserve	From 48 to 75 per cent.

A glance at the values of cardiacs (Table 3) presents nothing of interest except that in general the nitrogenous waste products in cardiac patients do not tend to accumulate in the blood to as high a degree as they do in nephritics; but this varies within wide limits in individual cases, many nephritics running even lower than cardiacs, and there are not a few cases of simple hypertension or hypertension accompanied by some minor change in the cardiac cycle that show no change in the chemical blood picture. Whether or not this retention is solely because of a poor heart muscle, or whether some slight nephritic change is responsible, is a matter still open to question. Judging from our necropsy experience, the hypothesis first expressed appears to be able to cause this retention.

Lewis,¹ Barcroft² and others have indicated the importance of studying the volatile and nonvolatile acid content of the blood, particularly in those cases which, for want of a better term, we may signify as cases of cardiac dyspnea. The subject as yet is too complicated to allow of conclusions, but it is worthy of further study.

GOUT

Our arthritic group contains only cases of gout.

TABLE 4.—RANGE OF VALUES IN ARTHRITIC GROUP (GOUT),
TAKEN FROM ABOUT 120 DETERMINATIONS

Nonprotein nitrogen	.....	From 30	to 55	mg. in 100 c.c. of blood
Urea nitrogen	.....	From 15	to 35	mg. in 100 c.c. of blood
Creatinin	.....	From 1	to 2.8	mg. in 100 c.c. of blood
Uric acid	.....	From 1.5	to 8.5	mg. in 100 c.c. of blood
Sugar	.....	From 85	to 140	mg. in 100 c.c. of blood
Alkali reserve	.....	From 50	to 80	per cent.

Conclusions.—1. Our cases of gout as a general rule show some increase in the uric acid content of the blood, though some of the chronic cases were within normal limits from this standpoint.

2. The increase is more marked in the acute type of the disease.

3. Our findings are in agreement with Folin and Denis' statement that the uric acid content of the blood in cases of gout is abnormally high without a corresponding increase in the nonprotein nitrogen products of the blood; but the majority of our cases showed a slight but constant increase in the nonprotein nitrogen and creatinin.

4. We believe, as do McClure and Pratt, that an increase of uric acid in the blood, with the patient on a purin-free diet, may be a symptom, but is not diagnostic, of gout.

DIABETES, FURUNCULOSIS, CARBUNCLES, HYPERTHYROIDISM

An increased sugar content of the blood has invariably been found in the untreated cases of diabetes mellitus even without glycosuria. The onset of this condition can be detected in the blood a long time before sugar appears in the urine. It is now well known that because of the variability shown by many kidneys as to their sugar permeability, it is of greater importance to have a blood sugar determination than a determination of the urinary sugar content. The alkali reserve in these cases is also of inestimable importance in diagnosing the degree of acidosis.

The range of values of sugar in diabetes, taken from 800 determinations, has been from 105 to 1,010 mg. in 100 c.c. of blood; the alkali reserve, from 60 down to as low as 7 per cent. Similarly, there have been isolated reports of slightly increased amounts of sugar in furuncles, carbuncles, etc. In our experience, covering some fifty cases of carbuncles and furunculosis, all of severe grade not presenting the symptoms of diabetes mellitus (that is, polyphagia, polyuria, loss of weight and glycosuria), there invariably has been a hyperglycemia, some only of a slight degree, but nevertheless quite definite. It was surprising to see how rapidly these patients improved when they were placed on a carbohydrate-poor diet, in addition to local surgical treatment.

Cases of hyperthyroidism almost always show an increased sugar content of the blood. We believe, however, that this is of little pathologic significance,

except that it indicates that the patient's metabolism is on a higher level than in a normal person, and that his reserve carbohydrate is being burnt up; hence the rapid loss of weight so frequently seen in these individuals.

SURGICAL RENAL LESIONS

While as a rule the functional kidney tests furnish us with clearer data in the so-called surgical kidney (multiple abscesses of the kidney, tuberculosis of the kidney, stone, etc.), it may be advisable, especially in elderly patients, to examine the degree of retention of their waste nitrogen products, for they will furnish, as Squier³ pointed out, a guide to the operability of the individual.

ECLAMPSIA, PERNICIOUS VOMITING, ACUTE YELLOW ATROPHY OF THE LIVER, ETC.

In eclampsia, pernicious vomiting, acute yellow atrophy of the liver, etc., blood figures are of some value again, as indicative of the severity and progress of the lesion, and the same applies to those cases of poisoning which set up a destructive process in the organs of elimination (kidney and liver), for example, mercuric chlorid or arsenic poisoning. However, it must not be overlooked that in such cases of acute mercurial nephritis, we may have an enormous retention which may suddenly disappear, the patient recovering. While to our knowledge such patients have not been followed over a long period of years so as to determine their subsequent course, they are nevertheless apparently perfectly well several years later.

Blood studies on nervous diseases, such as the dystrophies, muscular atrophies, the psychoses and in cretins, have also been made, but results are not yet ready for publications.

GENERAL CONCLUSIONS AS TO VALUE OF BLOOD CHEMISTRY

So much has been written to date on blood chemistry, divergent views often being presented, that the clinician is at sea as to its clinical value. The question before him is, "What does it all mean?" As a result of some 15,000 determinations, the largest ever reported, we conclude that:

1. Kidney function may be ascertained by the increased values of nonprotein nitrogen, urea nitrogen, creatinin and uric acid; that is, whether a derangement in the elimination of the waste nitrogenous products exists.

2. The severity of this derangement can be ascertained.

3. Prognosis can be determined.

4. Hyperglycemia can be detected with certainty by the increased value of the blood sugar content, even in the very earliest stages of diabetes, when the urine is still free from sugar. It is advisable, therefore, to have a blood sugar determination made, even if no diabetic symptoms are apparent.

5. Acidosis and its degree can be determined by the decreased value of alkali reserve of the blood, as measured by the Van Slyke carbon dioxid apparatus.

6. Diagnosis in general, contrary to the views of several workers, is impossible with the blood picture alone. Only three conditions can be ascertained: First, an extremely high retention of nitrogenous substances means a renal involvement, which may be primary or secondary to cardiac; second, a high persistent

1. Lewis, Thomas: Lectures on the Heart, New York, Paul B. Hoeber, 1915.

2. Barcroft, Joseph: Respiratory Function of the Blood, New York, G. P. Putnam's Sons, 1914.

3. Squier, J. B.: Some Aspects of Renal Surgery, Surg., Gynec. and Obst., 1917, 24, 641.

blood sugar means a diabetic condition or a tendency thereto, and third, a low alkali reserve means acidosis. Small increases above normal in the nitrogenous values are not characteristic diagnostically, because we find them in scores of various conditions. As an aid in diagnosis to the entire clinical picture, blood chemistry is, of course, most valuable.

7. By reducing in the food of the patient the precursor of the particular substance found in excessive amounts in the blood, very good results are obtained. Especially interesting is this in cases of carbuncles and allied conditions. Here the blood sugar is abnormally high. By cutting down the carbohydrates in the diet the carbuncles clear up beautifully.

8. The practitioner is often met by cases with indefinite, undiagnosable symptoms, in otherwise healthy persons. A blood analysis reveals to him certain abnormalities which he can partially or wholly correct by corresponding diets, and the patients seem to feel much more comfortable, many of them remaining so indefinitely.

9. The chemistry of the blood is of particular practical importance in the toxemias of pregnancy; especially is this true of threatened eclampsia, in which the blood picture (increased amounts of nonprotein nitrogen bodies) indicates the course of treatment to be followed, so as to clear the organism of those retention products. The blood picture, according to the amount of retention, practically always is a safe guide as to the speed with which the uterus is to be emptied, thereby eliminating the focus of toxic absorption. Very often this can be accomplished even before the onset of convulsions.

10 Finally, it must not be overlooked that abnormally high values for nitrogenous waste products are not always due to kidney deficiency. When the values are only slightly higher than normal, a nonprotein nitrogen of from 50 to 60 mg. in 100 c.c. of blood may be due to an abnormally high destruction of body protein or a deficient circulation. In those cases in which the nonprotein nitrogen is very high, 80 or above, in our estimation, the only cause is kidney involvement.

Our fat and cholesterin experiments are in progress and will be reported at a later date.

Puerperal Sepsis in New York City.—According to the *Monthly Bulletin* in New York City during 1917 there were 141,564 births, of which 94,039, or 66.4 per cent., were reported by physicians, and 47,525, or 33.6 per cent., by midwives. Septicemia as a cause of death following childbirth was reported on 238 certificates, or 0.016 per cent. On investigation it was disclosed that 78 of these deaths occurred from sepsis following full time, normal labor; 33 were from sepsis following full time labor requiring operative procedure of some sort; 127 deaths were due to sepsis following premature labor. A comparison of the work of midwives and physicians shows that the midwives with 33.6 per cent. of the births had 35.89 per cent. of deaths from sepsis, while the physician with 66.4 per cent. of the labors had 59 per cent. of the deaths from sepsis following full time labor, a proportion only slightly higher for the midwives, and low for both when the total number of births is considered. The total number of deaths of full time patients in which some operative procedure was necessary was 33, and of these only 4 occurred in cases in which midwives were in attendance previous to the operation. In labors occurring before full term there were 122 deaths from sepsis, 107 among married women, 17 among unmarried women, 2 in widows and 1 in a divorced person. Of these, 53 were reported by the coroner as "abortion" and 12 as "miscarriage."

SPLANCHNOPTOSIS: ITS CAUSE, PREVENTION AND CURE

WITH SPECIAL REFERENCE TO THE DURET-ROVSING OPERATION

GEORGE NOBLE KREIDER, A.M., M.D.

SPRINGFIELD, ILL.

PROLEGOMENON

In May, 1881,¹ Dr. Glénard of Lyons, France, made the observation that many cases of nervous diseases were accompanied by a prolapsed position of the stomach. He proved this by palpation and percussion, which were advanced by his technic to a degree hitherto unknown. He soon afterward found that the other abdominal structures were prone to prolapse, especially the transverse colon, and the right kidney. From the time of this discovery of Glénard we may very properly date an era in the development of the science of medicine.²

The profession of France very early recognized the importance of these observations, and we take a lively pleasure at this time of revision in bringing to light a statement made by Fereal, at a meeting of the Hospital Medical Society, Paris, Dec. 24, 1886. After discussing neurasthenia and enteroptosis, he thus proceeded:

The studies of Glénard confirm the exactitude of the anatomic-physiologic ground which served for the basis of his studies. As to the application of these principles to pathology we must render homage to the original quality which the author has shown in their supposition. Glénard's language shows that he has profound faith and absolute conviction in the correctness of his views, and this is probably the secret of his therapeutic success.

However we may think, French medical men, especially, should acclaim the new ideas emanating from Glénard, and not wait to give them welcome when they may be returned to us from the other side of the Rhine with a borrowed name.

SIGNIFICANCE OF PTOSIS NOT APPRECIATED

I am inclined to believe that the medical profession has not yet appreciated the importance of ptosis of the abdominal organs, or the success of the treatment of these conditions; and it is my object in this paper to call renewed attention to this subject.

Medical men seem prone to overlook the simple and obvious, and to delight in theorizing and speculating as to the cause of obscure disease. This is particularly true regarding neurasthenia and gastroptosis. Hundreds—yes, thousands—of women have been condemned to a miserable existence as hysterics or neurasthenics, who could be relieved if their abdominal ptosis were considered and relieved by bandages or operation. Rovsing says when the day for revision arrives nearly all the so-called nervous affections of the stomach will be found to be ptosis of the stomach. He makes a sharp distinction, which may not be justified, between cases occurring in the virgin, and in the married woman who has undergone several confinements.

THE SYMPTOMS OF GASTROPTOSIS

These patients, when they come for examination, usually exhibit the following conditions:

1. Emaciation.
2. Constipation, or diarrhea alternately with constipation.
3. Nervousness.

1. Note that the date of Glénard's first publication is 1881, not 1883, as usually given.

2. Glénard: *Semaine méd.*, 1886.

4. They have pains coming on after being on foot several hours, and relief by lying down or by support of the hands or the bandages. These pains are not relieved by lying on the side.

5. Very often there is pulsation of the abdominal aorta, visible especially when in a standing position.

6. There is usually vomiting.

THE GLÉNARD SYNDROME

The Glénard syndrome has been expanded in the course of the years until it now embraces more or less completely the following:

- A. 1. Splanchnoptosis.
2. Gastropstosis.
3. Enteropstosis.
4. Colopstosis.
5. Floating kidney.
6. Floating liver.
7. Floating spleen.
8. Mobile colon.
9. Hernias of all kinds.
10. Descensus diaphragmi.
11. Descensus cordis.
12. Varicocele.
13. Hemorrhoids.
14. Intestinal adhesions, kinks, etc., causing chronic constipation, intestinal catarrh, ulcers and strictures.
15. Prolapse of the female genital organs.

B. All nervous and mental disturbances resulting from the foregoing, such as neurasthenia, nervous depression and simulated heart disease.

These subdivisions are intimately related, and all deserve consideration; but our present study must be limited almost entirely to prolapse of the stomach and the large bowel. The possible causes of these conditions will be enumerated; the prevention of them will be considered; and some of the measures, physical and surgical, which have been devised for improving pathologic conditions will be detailed.

SHORT STATEMENT OF TOPICS

Much has developed since Glénard first promulgated his fundamental ideas. The one great instructive factor has been the roentgen ray; and from it we have learned that:

1. Only occasionally the stomach is seated in that portion of the abdominal cavity which old theory and anatomic textbooks provided for it. The same is true of the transverse colon.

2. Both sexes and all ages are prone to have displacement of these organs, but females over 30 are afflicted in proportion to males as 4:1.

3. Improper habits of eating and rushing to active labor after meals are probably conducive to prolapse.

4. The corsets and constricting belts of young girls cause weakness of the abdominal muscles, which fail to support the stomach and bowels.

5. High-heeled shoes and insufficient clothing of women are causing muscle strain and congestion of the abdominal contents.

6. The now fashionable constricting leather belts are working similar results in young men.

7. While it may seem to be true that some people have prolapsed organs without symptoms, it is probably much the same condition of affairs that exists when a loop of a bowel is in a hernial sack outside the natural cavity. This is always highly interesting and possibly dangerous.

8. There has been a complete change in our conception of the ordinary forms of colitis, and we now

believe that these diseases, formerly considered of nervous origin, are primarily not nervous.

9. Many cases of abdominal prolapse can be cured by proper bandaging, posture and dieting, and no operative procedures should be attempted until these simple means have been tried. Especial warning should be given at this point, else we shall have operating perverts bring disrepute on this operation, as they have on appendectomy, etc.

10. Lane's plan of resecting large portions of bowel is only exceptionally necessary, and probably, when the proper attention is given to the early stages of intestinal disease, it will never be done.

11. Operations attaching the stomach and intestine to the abdominal wall are capable of giving good results, even if there are theoretical objections to their employment. Duret of Lille first performed a gastropexy with excellent results, but, unfortunately, this was not appreciated, and it remained for others to develop this operation, notably Rovsing of Copenhagen. My experience would seem to indicate that the operation is not difficult, and can be carried out in patients desperately emaciated, and that good results are often obtained.

12. Infections of the sinuses, teeth and tonsils are, in a great many cases, the cause of that "weakened condition" so often mentioned by authors. This "weakened condition" is responsible for the loss of tone of the muscles of the abdominal wall. The detection of these infections is best obtained by the roentgenogram.

RESTATEMENT AND AMPLIFICATION OF TOPICS

1. *Position of Stomach and Transverse Colon.*—The stomach and transverse colon seldom lie in ideal position. The revelations of the roentgen ray certainly came as a distinct surprise to the older surgeons who had been taught anatomy on the old lines. The illustrations of the more recent textbooks are misleading in this matter. The revelations of the fluoroscope and the roentgenogram are so uniform that we feel amply justified in the statement of the infrequency of the normal position of these organs.

2. *Sex and Age.*—Both sexes and all ages are affected, according to Albu. It seems that even newborn infants are prone to ptosis of the abdominal organs, and, strangely enough, girls are more prone to this condition than boys (11 per cent. boys and 44 per cent. girls).

Again, the aged are particularly prone to prolapses, owing to the bad habits of youth and middle life, to be detailed later.

Stiller³ says that the Jewish and Slavic races are more prone to the affection than other races, and that residents of cities suffer more than country people.

3. *Habits of Eating.*—Improper habits of eating and failure to rest after meals conduce to prolapse. Any one who observes the daily life in the business centers of our large cities must be impressed with the rapidity with which food is devoured, washed down, usually, with copious drafts of ice water and topped off with ice cream or indigestible dessert. We cannot wonder that the overloaded stomach refuses to act, and "falls down" on the job. For a number of years, I was consulted by many trolley men and conductors on a large electric line who complained of dyspepsia. I

3. Stiller: Berlin. klin. Wehnschr., 1909, 1905, 1899.

found that these men carried, in their buckets, cold, indigestible foods, which they consumed while attending to their exacting duties. That the stomach rebelled was not remarkable.

A country physician's wife, to save her husband annoyance at mealtimes, answered all his telephone calls. Immediately the meal was finished she hastened to prepare her house for any patient who might appear, causing considerable physical and mental agitation during the mealtime and no rest afterward. The result, as might be expected, was a dilated and ptosed stomach. The complication in this case was an ethmoid sinus disease.

4. *Corseting of Young Girls.*—While there has been a certain amount of improvement in the construction of corsets, yet I believe it remains true that the tendency of these "straight jackets" is to squeeze the waist line and interfere with the proper functioning of the abdominal muscles, and thereby the natural support of the abdominal wall is lost. The weight of clothing, held in place by tight bands and strings at the waist line, often adds to the difficulty.

When a girl who has followed this custom comes to her pregnancy she has little muscular support for the wall; and she often supplies this by additional corsets and bandages. When the pregnancy is terminated, the muscles are permanently stretched and weakened, the abdominal contents drop, the uterus sags, varicose veins develop in the legs, hemorrhoidal veins of the rectum become enlarged, and she may become a neurasthenic invalid. All authors agree in laying an indictment against the corset.

5. *High-Heeled Shoes, High-Cut Skirts, and Insufficient Clothing.*—These are causing strain on the muscles and congestion of the abdominal organs. No argument is necessary to prove this.

6. *Clothing of Young Men.*—Suspenders are no longer fashionable for men. Warm underclothing is no longer fashionable. Thin-soled shoes, and no overshoes to protect the feet from cold and dampness, are the vogue. All these tend to ptosis of the abdominal organs. Should we not sound a note of warning?

7. *Prolapsed Organs Without Symptoms.*—We hear and read a great deal about persons having splanchnoptosis without knowing it. This may be true, but much in the same sense that we occasionally find individuals, even doctors of medicine, running around with loops of bowel in both inguinal canals, or even in the scrotum, doing their ordinary professional work. Our duty in such cases is always to warn of impending trouble, and to endeavor to correct the deformity and relieve the conditions causing it. To keep silence is sure to send the patient to an osteopath or a Christian scientist for relief of obscure pains, supposedly in the spinal column, on the one hand, or in the certainly weakened brain, on the other.

8. *Colitis.*—This is no longer to be considered a disease of nervous origin. In a recent work, Osler speaks of "true mucous colitis as a secretion neurosis of the large intestine, met with, particularly, in nervous and hysterical patients. Sometimes there are attacks of nervous diarrhea."

Niemeyer, in 1911, said:

It is noticeable that the patient is almost always a nervous, hysterical or hypochondriacal individual. The noticeably frequent association of the disease with hysteria and neurasthenia seems to indicate nervous causes for the exaggerated

production of mucus. The course of the disease depends on the character of the food taken, and the other nervous symptoms present. The treatment is local and chiefly for the care of the associated neurasthenia.

We believe that modern developments have shown these statements to be absolutely the reverse of true. We believe that the bowel condition usually caused by ptosis of the organs is the primary condition, and that the nervous and mental symptoms are the result. When the enteroptosis is relieved, the nervous and mental symptoms gradually disappear. In this connection it might be well to introduce the historic case of Sir William Treves, cited by Osler, as a case in which laparotomy was resorted to as a medical measure with alleged perfect results.

In a work published in 1898, Mr., now Sir., Frederick Treves⁴ wrote:

An unmarried lady of 30 consulted me with what she was assured was a stricture of the colon. She had the persistent pain and a very marked tenderness at a spot just above and to the left of the umbilicus, to which I have just referred. The stricture was supposed to be situated at this spot. She had frequent vomiting, which appeared in attacks. The vomited matter was small in amount and usually intensely acid. Her bowels were confined, and she described her motions as containing many strange and wondrous things. An examination of one of these remarkable stools revealed nothing unusual, except much undigested food and much mucus. The patient was thin and pallid. She was too weak to follow any other engrossing pursuit, but she had made a great study of her malady. The abdominal pain had begun ten years previously, and since that time she had had manifold illnesses. She had written out an account of these disorders with much care. They seem all to have been of an acute and exceptional character, and included malignant sore throat, internal abscess, spinal exhaustion, neuralgia, and certain smaller troubles. She had had uterine affections of bewildering complexity. She spoke of her kidneys with precision and of her liver with regret. The former organs were prone to unreasonable congestion, and the latter to an obstinacy which appears to have been little short of intelligent. She had been to many health resorts, and had taken medicine for the ten years concerned. She was certainly feeble, anemic, and intensely neurotic. The abdominal pain was, at times, agonizing; and her friends were driven to desperation by an illness which seemed unending and filled with tortures. The abdomen was flabby and revealed nothing beyond a general ptosis of the abdominal viscera of moderate degree.

The kidneys were both slightly movable. As all medical measures had failed, as the patient was leading the miserable life of a chronic invalid, and as her friends were becoming convinced that "she must have something wrong," I consented to make an abdominal exploration. I found a general prolapse of the viscera of moderate but distinct degree; the stomach was perhaps a little dilated, but beyond this every organ in the abdomen was perfectly normal. The intestine was closely examined from the duodenum to the sigmoid flexure; it was perfectly normal.

The exploration cured the patient of all her abdominal symptoms, even of the vomiting, and of the pain which had troubled her for ten years. I think it possible that the ptosis of the mass of intestines may have hindered the passage of food from the stomach in a trifling degree.

This case, therefore, was one of uncomplicated visceroptosis with nervous phenomena in a very neurotic patient. Although the patient had never worn a belt, she was always worse when she moved about, and was only comfortable when in bed. A belt was worn after the operation.

Treves repeatedly refers to the mental effect of the operation. I look on this case as a well marked splanchnoptosis, and its cure not due to the operation or men-

4. Treves, in Allbutt: System of Medicine, 1898, 3.

tal effect at all, but to the rest in bed and appropriate bandaging afterward.

9. *Rest in Bed, Forced Feeding, Posture, Exercise and Proper Bandaging.*—These will relieve nearly all such cases. Usually, the first treatment required for splanchnoptosis is six weeks' rest in bed. The foot of the bed should be raised 12 inches, more or less, depending on the case. A trained nurse should be in attendance to give proper baths and massage. Since these patients are inclined to melancholy, a cheerful, hopeful nurse is essential. Much of the emaciation is due to fear of eating perfectly harmless foods, and they must be urged to eat, even if it causes gastralgia. The stomach has been lazy and must be forced to work. At least five meals a day must be taken. It is usually not desirable to give purgatives. A sun parlor or porch should be used if available, but the patient should be isolated from inquisitive friends or strangers. Complete mental and physical rest is necessary.

After a certain time the supporting bandage should be applied and the patient put on foot. The bandage known as the Comfort U, made for me by E. J. Fayart of Springfield, Ill., is an improved form of the supporter devised by Dr. Gallant of New York. It has certain advantages, which need not be minutely detailed. Suffice it to say that it usually supplies the required support. To this must be added rest in a reclining position for half an hour after each meal, with clothing and bandage loosened, and the foot of the couch or bed elevated. In due time light gymnastics, directed especially to improving the tone of the abdominal muscles and diaphragm, may be taken. We advise shoulders on the floor and hips on a couch, hanging by the knees on a horizontal bar, golf playing, croquet, tennis, etc. Automobile riding is usually painful and should not be permitted until the cure is perfected.

10. *Infrequent Necessity of Lane's Operation.*—Some fifteen years ago Metschnikoff pronounced the colon a useless portion of the intestinal tract. The truth of this statement has not been proved. Following this came the remarkable proposition of Arbuthnot Lane, to excise the greater part of the large bowel for all sorts of ailments. Fortunately, the profession did not hastily accept this dictum. It seems apparent now that it was too broad and sweeping. A few, but not many, patients should be subjected to the Lane operation. Careful attention to the early stages of splanchnoptosis will reduce these cases to the vanishing point.

11. *Gastropexy, First Advocated by Duret of Lille, and Promoted by Rovsing of Copenhagen.*—This operation offers in many cases a hope of relief. Having exhausted all other means of relief, and having proved by repeated studies with the bismuth meal and the roentgenograph that the ptosis exists, it is our duty to give the patient the benefit of the Duret-Rovsing operation.

Duret did a gastropexy in 1894. He reported his case to the Academy of Medicine, Paris, Oct. 2, 1894.

The patient was a woman of 51, who was afflicted with enteroptosis, together with dilatation and dropping of the stomach to the subumbilical region. All medical treatment having failed, a gastropexy was decided on. An exploration was made for a curable pyloric lesion, and, this being absent, the stomach itself was brought up and its anterior surface fixed to the abdominal wall. The incision was made through the skin and muscle from the ensiform process to the umbilicus. The peritoneum was only opened at the lower angle of the wound, and then fixed at the lesser curvature of the

stomach to the untouched peritoneal surface, high up, with a single thread which led alternately in and out through the serosa covering the stomach and the parietal peritoneum. As a result of this simple procedure the stomach and intestinal functions were regulated, and the patient increased notably in weight. The stomach-splashing disappeared below the umbilicus, which proved that the fixation was complete. No roentgenoscopy was available at this date. Some neurasthenic symptoms remained for a time, but later entirely disappeared.

This observation showed that old cases of stomach prolapse could be greatly benefited by a simple operation, and the majority of the distressing symptoms would disappear. At a later session of the Academy (March 19, 1895), Professor Le Dentu reviewed the paper. Le Dentu expressed the opinion that fixation of a hollow organ, like the stomach or intestine, would have no influence on the symptoms, immediate or remote, depending on the mobility or ptosis of the organ. Besides, gastropexy rarely exists alone, but is accompanied with enteroptosis, gastric ectasia, etc. In these cases gastropexy is evidently insufficient.

Again he said:

The operation is open to two other objections. The first is that, in fastening the pyloric end of the stomach in the epigastric region, we force the organ to bend itself, the median section not being brought back to the same level as the two tuberosities. The second objection is that the formation of adhesions between the stomach and the abdominal wall is not without inconvenience; therefore the operation presents serious chances of success only when the stomach is simply displaced. Even then it is doubtful if the operation will become popular.

It will be seen that the Duret operation was damned by faint praise, and, in effect, was killed where and when it should have been given serious consideration, for the patient was cured and lived many years in comfort. It remained for Professor Rovsing of Copenhagen to develop and extend the operation and prove to the profession that, contrary to any preconceived opinion, it should be given a trial. Rovsing has shown that in Denmark more than 256 gastropexies had been done up to 1911, and that cure, or great improvement, has been obtained in from 70 to 75 per cent., improvement in 10 to 12 per cent., no change in 11 to 12 per cent., and deaths in 3 to 5 per cent. These percentages are in round numbers.

DESCRIPTION OF THE OPERATION

The usual incision for the stomach operation should be made, and should at least extend from the tip of the ensiform cartilage to the region of the umbilicus. The whole abdomen should be explored at once. The appendix should be removed if found diseased; the gallbladder emptied of stones if any are present, and excised if necessary; adhesions in any part should be examined, and eliminated if causing kinking or compression; the liver, if prolapsed, should be fixed by sutures to the peritoneal covering of the diaphragm, or the ligamentum teres should be severed and stitched to the diaphragm. Usually, the transverse colon must be brought into position by passing several sutures first through the serous coating of the colon, then in and out through the layers of the gastrocolic ligament, and finally through the serosa of the stomach along the greater curvature.

In doing this, one should be careful to avoid the blood vessels of the omentum. This brings the colon up close to the stomach. We are now ready to attach

the stomach to the abdominal wall. I now give the peritoneum of the stomach and of the abdominal wall a good rubbing with dry gauze to cause roughness and exudation. Rovsing advises scratching these surfaces with a needle. Three heavy silk sutures are passed in and out through the serosa, each thread parallel with the axis of the stomach. These threads are about three-quarters inch apart; one just under the lesser curvature, one three-quarters inch below this, and one $1\frac{1}{4}$ inches above the greater curvature. The ends of the threads are passed entirely through the abdominal wall, at a distance of about $1\frac{1}{2}$ inches from the median line. The wound is closed in the usual manner; a glass plate about 3 by 4 inches in size, wrapped in sterile gauze, is clapped on the abdomen, and over this the stitches are tied. This, of course, is done to bring a broad, flat surface of stomach against a similar surface of the abdominal wall. These threads remain undisturbed for four weeks or until complete convalescence has taken place.

CASE HISTORIES

CASE 1.—The patient was successfully treated by advice, posture, and treatment of ethmoid sinusitis. Mrs. Dr. C., housewife, of Rochester, Ill. Parents living in good health. One sister living in good health. Aged 35 years. Married. No children. First saw her, Feb. 14, 1908. Had typhoid fever in 1895; very mild attack. Bowels constipated. Menses regular. First noticed particular stomach trouble some months ago. Has had numerous attacks of indigestion, which lasted ten to twelve days. There was no regularity about these. Her husband would give her medicine, but the attacks would recur. Average weight, 150; present weight, 115. No fever with attacks. No kidney trouble. No vomiting. Seems to be extreme burning in throat and stomach, which would last four hours and sometimes much longer. If she starves seems to be better. Thinks she has fallen off, because she eats nothing.

Examination shows no tenderness over the gallbladder or in the appendical region. Prolapse of the stomach is well marked. No floating kidney. Teeth good. Tongue in fair condition. Patient states she hurries to remove dishes from the table so that the dining room would look well when patients visited the doctor. Also at mealtime she would answer telephone in order that the doctor might eat without interruption. She eats rapidly. Advise that she stop answering the telephone at meals. Let husband attend to this, as he is sturdy and strong. That she cover the dining table with a clean cloth, and lie down after meals for a half hour with hot water bag to epigastric region. Gave diet, February 21. Thirty days later she reports she has had no burning of the stomach whatever. What she has eaten seems to agree with her. Has excellent appetite. Has gained in flesh. Bowels not so constipated. Nervousness better. Tongue is very clean. Now, 1917, nearly ten years after this advice was given, she tells me that her health has been excellent and she weighs 125 pounds. Health perfect except for occasional rheumatism.

CASE 2.—Gastroptosis successfully treated by posture and bandage. Paul G., aged 18, student, of Springfield, Ill. He began to show signs of failure in strength and flesh, presumably as a result of overwork at school. This was not relieved by a change of climate, but emaciation progressed until his weight became 107 or less. Thorough examination shows negative Wassermann. No tuberculosis. Heart weak. Tonsils diseased. Stomach low down in pelvis so that the stomach, filled with bismuth milk, could be felt with the finger through the rectum. The tonsils were removed under local anesthesia. The patient was put to bed for ten days with the foot of the bed elevated 16 inches. A corset was applied to hold up the stomach, which was only partly effective because of the extreme emaciation. About this time an article appeared in the *New York Medical Journal* showing a bandage designed by Dr. A. E. Gallant of New York, and one of these was fitted to this patient. Proper exercise was pre-

scribed to improve the abdominal muscles, and after four months the patient was allowed to resume his studies. The case has progressed favorably, and the patient's present weight is 143 pounds.

Recent fluoroscopic examination shows the stomach at least 6 inches out of the pelvis. The abdominal muscles are strong, and indications are that a cure has resulted. I can highly recommend the Gallant bandage when an operation has been performed and when an attempt is made to elevate the stomach without an operation. I have prescribed at least 100 of these, and I think some 700 have been prescribed in central Illinois. A large number of patients have been benefited by this simple appliance. They are cheap, cleanly, have no rubber elastic to wear out, and in all particulars have proved satisfactory.

CASE 3.—Long standing stomach ailment due to gastroptosis successfully treated by direct Duret-Rovsing separation. Mrs. Theodore D., housewife, of Springfield, Ill., aged 44; married; height 65 inches; weight 118 pounds; has weighed 145. Father died of typhoid, aged 30. Mother living in fair health. One brother living and healthy. Husband is living and in fair health. Three living healthy children. One infant died of erysipelas. No evidence of disease in mouth or air passages.

She says her abdominal symptoms date from the time when she clerked in a retail furniture store twenty years ago. Her hours of work were long; there was little time for meals; and she hurried back after eating, taking absolutely no rest after eating. She has had chronic constipation for years. She has taken a great deal of medicine for years, and lately has been confined to bed nearly all the time. Has had many spells of a hysterical nature, and has felt she would die, and has had a fear of falling all the time. She refused to go to the hospital for treatment. Her stomach has been washed out daily for two weeks without relief. She entered St. John's Hospital, June 13, 1917. Fluoroscopic examination shows the lower border of the stomach resting on the pelvic pan. The roentgenogram shows the characteristic stocking-shaped stomach.

Urine, 1.010, normal except a trace of indol; Wassermann. ++; blood, hemoglobin, 84; reds, 5,100,000; whites, 7,800; differential, 64 and 36. She was given four intravenous injections of arsphenamin, total amount 0.90, and four deep injections of mercuric salicylate, total 40 minims; and was given also two teaspoonfuls of mistura rhei et sodae in hot water before meals. No relief from vomiting, which was of daily occurrence. Finally she was deprived of all nourishment by the mouth, and given rectal feeding only. Vomiting began again after a few days. Her weight was reduced to 96 pounds, and the outlook was quite unfavorable.

A Rovsing operation was done, July 24, Dr. Kelly assisting. An incision was made from the sternum nearly to the pubes. Marked prolapse of the liver was found, marked adhesions about the gallbladder, and marked enlargement and prolapse of the stomach and colon. There was no disease of the gallbladder or of the appendix. The other organs appeared normal, and there was no apparent ulceration or disease of the stomach. Under these circumstances it was decided to break up all the old adhesions, and to anchor the stomach in its normal position as well as possible by the Rovsing method. The anterior surface of the stomach and the peritoneum of the abdominal wall were rubbed. Two of these complete sutures through the abdominal wall were inserted. The ascending colon by stitches through the abdominal wall was anchored in nearly the normal position. Another suture was placed about the middle of the transverse colon. A third suture was not placed in the pyloric region of the stomach because of the prolapsed liver. The patient left the table in good condition.

Vomiting began again the third day after operation, and was so violent that the lower part of the incision was opened. Owing to the critical condition of the patient the small intestine, which had prolapsed through the wound, was merely pushed back, and the wound drawn together with adhesive strapping and allowed to heal by granulation. Undoubtedly, there is a considerable adhesion at this point. She left the hospital, September 16, about seven weeks after the operation.

Her recovery has been slow, but steady, and she now weighs 130 pounds, a gain of 35 pounds. Her bowels move each day without a cathartic. She has an excellent appetite. She declares herself entirely well, and seems to be.

The patient was interviewed, May 20, 1918, and seemed well in every way except for occasional nervousness.

CASE 4.—Long standing stomach ailment due to gastropotosis successfully treated by Duret-Rovsing operation. Miss Hattie H., aged 49, housewife, of Waverly, Ill., weight, 94 pounds; entered hospital, Oct. 15, 1917. Family history rather negative. Father died of kidney disease at age of 70; mother died of heart disease at age of 63. One brother died of tuberculosis; one brother suicide at age of 37; one brother died a soldier in the Philippine Islands; one sister died in childbirth; one sister living at 27 is very nervous; four brothers are living in fair health.

She has had stomach trouble for thirty years. More particularly has suffered in the last six or eight years. Always had pains after meals. The last three weeks has taken only egg water and ice cream. A prominent physician in a neighboring city thought she had gallbladder trouble, and treated her for about one year.

On entrance she was so weak that it was necessary to have a sister support her on each side to get a fluoroscopic examination of the stomach. Examination resulted as follows: Wassermann, negative.

Urine: Specific gravity, 1.030; acid; otherwise negative. Blood: 66, 29, 4, 1; reds, 4,040,000; whites, 6,600; hemoglobin, 80. Feces: no blood; no ova; no tuberculosis; no parasites. Stomach contents: mucus on top; micro, negative; food, well digested. Free hydrochloric, 25; organic, 18; total acid, 55; comp. hydro, 15.

Fluoroscopic examination revealed a ragged outline of the stomach, which fails to empty after seven hours. The bowels are much distended with gas. There is also an infiltration in the lower left quadrant of the stomach which is associated with the infiltrated liver. The heart is somewhat atrophied. The stomach shows a very large amount of gas. The lower border extends down to 2 inches below the crest of the ilium. There seems to be considerable fixation of the tissues of the abdomen. There appeared to be a large amount of fluid in the stomach besides the fluid that had been ingested with the meal.

All conditions being considered, it was thought best to suggest an operation, which was agreed to on the theory that death was better than a continuance of life under the present conditions.

Operation was performed, Nov. 3, 1917. An incision was made from the sternum to below the umbilicus. The liver seemed prolapsed. The gallbladder was examined and found empty. The appendix seemed distended, and was removed. The transverse collapsed colon was sewed to the lower border of the stomach. Three sutures were placed according to Rovsing. The liver was displaced downward and would have been attached to the diaphragm had not the patient shown symptoms of collapse. The wound was brought together, and linen threads (not too heavy) were tied over the glass plate. Two small fibroid growths on the uterus were not removed. The ligatures through the stomach were removed at the end of twenty-three days.

The convalescence was unexpectedly rapid and satisfactory. This patient was seen July 22, 1918. She is keeping house for a brother and seems entirely free of her abdominal and nervous symptoms.

ABSTRACT OF DISCUSSION

DR. CARL E. BLACK, Jacksonville, Ill.: Since we are able to make roentgen-ray studies of these cases, the number has no doubt greatly increased. If anything can be done to take these cases out of the classification of neurasthenics and hysterics, give them a real pathologic basis and put the patients on a plan of treatment which will lead to a reasonable percentage of success, great good will be accomplished. I have been watching Dr. Kreider's cases and have been led to believe that a number of these patients should be treated

with the Rovsing operation. The difficulty that I have is to know how to differentiate them. It is rare that there is simply a ptosis of the stomach and transverse colon. Usually the ptosis is more extensive than that, and combined with it there is usually a history of infection, which, no doubt, in a large percentage of cases, is an underlying factor. These patients are weakened by chronic infection, and the ptosis comes on gradually and insidiously following an infection. That infection may be in the abdomen or elsewhere. In the treatment of these patients it is necessary, first of all, to clear up as nearly as possible all of the foci of infection. I have seen a number of cases where by operating on the gallbladder or the appendix, especially an old chronic appendix with many adhesions, the symptoms disappear, although nothing was done for the ptosis. Some of the most startling successes I have had were achieved by putting these patients to bed, raising the foot of the bed and keeping them there six to eight weeks, following that by the use of a belt for support after they have gained 20, 30 or 40 pounds. One man treated in that way gained 45 pounds after eight or nine months, and now appears to be perfectly well. In that case the difficulty was largely aggravated by a bad habit of taking a quart or more of water the first thing in the morning. He seemed to think that he must drink water by the quart because he had certain digestive symptoms which undoubtedly aggravated his condition.

DR. GEORGE P. MÜLLER, Philadelphia: Dr. Kreider uses the term splanchnoptosis to cover the symptomatology of the type of cases referred to in his paper, and apparently advocates its treatment by suspending the stomach by the Rovsing operation. I believe it is necessary to take a more comprehensive view of the subject and to understand and distinguish between ptosis of the stomach, colon, kidney, cecum, etc. I believe that in the majority of cases the various types of visceroptosis are of congenital origin, and are not acquired by the wearing of tight corsets, high-heeled shoes, by faulty teeth, etc.; while these may bring on the symptoms due to the ptotic state. Some patients have ptosis of certain of the abdominal organs with gastric symptoms. Obviously, it is necessary to know whether the ptotic stomach per se is causing the gastric symptoms, or whether these are reflex to a retroverted uterus, to a mobile kidney, etc. I do not think much of the Rovsing operation, but prefer the Beyea operation, properly performed, and, in any event, do not do these operations unless careful roentgen-ray studies have shown that the ptotic stomach is of the so-called water-trap form, and is causing the symptoms from which the patient suffers.

DR. GEORGE N. KREIDER, Springfield, Ill.: I ask you to make in your nervous cases an observation of the stomach with the fluoroscope or roentgenograph, and you will get many surprises by finding that ptosis lies at the base of many nervous troubles, which are absolutely cured by this simple operation, or better still, without operation. I said distinctly, "Never operate on these patients if they can possibly be helped otherwise."

Reclassification of Athletics.—In a word, all branches of athletics must be reclassified on the basis of their effects on the heart and other vital organs, and we must discard the old classification based on popularity and commercial advantage. In the grammar school the form of athletics to which a boy could be assigned or which he would be permitted to engage in would depend on (1) his family history; (2) his personal history, having regard especially to previous illnesses endured; (3) his physical status; (4) his particular type, height, weight, etc., in relation to age, etc. Every class would have its specially prescribed athletics, both physical and tactical, and under no circumstances would a lad be allowed to engage in competitive sports assigned to a class above or below his own. A physical examination would mark his entry to and exit from a class and he would be marked for development of body and for ability to perform the various tactics. While in the grammar school a chart would be begun for him which would accompany him throughout his educational career.—Lieut. D. F. Luby, *Naval Medical Bulletin*, October, 1918.

COMPARATIVE VALUE OF IPECAC AND ITS ALKALOIDS IN TREATMENT OF INTESTINAL ENDAMEBIASIS *

SIDNEY K. SIMON, M.D.

Assistant Professor of Clinical Medicine, Tulane University of Louisiana
NEW ORLEANS

There is universal concurrence of opinion at the present time in regard to the highly specific effect of ipecac, as well as of its constituent alkaloids, on the vegetative forms of the pathogenic endameba. Though the ipecacuanha plant, and especially its root, has been employed since remote times as an empiric remedy in the treatment of many varieties of intestinal disorders, it is only within comparatively recent years that recognition of its sole and distinctive value in endamebic disease has been definitely reached.

An interesting and diversified history surrounds the earlier use of ipecac as a therapeutic agent, traceable back as far even as the beginning of the Middle Ages. It was first introduced into Europe in 1648 in the guise of a secret remedy for dysentery, having gained considerable repute originally among the natives of Brazil for its usefulness in this class of affections. The story is related that the French government, impressed by the striking results obtained in the case of the Dauphin, son of Louis XIV, then reigning, was induced to purchase the secrets of the wonderful remedy outright, for universal dissemination. In the course of the years that have since followed, reaching to the present day, ipecac, in some one of its many forms, has weathered a shifting reputation for dependability in dysenteric disturbances, being lauded and denounced in turn by various authorities in almost as many climes.

During the period immediately preceding the close of the last century, the drug had fallen into almost complete disuse, doubtless because of the disagreeable effects which so often attended its administration. In the eyes of the more careful English observers in the tropics, however, ipecac had always maintained the foremost place as an indispensable measure for combating the dysenteries of warm countries, especially in India, and it is, in fact, due largely to the earnest pleas of this school, headed by the venerable Sir Patrick Manson, that credit should be accorded for rescuing the drug within recent years from all but entire oblivion.

Some ten years ago, being impressed by the weight of this authoritative experience and especially after I had previously convinced myself of the noneffectiveness of the various measures then in vogue against the all too prevalent endamebic infections in the South, I¹ ventured to make trial of the old-time ipecac treatment. The powdered root, made into pill form, was employed for the purpose, each pill being provided with an enteric coating of salol, in accordance with a previous suggestion of Rogers. The striking results which attended the trial of this treatment in a series of about fifty cases were subsequently summarized in a report read before this Association in 1909. A short time previous, George Dock² was able to report equally favorable results from observations made inde-

pendently in the same field. Though confirmation of these experiences was soon recorded from numerous sources, objection to the method was raised on many sides mainly on the grounds of the clinical difficulties involved in the administration of large numbers of pills at one time, many of which were found not infrequently to pass through the bowel without dissolving. Likewise, the failure to control nausea and vomiting in some patients, in spite of a liberal enteric coating of the pill, called for additional unfavorable comment. These difficulties, which even today are still not entirely under satisfactory control, served at the time to disqualify the procedure in the eyes of a considerable element of the profession. Demand was made for a less cumbersome manner of employing the curative features of ipecac without entailing such great discomfort to the patient. The answer to this demand was not long withheld. In 1911, Vedder³ and subsequently Rogers⁴ were both able to report success in the therapy of endamebic infections with the use of emetin, an alkaloid derived directly from the crude ipecac root. This substance, in the form of the hydrochlorid salt, they found to be especially adapted to hypodermic administration and only rarely was emesis found to occur with its use. Likewise its prompt action on the clinical disturbances of the disease was most striking, and within a very short time the virtues of the parent drug were all but completely overshadowed and forgotten. With the course of time, however, evidence has accumulated which has tended to throw more and more doubt on the justice of many of the early claims regarding the superiority of emetins over the entire ipecac root, especially in the control of the more chronic and intractable endamebic infections. While no question can be raised of the prompt amebicidal action of emetin on the free living or vegetative organisms, more extended opportunity for observation has made it increasingly clear that, in the matter of the destruction of the endamebic cysts, the alkaloidal therapy in many instances meets with marked failures, thereby opening the way for repeated recurrences of the infection. A recasting of the earlier and more optimistic views, especially in regard to the absolute and complete specificity of emetin in endamebic disease would therefore seem to be necessary.

INADEQUACY OF EMETIN

Vedder,⁵ himself, as early as 1913, was willing to admit that "a large percentage of cases treated with emetin continued to harbor the *Endameba histolytica* in the encysted and most dangerous form in the feces for some time." Likewise Allan,⁶ Baermann,⁷ Gaide and Mouzels,⁸ and Marchoux,⁹ each have reported in turn unfavorable results from their experience with the emetin treatment alone, claiming that "the endameba were not expelled from the intestinal tract to the degree that the relief of clinical symptoms would lead one to expect." Still more recently, Phillips¹⁰ concluded an excellent review of the subject with the statement that "the effects of emetin are not perma-

3. Bull. Manila Med. Soc., 1911, 3, 48.

4. Therap. Gaz., 1912, 36, 837.

5. Vedder, E. B.: Origin and Present Status of the Emetin Treatment of Amebic Dysentery, THE JOURNAL A. M. A., Feb. 14, 1914, p. 501.

6. Allan, W.: The Emetin Treatment in Amebic Dysentery, THE JOURNAL A. M. A., March 1, 1913, p. 664.

7. Baermann: München med. Wehnschr., 1913, 60, 1132.

8. Gaide and Mouzels: Bull. Soc. path. exot., 1913, 6, 491.

9. Marchoux: Bull. Soc. path. exot., 1913, 6, 313.

10. Phillips, L.: Brit. Med. Jour., 1914, 2, 1061.

* Read before the Section on Gastro-Enterology and Proctology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Simon, S. K.: Amebic Dysentery, THE JOURNAL A. M. A., Nov. 6, 1909, p. 1526.

2. Dock, G.: Tr. Am. Soc. Trop. Med., 1909.

ment and that though the active amebiasis are killed off very quickly, the drug has no effect on the cysts." Again, G. I. Jones¹¹ says significantly, in summarizing a large number of cases placed at his disposal, that while he considers emetin a valuable agent in the treatment of intestinal amebiasis, "the use of this drug alone will not cure amebic dysentery." This author found, in fact, that relapses soon occurred and strongly urged the employment of ipecac by mouth, as a necessary step in the achievement of complete and permanent recovery. The results of these, as likewise of numerous similar observations which have been recorded in the literature with increasing frequency in recent years would seem to point unmistakably to the conclusion that, while emetin does prove of undoubted service in the destruction of the free living endamebas, it finds a greatly restricted field of usefulness in the all-important matter of the removal of the cysts from the intestinal tract.

A close analogy exists, in fact, between the *Endameba histolytica* and the malarial hematozoa in the matter of their behavior to specific medication. Both organisms, in common with protozoa in general, exhibit two separate and distinct phases in their life cycle, including a free living or vegetative stage of existence which permits of free locomotion enabling the cell to obtain its nutriment, and a second state in which the vital activities of the cell are found in abeyance within the enclosure of a cyst wall (the so-called gamete). It is only in the latter state that infection is conveyed from host to host, since the vegetative organism is prone to succumb or to undergo encystment when removed from its original environment. The pathologic conditions arising in the human organism are, however, the sole result of the vital manifestations of the free living protozoon. In its encysted state the organism lies dormant, incapable of tissue harm, but offering marked resistance to external influences. It is most important to understand, in this connection, that the protozoa, once having become encysted, have acquired thereby an increased resistance to their specific drug, in sharp contrast to the ease with which the organism in its vegetative state may be reached and destroyed in the same dosage. In fact, relatively small amounts of the specific drug, instead of killing the organism outright, will often induce the obverse effect of driving it into encystment. While the immediate clinical symptoms are promptly relieved by such a process, the difficulties surrounding the complete eradication of the infection are largely increased. In regard to malarial infections, the fact has already been well established, that relatively small amounts of quinin tend to encourage the formation of gametes. Similarly, in endamebic disease, unless appreciably large doses of ipecac or of its alkaloids are employed, the free living organism seeks protection against the toxic action of the drug by enclosing itself within a cyst wall.

In the dosage found necessary for the complete overwhelming of the offending organisms, consideration must be given to the matter of the toxicity of the drug itself on the human host. While the crude ipecac, in amounts as high as 75 grains in daily doses repeated over a period of ten days, has been found singularly devoid of toxic effects, experience has shown that the alkaloids, in an equivalent dosage, possess no such immunity.

RESULTS OF INVESTIGATIONS

As far back as 1817, investigations into the pharmacology of ipecac had been made by Pelletier,¹² a French chemist. Pelletier believed that the root contained but one alkaloid, to which the name emetin was applied as a fit designation for the emetic properties exhibited by the drug. It was not until 1894 that Paul and Crownley¹³ were able to show that the root contained a second active alkaloid, to which the term cephaelin was given. Subsequently, still another alkaloid, psychotrin, has been identified and it is not improbable that the future may reveal the presence of yet another derivative. In 1895, Wild¹⁴ made an exhaustive study of the poisonous effect of both emetin and cephaelin on the human organism, as well as on some of the lower animals. Numerous other observations have been contributed within more recent years, serving further to enlarge our knowledge of this important subject. Perhaps the most notable among these have been the series of extensive experiments conducted by Pellini and Wallace¹⁵ in 1916 into the various toxic effects produced by emetin on the various organs of the body. As a result of their findings, they were able to formulate the following conclusions:

1. Emetin depresses, and may eventually paralyze the heart.
2. It is a powerful gastro-intestinal irritant, whether given by mouth or by subcutaneous injection.
3. It causes a definite derangement of metabolism characterized by an increase in nitrogen loss and an acidosis.
4. While in normal individuals, given moderate doses, these actions may not be of importance, in pathologic states of the circulation, intestinal tract, or metabolism, there may be a very definite source of danger.

While it is true markedly poisonous effects are rarely observed in connection with the comparatively small doses of emetin ordinarily employed in clinical practice, milder types of toxemia are by no means uncommonly encountered. Lyons,¹⁶ for example, as early as 1915, pointed out the not infrequent occurrence of a peripheral neuritis in the course of the ordinary subcutaneous administration of emetin. In my opinion, this complication may take place even with very small doses of the drug and, while rarely of a serious character, may nevertheless give rise to a considerable degree of pain and muscular discomfort. Other sequelae resulting from the use of emetin in average doses from time to time have been recorded in the literature, such as an intractable form of watery diarrhea, gastric hyperemia and irritability, cardiac arrhythmia, including in addition the various types of skin reactions which frequently appear at the site of the injection of the drug.

The investigations made in regard to the toxicology of cephaelin hydrochlorid, while not carried out on as extensive a scale as has been the case with emetin, have nevertheless revealed a close similarity in the physiologic action of the two alkaloids. Cephaelin has been shown to possess greater emetic properties and is far more irritating to the skin when given hypodermically than is emetin. Its destructive effects on the vegetative endameba is probably equally as great as

11. Jones, G. I.: The Treatment of Intestinal Amebiasis, THE JOURNAL A. M. A., March 20, 1915, p. 982.

12. Pelletier: Ann. Chem. and Phys., 1817, 4, 172.

13. Paul and Crownley: Phar. Jour., 1895, 25, 111.

14. Wild: Lancet, 1895, 2, 1274.

15. Pellini and Wallace: Amer. Jour. Med. Sc., 1916, 152, 325.

16. Lyons, R.: Amer. Jour. Med. Sc., 1915, 150, 97.

that of emetin. This was strongly indicated in the course of some clinical experiments I was enabled to make three years ago¹⁷ on a limited number of adult subjects suffering with active intestinal amebiasis. However, the same failure in the matter of the destruction of the cysts was noted, as had been my experience previously with the emetin therapy.

Because of the failure of the ipecac alkaloids to remove encysted ameba from the tissues, and likewise in consideration of the toxic properties which have been shown to be inherent in these agents, attempts have been made recently to devise higher chemical formulas of the alkaloids which, it was thought, might overcome the various objectionable features of the simpler products.

Of these compounds perhaps the two most widely employed have been emetin mercuric iodid and emetin bismuthous iodid, prepared in accordance with definite formulas suggested by DuMez¹⁸ in 1915. These substances were designed for oral administration and, because of their relative insolubility, it was hoped that their emetic effect might be reduced to a minimum. However, according to most observers, this hope has scarcely been realized. Much favorable comment has nevertheless appeared in the recent literature, emanating principally from British sources, extolling the special virtue of these preparations in the more intractable forms of endamebic dysentery and claiming a particular influence in the extermination of the carriers.

In this country, Walters and Koch¹⁹ have recently published the results of experimental work carried on by them with synthetic derivatives of cephaelin, citing with particular favor cephaelin iso-amyl ether hydroiodid. They found this substance uniformly effective in destroying both the vegetative and the encystic endameba in the intestinal tract of cats. I have availed myself of the opportunity offered by Dr. Walters of trying out this preparation on human subjects, three in all, each presenting outspoken chronic endamebic infection of the bowel. Its action on the free living endameba proved it to be equal in value to that of the simple alkaloids, but again no definite effect could be noted in its action on the cysts. The dose employed was from $\frac{1}{3}$ to $\frac{2}{3}$ grain, three times a day in capsules by the mouth, and the treatment was made to cover a period of ten days in each case.

IPECAC TREATMENT

In view of the evident inadequacy of the alkaloidal therapy and its failure effectually to destroy the endameba, once they have reached the encysted state, the conviction has grown increasingly strong with me that a return to the use of the original crude ipecac root should be most seriously considered by the profession at the present time. In my hands the plan first announced in 1909 of making use of ipecac in the form of enteric-coated pills has continued to yield uniformly gratifying results, both in meeting the active clinical manifestations of the disease processes and above all and perhaps of greatest importance, in the almost certain prevention of relapses which is achieved. The careful attention to detail which has been found so necessary to this plan of treatment, and which has unfortunately been an object of neglect on many sides in the past, would seem to justify a further word of

explanation and emphasis at this time. The failure to observe the smaller details of the plan has been the cause, in fact, of much of the former prejudice surrounding the administration of the crude ipecac. First of all, it is essential that the patient be put to bed for the full course of the treatment, extending ordinarily over a period of ten days, and also that the dietary be restricted in the beginning to articles of food which leave no residue in the intestinal tract, such as broths, whey, albumin water and the various nutrient alcoholic preparations. To this list, milk is to be added only after the fifth or sixth day of treatment. A dose of castor oil should be administered on the morning of the first day of treatment and in the evening around 9 o'clock, from ten to fifteen salol-coated pills should be taken, each containing 5 grains of the powdered ipecac. The patient is advised to swallow these slowly with the help of moderate amounts of water. No nourishment is allowed for two hours preceding and likewise for six hours following the administration of the pills. Each succeeding night the same plan is to be repeated, the number of pills varying on each occasion from ten to fifteen. It may be found necessary, especially in the presence of any depressing effect, to discontinue the use of the pills for a one-night period. Each day the attending nurse keeps a record of the number of pills which might have passed undissolved in the stool, with the view of determining the total amount of ipecac retained at any stage of the treatment. A simple method of daily charting, illustrated in the accompanying table, has been devised by us for this purpose.

AMOUNT OF IPECAC ADMINISTERED AND RETAINED DAILY

Date	Pills Administered	Pills Found Undissolved in Stools	Pills Retained
Jan. 1	15	0	15
Jan. 2	15	2	28
Jan. 3	14	3	41

The complete dosage includes the retention of at least 100 pills, equivalent to 500 grains of the powdered ipecac. This is accomplished usually within a period of ten days and only under rare conditions must be made to extend over two weeks. Should nausea and vomiting arise as troublesome features, an extra enteric coating should be added to the pills. We have found that, under average conditions, a coating of one tenth inch of salol is ample. For reasons not altogether clear, it may happen that large numbers of the pills will pass through the intestinal tract in an undissolved state, even in spite of a diminished enteric coating. Under these circumstances, we frequently adopt the plan of making from one or two small punctures into the outer layers of the pill surface, with a small sized surgical needle. When, under rare conditions, the ipecac will not be tolerated in pill form by the patient, we may often successfully substitute the duodenal intubation method, employing for the purpose daily installations of 30 grains of the powdered ipecac suspended in water.

SUPERIORITY OF IPECAC

There remains to be considered finally the essential cause for the superior effectiveness shown by the entire ipecac root in the treatment of intestinal amebiasis, as compared with its constituent alkaloidal derivatives. From the standpoint of analogy with other therapeutic agents, it would seem that the active principles would, at least, possess a value equal to that of the parent substance. However, in the matter of the

17. Simon, S. K.: *Tr. Am. Soc. Trop. Med.*, 1916.

18. DuMez, A. G.: *Philippine Med. Jour.*, 1915, B, 10, 73.

19. Walters and Koch: *Jour. Pharmacol. and Exper. Therap.*, 1917, 10, 73.

control of a protracted endamebic infection of the bowel, conditions of a somewhat anomalous nature are presented. The crux of the problem, to my mind, hinges on the question of the degree of concentration of the active constituents of the specific drug at the site of infection in the large bowel. When the alkaloids are administered by hypodermic injection or by mouth within the confined limits of safety, the attenuation that results in the blood stream renders the drug relatively inert when brought to bear on the infecting organisms in the intestinal wall. Under the influence of a weak dilution, the endamebas escape immediate destruction by seeking cover, so to speak, within a resistant cyst wall. Were it possible to employ massive doses of the alkaloid, prompt and rapid annihilation of the endameba might be expected to ensue. The toxic character exhibited by these substances in excessive amounts precludes, however, the employment of a large dosage. With the use of the ipecac mass orally, in daily amounts as high as 75 grains and yielding approximately 1.5 grains of total alkaloids, a concentration of the effective properties of the drug is attained in the infected colon, without any possible danger of toxemia. The patient's intestinal tract, having been rendered free by dietary restrictions, as explained in the foregoing, the pills pass quickly into the large bowel, where the salol coating is finally dissolved away in its entirety and the ipecac thus set free for absorption. It may be considered that soluble compounds of the alkaloids are formed directly within the colon, and during the process of absorption not only the vegetative endameba, but the encysted forms as well, suffer destruction in the concentrated medium. Apart from whether this explanation be considered adequate or not, it is my firm conviction, based on clinical observations extending now over several years, that the treatment of intestinal endamebiasis by means of the crude ipecac offers a most promising outlook for complete and permanent cure, not attainable with the use of the alkaloids alone, whether administered orally or hypodermically.

CONCLUSIONS

1. Both ipecac and its constituent alkaloidal derivatives, emetin and cephaelin, have been found to act specifically on the vegetative or free living forms of the *Endameba histolytica*.

2. The crude ipecac root in doses sufficient completely to destroy the infecting organisms is never toxic.

3. Both emetin and cephaelin frequently exhibit toxic properties in an average dosage of from 0.5 to 1 grain daily over a limited period.

4. The alkaloids alone are ineffective within safe limits of dosage in destroying the encysted forms of the *Endameba histolytica*.

5. The entire ipecac root, when employed under proper conditions, not only destroys the vegetative endameba but the encysted forms as well, and thereby prevents recurrences or relapses of the infection.

ABSTRACT OF DISCUSSION

DR. FRANK SMITHIES, Chicago: I agree with Dr. Simon that the use of crude ipecac has been effectual in the treatment of acute or chronic enterocolonic amebiasis. Perhaps Dr. Simon unintentionally neglected to state that there are instances where emetin is also of service. I came to the conclusion some years ago that large doses of ipecac administered after the method described by Dr. Simon and first

suggested by Dock, aided in quickly ridding the terminal ileum and the colon of organisms, if emetin be given hypodermically at the same time. Dr. Simon explained the reason for large doses of ipecac, namely, to obtain a continued saturation of the bowel contents with the drug. Often encysted or active amebas are deep within the mucous membrane of the intestinal wall. A medicine solely in the bowel cannot reach them and consequently does not kill them. It is in this class of case that it is necessary to carry the amebicide to the organism by means of the lymph or the blood stream; therefore, it is necessary to combine the ipecac treatment with emetin given hypodermically. Unless this is done, the bowel contents will be rid of protozoa but the organisms already in the wall of the intestine will carry on their destructive work. If one uses emetin alone, and neglects to use the ipecac saturation of bowel contents, it is self-evident that sooner or later the ulcers free from amebas will become reinfected from the bowel contents. The combined treatment is successful in curing the majority of patients, and prevents recurrences.

In respect to recurrences, I would emphasize the frequent finding of viable or encysted amebas in the gallbladder, appendix or old, partly healed intestinal ulcers. In these cases it sometimes is possible to remove the foci of infection surgically. I have seen several cases where there was complete recovery after the removal of the gallbladder. Further, it is my opinion that patients are too often pronounced cured; that the stools are not examined for a sufficiently long time after the administration of specific medication. Viable amebas and cysts are often present in the stools when the individual is symptomatically well. We have the patients return once every two or three months for reexamination of freshly passed stools. We never use castor oil as a preliminary cathartic but rather a saline. This enables the exact examination of the stool microscopically.

Recently we have been using ipecac by a new method, namely, the introduction of from 2 to 4 ounces of wine of ipecac directly into the colon by rectum. This has been effective where other methods of giving ipecac have failed. We have recently had two patients under observation in whom almost constant hemorrhage produced severe anemia. In this class of case we have employed transfusion of large quantities of whole blood beneficially. This procedure should be employed more frequently in order to increase tissue defense in severe amebic enterocolitis.

DR. HUGO A. FREUND, Detroit: My observations bear out what Dr. Simon said, that occasionally patients do not respond to ipecac. Having had a somewhat unsatisfactory experience with emetin and a very happy experience with ipecac, I thought of using the duodenal tube to give the wine of ipecac, preparing the patients much the same as Dr. Simon has suggested, except that at the end of about three days I give them a small dose of opium in some form to quiet them, so they will probably be constipated for two or three days following. I pass the duodenal tube on an empty stomach, and then inject the wine of ipecac. By the instillation of relatively large doses I get satisfactory results, beginning the first day by giving 1 ounce, the next day 2, and so on. I have given as high as 6 ounces in one instillation. I have had very satisfactory results in the fourteen cases I treated by this method. I reexamine them every three months, looking for encysted forms; and I have not seen a single relapse.

DR. HORACE W. SOPER, St. Louis: Since I adopted the use of emetin intravenously I have had fewer relapses. Two cases of neuritis developed, but they were mild, and very soon subsided. The emetin is injected in 1-grain doses, until the lesions have cleared up, as demonstrated by the sigmoidoscope. The lesions are very characteristic, small, elevated, grayish patches, which, when wiped off, leave a little bloody spot. The viscid mucus in these patches shows almost a pure culture of ameba. So that in the treatment of these cases we watch the lesions, and discontinue the emetin when the case is clinically improved. I give it once a week for two months, hoping to catch the encysted forms at the time of their development. The ipecac as used by Dr. Simon presents some disadvantages, inasmuch as the pills are very

difficult to make. Dr. Simon's pharmacist has, perhaps, solved that problem. Some years ago I was unable to get a pill that would not cause nausea or that would not dissolve in the intestinal tract.

DR. SIDNEY K. SIMON, New Orleans: The whole aim in the treatment of an endamebic infection lies in the removal of the cysts. The destruction of the vegetative forms alone, with the relief of clinical symptoms that follows, is in itself rarely a difficult problem. Putting the patient to bed for a period of a few days will usually suffice to relieve the immediate clinical distress even without the aid of other measures. It is only in the complete destruction of the encysted forms, however, that relapses can be prevented and a permanent cure established.

In regard to the examination of the stools, we long ago adopted the proctoscopic method in all cases of suspected protozoan infection. In this way the smears are made directly from ulcerated or denuded spots on the rectal mucosa, without the necessity of having the stools conveyed in bulk. The severe grades of anemia represent the end result of a protracted endamebic infection. With specific medication such a complication should rarely be observed. In the last few years, I have seen very few instances of severe anemia among my endameba cases.

Dr. Freund's ipecac method I intend to keep in mind. However, since the method I have described this morning has been uniformly successful as a curative measure in fully 500 cases, with very infrequent, if any, relapses, other plans do not, of course, make strong appeal. In regard to the intravenous injections of emetin hydrochlorid, mentioned by Dr. Soper, I would wish to advise caution. Such a procedure, especially in the hands of the less experienced, would be capable, I think, of much abuse.

The point Dr. Soper made concerning the availability of the salol coated ipecac pill has been a bone of contention ever since the method of treatment was inaugurated. Any competent pharmacist should be able to dispense these pills satisfactorily. However, a certain amount of technic is required which the average druggist does not seem to have acquired. The pills cannot be produced in bulk by the manufacturing pharmaceutical houses, because of the fully demonstrated lack of durability of the product. The pills must be made by the individual druggist and dispensed in quantities sufficient only for the individual case.

FOCAL INFECTIONS OF THE EYE FROM THE INTESTINAL TRACT*

JAMES GARFIELD DWYER, M.A., M.D.

NEW YORK

During the last few years marked attention has been paid to the consideration of infections of various parts of the body, due to a low-grade chronic infection in other parts, especially in the teeth and the tonsils. A very considerable advance has been made in the treatment of these so-called focal infections by the treatment of the original foci. The number of such cases on record is enormous and is fast increasing, and nowadays with certain infections we look for the primary cause and eradicate it if possible. Among these focal infections are some lesions of the eye that used to be grouped under a general classification, as "rheumatism," etc. We know now that there is probably no such disease as rheumatism per se, but that the symptoms classified as rheumatism are probably manifestations of some focus of infection. The work on focal infections of the eye, due to infections of the teeth and tonsils, has been reported by many observers and need not be touched on. This paper will deal with focal

infections of the eye, due in all probability to the absorption of toxins from the intestinal tract. A few suggestions will also be made as to the method of treatment now being given a trial in order to overcome these infections, since it is impossible to treat the intestine surgically in the same way teeth and tonsils are treated.

This investigation has been going on for about two years, and any statements that are made are the outcome of what we have learned in that time, and are subject to change in the future. The whole idea of presenting the paper now is to direct attention to such infections and to possible methods of treating them.

At the beginning I was confronted with the fact that no two authorities were agreed as to what the intestinal contents in general should be; that is, the reaction, the amount of chemical constituents, the food detritus and the bacteriologic content. This was and still is a great difficulty. Some may question my interpretation of what normal intestinal contents should be, but from an examination of hundreds of samples, I have come to look for certain main characteristics.

Practically all authorities agree that normal feces is faintly alkaline to litmus, but litmus is a rough and ready method of taking the titration. With phenolphthalein the reaction is slightly acid, but only with fresh feces, because the reaction changes very rapidly on standing. The question of reaction is a very important one and one not easy to decide, as the end-point of acidity of alkalinity varies with the indicator used, namely, litmus, methyl orange, phenolphthalein, etc.

Just as in diabetes and nephritis the modern schools of medicine are aiming to test the efficiency of the body to assimilate the three food elements, namely, fats, carbohydrates and proteins, so I examined the detritus, keeping these three fundamental bases in mind. My guiding principle was to cut out of the diet the types of food that were not being assimilated, in other words, food elements whose by-products are indol, skatol and phenol. These products are normally present and unless abnormal in amount can be disregarded, but as the former two are known to be absorbed into the system, appearing as indican in the urine, and as they are products of protein metabolism, I paid special attention to them, as will be noted later.

BACTERIOLOGY

Here I was confronted with the biggest problem of all, as the intestine normally contains many and various forms of bacteria. I made no endeavor to identify the various forms of bacteria present, as that would have been impossible; but bearing in mind the work of various investigators, especially Metchnikoff, I paid special attention to the presence or absence of the colon bacillus. Now, the colon bacillus appears in the intestine a few days after birth, and is usually found there throughout life. Again, the colon bacillus is gram negative, that is, it stains a different color from that of the other bacteria usually found, the latter being gram positive with very few exceptions. Hence we have a ready means of comparison. The ptomain producers are usually gram-positive large bacilli, producing either acid or alkali, according to the group. Many of them are of the anaerobic varieties, such as the *Bacillus aerogenes-capsulatus*.

Keeping these facts in mind and trying to narrow the whole affair down to a practical working basis, I carried out the following routine: The intestinal contents were examined as to their reaction, their content

* Read before the Section on Ophthalmology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

of indol and skatol, the food residue and the bacteria. Besides these cardinal principles, other side factors were noted. If the contents were found to be practically normal, these were noted as controls. In most of the patients examined, the contents could be classified under two headings, as to whether they were highly acid or alkaline. In both classes, the colon bacilli were either entirely absent or present only in very small numbers, the other bacteria being practically gram positive. This was true whether the reaction was to either extreme, since the colon bacillus cannot live in a highly acid medium, although it is an acid producer, and of course it is killed off in alkaline mediums. It was always found that in both highly acid and highly alkaline specimens the indol and skatol content was high, and there was always a high percentage of indican in the urine.

The following methods of treatment were then adopted. In the highly acid specimens, an endeavor was made to alkalize the contents by the use of irrigations of a 1 per cent. sodium carbonate solution and then to practice colon transplantation in order to approach the normal. At the same time the patients were put on rather free diet, cutting out those foods that were not completely assimilated, such as meat. In other words, the tolerance for the three fundamental foods was established as far as possible. In the highly alkaline specimens, irrigations with lactose were given and then the colon bacillus was transplanted. At the same time the Bulgarian bacilli were given by mouth, the whole idea being to approach the average normal. Lactose was also administered by mouth in such cases to provide a suitable pabulum for the colon bacilli. At stated intervals, examinations were made and the treatment was repeated until I got a good growth of colon bacilli.

The types of cases I have chosen to be reported are those that would not respond to any other form of treatment—cases in which the patients were thought to be focally infected, although treatment of the teeth and tonsils proved unavailing. They are all cases that had lasted for weeks, the patients being better one day and worse another, showing no real improvement.

REPORT OF CASES

CASE 1.—Charles B. had lost the sight of the right eye on account of a low grade ulcerative keratitis that had lasted six months and left the eye in a badly damaged condition, with the pupillary area of the cornea covered with a macular scar. He had been treated for this eye by some of the best ophthalmologists in the city and had been an in-patient at one of our hospitals for weeks. When I saw him, he had been in our wards for some weeks with the same condition in the other eye, the history of this lesion dating back two months. Every test had been negative and he was put on antispecific treatment, as it seemed the most promising remedy. On taking his history, I elicited the fact that he had had intestinal poisoning for years and could not get any relief. He volunteered the information that the other eye had become quiet as soon as he had gone to a stomach specialist. At first examination, the condition of the eye revealed a diffuse low grade keratitis, with a low grade iridocyclitis. In spite of all measures, the pupil could not be kept dilated but would dilate under the atropin and then contract again. One noticeable point was that the man's face was covered with acne rosacea. Immediate examination of the intestinal contents revealed a reaction highly alkaline, indol and skatol +++++, and bacterial smears totally gram positive. The treatment outlined in the foregoing was carried out, and within two days, the condition of the eye was much better, the pupil remaining dilated under cycloplegia. Within a week he went home with a perfectly quiet eye. The acne

cleared up and when he last reported, after six months, he was in excellent condition, with a perfectly serviceable eye.

CASE 2.—J. Mc., a man, had suffered nine months from a plastic iritis of low grade in both eyes, which kept him from business and made a semi-invalid of him. He had been under the care of competent ophthalmologists in the city, had had his teeth roentgenographed and the diseased teeth removed, and had had his tonsils out, yet the condition persisted. The same condition was found here. Within eight days the eyes had quieted down and, according to the last report I had, some months after the lesion, he was in excellent condition.

CASE 3.—Mr. S., Orange, N. J.; consulted me about his eye. He was suffering from an intense plastic iritis that had lasted two months, and he had had all the accepted methods of treatment. His condition cleared up rapidly with the treatment outlined for highly acid stools.

COMMENT

By far the largest number of cases of choroiditis, retinitis, iridocyclitis, glaucoma and the like I have diagnosed as to the condition present, but I cannot go any further in the etiology or in the treatment. The cases run their course in spite of the treatment adopted. It would be the ideal condition if we could take such cases and study them extensively so as to arrive at the cause. The reference of eye infections to the intestinal tract is not new, as evidenced by the article of such writers as Herter and Smith, published in 1894, describing their cases of ophthalmoplegia, low grade conjunctivitis, etc., which were cured by treatment of the intestinal tract. My attention was called to this article by Dr. Coffin, who was incidentally the means of directing my attention to the intestinal tract.

I do not claim that my work is new. It is simply an experiment. But the results in the series of sixty-seven cases I have treated were in the main very striking, and it seemed well worth while to work along these lines.

ABSTRACT OF DISCUSSION

DR. EDGAR S. THOMSON, New York: Focal infection of the eye attracts attention most frequently in connection with uveal disease. Its intractability and tendency to relapse are well known. Cases of iritis and cyclitis relapse in spite of the greatest care and the most careful control. The baneful influence of the digestive tract, especially the intestinal tract, has long been recognized, and treatment has often been productive of good results, but the question has not been placed on an exact basis. The exact method mentioned by the essayist has not been employed. Intestinal vaccines have been used, and cultures of acid-producing bacilli have been given, chiefly by mouth, but with no very exact checking up of results, at least in ophthalmic work. Judging by clinical experience, the most important single factor in the examination of the feces is the determination of the reaction. A low acid reaction is the most desirable balance for reducing putrefaction and for establishing the cultures of colon bacilli, and, given these two factors, the fermentative processes remain more stable and the local condition in the eye does not recur. In our cases the local symptoms in the eye apparently have kept pace with the intestinal condition. Manifestly toxic conditions—iritis, cyclitis and choroiditis—have improved rapidly, and in the majority of cases have not relapsed in the time during which we used the method. The course of the disease has in general been much shortened and local absorption of precipitates and exudates has gone on in a way that was suggestive of a "cut-off" in the toxin supply. A few cases of optic neuritis and episcleritis have been affected very favorably. Certain forms of keratitis, associated with slow tissue repair, and low hemoglobin percentage, have done remarkably well. A few cases of intractable ciliary cramp have been affected very favorably.

DR. HIRAM WOODS, Baltimore: There is no doubt that there is a sufficiently intimate association between gastrointestinal disorders and these intractable cases of uveitis and recurrent ciliary cramp to justify the suspicion of cause and effect. Those of us who have had clinical experience in studying these cases can appreciate the value of Dr. Dwyer's paper, provided the claim is confirmed. He brings us down to two very definite things, which we ought to get clearly in our minds, the hyperacidity on the one hand, and the hyperalkalinity on the other hand, plus the absence of the colon bacillus. If these are definite diagnostic points, we have something far more reliable to go on than we have ever had before.

MAJOR HARRY S. GRADLE, Chicago: I believe that absorption from the intestinal tract, as Dr. Dwyer said, plays a far greater rôle in the etiology of various ocular diseases than we have been willing to acknowledge for some time. We are dealing with an absorption of toxins from the intestinal tract, which affects an organ unable to withstand the influence of these toxins. Toxins in the intestines normally result from the breaking down of the various protein constituents of the food. There are few types of absorption, the abnormal absorption of normal toxins, and the absorption of abnormal toxins. By that I mean, in the first case, the excessive production and absorption of toxins from the intestinal tract, more than it is accustomed to (usually the result of a more or less chronic constipation); and, second, disturbances in metabolism, resulting in the production of abnormal toxins, that the human system is not at all accustomed to, and has no power of protecting itself against. The cases require radically different treatment. We must establish a normal passage through the intestines and eliminate the hyperproduction of the so-called normal toxins, and we must correct the disturbance of metabolism that results in the production of the abnormal toxins.

DR. CLARK W. HAWLEY, Chicago: The analysis of feces is important. I have been advocating the study of the relation of uveal tract disease and the toxins from the lower bowel for a number of years. My first discovery of a relation between uveal tract disease and toxins from the lower bowel was in my own case. I was suffering from a slowly increasing chronic cyclitis of both eyes and supposed I was getting blind, or nearly so. I was treating an autointoxication following a very severe case of facial erysipelas and soon discovered that my eyes were improving. This led me to believe that there might be a relationship between the two. Since then many cases have been treated along the same lines with as good results. I have been surprised at the number of cases of inflammatory glaucoma which were due to these toxins. Six patients treated remain cured.

MAJOR WALTER B. LANCASTER, Boston: I was surprised that the writer in enumerating the foci of infection outside the intestines limited himself to the teeth and tonsils. There are many other foci of infection which affect the eye secondarily. I have been very slow to accept the theory that these ocular inflammations arise from the intestines. I have inclined toward the theory that the ocular condition is of bacterial origin, the micro-organisms gaining access through the blood stream. This was well illustrated in one case in which the seminal vesicles acted as an infection focus.

DR. WILL WALTER, Chicago: There is no authority for the thought that the colon bacillus is infecting the intestinal tract in these cases, and it must not be forgotten that the liver intervenes between the absorbed intestinal contents and the general circulation. A focal infection means a tissue infection the chemic or bacteriologic elements of which are carried by the blood stream to areas more or less remote, where they set up inflammatory changes. Patients suffering from intestinal toxemia often show little indican or none. Whether there is present in these cases another toxin than that included in the indoxyl sulphates, and hence not shown by the tests for indican; or where there are elements which alter the tests in these cases; or whether, as I think most probable, the hepatic functions are neutralizing or altering these toxins, is not clear.

DR. JAMES G. DWYER, New York: The term "infection" does not mean the presence of bacteria in the blood. Bacteria

produce protein toxins, and we have the phenomenon of anaphylaxis. We can produce the anaphylactic phenomenon in the body by simple extraction from bacteria, whether they are pathogenic or not. With regard to the liver: Work has been done showing that the extracts of spleen, of heart, of lung, etc., are nontoxic, but there is a toxic quality in the liver, because it takes up these toxins. It does not matter whether the toxin comes from putrefactive organisms. We are not dealing with infections from the colon bacillus. That is exactly the opposite of what I am trying to bring out. The three common foci are usually the teeth, the tonsils and the intestinal tract. I do not know that we are far enough advanced to identify what are normal protein products and what are abnormal. The point I wish to bring out is this, that the reason the joints and the eyes are affected is in all probability because we have a very sudden change from blood supply to lymph supply. In the uveal tract we have an ideal condition of lymphatic supply.

EARLY DIAGNOSIS OF CEREBROSPINAL MENINGITIS BY THE EXAMINATION OF STAINED BLOOD FILMS

REPORT OF A CASE *

W. W. KING, M.D.

Surgeon, U. S. Public Health Service

SAN JUAN, P. R.

According to the clinical notes furnished me by Dr. N. Doval of San Juan, Porto Rico, the attending physician, A. B., a mulatto girl, aged 4½ years, native and resident of San Juan, who had never had any serious illness, and whose family history was unimportant, after a slight rhinitis lasting several days, without fever or any particular discomfort, complained of headache and severe pain in the right shoulder. This was about 6 p. m. Later she was noticed to have high fever. When first seen by Dr. Doval, at 8 o'clock, the temperature was 39.8 C. (103.6 F.); pulse, 130, and respiration, 28. She had vomited several times. About midnight, convulsions began and continued several hours; there were clonic spasms of short duration. The temperature was 40.2 C. (104.4 F.), the pulse weak and uncountable. The patient vomited a dark colored fluid.

I first saw the patient at 8 a. m. She was then in coma; the extremities were cold; there was no pulse. On the cheeks, arms and body were several irregular and indefinite areas slightly darker than the normally dark skin. Supposing this to be a beginning hemorrhagic eruption (later confirmed), I made a tentative diagnosis of cerebrospinal meningitis. Two small drops of blood were squeezed from a puncture in the lobe of the ear, but the peripheral circulation had so nearly stopped that no more could be obtained. These were used for making two smears on slides. A syringe for making lumbar puncture was not at hand, and the patient died before the laboratory assistant sent to do the lumbar puncture arrived at the house.

Death occurred at 9 a. m., about fifteen hours after onset.

At the laboratory, a slide was immediately stained with Leishman's stain. The enormous number of leukocytes attracted attention at once, and then it was seen that some of the polymorphonuclear neutrophils contained a diplococcus resembling the meningococcus. The second slide was stained by the Gram method controlled by the simultaneous staining of a known gram-positive coccus, and the diplococci were seen to be gram-negative. On these points, the diagnosis of cerebrospinal meningitis was regarded as confirmed.

Necropsy was refused, but permission was finally given to make punctures to obtain blood, and to make a small opening into the spinal canal. This was done five hours after death, and 15 or 20 c.c. of blood were secured from the right heart, basilar meninges and dorsal region of the spinal canal, all

* From the laboratory of the Institute of Tropical Medicine and Hygiene of Porto Rico.

of which were filled with dark fluid blood. Lumbar puncture failed to obtain blood or fluid, although the point of the needle seemed to be free in the cavity. A large number of cultures were made in ascitic bouillon, and on ascitic agar and blood-serum agar, and many smears also were made from each sample of blood. All cultures remained sterile, and prolonged search of the stained slides failed to show a single diplococcus. The meninges, as seen through a small opening in the dorsal region, appeared intensely injected without signs of any exudate. After death, the areas of darker skin were clearly hemorrhagic and more numerous than in life. In size they varied from mere points to several centimeters in diameter.

The diagnosis in this case was particularly important because the case occurred in a populous part of the city, and the rapidity with which death took place attracted considerable notice and alarm. It occurred at the time (November, 1916) when public apprehension had been much aroused by the epidemic of poliomyelitis in New York, a port with which San Juan has frequent steamer connections. The outbreak of bubonic plague in Porto Rico in 1912 was by no means forgotten. Rapidly fatal malaria occurs in the island, though fortunately it is rare, and the child, so far as known, had not been in a malarious district. That it was true typhus fever was less likely, as this is a rare disease in warm countries, and never reported in Porto Rico, yet it seems possible that it might occur. Hemorrhagic smallpox was not improbable in view of the prevalence of smallpox during the previous year. Cerebrospinal meningitis in sporadic cases is occasionally seen.

There seems little doubt that the diplococcus seen in the blood films was the meningococcus. It was characteristic in size, morphology and staining reaction, and in its limitation within the cells. In a count of 1,000 polymorphonuclear neutrophils, 3.7 per cent. showed the diplococcus, sometimes only one or two pairs but generally in fair quantity; not infrequently the cell was thickly crowded with them. The photomicrograph was taken from an average specimen. No extracellular organisms were seen.

Sufficient blood could not be obtained to make a total count of the leukocytes, but their great abundance in the stained specimen indicated a very high leukocytosis. The differential count of 500 leukocytes revealed: polymorphonuclear neutrophils, 62.0; small lymphocytes, 6.4; large lymphocytes, 2.8; large mononuclears, 24.0; transitionals, 4.0; eosinophils, 0.8; basophils, 0. The Arneth formula was: Class I, 43; Class II, 33; Class III, 20; Class IV, 4; Class V, 0; index (Arneth), 76; (Bushnell and Treulholz) 86, a considerable shift to the left. It must be remembered that this blood was taken during the last hour of life when the circulation had become very sluggish, and it is probable that the blood picture shown was not that of a few hours earlier. It is given as noted, but it is of comparatively little importance beside the fact of the presence of the meningococcus, which made accurate diagnosis possible.

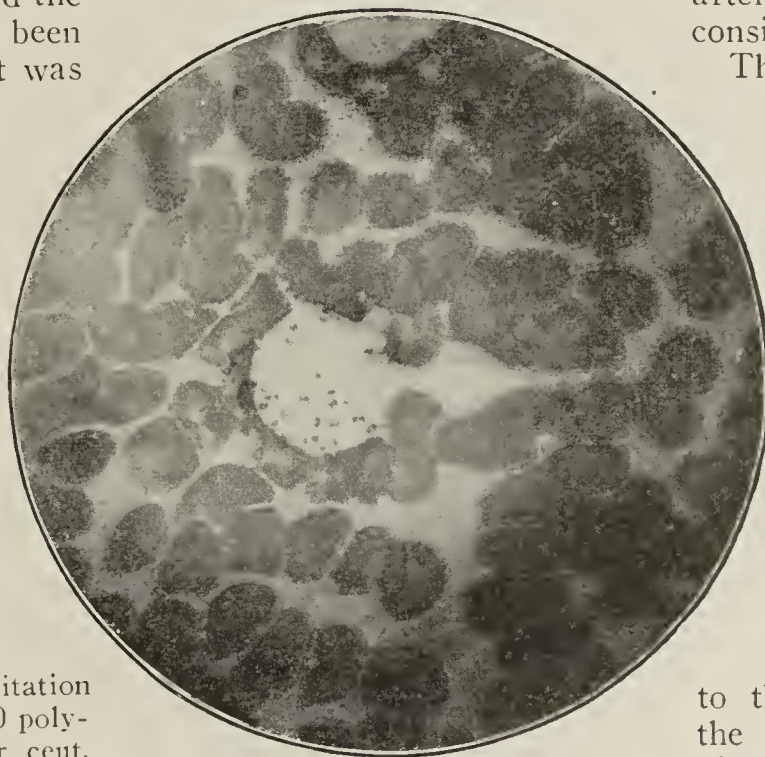
It is now generally accepted that the meningococcus passes to the blood from the mucous membrane of the nasopharynx and produces a primary blood infection to which the meningitis is secondary. This view has

been emphasized recently by Herrick,¹ Medlar² and Thomsen and Wulff,³ but they apparently did not utilize this "meningococcus sepsis" or bacteremia for early and rapid diagnosis by search for the diplococcus in stained blood films. Thomsen and Wulff used blood cultures and concluded that the number of meningococci in the blood may not be very large, and that they may not remain long in the blood stream. Elser⁴ had previously expressed the same opinion.

Some months after seeing the foregoing case, I had the opportunity of looking over the literature of meningitis at the Surgeon-General's Library in Washington, D. C., and I found but one reference to the use of blood films for diagnosis in this disease. Horder,⁵ in speaking of the diagnosis with reference to "superacute" cases; says that the examination of blood films may prove the nature of the case; presumably by finding the meningococcus. That this method has not been used more is due apparently to the belief that the organisms are too few in number in the blood stream for ready demonstration, and this belief seems based on the comparatively few colonies or negative findings after cultures have been made of considerable quantities of blood.

The presence of so many meningococci in the films from this case shows that they may be numerous in the peripheral circulation, and suggests that in other cases they may be in sufficient number for diagnostic purposes. It also brings up the possibility that cultures may give an erroneous impression as to the number present in this situation. Aside from the technical difficulties of making cultures of the meningococcus, there may be other reasons why cultural results may not be a true index to the number of meningococci in the circulating blood. The antimeningococcic serum produced by the response of the system to the infection is bacteriolytic, opsonic and anti-

toxic (Frost⁶), and its opsonic action is so promptly manifested that the meningococcus is found characteristically within the cells (phagocytes). Phagocytosis being a step toward the destruction of the invader, a phagocytized organism suffers a reduction of vitality, probably to such an extent that it quickly becomes incapable of reproduction, particularly under the artificial conditions of culture. This may be especially true of the meningococcus, which is very susceptible to unfavorable influences, and, if so, then successful culture must come from the more vigorous extracellular individuals. If there is a marked degree of phagocytic activity, these extracellular forms may be few or absent, giving poor



Meningococcus in blood film, within neutrophil.

1. Herrick, W. W.: The Epidemic of Meningitis at Camp Jackson, *THE JOURNAL A. M. A.*, Jan. 26, 1918, p. 227.
2. Medlar, E. M.: Epidemic Cerebrospinal Meningitis at Camp McClellan, *THE JOURNAL A. M. A.*, Feb. 16, 1918, p. 458.
3. Thomsen, O., and Wulff, F.: Meningococcus Infection and Meningitis, *Hospitaltidende*, Dec. 6, 1917; abstr., *THE JOURNAL A. M. A.*, Feb. 16, 1918, p. 498.
4. Elser, W. J.: A Contribution to the Study of Epidemic Cerebrospinal Meningitis, *Jour. Med. Research*, 1905-1906, N. S., 9, 89.
5. Horder, T. J.: Cerebrospinal Fever, London, 1915.
6. Frost, W. H.: Epidemic Cerebrospinal Meningitis, *Pub. Health Rep.*, Jan. 26, 1912.

results in culture, while the intracellular, that is, phagocytized forms, may yet be sufficiently numerous to be demonstrable in smears. Furthermore, the anti-meningococcic serum present in the blood used for culture may exert enough inhibitory action to prevent the development of some organisms. It is interesting to note that Elser reported a fatal termination in 80 per cent. of the cases in which the meningococci were obtained by culture, an observation which is consistent with the foregoing ideas, the insufficient production of antimeningococcic serum permitting the persistence of extracellular forms in the blood stream.

Whatever may be the sequence of events ordinarily taking place in the blood early in an attack of meningitis, the fact remains that in this instance the meningococci were easily found in the blood and were of great practical use for diagnosis. If the case was exceptional in this respect, it is interesting as an exception. It is not reported as an evidence of meningococcic bacteremia, for that has already been well established, but as an instance in which the bacteremia was utilized for making an early and rapid diagnosis. The thought is suggested that this method may have greater diagnostic possibilities than has been supposed. There are few diseases in which early diagnosis is so important, especially in very acute cases, and if the method is at all useful, it is applicable during the first hours or day, and in those cases that do not progress beyond the bacteremic stage. It is not thought that it would supersede lumbar puncture, but that it may have a place and value of its own, not only for the early information that it may give, but also on account of the ease and rapidity with which it may be carried out. The procedure requires only a minimum of apparatus and skill, and the taking of a few drops of blood from the lobe of the ear can often be done in cases in which the lack of a syringe, family opposition, or other circumstances render the more formidable operation of lumbar puncture difficult or impossible. In the examination of the films, the brilliantly stained diplococci are so readily seen that a large number of slides can be rapidly examined.

To determine its diagnostic value and limitations, it will be necessary to ascertain certain facts, such as: 1. The frequency with which the meningococcus may be so found. 2. The number of slides necessary to examine before a negative result can be announced, that is, the quantity of blood required. 3. Whether it is in the very severe or fulminating cases only that it may be found; if longer search may not show it in the milder cases also. 4. If not demonstrable practically in the milder cases, in what degree of severity it may be expected. If limited to only certain very severe cases, it would still be very valuable, as it is precisely in such cases that prompt diagnosis is most desired.

5. In those cases in which it may be encountered, how early and how late this may be possible.

I could not find any reports of work having been done along these lines, yet the subject seems worthy of investigation. It would require the systematic study of many films from many cases of meningitis of different degrees of severity, controlled by clinical and other bacteriologic evidence, and I regret that I have not the opportunities for doing it.

A SELECTIVE MEDIUM FOR B. INFLUENZAE

OLEATE-HEMOGLOBIN AGAR *

O. T. AVERY, M.D.

Captain, M. C., U. S. Army

NEW YORK

The reports of various observers indicate that great difference of opinion exists concerning the etiologic significance of *B. influenzae* in the present epidemic of influenza. Some investigators have been able

to isolate this organism from a large percentage of the cases that they have observed; others have succeeded in recovering it in very few instances. It is possible that technical difficulties in the isolation and growth of this micro-organism may be in part responsible for the discordant results obtained in different laboratories. In any case, all those who have had experience in the isolation and cultivation of *B. influenzae* agree that in working with this organism, there are a considerable number of technical difficulties that have been only partly overcome by the methods so far devised.

In obtaining the organism from the sputum or throat cultures, or even from cultures made at necropsy, it is usually found in association with many other bacteria, most of which grow with greater luxuriance than does the influenza bacillus. It is evident, therefore, that if a medium could be devised that would prevent the growth of at least certain of these other organisms, such a medium would be of great assistance, especially if at the same time the growth of the influenza bacillus could be enhanced.

An attempt has been made to develop such a medium, and in the present report the results so far obtained are briefly described. In the development of this medium, use has been made of the observation that soaps of the unsaturated fatty acids are bactericidal for certain bacteria. In preliminary studies it has been found that the addition of sodium oleate to mediums prevents the growth of certain gram-positive organisms, principally pneumococcus and streptococcus, while the growth of *B. influenzae* is enhanced by

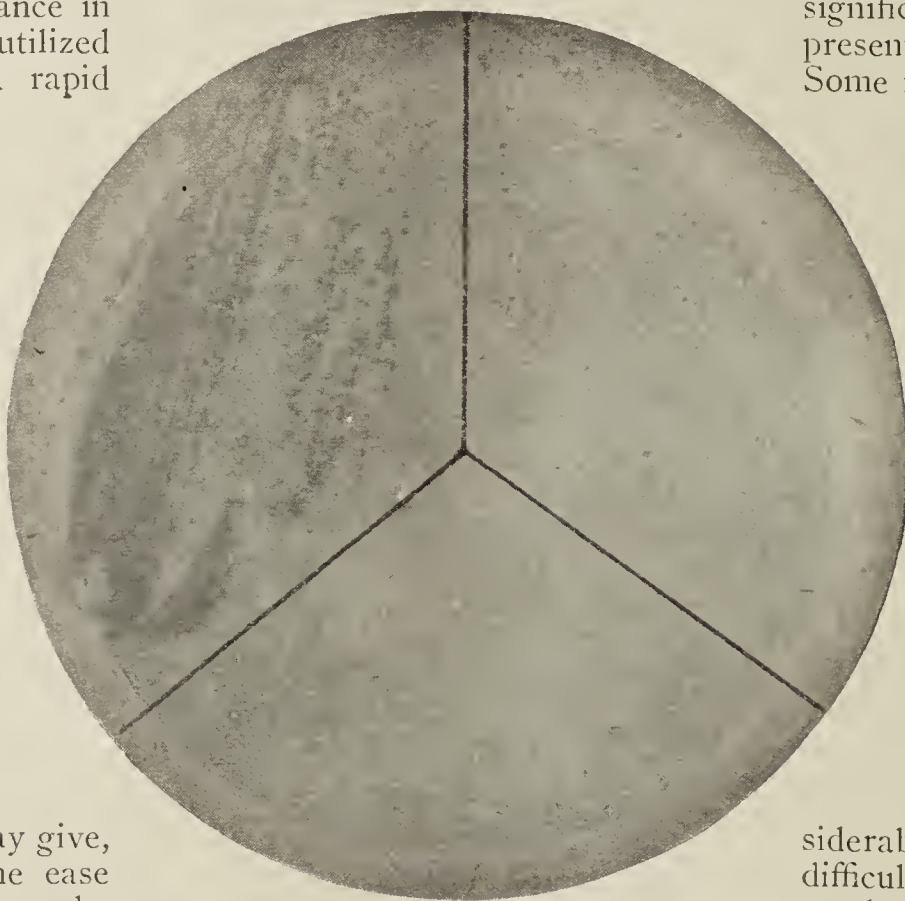


Fig. 1.—Plain blood agar plate: Lateral sectors show growth of pneumococcus and *Streptococcus hemolyticus*, lower sector *B. influenzae*, growth present but not visible in photograph.

* From the Hospital of the Rockefeller Institute.

the presence of this substance. The oleate-hemoglobin medium, therefore, was devised and has proved very satisfactory for the isolation of this organism.

PREPARATION OF THE MEDIUM

Meat infusion agar (2 per cent.), which is neutral or slightly alkaline in reaction, is used as a base. To this is added a solution of sodium oleate sufficient to make a final concentration of 1:1,000. A serum-free suspension of red blood cells in broth is freshly prepared from sterile defibrinated rabbit's blood. One c.c. of this corpuscular suspension is added to each hundred c.c. of oleate agar, the addition of blood being made while the medium is still hot. Plates are then poured containing about 15 c.c. each of oleate-hemoglobin agar and used fresh to avoid drying out of the medium.

In the preparation of oleate-hemoglobin agar attention should be given to certain details:

1. *Agar*.—Two per cent. meat infusion agar having a reaction of from 0.3 to 0.5 acid to phenolphthalein should be used. The initial hydrogen ion concentration of the agar should represent a pH of from 7.3 to 7.5. Hormone agar prepared according to the formula of Huntoon¹ yields excellent results, and has been used in the present study.

2. *Sodium Oleate*.—Two per cent. solution of sodium oleate (neutral) is made in distilled water, sterilized in the autoclave and kept as a stock solution. Five c.c. of this 2 per cent. solution of oleate is added to 95 c.c. of agar, giving a concentration of 1:1,000. In the present work Kahlbaum's sodium oleate has been used, but other preparations are serviceable.

3. *Suspension of Red Blood Corpuscles*.—Sterile defibrinated rabbit's or human blood may be used. Since serum is known to inhibit the action of oleate, and since hemoglobin is the constituent of blood essential for growth of *B. influenzae*, a serum-free suspension of the red corpuscles is used instead of whole blood. The red cells are removed from the defibrinated blood by centrifugation, the supernatant serum is pipetted off, and the corpuscles are made up to the original volume of blood by the addition of broth. One c.c. of this suspension of red cells is added to each hundred c.c. of oleate agar. The suspension of blood corpuscles should be added directly while the medium is hot, and just before use.

4. *Formula*.—This calls for:

Agar	94 c.c.
2 per cent. solution of sodium oleate.....	5 c.c.
Suspension of red blood cells.....	1 c.c.

Oleate-hemoglobin bouillon may be prepared in the same way by substituting broth in the place of agar in the foregoing formula.

Cultures taken from the nasopharynx by the West tube or from the throat by direct swabbing should be streaked on the surface of the oleate-hemoglobin medium according to the technic described for the detection of meningococcus carriers.² Similar plates should also be made from the sputum. At necropsy, cultures should be taken from scrapings of the tracheal and bronchial mucosa, as well as from the lung exudate.

All culture plates should be incubated for forty-eight hours at 37 C.

COMMENT

The use of this medium has led to an increase in the percentage of positive findings of *B. influenzae* in actual cases of the disease and in convalescents. A report of these studies will be made in a subsequent communication.

Because of more luxuriant growth on oleate-hemoglobin medium, the colony of *B. influenzae* appears larger and less translucent than on ordinary blood agar, and in a later stage of development is not infrequently nucleated.

On this medium, the gram-negative cocci of the *M. catarrhalis* group, staphylococci and occasionally diphtheroid bacilli grow, while pneumococci and streptococci of the hemolytic and *S. viridans* variety fail to develop.

The use in culture mediums of soaps of the unsaturated fatty acids, of which sodium oleate is a representative, suggests the application of this principle in bacteriologic studies of other organisms.

2. Standard Technic of Meningococcus Carrier Detection, Adopted by the Medical Departments of the United States Army and Navy, 1918.

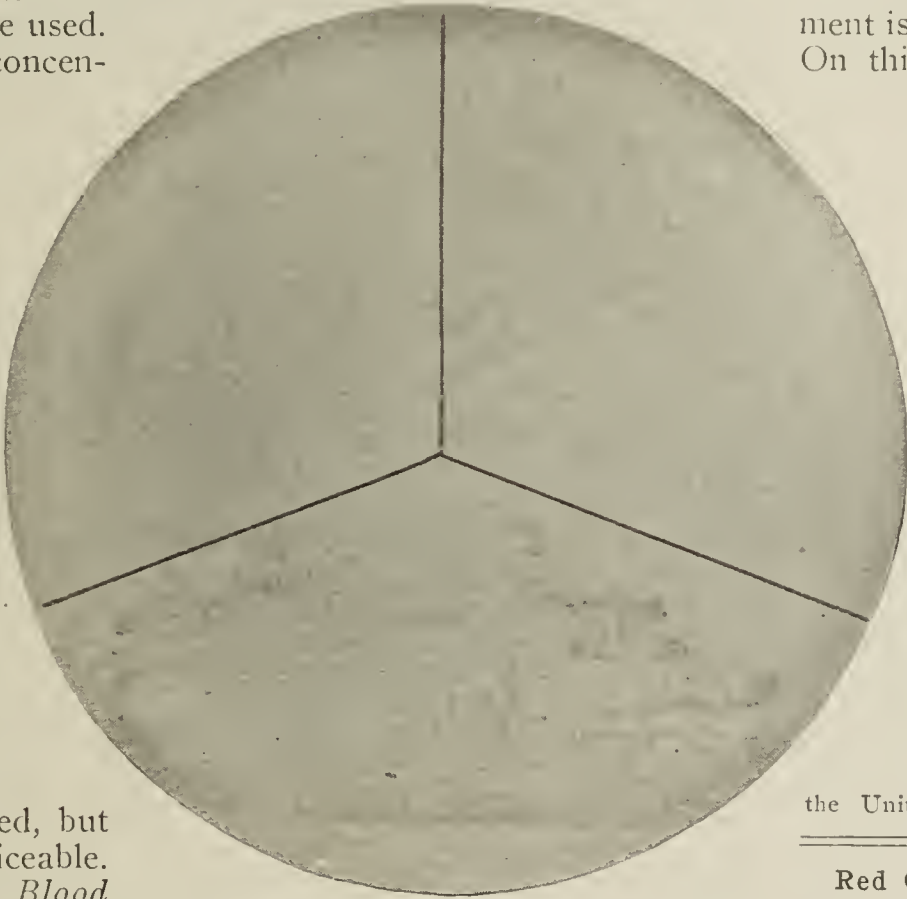


Fig. 2.—Oleate-hemoglobin agar plate: Corresponding sectors are planted with same organisms as in Figure 1 and show enhanced growth of *B. influenzae* in lower sector and complete inhibition of growth of pneumococcus and *Streptococcus hemolyticus*.

Red Cross Work Under Difficulties.—Dr. W. S. Dodd of the American Red Cross, working at Mejdal, near Jerusalem, Palestine, reports to headquarters in Washington, D. C., on conditions in the hospital in which he was stationed. The hospital was made up

of about twenty-five tents, with a dispensary tent, living quarters for the staff, etc. It was located on a sandy district with thistles and scant grass, and it was the custom of every one, including the staff, to go barefoot. The patients in the clinics numbered from sixty to 100 a day. Of 252 operations performed by Dr. Dodd in less than seven weeks, 222 were for eye troubles, of which trachoma cases formed the great majority. Dr. Dodd treated a number of patients with bombed hands, of which there were many in the earlier days. The cases he treated were mostly in children who picked up unexploded Turkish bombs which had been laying in the fields from the time of the British advance in the Gaza region. Many fingers and hands were lost from this cause. Lice, fleas and other vermin were everywhere, and maggots were frequently found in wounds, as the favorite dressing of the natives, a piece of raw meat, is a good breeding place. They were found in the ears, and in scalp and other wounds. Difficulty was experienced in making the patients conform to sanitary requirements, and penalties had to be imposed for violations.

1. Huntoon, F. M.: Jour. Infect. Dis., 1918, 23, 169.

NEPHROLITHIASIS PURPURA HEMORRHAGICA AND STREPTOCOCCUS INFECTION

REPORT OF A CASE WITHOUT FEBRILE REACTION *

AUGUSTUS B. WADSWORTH, M.D.

ALBANY, N. Y.

I record the observations in this case on account of their clinical interest rather than any complete scientific study of the problems concerned, as these are too subtle to be solved by clinical methods. The history is therefore abstracted in order to bring out the salient points.

REPORT OF CASE

A woman, aged 59, consulted Dr. George W. Endicott of Plainfield, N. J., on account of bloody urine. She complained of no other symptoms. She was referred to me for diagnosis. In the urine, considerable quantities of blood, numerous pus cells containing bacteria, but no casts were found. A specific gravity of 1.015 and the quantity of urea, estimated, 1.1 per cent., or 17.8 gm., in twenty-four hours, was considered practically normal for a woman of her age, passing more than 1,600 c.c. of urine a day. The urine was not offensive and no tubercle bacilli were present. Bacterial cultivation under aerobic conditions on the surface of agar was sterile, but a streptococcus was finally cultivated under these conditions after it had been isolated under anaerobic conditions. These streptococci were present in large numbers and in pure culture in urine obtained under aseptic precautions directly from the bladder. In the examination of the blood, 9,500 leukocytes were found.

Although the patient had no febrile reaction, complained of no symptoms of pain or the like, and had no discomfort save the annoyance from increased frequency of micturition, it was evident that there was a well-marked streptococcus¹ infection at some point of the urinary tract—either the bladder, ureter or kidneys.

Treatment of the bladder by irrigation, first with argyrol and later with permanganate solutions which were increased in strength to the limit of tolerance, failed to produce any material change in the situation. An examination by roentgen ray was accordingly resorted to in order to determine the presence of a focus of infection higher up, and as a result of this the presence of an enormous calculus involving practi-

cally the entire right kidney was discovered, thereby establishing the diagnosis.

In the course of these examinations and treatment, the patient developed marked symptoms of purpura hemorrhagica dating from the time I first saw her, when she called my attention to vibices produced by the least injury. This condition increased. Vibices developed after scratching, and areas of purpura as large as the palm of the hand and even larger followed injuries that could not even be recalled. No cardiac lesions or arteriosclerosis were found on physical examination. The blood pressure was not above 150 mm of mercury.

It was thought that the conditions in this case were extremely delicately balanced, and of clinical interest. A calculus had evidently developed insidiously and involved the entire kidney without giving rise to any symptoms or discomfort. Although the patient had complained of a "weak bladder" and had also been treated for cystitis in the course of which one of her physicians had instructed her in the use of the catheter, there is no point in the history of the case

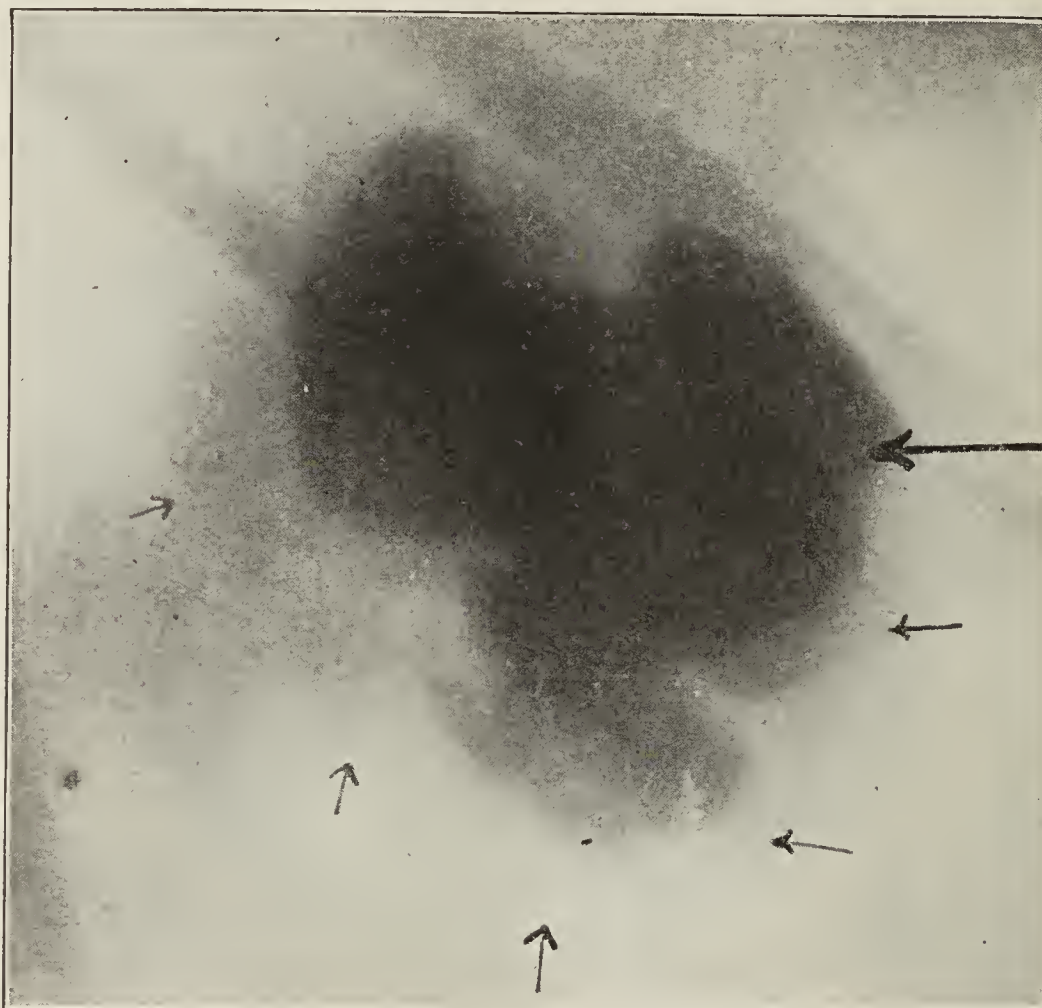
that would indicate the beginning of a streptococcus infection. Although married, the patient had never borne children. The relationship of the calculus to the infectious process in the kidney is thus obscure.

In order to treat this case, a surgical operation was considered necessary to remove the calculus; and in order to safeguard the patient against possible extension of the streptococcus infection at the site of operation, streptococcus vaccines were administered. These were prepared from the autogenous strain as follows:

Streptococci taken from the surface of agar cultures were suspended in salt solution and killed by an hour's exposure at 55 C. Culture filtrates were prepared from the streptococcus growth in human blood serum broth after three weeks' incubation by infiltration

through a Berkefeld filter and heating at 53 C. for an hour.

The effect of these two different vaccines was studied very closely in the treatment of this case. The culture filtrates were first used. A cubic centimeter was inoculated, and within twenty-four hours a marked local reaction with extensive purpura at the site of inoculation developed. The area of the reaction was approximately the size of the palm of the hand. A second inoculation in the other arm the next day was followed by a similar but less marked result. The third inoculation was made with the vaccine of bacterial cells from agar in the first arm inoculated. The reaction following this was slight and not accompanied with marked purpura. From that time on the two treatments with vaccines alternated with filtrates of the human blood serum broth culture and the vaccines of the streptococcus cell in increasing doses in each instance. As a result of this treatment it was possible to compare the local effect of the two forms of inoculation which seemed to differ so materially. The bacterial cells never gave rise to reactions of the type produced by the culture filtrates which so closely resembled the typical purpura



Roentgenogram of right kidney showing calculus (indicated by large arrow) and lower margin of kidney (indicated by small arrows). The roentgenogram was taken by Dr. Lewis Cole, New York.

* Read before the American Society for the Advancement of Clinical Investigation, May 11, 1914.

1. The morphologic and cultural characters of this streptococcus were not unusual in any particular. Capsules were not demonstrable. It was very slightly hemolytic in blood agar, developing greenish colonies. Five c.c. inoculated in rabbits failed to kill the animals, but streptococci from fatal human infections often fail to kill animals.

hemorrhagica that developed spontaneously as the result of injury. Furthermore, during this treatment with these vaccines the occurrence of spontaneous purpura took place with less frequency until finally it disappeared after about three weeks' treatment, and the patient has been free from it ever since.

Following this treatment the patient was referred to Dr. Endicott for surgical treatment. He successfully removed the right kidney, and the operation was followed by a complete recovery.

COMMENT

The case is thus of interest on account of the large size of the stone, its insidious development, and the presence of a streptococcus infection associated with it, doubtless for an indeterminate number of years, without giving rise to febrile reaction or any significant symptom complex save that of purpura hemorrhagica, which might reasonably be attributed to the liberation of toxic substances under conditions of disturbed balance in the protective mechanism of the body tissues. With immunization, the efficiency of the protective mechanism was gradually but completely restored. The culture filtrates used as vaccine proved more active than the vaccines prepared from the bacterial cells.

It is also of interest to note the difficulty of securing cultures by the usual methods of bacterial examination and the necessity of resorting to anaerobic cultivation for this purpose.

The significance of a single clinical observation which admits of no precise interpretation such as is possible in experimental study is extremely limited, but it is certainly suggestive, and it may be possible to determine more accurately the conditions underlying the development of these reactions of purpura when similar conditions can be induced in animals. There is, however, always a break in the analogy between the result of experiments on animals and the phenomena of disease as it occurs in man; hence the importance of this record—an experiment conducted on man.

CITRATED BLOOD IN TREATMENT OF THE PNEUMONIA FOLLOWING INFLUENZA *

RESULTS OF THE USE OF BLOOD FROM CONVALESCENT INFLUENZA PATIENTS

W. W. G. MACLACHLAN, M.D.

Assistant Professor of Medicine, University of Pittsburgh School
of Medicine

AND

W. J. FETTER, M.D.

PITTSBURGH

The early days of the epidemic with its fatal and clinically somewhat atypical pneumonia are far from pleasant memories. Any measure, therefore, that gave us a better chance to combat this infection was most opportune. McGuire and Redden¹ treated thirty-seven pneumonia patients with thirty recoveries, six still under treatment and one death, by using the blood serum intravenously, taken from influenza patients that had recovered. They used from 300 to 700 c.c., as was indicated. This meant, of course, that large amounts of blood had to be taken from the donors,

up to 800 c.c. of blood being withdrawn from one individual. They noticed that the serum appeared to vary in the amount of immune substance that it was supposed to contain. In fact, ten out of seventy serums clinically failed to demonstrate any evidence of this. Brown and Sweet² referred to the use of citrated blood in two cases of influenzal pneumonia with recovery in each case. They gave 90 and 120 c.c., respectively.

The epidemic from the point of view of the medical service at the Mercy Hospital, Pittsburgh, began about Oct. 10, 1918, when we received almost a score of soldiers from the University of Pittsburgh as our first instalment. About three days later the pneumonia commenced, and at the first of the epidemic, as has been observed elsewhere, it was particularly severe. We employed arsphenamin in two pneumonia cases, but there was no evidence that it had any special effect in the clinical course of the disease. One of these patients recovered, with, we feel sure, no thanks to the arsphenamin; the other died about seventy-two hours after the administration of the arsphenamin from the pneumonia. October 17, we began treating our patients with citrated blood taken from persons who had recovered from an attack of influenza.

We chose the citrated blood method as it appeared to us to be more convenient, and further, that possibly one would not need to remove so much blood as would be necessary in order to collect serum in considerable quantities. One must admit that 800 c.c. of blood taken from one just recovering from an acute illness seems to be a considerable amount, but apparently it was followed by no ill effects.

Our technic is simple. It is necessary to have two 50 c.c. Lürer syringes, two 250 c.c. Ehrlemeyer flasks, one short rubber tube with a fairly large needle attached for taking the blood, and a rubber tubing apparatus which we have used here for giving arsphenamin. This consists of two small rubber tubes, a long and a short one, joined by a triple cock, by which the flow of a solution can be introduced one way or the other. A metal attachment is fitted to the Lürer syringe, and the needle is attached to the short tube. The long rubber tube is placed in the Ehrlemeyer flask, containing physiologic sodium chlorid (0.9 per cent.) solution, and a small quantity (20 c.c.) is drawn into the syringe. The sodium chlorid solution is first given to make sure that the needle is properly placed in the vein. The rubber tube is then transferred to the flask containing the blood solution (40 c.c. of 2 per cent. sodium citrate in physiologic sodium chlorid solution to from 75 to 100 c.c. of blood), which is slowly injected into the vein.

It is essential to carry out a Wassermann test on each donor. We had no positive reactions among our donors, who were practically all students from the Army Training Corps. Toward the end of the epidemic, when most of the soldiers had gone and donors had become very scarce, some civilian ward cases were tested for use. Strangely enough, half showed positive Wassermann reactions, a point probably well to remember if work of this type is to be applied to civil life.

The matching of blood, iso-agglutination reaction, was studied in the first two cases; but after that, simply on account of the fact that time and assistants were limited, it was not continued. We observed no evidence of any ill effect from our neglect of this procedure. There was no hematuria in the patients

* From the Mercy Hospital.

1. McGuire, L. W., and Redden, W. R.: Treatment of Influenza Pneumonia by the Use of Convalescent Human Serum: Preliminary Report, *THE JOURNAL A. M. A.*, Oct. 19, 1918, p. 1311.

2. Brown, W. L., and Sweet, B. L.: Treatment of Influenzal Pneumonia by Citrated Transfusions, *THE JOURNAL A. M. A.*, Nov. 9, 1918, p. 1602.

injected. We thought that the amount, never more than 100 c.c. at one time, was probably not conducive to produce ill results. Certainly, if possible, it is better to carry out this agglutination work.

We injected as a rule about 75 c.c. of blood. Four injections were the most we gave to any one patient. We were unable in the first two weeks to inject more than once in twenty-four hours, for no other reason than the lack of time. We think that in all probability a few cases were lost on this account. Latterly, the pneumonia cases seemed to be of a somewhat milder type and reacted more readily. In all we have taken about 100 specimens of blood from donors and have given ninety-three injections to pneumonia patients.

The number of patients treated in the course of a little more than three weeks was fifty-four. They represented entirely the severe influenzal infections—all had pneumonia. The milder types of influenza were very carefully conserved to be held as donors, as we made it a rule not to use the blood from any patient in whom the disease had not come to normal of its own accord. Thirty-four patients recovered and twenty died. It would be well, however, to say that in this twenty there were seven patients that were in the very termination of the pneumonia, showing unmistakable evidence of edema of the lungs. Cases as late as these can in no way be used as an index of the value of any type of treatment. Death occurred in all of the seven within twelve hours after the injection. The accompanying table gives really a more accurate statement of our results. The mortality was 27 per cent.

From the table one can readily see that the earlier the case was treated the better was the chance for recovery. In view of the fact also that the blood given

RESULTS OF TREATMENT BY THE CITRATED BLOOD METHOD

Day of Pneumonia	Recovered	Died
First	18	2
Second	9	6
Third	4 (1 empyema)	1
Fourth	3	4
	<hr/> 34	<hr/> 13

probably had an effect only on the influenzal side of the infection and not against the prevalent secondary invader, the pneumococcus, it is only to be expected that the late cases would show poorer results. It is also to be kept in mind, as Christian³ has shown, that the presence of pneumonia is a much more difficult problem to solve than the same condition in our ordinary pneumococcus infection of the lung. Undoubtedly, in many of the prolonged influenzal cases with only râles at the bases, particularly at the apexes of the lower lobes, bronchopneumonia was present. When we use the term pneumonia we refer, however, only to those that demonstrated signs of consolidation in the usual sense. We know certainly that some of the cases in the table were of longer duration than is indicated, although by physical signs that was the apparent time.

The reaction of the patient effected by the blood transfusion was really about the same as that seen in the use of antipneumococcic serum in lobar pneumonia. The more striking results were observed in those cases in which treatment had been given in the

early stages of the pneumonia. At times one injection (from 75 to 100 c.c.) produced a crisis. In most of these cases it took from twenty-four to thirty-six hours to reach the crisis. Lysis was encountered more frequently in those in whom the pneumonic process was of longer duration. In these also, two or more injections were frequently necessary. At times, after the second injection, an almost typical crisis was observed. In a certain percentage of the patients that recovered, almost one quarter of them, a mild, febrile reaction (from 99 to 100 F.) from one to three days was noted after the case had come to normal. Absorption from focal areas in the lung during their resolution is the most likely explanation of this temperature elevation. We noticed a fall in temperature, following almost every injection given. In fact, we had only one case in which there was no change in this regard. We considered that in all probability we were dealing with a pure pneumococcic infection, secondary to the influenza, and hence no impression was made on the condition. A case similar to this one that had reacted in a like manner after two blood transfusions dropped by lysis after 50 c.c. of antipneumococcic serum were used.

A certain percentage of the transfusions, usually the first, produced a chill with a temporary rise in temperature and a subsequent fall. In seven patients the chills were sharp, lasting from ten to fifteen minutes. About an equal number (six) felt a little chilly, but had not a definite chill. There was no relation, whatever, between the chills and the mortality. Serum or blood subcutaneously (from 0.5 to 1 c.c.) would probably lessen this rather disagreeable after-effect, in the way suggested by Cole in the use of the antipneumococcic serum.

There is one other point to be watched. In those patients who were rather dyspneic or cyanotic or who had respiratory discomfort, as from pleural pain, the injection had to be given very slowly; otherwise these symptoms were temporarily increased.

The temperature reaction, however, should not be taken as the whole guide. As a rule, it corresponded to the condition of the patient. As the pulse rate in practically all of our pneumonic cases was of the relatively slow type (from 80 to 100), but little information was to be received from this source as to the change in the patient. The general appearance and comfort of the patient was noticeably improved in those cases reacting favorably. From the physical signs, we have seen a dry, consolidated area, in the course of twelve hours after an injection, present all the signs of a lung in resolution.

During the height of the epidemic when we had more than 100 soldiers in the wards at one time, the problem of obtaining donors was a very simple one. There were always cases in the convalescent stages. Toward the end of the epidemic, however, the donor problem became somewhat more difficult, as our patients who recovered were soon restored to an Army convalescent home. It is very much easier to carry out this form of treatment among soldiers, particularly when one is dealing with considerable numbers, than among civilians even in a hospital. At first we believed that there was considerable difference in the donor's blood in regard to the supposed immune body content, as had been suggested by McGuire and Redden.¹ That they would vary in this property is only logical, but we are rather doubtful at the present

3. Christian, Henry A.: Incorrectness of the Diagnosis of Death from Pneumonia, THE JOURNAL A. M. A., Nov. 9, 1918, p. 1567.

time that this is really the explanation of the poor reactions in certain cases. In our opinion it is more likely that the secondary invading organism had begun to develop its lesion in the lung and that a new and subsequently fatal factor was added. In this district it is almost entirely the pneumococcus. From the data at hand, we cannot state that there is a noteworthy difference among donors, in regard to the clinical results produced by the injection of their blood. Those having a leukopenia or a leukocytosis and those who pursued a mild or severe clinical course seemed about the same.

The leukocyte count followed very closely a general rule. A leukopenia of from 3,000 to 5,000 was present at the onset of the influenza in a vast majority of cases. With the onset of pneumonia a very moderate leukocytosis, one of from 9,000 to 12,000, occurred in the majority. At times it was higher. We had, however, but eight counts between 20,000 and 30,000 in the 150 counts estimated. This finding is in marked contrast to that observed in the lobar pneumonia.

In some, particularly the very severe pneumonia cases, the leukopenia persisted throughout the course. A drop in leukocytes was a serious prognostic sign during the course of the pneumonia. We have very slight evidence of an influence on the leukocyte count by the blood transfusion. In two or three cases the increase was well marked, from 5,000 to 10,000, but in the remainder there was very little change, whether we began with a leukopenia or a moderate leukocytosis.

SUMMARY

The use of citrated blood from convalescent influenzal patients administered to patients when pneumonia followed the influenza appeared to have a decided beneficial effect, particularly if given early. Beyond the third day of the pneumonia it was of little value.

That the citrated blood establishes an immunity to *B. influenzae* is inferred but not proved. Many additional factors may play an important rôle. Extensive work along these other lines was conducted by the University of Pittsburgh during the recent epidemic, a report of which will appear later.

Suggestion by the Patient.—We are often misled by our patient's interpretations of his own case. In other words, we are human and subject to the power of suggestion. Often we are informed that they are suffering from heart disease, kidney or liver disease, or appendicitis, constipation or diarrhea, and we listen to their story and become hypnotized ourselves and follow along the line of the patient's suggestions. They are anxious to tell somebody their symptoms and if we are good listeners they are willing to pay us for our trouble and time for listening.—President's Address, Minnesota State Medical Society.

Clinical Notes, Suggestions, and New Instruments

ONE MAN WITH FIVE TESTES: REPORT OF CASE

GEORGE H. DAY, M.D. (LOUISVILLE)

Major, M. C., U. S. Army; Camp Venereal Officer.

CAMP PIKE, LITTLE ROCK, ARK.

This case was referred to the urologic department, July 1, 1918, for confirmation by Major H. C. Loos, chief of the surgical service at Camp Bowie.

The man in question was discovered by Major Loos at a local garage, where he was employed as a mechanic. After questioning the man and hearing his history, Major Loos was interested enough to have him report to the base hospital for examination. The case has since been presented to the Clinical Society of the Base Hospital, Camp Bowie, for examination.

G. E. M., aged 19, of San Benito, Texas, presented a negative family and personal history other than that his father had died of typhoid ten years before.

He had had gonorrhea twice, the first time at 17 years, and again six months before we saw him. The first time he knew he was other than normal was two years before, when on attempting to enlist in the service, he was rejected at Brownsville, Texas, by the recruiting officer of the Twenty-Sixth Infantry. At that time he was told that he was ineligible on account of severe varicocele.

He attempted to enlist again at Oklahoma City one year later with the same result.

Three months before he again attempted enlistment at Fort Worth, Texas, and was again rejected with a diagnosis of varicocele and hydrocele.

The man was well nourished, and aside from being overdeveloped, with the contour of the arms rather feminine and the pelvis and

hips somewhat large, he appeared to be normal.

It was immediately noticed that the scrotum was much larger than usual. The penis was about twice the size found in boys of this age.

On retracting the scrotum it was noticed immediately that the young man had another normal scrotum and perhaps a third, which was rudimentary in origin, to the right of the normal one. On further examination four normal testes were discovered, two being in each of the two scrota and another atrophied one being in the redundant tissue posterior to the second pair. The third or rudimentary scrotum in the groin (right) contained no trace of the sixth, and may possibly be intra-abdominal. The line of demarcation in the tissue of the scrotum was most marked and showed forcibly the fact of the scrota.

When he assumed the knee-chest position, the posterior view strikingly brought out the line of demarcation between the scrota. Aside from an overabundant sexual desire he said he had never noticed anything abnormal in his sexual life.

We have not had the opportunity of looking up the literature on the subject and are presenting it simply as an anatomic freak. Certainly the man is possessed with four normal



Scrota with five testes: white arrow points to line of demarcation between scrota; black arrow, rudimentary scrotum; 1, 2, 3, 4, 5, testes.

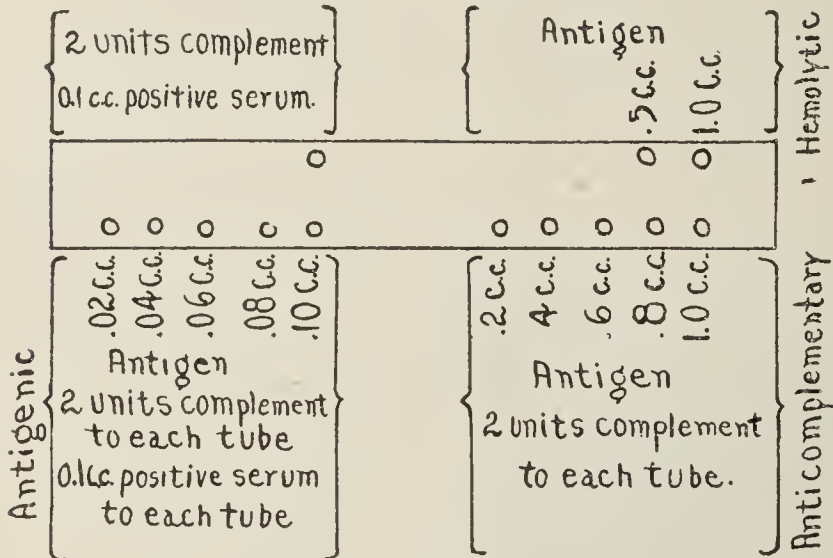
testes and cords, a fifth atrophied testicle and perhaps a sixth which is undescended.

It would be interesting to see a section to note where the attachment of the second set joins the vas of the first, and it is not at all improbable that he has also multiple seminal vesicles, although only one prostate is palpable.

A SHORT METHOD OF MAKING NOGUCHI ACETONE-INSOLUBLE ANTIGEN

G. A. MAGNUSSON, M.D., SEATTLE

In order to gain the most information from the Wassermann test, more than one antigen should be used in the "set up." One of the antigens so used should undoubtedly be the



"Set up" used in titration.

Noguchi acetone-insoluble, as it will give positive reactions with a higher percentage of syphilitic serums than the alcoholic extracts, while it is less likely to give false positive reactions than the more sensitive cholesterinized extracts. But its preparation requires so much time that this becomes quite a factor in a laboratory where considerable quantities are used. With a view of hastening the process of extraction and evaporation we tried this at higher temperatures and find that boiling temperature in no way interferes. In this way we can prepare and titrate an antigen all in one day.

PROCEDURE

To one part of finely minced beef heart, nine parts of commercial ethyl alcohol are added. (We have recently tried the extraction with denatured alcohol and this seems to do as well. As alcohol is denatured according to varying formulas, some may not be usable.)

This is boiled in a water bath for from ten to fifteen minutes, and filtered while hot.

The filtrate is evaporated over a boiling water bath until the alcohol and water are removed.

The residue is extracted with a small amount of ether.

The ethereal extract is poured into a centrifuge tube and centrifuged until the supernatant liquid is perfectly clear. This is added to ten volumes of chemically pure acetone.

The precipitate is allowed to settle. The greater part of the acetone is decanted, and the rest is poured into a clean graduated centrifuge tube and centrifuged for five minutes at moderate speed, the acetone poured off, and drained thoroughly.

To the precipitate, ten volumes of chemically pure methyl alcohol are added, and the mixture is stirred with a glass rod until as much as will dissolve has gone into solution and then centrifuged until the supernatant liquid is perfectly clear.

This is poured off and kept in a clean, well stoppered bottle.

TITRATION OF ANTIGEN

An emulsion is made with one part of this stock alcoholic solution and nine parts of physiologic sodium chlorid solution. Titration is performed for antigenic, anticomplementary and hemolytic properties.

The accompanying chart illustrates the "set up" used in titration.

To each tube, physiologic sodium chlorid solution is added to bring the volume to 1.5 c.c.

Incubation is performed for one hour.

To each tube 0.5 c.c. of sensitized sheep cell suspension (5 per cent. sheep blood cells and 2 units of amboceptor) is added.

Incubation is performed for one hour.

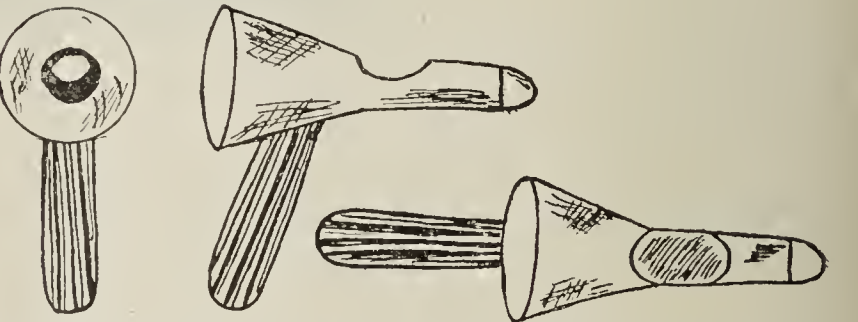
Most of the antigen preparations we have made in this way have had an antigenic unit of 0.02 c.c. of the 1:10 emulsion, while a full cubic centimeter was neither hemolytic nor anticomplementary.

TREATMENT OF CHRONIC GONORRHEAL SKENITIS WITH THE ELECTRIC CAUTERY *

CHESTER B. MOORE, B.S., M.D., SAN FRANCISCO

A not uncommon pelvic focus for the lodgment of the gonococcus is the gland of Skene. In this minute epithelial pocket such an infection may persist indefinitely in spite of local applications. Even if the ducts are exposed and medicinal injections directed into them with a hypodermic needle, the infection may continue without interruption. Often it is possible to express a few or several drops of pus week after week, and month after month, along with such oft-repeated treatment. Furthermore, this minute gland may remain in a chronic state of suppuration without a local symptom, the focus of infection being discovered only in the course of a general pelvic examination. Unless one makes an attempt to express the contents of these ducts, this focus may be entirely overlooked. In this type of gonorrheal infection of Skene's gland nothing less than the complete destruction of the gland will terminate the disease in this locality. This destruction may be easily attained by the use of the thermocautery.

The operation is quite easy and simple, provided one can get a good exposure. For this purpose I take a Kelly endoscope that has been cut off at the proper length so that it will not extend into the bladder, close it with the olive tip, and cut out a small window as shown. I have found that a No. 8 endoscope serves the purpose very well. This makes an instrument, a skenoscope, with a handle that is directed upward out of the way; the entrance is expanded to hold back and protect the labia; the tubal portion protects the urethra except at the point of attack, the gland, the ducts of which protrude into the window cut for the purpose. Under local anesthesia, it is possible to pass a small wire thermocautery



Front, side and top views of instrument devised for use in the treatment of chronic gonorrheal skenitis with the electric cautery.

into the gland without fear of cauterizing any other place than that desired. In order to obtain good light, I have had a small post so placed on the handle that it will carry an E. S. I. light directed toward the aperture. However, any means for obtaining good light will do.

To cauterize the gland, as much discharge as possible is expressed from the ducts. The urethral entrance is cocainized with a 10 per cent. solution for about ten minutes. The instrument is passed, handle upward, until a good exposure is obtained. The entrance of the ducts is sought with a large size hypodermic needle, from which the point has been filed, or with the wire contained in the tubal portion of the instrument. The needle or wire is passed along the duct to the

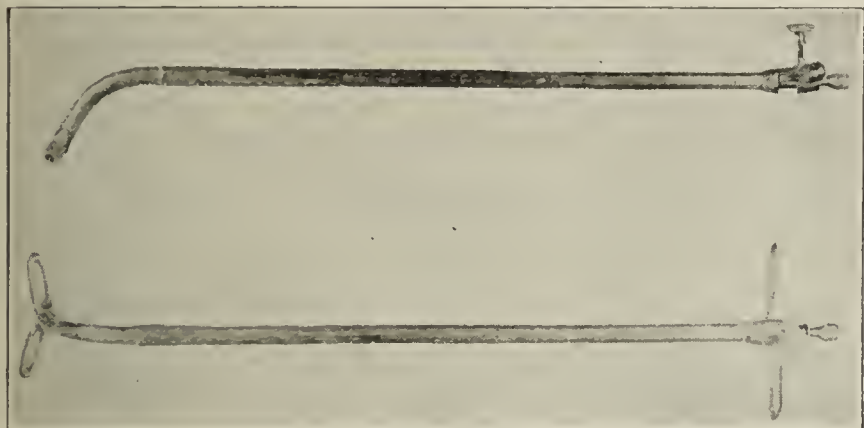
* From the Division of Obstetrics and Gynecology, Leland Stanford Junior University School of Medicine.

base of the gland. They will act as a guide to direct the passage of a small, pointed, electric thermocautery until as much tissue as desired has been destroyed. Up to the present, no discomfort or ill effects have followed this procedure. If the first operation has for any reason been unsuccessful, it may be repeated. Also, it is possible to cauterize the glands without passing a wire for a guide.

A NEW PROSTATIC TRACTOR *

A. J. CROWELL, M.D., CHARLOTTE, N. C.

While performing a seminal vesiculectomy some time ago, it occurred to me that the operation could be greatly facilitated by the use of a tractor inserted into the bladder, through



Prostatic Tractor.

the urethra, which has the same curve as that of a sound. For this purpose I therefore designed the one shown in the accompanying illustration.

It consists of two fenestrated blades attached to shafts, the inner one of which has a cable in the curved portion which allows one of the blades to revolve around the other. There are two handles at the outer end of the shaft which regulate the rotation of the blades after insertion into the bladder through the urethra. When inserted, the handles are rotated from each other to open the blades within the bladder. The gland is thus pulled into the operative field and at the same time the handle of the instrument is out of the way of the operator.

A glance will show the superior advantage of the curve in any operation on the perineum when a guide is needed to locate the urethra, prostate, seminal vesicles or bladder. We use it as a routine in perineal prostatectomies and find that by its use it is much easier to expose the prostate, and the danger of getting into the rectum is greatly diminished.

After the tractor is inserted and the blades opened, slight pressure on the handle by an assistant will pull the gland well into the operative field. It is a better guide than the sound ordinarily used for this purpose. It gives not only a urethral guide that is fixed but also a definite location of the prostate gland and membranous urethra, which are firmly held in one position while the gland is exposed.

* From the Crowell Urological Clinic.

Elimination of Inhaled Dust.—In a paper read before the Institute of Mining Engineers on dust inhalation and the health of miners, J. S. Haldane, F. R. S., among other things said that investigations had shown that coal and shale dust were rapidly eliminated from the air passages by special dust collecting cells which phagocyted the dust particles and then carried them away. This, however, does not occur to the same extent with quartz dust, and whereas miners in coal and shale suffer practically no injury from the dust itself, quartz mining results in serious respiratory difficulties, both on account of the sharpness of the dust particles and because of their defective elimination in the manner described. The widespread introduction into coal mines of stone dusting as a means of preventing coal dust explosions has directed attention to the possibility of injury from this cause.

Military Medicine and Surgery

THE TREATMENT OF HYSTERIA

SUCCESSFUL RESULTS OF A RAPID REEDUCATION METHOD

JULIAN MAST WOLFSOHN, M.S., M.D.
(SAN FRANCISCO)

Captain, M. R. C., U. S. Army; Assistant Professor of Medicine,
Leland Stanford Junior University School of Medicine

LIVERPOOL, ENGLAND

The world war has provoked such an immense number of the various types of hysterical disorders that the conception of hysteria can now be studied more easily from every aspect. It has taught us to look on what we ordinarily designate "hysteria" as merely the outward sign, the symptom, of the fundamental causative factor—the hysterical psychic background. So, when we speak of the treatment and cure of these patients, we wrongly say we have cured the hysteria; we have cured only the hysterical symptom. What most physicians in their ardor have left untouched and untreated is the hysterical psyche which gave rise to the symptom which has incapacitated the patient. This is important to remember when the question arises of returning a hysterical subject to the same environment that originally caused the hysterical symptom.

The war has also shown us that hysteria seldom, if ever, occurs during violent emotion, but rather during the contemplative stage succeeding the emotion; also that there is no essential difference, except perhaps in the number and in the intensity of the emotion produced, between the hysteria of warfare and that of civilian life.



Fig. 1.—Patient before and after treatment for hysterical blepharospasm.

Babinski has so far offered the clearest and most concise definition of hysteria: "Hysteria is a pathologic state manifested by disorders which it is possible to reproduce exactly by suggestion in certain subjects and can be made to disappear by the influence of persuasion alone." Instead of "hysteria," which is obviously a misnomer, he has substituted "pithiatism," which means the possibility of being cured by the influence of persuasion.

There have been published volumes on the classification of hysterical disabilities, but very little on their treatment. In Babinski's book on hysteria, for exam-

ple, eight pages are devoted to the treatment and 252 to other desiderata on the subject.

It is with the idea, therefore, of presenting to the American physician, especially to him who is going into active service, the results of my studies on this subject in British and American hospitals in England during the past year, and to give the outstanding features I have learned for the successful and rapid cure of this class of case, which accounts for an important percentage of the discharges from the fighting armies, that this paper is published.

This paper is based on 573 cases of hysteria treated by me in British and American hospitals; in the former are included those hysterics largely due to "shell shock," in the latter those found in ordinary civilian life. Of these, 550 patients, or 95 per cent., were cured of their disabling symptoms completely.

I shall not deal with the causes or analysis of the different types of hysteria, nor consider the subject of relapses, of which I am now collecting full data. The symptoms included in the 573 cases are given in the accompanying tabulation.

Occasionally more than one hysterical symptom would be found in the same patient. This has swelled the actual number of symptoms treated to 605.

Only twelve of the 550 patients had external wounds complicating the picture. In only two patients were there any concomitant organic nerve changes noted.

In more than 90 per cent. of the cases the cure was accomplished within the first twenty-four hours. The extremes varied from five seconds in some of the aphonics to more than seventy-two hours in some of the dysbasias of long standing.

The most important part of the treatment is the confidence of the physician in the correctness of his diagnosis and in his ability to produce a cure. This air of assurance spells immediate success. No one can convince others who himself is unconvinced.

SYMPTOMS INCLUDED IN FIVE HUNDRED AND SEVENTY-THREE CASES

	Cases		Cases
Mutism	84	Tics	8
Deafness	30	Astasia abasia	4
Aphonia	175	Stasobasophobia	20
Stammering	118	Dancing gait	6
Blepharospasm	2	Hemiplegias	9
Blindness	6	Tremors	40
Monoplegias	46	Photophobia	2
Paraplegias	54	Double platysma spasm.....	1

One can divide the various kinds of treatment of hysteria into two groups, the slow and the rapid. Among the former are:

1. The purely reeducative methods, for example, breathing exercises and singing in the stammering cases, and the use of mechanical machines, massage, etc., in the paralyses. I have watched stammerers thus treated for as long as three months and paralytics given electrical treatments for six months by "kindly" nurses and sympathetic teachers with very gradual improvement, if any, and have repeatedly cured these patients of their symptoms in one sitting of from one-half to one hour.

2. Psychotherapy, consisting of psychoanalysis. This is impracticable for the hysterics of warfare at this time. It often accomplishes much in the psychoneuroses, in which the emotive processes are in the ascendancy, but there are not enough psychoanalysts to deal with the cases of one large hospital for this form of disease. The method is too slow to be of practical use when dealing with such large numbers of patients. One must have recourse to rapid methods by which the patient is quickly cured of his symptoms after a short preliminary psychologic survey. After his cure, the patient is more willing to discuss causes and he often tells things surprisingly pertinent when the confidence in his physician is supreme.

Thus an early accessibility to the patient through a rapid cure is accomplished by any of the following methods, which include:

1. Hypnotism. This was used extensively, especially at the beginning of the war, but its use has been discontinued by most physicians on account of the frequent relapses and otherwise indefinite results. However, hypnotism is very valuable in treating insomnia, and I have used it successfully in combating terrifying dreams and hysterical convulsions.

2. General anesthesia with ether, combined with strong suggestion in the excitement stage. This is still

frequently used, but I believe that on account of the discomfort to the patient, simpler methods should be employed first. The method finds its most successful use in the intractable cases of hysterical deafness.

3. The continuous bath. This is reputed to have been quite successful in the treatment of certain algias and motor disturbances of hysterical origin.

4. Suggestion. The best of all treatments in my hands has been strong suggestion, reinforced by some mechanical agent which will assist in relieving at least some of the disturbed functions. This is easily administered with the aid of faradism or galvanism, and the results are quick and complete. Thus Yealland has aptly described the three principles he employs. (A) Suggestion, in which the patient is made to believe he is curable and from this springs the belief that he will be cured. This is briefly done and is followed by (B) Reeducation, which is continued without pause until the disordered functions are brought back to normal. (C) Discipline, in the form of demanding a military atmosphere and regular duties. This breaks down the unconscious resistance of the patient to the idea of recovery. The last is the real preventive of fixed ideas and is a most constructive policy.

SPECIAL TREATMENT FOR THE VARIOUS DISORDERS

Hysterical Mutism.—All of the eighty-four patients treated were cured within an hour, some requiring only a few minutes. In the uncomplicated cases of mutism, strong suggestion combined with faradic stimulation of the sides of the neck in increasing strength, the patient at the same time being shown how to produce the vocal sounds "e," "ah," "a," etc., usually suffices



Fig. 2.—Functional flaccid wrist drop in a case of hysterical monoplegia of ten months' duration cured in ten minutes.

to produce articulation quickly. The patient then learns how to adjust his tongue to utter a squeak, which, as a rule, is rapidly followed by letters, especially the labials and dentals, then numbers, the months of the year, and finally sentences. If a hypesthesia or anesthesia over the trachea is found before treatment, it is used as a lever for further suggestion because the disturbed sensation can be easily removed by the faradic brush.

CASE 1.—J. J. L., rifleman, who had hysterical mutism ten months, was cured in one minute by suggestion, combined with faradism to the sides of the neck. During an air raid in July, 1917, an aerial torpedo burst 50 yards away from the patient. He was rendered unconscious and cannot remember how long he remained so. He had been mute since then and could not even protrude his tongue. He was treated in several hospitals without success.

These patients with mutism (and this is true for all hysterical symptoms) who have passed from hospital to hospital, receiving suggestion after suggestion, who have seen many physicians or who have had the most varied and unsuccessful treatment, are the most difficult to cure on account of the fixation of the idea of incurability. The physician has to have an ever-ready plausible answer for myriads of questions, and especially to statements that the sufferer has had all these treatments before.

Hysterical Deafness and Deafmutism.—If deafness is associated with mutism, it is well to treat the deafness first. The mutism often disappears soon after the return of hearing. Sixteen of the thirty cases of deafness were accompanied by mutism. In only one was there failure to cure, and this was undoubtedly due to interruption of the treatment, and its continuation by a third party.

It is well at first to write down the orders for the patient, so that he will understand and pay attention to them. The deaf hysteric can usually hear very high-pitched and shrill sounds which he is unable to interpret.

Inserting a stethoscope into the ears of the patient, different tuning forks of various vibration lengths are quickly and successively held at the bell of the stethoscope and the patient told to nod when he hears something and to reproduce the sound heard. When he can finally do this for low notes, the voice of the operator is then substituted for the tuning forks and, beginning with a loud voice, the distance between the patient and operator is gradually increased. Then the loudness and pitch of the voices are diminished. Finally the stethoscope is removed and one ear is blocked. The patient is told to repeat quickly the things he hears while the operator rapidly changes his voice from loud to soft and then to a whisper, while he gradually increases the distance from the patient until the latter can hear the whispered voice from 10 to 20 feet away. If one tests the bone conduction by applying a tuning fork over the mastoid region, the patient receives some intimation that he is not completely deaf. This is used

as an auxiliary suggestion, however, and is followed by the treatment outlined above.

CASE 2.—Private H. H., aged 26, who had hysterical deafness four months, was cured in fifteen minutes. He was in a dugout when a high explosive shell burst outside. He was knocked unconscious and remained so until he awoke the next day in a casualty clearing station and found that he was deaf and dumb. Several days later he regained his speech but not his hearing. He had considerable temporal headache, but there were no objective signs of injury to the auditory apparatus. He had been treated in three hospitals in France and England without improvement. Examination revealed bone conduction to high pitched notes only. No air conduction could be elicited. The treatment was carried out as outlined above, and the patient could hear the whispered voice at 15 feet in fifteen minutes.

Hysterical Aphonia.—One hundred and seventy-five aphonics were treated with 98 per cent. of cures. In many of these cases the symptoms followed gassing, with its subsequent laryngitis and aphonia. After the inflammation has subsided, the aphonia continues, sometimes indefinitely. Often a shock or sudden emotion, such as a terrifying dream, falling out of bed, or even a severe reprimand may suffice to bring about a "cure."

The vocal cords of an aphonic should always be carefully examined prior to treatment. If these look normal other than failing to approximate equally on attempted phonation, it is well to tell the patient that he is about to get his voice back immediately. Then, very often, simply gargling with a 10 per cent. salt solution is sufficient for the patient to be able to make an articulate "ah." He is then quickly re-educated in mutism. Sometimes tickling the soft palate with the tongue held protruded will produce the same result, but these failing, faradic stimulation of the sides of the

neck, as in mutism, practically always cures in a few minutes.

CASE 3.—Private B., aged 19, who had hysterical aphonia ten months, was cured in three minutes. The patient lost his voice in May, 1917, following gassing and a cold. He had not spoken above a whisper since. He had not been worse or better since the onset. He suffered from easy fatigue and frontal headaches, and trembled in air raids. He feared dark places and heights. His concentration was poor. He always possessed a nervous temperament and had two or three bad frights in childhood. He was a total abstainer and suffered from depression of spirits. This patient was treated with the roller faradic current.

Hysterical Stammering.—In some cases, as in mutism, the patient is cured of his original hysterical symptom either spontaneously or by incomplete treatment, and then lapses into another and worse condition—stammering. In fact, the usual sequence of events is unconsciousness, mutism, aphonia and stammering, although any of these may occur without the others having been present first.

One hundred and eighteen cases of stammering were treated. While most of these patients (90 per cent.) were cured at the first or at the most at the second



Fig. 3.—Patient with rigid hysterical paraplegia of nine months' duration cured in forty minutes.

sitting, some were not cured till the third or fourth—especially those with marked tremors or fear reaction, or those who were easily startled or had other signs of emotivity. About 50 per cent. of these cases stammer a little for some months afterward when they become embarrassed or excited; in other words, so long as there is any emotivity left. In letters I am receiving from patients treated, they tell me this symptom gradually wears off and that they are regaining their self-possession.

CASE 4.—Private B., aged 23, who had hysterical stammering fourteen months, was cured in ten minutes. Jan. 15, 1917, the patient was blown up. He was unconscious for two or three days, followed by mutism for several days, which was relieved spontaneously and was succeeded by marked stammering, which persisted in spite of many attempts at cure by various methods. The family and personal histories were negative. He was cured by suggestion and faradism.

Hysterical Blepharospasm.—Both of the patients with blepharospasm were cured within a minute each by the application of a faradic current over the supra-orbital notch first on one side and then on the other, immediately after strong suggestion. The blepharospasm was the result of gassing and photophobia. In one case (Fig. 1) the blepharospasm had been present seven months and was cured in ten seconds.

Hysterical Blindness.—Of hysterical blindness, seven cases were treated and cured at one séance each. In these cases the intelligence and cooperation of the patient are essential for the rapid cure.

CASE 5.—Sergeant L., aged 28, who had hysterical blindness four months, was cured in two hours. A letter to his nurse explains the treatment tersely and lucidly.

Dec. 3, 1917, I was blown up by a German 11-inch shell while bringing ammunition out of the line, and within a few days I completely lost my sight. I was treated at the — Hospital for two months. I had electric treatments for about ten days. I was forbidden to smoke and had both eyes bandaged for some days. No good results were obtained, and I was sent to — Hospital, Feb. 15, 1918. Here I was examined by three or four doctors and remained there for three weeks. My sight was no better and in consequence I was sent to — Hospital. I was again treated by four or five doctors with the electric apparatus for about a month, but no improvement. I had lost confidence and was beginning to lose hope of ever being able to see again. Then Captain W. visited me and after explaining what was the matter with me and the reason I could not see, he treated me with the electric power for about an hour, leaving me just before 2 o'clock; but being interested in my case, he came back, explaining to me that he felt sure he could benefit me that afternoon. He gave me electric treatment again and after about half an hour I gradually was able to see first a light, and then his hand moving in front of my eyes. Further treatment and I was then able to see out through the window in my ward and plainly see a house and describe it in detail. I was, in fact, able to see quite well after his treatment that afternoon. Although the treatment was a little painful, I had every confidence that the doctor was doing his utmost for me, and getting back my sight was worth ten times the pain and discomfort.

This patient from complete blindness had $20/20$ vision at the end of two hours' treatment. There was no resulting constriction of the color fields. Three months later, a letter from the sergeant says his eyesight is as good as it ever was.

The hysterical paralyses of the motor apparatus treated include forty-six monoplegias, fifty-four paraplegias, and nine hemiplegias. The treatment was practically the same in each of these cases, although it was found that the longer the duration of the paralysis, the more difficult was the cure. If, on the other hand, sensory disturbances, such as anesthesia or dysesthesia (which is always associated in the lay mind with the loss of power) were found, it was easy to remove the sensory disturbance by suggestion or by the faradic brush, or by both, and then resort to rapid reeducation. As a rule, the sufferer from a hysterical

paralysis, sensory or motor, gives a history of its onset shortly after a slight wound or having been blown into the air, or even landing against the wall of the trench, experiencing a pain in the back or numbness in the affected extremity.

CASE 6.—Lieutenant B., aged 26, who had hysterical hemiplegia eighteen months, was completely cured in forty minutes. In September, 1916, he was knocked on the right side of the head and was unconscious for ten days. On regaining consciousness he was paralyzed on the left side of the body. There were no sphincter disturbances. Speech was normal. He felt as if the whole side of his body were dead and did not belong to him. He could not move the muscles of the left arm or leg. Practically no improvement occurred until June, 1917, when he was knocked over by a tram and was unconscious for two hours. On the following day he regained some of the power in the muscles of the left side of the body, but the numbness remained. On examination, loss of superficial and deep sensibility of the left half of the body to the midline was found. The deep and superficial reflexes were normal on both sides. The fields of vision were normal. The patient was treated by electrical suggestion. This patient is a professional musician and the same day, after the cure, practiced his violin for five hours, the first time in eighteen months.

CASE 7.—Gunner J. W., aged 25, who had hysterical paraplegia five months, was cured in forty-five minutes. The onset occurred in October, 1917, while the patient was in a bivouac. An aeroplane dropped a bomb just behind him. After the explosion he found his friend with his head half severed from the body and he remembers no more. He slept badly, had continual frontal headache, and when he thought of the unfortunate episode he went into a general shaking convulsion. He had not been able to stand for six months. Neurologic examination revealed both legs very rigid, and any attempt at voluntary movement resulted in marked coarse general tremor. The reflexes were increased throughout. The Babinski reflex was negative on right and left. There were no sensory nor sphincter disturbances. After continuous treatment for three quarters of an hour the patient was able to walk normally.

CASE 8.—Private S., aged 22, who had hysterical monoplegia five months, was cured in five hours. In December, 1917, he had cerebrospinal meningitis, for which many lumbar punctures were performed. During one of the punctures he felt a numbness in the left leg. He was able to perform his regular duties until March, 1918, when, during a march, he felt dizzy and fell unconscious to the ground. On recovering consciousness two hours later, he was unable to move a muscle in the left leg below the groin. It felt "as if it did not belong to him." On admission to the hospital, he walked with the aid of two crutches and dragged the left leg as if it were stuck to flypaper. Deep and superficial sensibility were profoundly disturbed below the level of the umbilicus front and back, to the left of the midline. Articular sensibility and likewise vibration sense in the same area were not perceived. The knee jerk, Achilles jerk and superficial abdominal reflexes on both sides were normal. The Babinski reflex was negative on both sides. There was complete inability to move a single muscle of the left leg below the groin. The patient was treated by suggestion and faradism for five consecutive hours, at the end of which time all sensory disturbance and muscle weakness had disappeared. He now walks normally.

Sometimes a true hysteria follows a severe wound. In this case the hysterical symptoms are superimposed on the organic but do not disappear *pari passu* with the healing of the wound. It is here that the greatest difficulties in diagnosis try the physician.

CASE 9.—Captain W., aged 28, who had an organic lesion of the brachial plexus with hysterical paralysis of the upper extremity, after healing of the wound, for twenty-four months, was cured in twenty-five minutes. He had received a gunshot wound through the left infraclavicular space, the bullet

emerging through the scapula behind. An aneurysm of the left subclavian artery resulted, which was later ligated. The brachial plexus was also injured, but the torn nerves were sutured. The whole left arm was paralyzed, but the patient gradually became able to move his arm so that with great effort the fingers could be made to twitch. Similar movements of the forearm were possible, after effort. Examination of the left arm revealed practically no radial pulse, and a slight general atrophy. The reflexes were all normal. There was marked general muscular weakness. Sensibility was impaired for touch and pain below the shoulder girdle. In twenty minutes the patient was practically cured, except for a slight weakness of his little finger, which remained in slight abduction. He was returned to his command on his urgent request in two weeks.

Hysterical Disturbances of Gait.—Various authors have described and given names to different types of disordered gaits. So far as treatment is concerned, it is the same in each case, namely, strong suggestion with or without faradism, followed by rapid reeducation. In this series there were thirty cases, including four by astasia abasia, twenty of stasobasophobia, and six of dancing gait.

CASE 10.—Private J. P., aged 20, who for five months had stasobasophobia, with relapse after violent emotion, was cured in seven minutes. In September, 1917, he was blown up and was unconscious for twenty-four hours. He awoke in a casualty clearing station. He was unable to speak, had tremors, walked in his sleep, had terrifying dreams and suffered from severe occipital and frontal headaches. A few days later he recovered his speech, but talked with a stammer. He was treated by hypnotism and electricity and was sent back to his unit in December, 1917. On his journey back, which occupied six days, he was spending the night in a rest camp when a bomb dropped and exploded within a few feet of the patient while he was in bed. He was extricated from the wreckage, but was unable to walk. He was dazed, stammered, and complained of pains in the head and in the base of the spine. His legs felt numb and cold. He said he received "very harsh treatment with electricity and very little improvement" in two hospitals. He cured himself of stammering by reading aloud. Examination was negative except for inability to maintain the erect posture, and fear of falling unless he had two crutches to aid him to stand. All muscular movements were executed fairly well in bed. A five minute "straight talk" and two minute treatment with the faradic tetanic current sufficed to enable the patient to walk and to run in a perfectly normal manner. That day the patient took a 2 mile walk after lunch.

CASE 11.—Private G. A., aged 21, who had dancing gait nine months, was cured in twenty minutes. The patient was blown up and was subsequently unable to stand for several weeks. Since then he had great difficulty in maintaining his balance even with the aid of a cane. He staggered a few steps to the right and as many to the left. At times he would halt suddenly and take a double shuffle to the front. When he lay on his bed he could execute all movements of the lower extremities very well. There were no neurologic disturbances of note. With the faradic current and strong suggestion the patient was able to get on his feet in ten minutes, and in ten more minutes of reeducative exercise he was walking.

Hysterical Tics, Tremors and Convulsions.—The forty cases of hysterical tics and tremors represented all the stages from a slight, coarse tremor which occurred during excitement or effort to the involuntary

coarse jerking of the greater part of the body, worse on effort and even persisting at rest, but disappearing during sleep. Since emotivity is largely an accompaniment of these disorders, rest, strict isolation and continued suggestion must be employed to a great extent in the treatment. I have always considered stammering merely a form of functional tremor, for here also emotivity plays a leading rôle in its production, much more so than in the functional paralyses without tremor. In most cases the coarse tremor can be removed in a short time; but it is always necessary to study the patient psychologically for a shorter or longer period before treatment. The use of suggestion alone is very potent as a cure, but it is greatly enhanced by explaining to the patient in a terse, simple way, the rationale of the disability. As a prophylactic against relapses, physical exercises are indulged in for several successive weeks.

The tics are the most difficult of all the hysterical disorders to treat, as suggestion or even faradism rarely succeed rapidly in abolishing the disorder. In these cases, isolation, forced feeding and oft repeated corrective exercises before a mirror, together with strong suggestion, help naturally to cure this aggravating symptom. As the emotion subsides, the tic diminishes.

Sometimes, as in the following cases, one of double platysma spasm, the patient was cured after a very brief treatment.

CASE 12.—Private C., aged 44, who had double platysma spasm four months, was cured in three hours of continuous treatment. He was buried in a dugout and was being extricated when another shell burst nearby. This unnerved him, and he began to shake all over. He was carried to a shell hole and remained there for several hours until the barrage cleared. He was shaking so badly that he could not walk without the aid of two men. On the way to the hospital that day, he was knocked unconscious again, and when he regained his senses his head began to twitch and had continued to do so since. The patient was depressed, and had terrifying dreams, continual headache and difficulty in getting to sleep. When he did get to sleep it was fitful. The feet and hands were cold and clammy, the pupils were dilated, the reflexes increased. There was a continual jerking of the chin and neck in a forward movement, about forty times a minute. Slamming of a door or sudden noise sent the patient into a long continued spasm with contortion of the face and mouth. After several days of complete isolation, during which he was given strong suggestion and many reassurances as to his imminent cure, he was finally treated with a mild faradic current and cured after three hours of treatment.

RULES OF TREATMENT

Having thus detailed the treatment, I have been led, through my experience, to lay down the following general rules for the efficient, rapid, and complete cure of hysterical symptoms:

1. Study each case fully. Take a complete family and personal history, especially for previous nervousness or similar attacks, even though the character of the affection appears evident.
2. Study each case psychologically, before instituting treatment. This can take the form of a psychanalysis in the cases in which emotivity plays a prominent part. Encourage



Fig. 4 (Case 11).—Patient with dancing gait before and after treatment.

the patient to talk of himself and thus gage his mental condition.

3. Produce an atmosphere of cure in the wards or office. This is best accomplished by contact with cured patients. A confident, optimistic atmosphere has helped to cure more hysterical symptoms than all the mechanical appliances.

4. The patient must seek the cure.

5. When the patient resists the cure, this must be broken down by strong persuasion, long continued, or by faradism.

6. The physician must, at all times, be master of the situation. He must have a ready response to all questions put to him by the patient.

7. Do not discontinue the treatment until the cure is accomplished.

8. Let the patient into your confidence, and explain to him in simple terms how his symptom is caused and how you propose to cure it immediately.

9. Be absolutely sure of your diagnosis before beginning treatment.

10. A quiet, firm sympathy, together with an air of supreme confidence, is essential for the "air of recovery" in the treatment room.

11. Hysteria is often promoted in the ward by mental contagion. If a severely affected patient is admitted it is best to isolate him for a short while and thus prevent this contagion.

12. The earlier the treatment is instituted after the occurrence of the symptom, the easier and more complete the cure. The fixation of the idea is thus prevented.

13. During the treatment of a paralyzed member, watch for the slightest voluntary movement of the limb on the part of the patient and use that for the point for further suggestion.

14. The method of treatment varies with the mentality of the patient, the desire for recovery, the degree of education and his social level.

(a) To the cultivated and intelligent, frankness should be the keynote. Suggestion often suffices for the cure.

(b) To the uneducated, simple suggestion plus a material method is usually necessary.

15. To avoid the distraction of the patient during treatment, all extraneous noises and movement should be eliminated.

16. The physician must possess a strong will power. He cannot convince unless he himself is convinced. He must display kindness, but his commands must be full of authority.

17. Results of treatment depend on the physician who plays the leading part. The patients are cured when they find their master.

18. Do not lose your temper. Have patience.

19. Select the best time for treatment, and if not successful after a time, cease, and recommence at a more favorable opportunity, explaining to the patient that rest is the cause for stopping. Meanwhile he should be completely isolated.

20. Do not give fresh suggestion to the patient or threaten him unless he is known to be a malingerer.

21. The ease of curability is largely dependent on the duration of the symptoms and the nature and number of previous treatments.

22. Contractures are more persistent than paralyses.

23. Strict military discipline and regular outdoor work are the necessary after-cure of these patients.

24. Make the disease an unprofitable one for the patient.

25. The cure of a hysterical symptom is a mental combat between the physician and the patient, in which the victory is on the side of the physician. This is the secret of psychotherapy.

26. The patient should be observed for a few weeks after the cure.

27. The most potent causes of failure to cure are ill will of the patient, unfavorable surroundings, and mistakes in diagnosis.

With these considerations as working hypotheses, any physician should be able to treat hysterical disorders successfully; but without them, failure stares him in the face.

American Red Cross Military Hospital No. 4.

THE SURGICAL TREATMENT OF EMPYEMA BY A CLOSED METHOD*

ARVINE E. MOZINGO, B.S., M.D. (TIPTON, IND.)

Captain, M. C., U. S. Army

WASHINGTON, D. C.

The death rate from many hundred cases of empyema occurring in the United States Army during the winter of 1917-1918 was very high. The average mortality reported from the various camps was 30.2 per cent. Many camps reported between 45 and 60 per

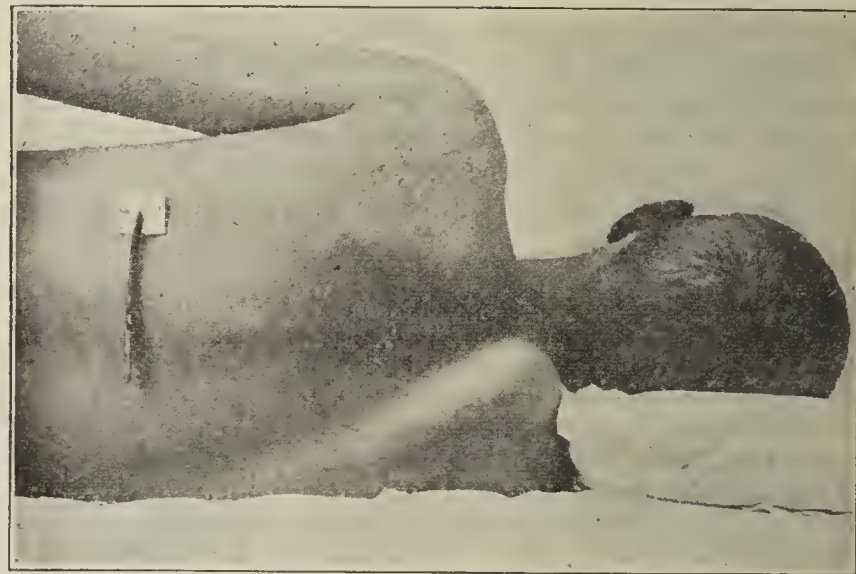


Fig. 1.—Tube inserted and fastened in place.

cent., and one camp reported a mortality of 84 per cent. in eighty-five cases.¹ Most of the deaths reported followed virulent *Streptococcus hemolyticus* infection. Whether or not this high death rate was due to the virulence of the infection or the treatment, it is evident that there are great possibilities for improvement in methods of treatment.

During the past seven months I have had the opportunity to observe seventy cases of empyema in the Walter Reed General Hospital, Washington, D. C., and as a result of this experience have adopted a method of treatment that is submitted as an improvement on the usual procedures. The chief features of this method are:

1. A single, early, minor operation without danger of shock or collapse of the lung.

2. Intermittent removal of secretion and antiseptic treatment given through a small rubber tube, with a bulb syringe.

3. Rapid partial sterilization with neutral solution of chlorinated soda (Dakin solution) followed by complete sterilization with a 2 per cent. dilution of liquor formaldehyde in glycerin.

4. Maintenance of negative pressure in the empyemic cavity, tending to early obliteration of the cavity.

5. One dressing which will last several days and no skin irritation.

6. Emphasis on simple physical principles rather than on major operative surgery.

DETAILS OF METHOD

If fluid in the pleural cavity is suspected, a diagnostic puncture should be made at once. If a smear from the fluid is negative, and the patient's condition per-

* Read before the staff of Walter Reed General Hospital, Oct. 16, 1918.

1. Cases of Empyema at Camp Lee, Va., Preliminary Report, by the Empyema Commission, THE JOURNAL A. M. A., Aug. 3, 1918, p. 366. Review of War Surgery and Medicine, August, 1918.

mits, it is best to wait for a culture report. Care must be taken not to operate on a sterile cavity; but if pyogenic micro-organisms are present, operation should be done immediately.

The location of the empyemic cavity is determined by physical examination, diagnostic puncture, and by roentgen ray when this is available. The place of election for operation is at the most dependent part of the cavity when the patient is either erect or recumbent.

If fluid is present in the ninth interspace, post-axillary line, this point is most desirable. The exact site of operation in this method is, however, not as important as in the usual thoracotomy procedures. The main point is to enter the cavity, preferably as low as possible. When operation is determined on, the field is sterilized and enough 0.5 per cent. procain injected intradermally to make a well blanched wheal the size of a dime and about 4 c.c. just between the ribs. With a knife, 6 mm. wide, a stab is made through the skin and then with a 7 mm. trocar and cannula the thoracic wall is punctured midway between the ribs so as to avoid the intercostal vessels and nerve.

The trocar is withdrawn and a finger immediately placed over the end of the cannula to prevent pus from escaping or air from entering. The finger is removed and a rubber tube instantly inserted through the cannula into the chest cavity. The tube, when introduced, should fit closely into the cannula and be held closed so that no air can enter, and should be long enough to extend from 2 to 6 inches outside of the cavity.

The cannula is now withdrawn and slipped off the tube, leaving the latter firmly held, air tight, in the chest by the contracting wall of the wound.

While the use of a trocar and cannula is to be preferred, it is not essential; and in case no trocar and cannula are at hand, a small stab wound should be made and the rubber tube carried into the pleural cavity by use of a curved hemostat.



Fig. 2.—Finished dressing, bottle of Dakin's solution, and tissue forceps.

The length of the tube in the cavity depends on the shape and size of the cavity. If the cavity is small, the tube need be inserted barely through the thoracic wall. In large or irregular cavities, the tube can reach from 2 to 8 inches within, and should occasionally have a 2 mm. fenestra in the side at a point just inside the chest wall, in order more easily to make possible the aspiration of all fluid from the cavity.

The dressing is small and does not hinder free expansion of the chest. The tube once inserted is thus fastened in place: A 1-inch safety pin is thrust through the edge of the tube, so as not to obstruct the lumen. Between this and the skin is placed a thin pad of gauze, 1 inch square, split to the center (Fig. 1).

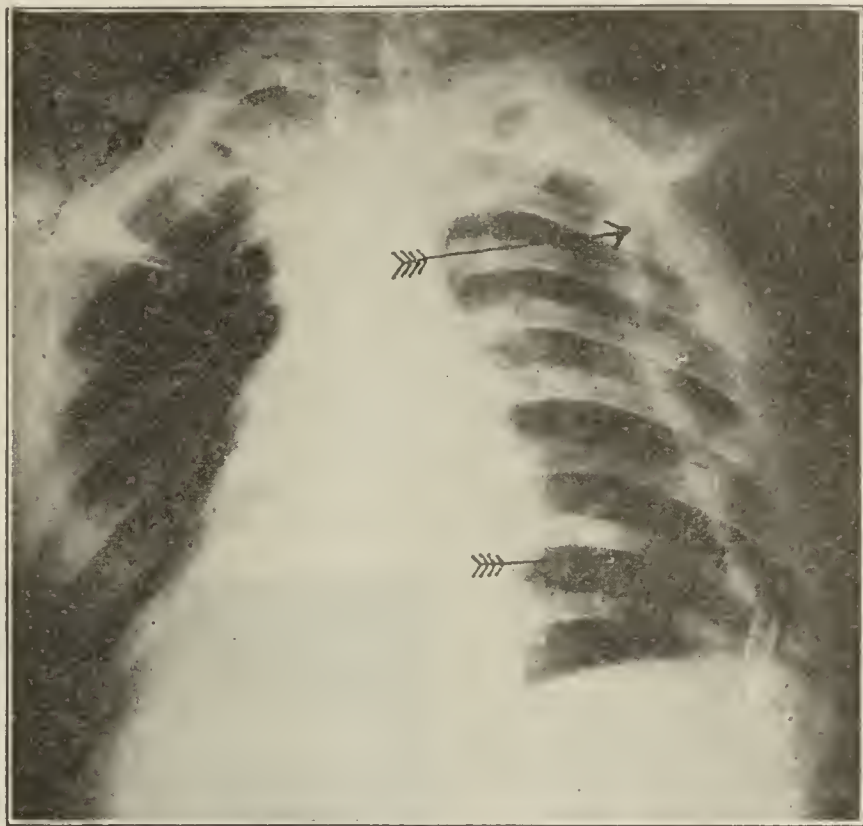


Fig. 3.—Empyemic cavity, containing air, outlined by heavy wall indicated by arrow, and with tube entering lower part.

On top of the pin is a similar pad with a split turned the opposite way. Over all is placed a pad 2 inches square, of ten layers of fine meshed gauze, in the center of which a hole to admit the tube snugly has been made with a rounded and pointed instrument and never by cutting. This pad is held by four strips of adhesive plaster, each $1\frac{1}{2}$ inches wide and $3\frac{1}{2}$ inches long, making the finished dressing a $3\frac{1}{2}$ -inch square (Fig. 2). This dressing will last several days, as no discharge escapes around the tube.

By means of a half-ounce bulb urethral syringe, all the pus is aspirated from the cavity through the tube, and reversely; the cavity is washed out with Dakin's solution. No air is allowed to enter the tube or, through it, the pleural cavity. To prevent entrance of air and contamination, the tube is kept closed at the tip end by a spring clip between treatments.

Each patient should have his individual syringe and Dakin's solution in a wide mouth bottle to which is attached a wire to hold the tissue forceps. During aspiration and washing out, forceps and not the fingers should be used to compress and close the tube each time the syringe is removed for emptying or filling it, to eliminate possible contamination.

In giving treatment, the tube is first compressed with the forceps, the clamp removed, the nozzle of the syringe inserted with the bulb compressed, and the secretions that have accumulated since the last treatment are aspirated. One has to make sure that the negative pressure is maintained by not allowing air to enter through the tube. When, by this means, all the secretions have been aspirated, the method is reversed and from 20 to 60 c.c. or more of Dakin's solution are injected, not instilled, into the cavity. For aid in cleansing, the solution is agitated in the cavity by quick

compressions and expansions of the bulb. Aspiration is performed again and this process is repeated until the fluid comes away clear. Then the cavity is refilled to about one-half the original capacity, and the clamp is applied and left for from five to thirty minutes, during which time the patient should change his position frequently to make the contained mixture homogenous and bring the solution in contact with all the infected pleural surfaces.

The frequency of aspirations and injections depends on the general condition of the patient. Beginning with the operation, treatments are given every two hours by day and every three hours by night, until all the pyogenic membrane and fibrous exudate have been dissolved, a process which usually takes from one to four days, depending on the kind of infection, and which may be determined by the amount and color of the sediment. In *Streptococcus hemolyticus* infection, the membrane and fibrous deposits will require a longer time to dissolve than is usual with other infections.

If the pneumonic process in the lung is still active, the treatments should not be given oftener than every six to eight hours until the pneumonia subsides, as more frequent treatments will cause a reaction indicated by an increased rise of temperature and pulse rate. As soon as the pneumonia has subsided, the patient should be allowed out of bed, and as strength increases should be given deep breathing and light setting up exercises. With this method, it is not necessary to keep patients in bed in cases of uncomplicated empyema, or have them use Woulfe bottles.

While Dakin's solution, because of its free chlorin and alkalinity, is one of the greatest solvent bactericides in general use, its action is brief. In a series of cavities cleansed in the manner described above, and with 150 c.c. of Dakin's solution, testing 0.49 per cent. of free chlorin when first injected and kept agitated with a syringe, of which solution 10 c.c. were then withdrawn every minute for five minutes, the average test of the fluids withdrawn gave successive strengths of 0.38, 0.28, 0.19, 0.11 and 0.07 per cent. This shows the solution to be practically inert as a bactericide and solvent after five minutes. Early withdrawals of the solution allow longer periods of negative pressure and opportunity for expansion of the lung. If pressure symptoms are too marked in a given case, at the expiration of five minutes the solution should be withdrawn, and the amounts injected should be decreased.

When the Dakin solution comes in contact with the cavity exudate, chloramins form which also have bactericidal properties (lasting thirty minutes to one hour—Dakin), and for this reason the solution is usually left in for several minutes.

The original tube is not usually removed until the cavity is obliterated by adhesions. The dressing will ordinarily last until the tube is ready to be removed; and, as there is no cumbersome apparatus of bottles and tubing to manipulate, the attending surgeon needs only one nurse as an assistant in giving treatments.

The surgeon himself should give at least one treatment daily, and take cultures and smears. The other treatments may be given by a properly instructed nurse.

The cavity should be filled once daily to three-fourths its original capacity, to prevent the walling off at the border of the cavity of small pockets before the cavity is sterile; for, if such pockets are formed, convalescence is prolonged and secondary operations may be necessary.

The secretions in the cavity should be agitated vigorously by quick compression of the bulb so as to make a more homogeneous emulsion before taking the culture and smear. The assistant will handle the sterile test tubes and make the smears while the surgeon gives the treatment. It is important to note that the amount of negative pressure obtained by the suction of the half-

ounce bulb syringe is considerable, as such a syringe will lift water to a height of 7 feet in a 6 mm. tube. Also roentgenograms taken just after such negative (suction) pressure has been made show large pleural cavities, even those of old standing, to be almost obliterated (Figs. 3 and 4). If at any time air is allowed to enter and cause the lung to collapse, full expansion is reestablished by this process. That the negative pressure is maintained within the chest wall after many hours is shown by the fact that when the tube fastened into the pleural cavity by this technic is connected with a tube leading from a bottle of Dakin's solution and

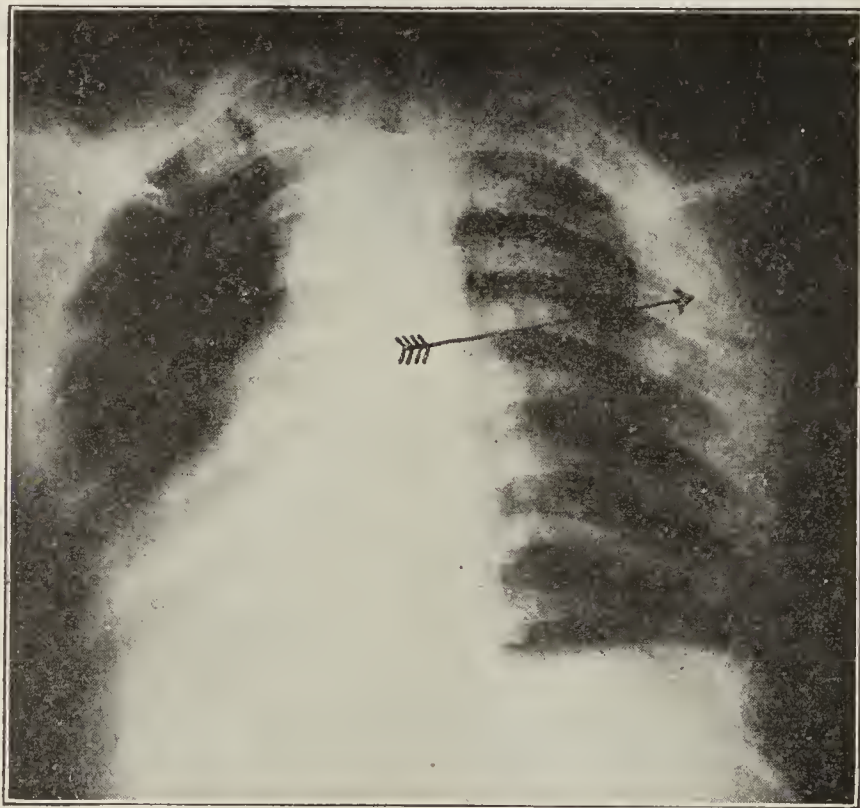


Fig. 4.—Same cavity obliterated by suction with bulb syringe (negative pressure); thickened visceral pleura indicated by arrow now pressed against thoracic wall and all air removed.

clamp on the chest removed, the solution will be drawn into and fill the cavity.

After from one to seven days' treatment with Dakin's solution, given as described above, the pyogenic membrane will have been dissolved and the cavity made fairly sterile. The smears will show, on the average, one bacterium to ten fields, or may be entirely negative, and the cultures will show a gradual diminution in the number of colonies, though they may still be innumerable. Continuance of the Dakin solution would, in time, probably sterilize the cavity completely; but instead of continuing the Dakin solution at this stage, one should change to and inject a 2 per cent. dilution of liquor formaldehydi in glycerin, once or twice daily, for these reasons:

1. Cultures become sterile in from one to ten days, generally the second or third day.

2. As the solution of formaldehyd is a much stronger bactericide than the Dakin solution, there is less danger of pus pockets forming.

It is to be noted that with the use of Dakin's solution smears may be negative when cultures are positive. With formaldehyd solution the reverse is true; cultures are negative but smears may be positive. In other words, bacteria present under Dakin's solution treatment, while few in number, are viable; under formaldehyd treatment, they may be more numerous but are nonviable.

The formaldehyd solution is injected in amounts of from 3 to 40 c.c. daily and left in the cavity from twelve to twenty-four hours. Before each injection with formaldehyd solution the cavity is given one of the usual Dakin treatments. At first, the formaldehyd injection usually is followed in about four hours by a rise of temperature of from 1 to 3 degrees, a slight burning sensation in the cavity and, occasionally, pain in the shoulder and neck of the affected side and, at times, in the epigastrium. For this reason, it is not advisable to use the formaldehyd solution in acute cases until the usual course of treatment with Dakin's solution is given and the pneumonia, if present, has subsided.

The first injection in large cavities should not be more than 10 c.c. In twenty-four hours the cavity will usually contain from 20 to 120 c.c. of brownish fluid. This should be aspirated and the cavity filled two-thirds the original capacity with Dakin's solution left in for several minutes, aspirated, and the formaldehyd solution again injected. If the cavity is large, and the reaction not severe, 40 c.c. may be used. In two or three days, the fluid will become serosanguineous, and usually no colonies grow on cultures made on blood-agar plates. After the cultures are negative for three successive days, the amount of formaldehyd solution instilled daily should be reduced to from 3 to 10 c.c. and the maximum negative pressure maintained until the cavity has been reduced to a content of 50 c.c. or less.

The size of the cavity can be determined by injecting Dakin's solution and noting the resistance offered when pressing the bulb and the force of expulsion of the solution when the syringe is removed and the tube left open. Care must be taken not to break up new adhesions.

Under the treatment described above, adhesions soon form because of the thorough cleansing, irritation and rapid partial sterilization by the Dakin solution, followed by the complete sterilization by the formaldehyd solution, and the close contact of the parietal and visceral pleuras due to the long, constant negative pressure.

REPORT OF CASES

The following cases of the thirty-two treated by the closed method are reported as fairly typical:

CASE 1.—*Streptococcus hemolyticus* infection, complicated by a bronchial communication. Attempt for two months to cure by repeated aspirations, but sterilization in six days by the closed method, with the use of Dakin's solution alone.

A private, aged 29, admitted to Walter Reed General Hospital, May 20, from a base hospital, was diagnosed, April 4, as having lobar pneumonia, Type III.

May 21, the patient weighed 96 pounds, was anemic and nervous, had insomnia and anorexia, and could not lie down. He raised 250 c.c. of thick sputum daily. Roentgenoscopy revealed density in the left chest, lower lobe.

May 23, pleuracentesis at the fifth interspace, postaxillary line, yielded 300 c.c. of thick pus. Smear showed streptococcus; culture showed pure *Streptococcus hemolyticus*.

June 5, 350 c.c. of pus were aspirated at the seventh interspace, postaxillary line.

June 14, there was slight improvement; the cough was less.

June 20, the patient was coughing much at night and morning, was extremely nervous, and cried at times, saying he did not know why. Repeated sputum examination was negative for tubercle bacilli.

July 12, 150 c.c. of green pus were aspirated at the ninth interspace postaxillary line.

July 14, there had been no cough for the last two days, except when the patient lay down. He slept propped up in bed.

July 16, he weighed 102. The closed method of treatment was instituted; a stab puncture was made at the ninth interspace, postaxillary line, and 350 c.c. of greenish pus were aspirated through a small rubber tube. Culture showed pure *Streptococcus hemolyticus*. A communication of the cavity with a bronchus made impossible a negative pressure and prevented the injection of more than 175 c.c. of Dakin's solution, which amount was used as regular treatment.

July 23, the patient had walked about the ward and outside at will since the operation. He weighed 108 pounds. There was no cough, the patient was ravenous, he slept soundly, and lay in any position.

July 26, Dakin's solution was stopped. Smears and cultures had been negative for three days.

August 6, the tube was still in place. Smears and cultures had been negative, daily, for the past nineteen days. Communication was open. The injection of 10 c.c. of formaldehyd solution, daily, was begun.

August 10, the patient weighed 122 pounds. Communication was closed, and negative pressure maintained.

August 20, the tube was removed. No suture was made.

September 20, the wound had now been closed one month. The patient weighed 136 pounds, a gain of 34 pounds, and felt normal.

CASE 2.—A private, aged 24, admitted from a base hospital to Walter Reed General Hospital, July 19, was diagnosed as having lobar pneumonia, July 3. A diagnostic puncture yielded thick, greenish pus. Smear showed five bacteria to the field, and the Type II pneumococcus was later determined.

July 19, the closed method treatment was instituted. A trocar-cannula puncture was made, a tube introduced through the cannula, and 350 c.c. of pus removed. The usual Dakin treatments were given, and on the second day when 150 c.c. of Dakin's solution were injected, the patient showed bronchial communication. The amount was reduced to 125 c.c. each treatment, and on the fourth day, smear showed one bacterium to five fields. Cultures were taken daily, though the number of colonies gradually decreased; July 29, they were still innumerable. The formaldehyd solution was then used, and in two days cultures were negative and smear showed one bacterium to five fields.

July 31, the treatment could have been safely stopped, but was continued to reduce the size of the cavity and to determine also if the smears could not be made negative.

August 18, the smears were positive and culture was negative. The tube was removed.

September 20, the wound had been closed one month. The patient gained 24 pounds and was on furlough.

CASE 3.—A private, aged 23, admitted, August 28, to Walter Reed General Hospital from a base hospital, had been diagnosed, July 23, as having left lobar pneumonia. He weighed 130 pounds. The temperature was 99.8, pulse 100, and respiration 32. He had had little sleep the past week.

August 29, roentgenoscopy revealed an encapsulated empyema extending from the fourth to the tenth rib, posteriorly, on the left side. The closed method of treatment was instituted.

Following a diagnostic puncture, a trocar-cannula puncture was made, and 575 c.c. of thick green pus, containing three bacteria per field, were removed through a small rubber tube. The patient was treated with Dakin's solution for two days, and formaldehyd solution one day, and then the smear showed one bacterium in ten fields and culture was negative. Daily injection of 3 c.c. of formaldehyd solution was given and

negative pressure maintained for five days longer, when the tube was removed.

October 3, the wound had been closed twenty-eight days. The patient returned from furlough, weighing 164 pounds. There was full expansion of the chest. The physical and roentgenographic findings were negative. There was a scar as if made by a small bullet.

CASES TREATED BY THE CLOSED METHOD

	Number
Cases treated by the closed method exclusively	11
Treated first by open thoracotomy, followed by the closed method..	21
Total	32
Recovered and returned to duty	10
Convalescent and out of hospital on furlough.....	16
Still under treatment*	6
Died	0
Discharged for disability.....	0
Total	32

* Three of the six cases still under treatment are of but one week's duration and the patients are doing well. The other three are left overs from open thoracotomy treatment and are now being treated by the closed method, superimposed on long antecedent open treatment.

None of the patients have died, but it is recognized that this fortunate outcome cannot obtain in a larger series of cases.

That twenty-six of the thirty-two patients, 81+ per cent., have entirely recovered without secondary operation or crippling complications is submitted as justification for further trial of the method advocated.

In seven cases treated here, repeated needle aspirations were used. One patient was apparently cured and returned to duty; four patients, who had small cavities, are still under observation, slowly improving after long periods of convalescence. Two, having become gradually worse after repeated aspirations, were treated by the closed method and cured in a short time. Had the other five been treated by the writer's method, it is believed that cure would have been affected in less than one-fifth the time.

Twenty of the thirty-one cases were of long standing. These cases had received the usual large thoracotomy incision with resulting chronic sinuses and cavities varying in size from 60 to 700 c.c. capacity. With fifteen other cases, they had been treated with dichloramin-T, 5 per cent., in chlorcosane, in amounts of from 5 to 75 c.c. daily for six weeks, with very poor results. The empyemic cavities of this series of eighteen cases remained positive for organisms even under the most intensive treatment with Dakin's solution, but became sterile in from one to ten days with the combination treatment of Dakin's solution and formaldehyd solution by the closed method. In these cases, after failure to cure by treatment through the thoracotomy openings, the large drainage tubes were replaced by smaller ones sealed into the cavity, after which the cases were treated as if they were originally closed method cases. The small cavities were given two treatments daily with the Dakin solution, followed by the formaldehyd solution. In two of these cases, while the large wounds were closing, it was necessary to use a rubber dam about 3 inches square, fastened with a double layer of adhesive plaster in order to establish and maintain negative pressure. Five hundred c.c. of Dakin's solution were injected into the large pleural cavities at 9 a. m., 3 p. m. and 6 p. m., and left in for about forty-five minutes. Following the last treatment, 40 c.c. of the formaldehyd solution were injected and left in over night.

While, in treating empyema cases, roentgen-ray and bacteriologic facilities are to be preferred, they are not absolutely essential when the closed method is used.

After treatment from one to six days with Dakin's solution, followed by a few days' treatment with the formaldehyd solution, if the secretion has become a clear, serosanguineous fluid, one can feel fairly assured that the cavity is surgically sterile, even though no smears or cultures are made.

COMPLICATIONS

In ten cases in the series treated, a communication existed between the empyemic cavity and a bronchus. We think this complication exists more often than is generally believed. These communications caused but little interference in giving treatment with Dakin's solution. The patient can detect when the solution enters a bronchus, and thereafter the injection was always stopped just before the solution reached an amount that would enter the bronchus. The formaldehyd solution, which was used in six of these cases, seemed to hasten the closure of this opening.

One patient developed spontaneous pneumothorax:

CASE 4.—A private, aged 31, was first treated for five weeks by repeated needle aspirations. He became gradually worse, and a small stab wound was made and 800 c.c. of *Streptococcus hemolyticus* pus were aspirated through a rubber tube and the case thereafter treated by the closed method. Rapid recovery ensued. The patient gained 37 pounds in forty-eight days. After the wound had been closed for three weeks, without any warning, one night while the patient was in bed, he developed a spontaneous pneumothorax. This could not be satisfactorily explained, though it was thought probably due to rupture of a small peripheral abscess of the lung. The patient had a chill and cold sweat. The temperature was 105, pulse 150, and respiration 40. The anterior left chest up to the fourth rib, where no aspiration punctures had been made, was highly tympanitic, and the posterior side was very dull, owing to the compressed lung. The patient lost 16 pounds in the week following, but regained this in ten days.

COMPARISON WITH OTHER METHODS

The closed method is to be compared with treatment by repeated aspirations and the open methods of thoracotomy, either intercostal, or by resection of a short length of one or two ribs.

The repeated aspiration method always means more or less pain and a long period of convalescence. While pressure symptoms may be relieved through evacuation of the pus, the cavity is seldom completely emptied, and the absorption of toxins continues.

Murphy was first, many years ago, to use a 2 per cent. dilution of liquor formaldehydi in glycerin in the pleural cavity, and modified the treatment by simple aspiration, as follows: He withdrew the pus through a needle, immediately injected the formaldehyd solution, and allowed it to remain for from one to four weeks. This process was repeated usually three or four times until the pus in the cavity became sterile and converted into a serosanguineous fluid. This, he asserted, would be absorbed in from three to twenty months, and the cavity obliterated.

The open method, whether by rib resection or intercostal thoracotomy, is always accompanied by much pain and discomfort. The profuse discharge necessitates a large and expensive dressing which requires changing from two to six times daily. When Dakin's solution is used to irrigate the cavity, large amounts of petrolatum gauze must necessarily be used to protect the skin from irritation. The open wound not only invites contamination but also allows the lung to collapse and not uncommonly causes death from

shock. For this reason, some users of the open method advocate delayed operation with repeated needle aspirations to relieve pressure symptoms, and permit adhesions to form to prevent the lung from collapse when the cavity is opened. With the closed method, the aspirations and delay are not necessary.

Deaths from hemorrhage soon after thoracotomy operations have been reported, and no doubt this accident occurs more often than is reported or suspected. In prolonged drainage cases, a large drainage tube may wear through the periosteum and cause an erosion of the rib, producing pain or causing fatal hemorrhage from one of the intercostal vessels.

In thoracotomy cases, the resulting scar is large and unsightly. It is frequently adherent to the ribs, and if so, is always more or less painful.

In closed method cases, the scar is so small as to be almost imperceptible, and is freely movable as no adhesions exist between it and the underlying tissues.

When the open method is used, with resulting complete or partial collapse of a lung, and there exists a severe bronchial or pneumonic involvement of the opposite lung, the patient's respiratory area is so diminished that chances of recovery are extremely poor, whereas, by using the closed method, as there is no collapse of the lung, the chances of recovery are very good.

Though we have as yet treated no cases of double empyema by the closed method, there is every reason to believe that in double empyema the pleurae of both lungs can be treated at the same time, which is an impossibility with the open method, and with even a better chance of recovery than with the open method when but one pleura is involved.

When the Carrel treatment is instituted through a large thoracotomy incision, and several Carrel tubes are inserted, there is more or less uncertainty as to their position. Those which go to the upper part of the cavity permit only a momentary flush of Dakin's solution at each treatment, and the reflux at once pours out through the incision, giving the solution opportunity to give up only a small part of its available chlorin. On the other hand, in the dependent part of the cavity, a "puddle" is formed which acts as a mechanical barrier, preventing the newly "instilled" Dakin's solution from reaching the infected pleura, and also acts as a diluent, thus in both ways defeating the very principle on which the antiseptic action of Dakin's solution is based, namely, that the solution must not be below 0.40 per cent. in available chlorin, to be an efficient bactericide.

In cases of multilocular cavities, walled off by firm adhesions and not connected by lacunae, the open operation is advised so as to break up the adhesions. The incision should then be sutured to fit a small tube and the cavity treated by the closed method.

It is possible that an open operation may be necessary in some cases of long standing when the lung is somewhat fixed in compression or bound down by firm adhesions; but even in these cases we are not sure but that persistent negative pressure by the closed method will, in time, overcome the trouble.

We believe, if the closed method of treating empyema in acute cases is carried out properly, that there will rarely be any necessity for the Schede, Eastlander or Delorme operations.

Recent experience in five cases has shown that sodium hypochlorite solution with an increased alkali-

linity and three times the amount of available chlorin which is in Dakin's solution can be used in empyemic cavities by the closed method, with perfect safety.

With such a wide margin in the strength of the hypochlorite solution that can be used in empyemic cavities, it is practicable for those who do not have the usual facilities for making Dakin's solution to purchase a concentrated hypochlorite solution and dilute to the proper strength before using. Liquor sodae chlorinatae (Labarraque's solution), which is an official U. S. P. product, containing 2.5 per cent. of available chlorin, is preferable. This solution is easily available and can be used in a dilution of one part to from three to five parts of distilled water.

While a hypochlorite solution is to be preferred, we believe that sterile physiologic sodium chlorid solution, weak iodine or potassium permanganate solutions would be very efficient in the few days' preliminary treatment of the empyemic cavity by the closed method *before* using the formaldehyd solution, but as yet have had no experience with any solutions other than the hypochlorite.

CONCLUSIONS

1. Early operation by the closed treatment method has the following advantages:

(a) It can be done without shock to the patient or collapse of the lung.

(b) It provides perfect evacuation and cleansing of the empyemic cavity.

(c) It prevents absorption of toxins.

(d) It prevents the lung, compressed by the exudate, from becoming fixed in compression.

2. Sterilization is more rapid by the closed than by the usual methods, as the antiseptics are held in contact with the infected surfaces until they have exerted their full bactericidal action.

3. Dakin's solution followed by a 2 per cent dilution of liquor formaldehydi in glycerin is the most ideal antiseptic method of treating empyema.

4. Communication of an empyemic cavity with a bronchus is more common than is generally suspected. It is not a contraindication to the use of Dakin's solution and formaldehyd solution, and more readily closes when these are used.

5. Constant negative pressure gives the maximum expansion of the lung, and the irritating and cleansing action of sodium hypochlorite solution causes rapid obliteration of the cavity.

6. In uncomplicated cases of empyema, the patient need not be kept in bed.

7. Test smears are negative when cultures are positive when Dakin's solution is used and vice versa when formaldehyd-glycerin is employed.

8. Roentgenographic and bacteriologic laboratory facilities, while always to be preferred, are not absolutely essential in treating empyema by the closed method.

9. The closed method is productive of great economy of time, labor and dressing material.

10. Treatment by the closed method can effect cures in many cases similar to those that are usually treated by the Schede, Eastlander or Delorme operation.

11. The closed method is practicable in the home and in country practice.

12. A hypochlorite solution of increased strength over Dakin's solution in both alkalinity and amount of available chlorin can be used in empyemic cavities with safety.

13. Labarraque's solution, diluted to the strength indicated, can be substituted for Dakin's solution.

14. The closed method offers good chances of effecting cures in cases of double empyema, through the possibility of treating the empyemic cavities on both sides at the same time, which treatment is impossible by the open method.

Walter Reed General Hospital.

INFLUENZA

REPORT OF A SPECIAL COMMITTEE OF THE AMERICAN PUBLIC HEALTH ASSOCIATION

[NOTE.—To afford such aid as may be possible to administrative health officials, a committee of the American Public Health Association, consisting of Drs. W. A. Evans, Chicago, chairman; D. B. Armstrong, Framingham, Mass.; William H. Davis, Washington, D. C.; Mr. E. W. Kopf, New York, and Dr. William C. Woodward, Boston, was charged with the duty of preparing a provisional working formula, based on the facts and opinions presented at the meeting of the association in Chicago, Dec. 9 to 12, 1918. Because of the timely and important character of the subject, the report is published in full.—ED.]

NATURE OF THE EPIDEMIC

The present epidemic is the result of a disease of extreme communicability. So far as information available to the committee shows, the disease is limited to human beings.

The micro-organism or virus primarily responsible for this disease has not yet been identified. There is, however, no reason whatsoever for doubting that such an agency is responsible for it. Mental conditions may cause a person to believe he has influenza when he has not, and may make the patient who has the disease suffer more severely than he otherwise would. No mental state alone, however, will cause the disease in one who is not infected by the organism or virus that underlies the malady.

While the prevailing disease is generally known as influenza, and while it will be so referred to in this statement, it has not yet been satisfactorily established that it is the identical disease heretofore known by that name, nor has it been definitely established that all preceding outbreaks of disease styled at the time "influenza" have been outbreaks of one and the same malady.

There is no known laboratory method by which an attack of influenza can be differentiated from an ordinary cold or bronchitis or other inflammation of the mucous membranes of the nose, pharynx or throat.

There is no known laboratory method by which it can be determined when a person who has suffered from influenza ceases to be capable of transmitting the disease to others.

Laboratories are necessary agencies for the supervision and ultimate control of the disease. The research laboratory is necessary for the discovery of the causative micro-organism or virus, and for the discovery of some practicable method for the propagation of a specific vaccine and a curative serum. Clinical laboratories are necessary for the supervision and control of such vaccines and serums as may be used from time to time for the prevention of the disease and for therapeutic purposes, and for the information such laboratories can give to health officers and physicians as to such variations in the types of

infective micro-organisms as occur during the progress of an epidemic.

Deaths resulting from influenza are commonly due to pneumonias resulting from an invasion of the lungs by one or more forms of streptococci, or by one or more forms of pneumococci, or by the so-called influenza bacillus, or bacillus of Pfeiffer. This invasion is apparently secondary to the initial attack.

Evidence seems conclusive that the infective micro-organism or virus of influenza is given off from the nose and mouth of infected persons. It seems equally conclusive that it is taken in through the mouth or nose of the person who contracts the disease, and in no other way, except as a bare possibility through the eyes, by way of the conjunctivae or tear ducts.

PREVENTION

If it be admitted that influenza is spread solely through discharges from the noses and throats of infected persons finding their way into the noses and throats of other persons susceptible to the disease, then no matter what the causative organism or virus may ultimately be determined to be, preventive action logically follows the principles named below and, therefore, it is not necessary to wait for the discovery of the specific micro-organism or virus before taking such action.

I. Break the channels of communication by which the infective agent passes from one person to another.

II. Render persons exposed to infection immune, or at least more resistant, by the use of vaccines.

III. Increase the natural resistance of persons exposed to the disease, by augmented healthfulness.

I. Breaking the Channel of Communication.—

(a) By preventing droplet infection. The evidence offered indicates that this is of prime importance.

(b) By sputum control. The evidence offered indicates that the danger here is due chiefly to contamination of the hands and common eating and drinking utensils.

(c) By supervision of food and drink. Evidence offered does not indicate much danger of infection through these channels.

Details and practical methods possible for the limitation of infection through droplets, sputum, and food and drink are discussed later under special preventive methods.

II. Immunization and Vaccines.—(These are discussed in a report of the laboratory committee farther on.) In the present epidemic vaccines have been used to accomplish:

1. The prevention or mitigation of influenza per se.
2. The prevention or mitigation of complications recognized as due to the influenza bacillus or to various strains of streptococci and pneumococci.

In relation to the use of vaccines for the prevention of influenza, the evidence that has come to the attention of the committee as to the success or lack of success of the practice is contradictory and irreconcilable. In view of the fact that the causative organism is unknown, there is no scientific basis for the use of any particular vaccine against the primary disease. If used, any vaccine must be employed on the chance that it bears a relation to the unknown organism causing the disease.

The use of vaccines for the complicating infections rests on more logical grounds, and yet the committee has not sufficient evidence to indicate that they can be

used with any confident assurance of success. In the use of these vaccines the patient should realize that the practice is still in a developmental stage.

The committee believes that when vaccines are used experimentally for the purpose of determining their preventive or curative value, the following conditions should be complied with:

1. The groups of vaccinated and unvaccinated persons should be the same in number.
2. The relative susceptibilities of the two groups should be equal, as measured by age and sex distribution, previous exposures to infection without development of influenza, and a previous history as to recent attacks of the disease.
3. The degree of exposure in each group should be practically the same in duration and intensity.
4. The groups should be exposed concurrently during the same stage of the epidemic curve.

III. Increased Natural Resistance of Persons Exposed to Infection.—Physical and nervous exhaustion should be avoided by paying due regard to rest, exercise, physical and mental labor, and hours of sleep. The evidence is conclusive, however, that youth and bodily vigor do not guarantee immunity to the disease.

The nature of the preventive measures practicable and necessary in any given community depends in a large part on the nature of the community itself, as to population characteristics, industries, and so on, and on the stage and type of the epidemic curve. For example, the measures to be adopted in a purely rural community would not be practicable or desirable in a large metropolitan area, nor would the measures desirable and feasible at the beginning or end of an epidemic be found those best adapted for the intervening period. The committee has found it impossible, therefore, to lay down any rules for the guidance of all health officials alike in preventive measures. The most it has been able to do has been to state certain general principles that in its judgment should underlie administrative measures for the prevention of influenza. The application of these principles to the needs of any particular community must be left for determination by the officers of that community who are responsible for the protection of its public health.

The preventive measures recommended by the committee are as follows:

A. Efficient organization to meet the emergency, providing for a centralized coordination and control of all resources.

B. Machinery for ascertaining all facts regarding the epidemic:

1. Compulsory reporting.
2. A lay or professional canvass for cases, etc.

C. Widespread publicity and education with respect to respiratory hygiene, covering such facts as the dangers from coughing, sneezing, spitting, and the careless disposal of nasal discharges; the advisability of keeping the fingers and foreign bodies out of the mouth and nose; the necessity of hand-washing before eating; the dangers from exchanging handkerchiefs; and the advantages of fresh air and general hygiene. Warnings should be given regarding the danger of the common cold, and possibly colds should be made reportable so as to permit the sending of follow-up literature to persons suffering from them. The public should be made acquainted with the danger of possible carriers among both the sick and the well and the resultant necessity for the exercise of unusual care on

the part of everybody with respect to the dangers of mouth and nasal discharges.

D. Administrative procedures:

1. There should be laws against the use of common cups, and improperly washed glasses at soda fountains and other public drinking places, which laws should be enforced.
2. There should be proper ventilation laws, which laws should be enforced.

Since the disease is probably largely a group or crowd problem, the three following subheads are especially important:

3. *The Closing of Meeting Places.*—Since the spread of influenza is recognized as due to the transmission of mouth and nasal discharges from persons infected with influenza, some of whom may be aware of their condition but others unaware of it, to the mouths and noses of other persons, gatherings of all kinds must be looked on as potential agencies for the transmission of the disease. The limitation of gatherings with respect to size and frequency, and the regulation of the conditions under which they may be held must be regarded, therefore, as an essential administrative procedure.

Nonessential gatherings should be prohibited. Necessary gatherings should be held under such conditions as will insure the greatest possible amount of floor space to each individual present, and a maximum of fresh air, and precautions should be taken to prevent unguarded sneezing, coughing, cheering, etc.

Where the necessary activities of the population, such as the performance of daily work and the earning of a living, compel considerable crowding and contact, but little is gained by closing certain types of meeting places. If, on the other hand, the community can function without much contact between the individual members, relatively much is gained by closing or preventing assemblages.

Schools: As to the closing of schools, there are many questions to be considered.

(a) Theoretically, schools increase the number and degree of contacts between children. If the schools are closed, many of the contacts which the children will make are likely to be outdoors. Whether or not closing will decrease or increase contacts must be determined locally. Obviously, rural and urban conditions differ radically in this regard.

(b) Are the children in coming to and going from school exposed to inclement weather or long rides in overcrowded cars?

(c) Is there an adequate nursing and inspection system in the schools?

(d) Is it likely that teachers, physicians and nurses can really identify and segregate the infected schoolchild before it has an opportunity to make a number of contacts in halls, yards, rooms, etc.? We suggest that children suspected of having influenza and held in school buildings for inspection should be provided with and required to wear face masks.

(e) Will the closing of schools release personnel or facilities to aid in fighting the epidemic?

(f) If schools are kept open, will the absence of many teachers lower the educational standards?

(g) If a number of pupils stay at home because of illness or fear, will they not constitute a heavy drag on their classes when they return?

(h) If schools are closed, is there likely to be an outbreak in any case when they are reopened?

Churches: If churches are to remain open, services should be reduced to the lowest number consistent with the adequate discharge of necessary religious offices, and such services as are held should be conducted in

such a way as to reduce to a minimum the intimacy and frequency of personal contact.

Theaters: As regards theaters, movies, and meetings for amusement in general, it seems unwise to rely solely or in great part on the ejection of careless coughers. In the first place it is difficult to determine who is a careless cougher, and after each cough, danger has already resulted. It seems, too, that the closing of theaters may have as much educational value as their use for direct educational purposes, etc. Discrimination as to closing among theaters, movies, etc., on the basis of efficiency of ventilation and general sanitation may be feasible.

Saloons, etc.: The closing of saloons and other drinking places should be decided on the basis of the probability of spread of the disease through drinking utensils and the conditions of crowding.

Dance Halls, etc.: The closing of dance halls, bowling rooms, billiard parlors and slot-machine parlors, etc., should be made effective in all cases where their operation causes considerable personal contact and crowding.

Street Cars, etc.: Ventilation and cleanliness should be insisted on in all transportation facilities. Overcrowding should be discouraged. A staggering of opening and closing hours in stores and factories to prevent overcrowding of transportation facilities may be cautiously experimented with. In small communities where it is feasible for persons to walk to their work it is better to discontinue the service of local transportation facilities.

Funerals: Public funerals and accessory funeral functions should be prohibited, being unnecessary assemblies in limited quarters, increasing contacts and possible sources of infection.

4. **Masks.**—The wearing of proper masks in a proper manner should be made compulsory in hospitals and for all who are directly exposed to infection. It should be made compulsory for barbers, dentists, etc. The evidence before the committee as to beneficial results consequent on the enforced wearing of masks by the entire population at all times was contradictory, and it has not encouraged the committee to suggest the general adoption of the practice. Persons who desire to wear masks, however, in their own interests, should be instructed as to how to make and wear proper masks, and encouraged to do so.

5. **Isolation.**—The isolation of patients suffering from influenza should be practiced. In cases of unreasonable carelessness, it should be legally enforced most rigidly.

6. **Placarding.**—In cases of unreasonable carelessness and disregard of the public interests, placarding should be enforced.

7. **Hospitalization.**—The theory of complete hospitalization is that, if all the sick were hospitalized, the disease would be controlled. In certain somewhat small communities where hospitalization of all cases was promptly inaugurated, the disease did come quickly under control. It must be recognized, however, that unless every infective person can be detected and identified as such and removed to the hospital before he has infected others, hospitalization cannot be depended on to eliminate the disease.

In general, home treatment is to be advocated where medical, nursing and other necessary facilities are adequate, and where home treatment is not directly contraindicated by the danger of infecting others. The

hospitalization in any case, mild or severe, should be undertaken only when facilities for home treatment are inadequate with respect to medical and nursing care or otherwise. The objection to routine hospitalization of mild cases lies in the fact that patients not already suffering from secondary infections may acquire them by exposure to hospital cases already so infected. The objection to the routine hospitalization of severe cases lies in the danger to the patient necessarily incident in the transfer from home to the hospital.

8. **Coughing and Sneezing.**—Laws regulating coughing and sneezing seem to be desirable for educational and practical results.

9. **Terminal Disinfection.**—Terminal disinfection for influenza has no advantage over cleaning, sunning and airing.

10. **Alcohol.**—The use of alcohol serves no preventive purpose.

11. **Sprays and Gargles.**—Sprays and gargles do not protect the nose and throat from infection, for the following reasons:

(a) So far as the knowledge of the committee extends, no germicide strong enough to destroy infective organisms can be applied to the nose and throat without at the same time injuring the mucous membranes.

(b) Irrigation of the nose and throat to accomplish the complete mechanical removal of the infective organism is impracticable.

(c) Their use tends to remove the protective mucus, to spread the infection and to increase the liability of actual entrance of the infective organisms.

(d) Their domestic use is liable to lead in families to a common employment of the same utensils.

(e) The futility of sprays and gargles has been demonstrated with respect to certain known organisms, such as the diphtheria bacillus and the meningococcus.

MISCELLANEOUS CONSIDERATIONS

1. Colleges, asylums and similar establishments may with advantage enforce rigid institutional quarantine against the outside world, if they begin in the early stage of an epidemic, provided they are so located and conducted as to render the procedure reasonably likely to be effective, even temporarily; for even temporary success will postpone the appearance of the disease, if it appears at all, to a time when the patients will be more likely to be able to have adequate medical and nursing care.

2. The recommended measures for control, even if they do not accomplish the desired end, should at least be instrumental in distributing the epidemic over a longer period of time, which in itself is highly desirable.

The statistics of the disease and the keeping of proper records are extremely important. The lack of knowledge regarding innumerable factors in reference to the disease makes all the more desirable complete case records, etc.

4. The committee wishes to emphasize the need for the complete statistical study of the collected data on the mortality, morbidity, case fatality, duration, economic aspects, and therapeutics of the disease. Through the collection of the facts in a uniform manner, and through the analysis of such tabulated data, especially mathematical graduation, and testing and study of the figures, important contributions to the natural history and typical characters of the disease may be expected. General principles as to the etiology,

fatality and practical management of influenza may follow from the extensive survey of the epidemic in the statistical laboratory as well as from the intensive bedside observation of single cases of the disease.

5. The measures recommended are calculated to be effective in the promotion of respiratory hygiene in general and particularly in the control of pneumonia and other respiratory infections.

ADMINISTRATIVE MEASURES FOR RELIEF

The committee on administrative measures for relief would submit the following considerations as constituting a summary of the important measures for meeting epidemic conditions:

I. *General Rules.*—1. Reporting should be made compulsory.

2. Isolation, by cooperation and education, should be practiced to a point where it does not diminish the willingness of the physician to report.

3. Placarding would seem to be subject to the same limitations as is isolation.

4. The closing of schools, prohibition of funerals, etc., being preventive measures, are not touched on in this report, except to mention that the closing of many agencies will release medical, nursing and volunteer services for special influenza work.

5. It may be necessary to grant authority and power to the health authorities to administer relief.

II. *Preliminary Measures.*—1. The listing and distribution of resources, including physicians, nurses, social workers, nurses' aids, clerks, domestics, laundresses, automobiles, chauffeurs, mask makers and volunteers of all kinds should be undertaken.

All available publicity channels should be used to promote volunteer service.

An appeal should be made for voluntary donors of human blood serum from convalescent influenza patients, to be held in readiness for use in treatment.

2. Resources should be centralized under one control, with central and branch headquarters, the city being districted for medical, nursing and other work.

The central headquarters should be ordinarily under the supervision of a board representative of the most important agencies concerned, the board's work to be administered through a manager (presumably the health officer) selected for his fitness.

3. The service should be maintained on a twenty-four hour basis, and a system of outgoing and incoming telephone service is essential.

4. The local authorities should get and keep in touch with state and national agencies.

III. *Current and Continuous Analysis of Case Situation.*—In the smaller communities a canvass should be made of all physicians, soliciting information as follows:

- (a) Number of cases under care.
- (b) Number of cases needing hospital treatment.
- (c) Number of cases needing home nursing care.
- (d) Number of cases requesting medical service but not reached.

This information will indicate the situation as regards the need for emergency nursing and medical service, and should be acquired as fully as possible in larger communities, through various agencies, such as a current lay or police canvass of homes, etc. The continuous classification of cases according to these groupings is of practical value.

IV. *Analysis, Augmentation and Organization of Principal Facilities.*—(A) Field Nursing: 1. Ordinarily nursing facilities utilized in general public health work should be diverted to meet the epidemic situation, and should be used on a district basis, with all other available facilities, under one supervision.

2. Nursing assistants, volunteers and the like should be used whenever possible in homes and institutions, under expert supervision, after classification and assignment on a basis of minimum standards as to fitness, and such intensive training in the care of influenza and pneumonia patients as may be feasible.

3. From the standpoint of the patient, home treatment is to be advocated, if medical, nursing, disease prevention and other facilities are adequate.

4. Restriction so far as possible through the pressure of public opinion should be brought against the unnecessary use of private nurses.

5. Automobile transportation should be provided, and the nursing service used to encourage isolation and education.

6. Special record forms are essential for this and the medical work, and a special subcommittee is proposed to meet this problem.

7. Provision as to housing and care should be made for out of town nurses.

8. We recommend further training with reference to influenza for all graduates of Red Cross home nursing courses and more extensive use of their services. This would necessitate frequent and careful registration (names, addresses and telephone numbers) and further information regarding personal health, age and ability and willingness to serve.

(B) Emergency Medical Service: 1. The medical service should be handled through the central office, the physicians being responsible to the central office, though perhaps assigned to district offices.

2. In this emergency service there should be utilized all available physicians, such as school and factory physicians, volunteers, practitioners on a paid basis, and fourth year medical students. This service should cover all calls reported as unreached by private physicians or received through other channels, and should be coordinated with the special nursing service, being provided with automobile transportation, machines being hired if necessary.

3. The emergency medical service should be used to select cases needing hospital care.

4. It may be feasible to institute a central clearing house in certain districts for private physicians' calls.

5. An arrangement should be made through the medical licensing board for the granting of temporary permits to practice to reputable physicians from out of the state, at the request of the Central Influenza Committee.

6. In some localities it may be feasible to district the local practitioner and to have him meet special calls on a part time basis for adequate compensation.

7. Certain of the relatively nonessential specialties should be discouraged and the physicians in those specialties urged to volunteer for emergency district work. This type of service may be operated on a pay or free basis.

8. Presumably some effort should be made, through an authoritative medical commission, to suggest standard methods of treatment and wise limitations as to therapeutic procedure.

(C) Hospital Facilities: 1. It is essential that the facilities, if possible, be kept ahead of the demand. A daily canvass should be made and data collected regarding available beds, medical and nursing needs, domestics, food, cots, supplies, etc. A regular visit by an inspector will probably prove more effective than an attempt at telephone communication.

2. Under most conditions a central clearing house, covering most if not all of the hospitals, is advisable for the admission of cases. Through this channel the severer cases may receive first consideration. Owing to constant changes in the hospital bed situation, the daily canvass of facilities may not be wholly depended on; on the contrary, it may usually be necessary to telephone the hospital in order to make sure regarding the admission of a particular case. In any event the hospitals, if facilities are inadequate, should be impressed with the necessity for admitting only the most severe or needy cases, pay or free. Special hospital arrangements should be provided for pregnant women.

3. It is advisable to add wards or tents or new equipment to existing institutions rather to establish entirely new emergency hospitals. If practicable, certain hospitals may be urged to handle influenza cases exclusively.

4. Nonemergency surgical and chronic medical cases amenable to home treatment should be dehospitalized.

5. A convalescent home, if adjacent to the hospital, may serve for the care of mild and convalescent cases, thereby increasing the space in the hospital for acute cases, obviously involving an increase in the nursing facilities.

6. A canvass of ambulance facilities should be made, ambulances being requisitioned with payment, or hired by contract, if necessary. Automobiles and motor trucks should be potentially mobilized for this purpose. Frequently military equipment may be used if accessible.

V. Social and Relief Measures: 1. The central office should keep the family advised regarding the patient, thereby saving telephone calls, trolley fares and worry on the part of the family, and thereby increasing the willingness for hospitalization.

2. Volunteer workers, such as Red Cross volunteers, teachers and relatives, should be placed in care of families in which the responsible members are dead or hospitalized, this service being under expert social supervision, and the families in touch with the supply system. Supervision of placed-out children is also necessary.

3. Homes should be investigated before patients are discharged into them, when destitution or other untoward circumstances are apparent.

4. Precaution should be taken that institutions and families too busy with the influenza situation to look after their own needs are covered by the general relief measures.

5. Ordinary charitable relief should be handled through the routine agencies, and the service coordinated with the other epidemiologic measures. Churches, lodges, etc., should be urged to handle their own cases, in order to relieve the pressure on the central agency. Aid should be immediate, without protracted investigation.

6. Recreation facilities (motoring, etc.) should be provided for the physicians and nurses while off duty.

VI. Food: 1. Available central cooking facilities should be used so far as is necessary, such as the dietetic equipment in high schools, normal schools, colleges, etc., with a delivery system to families and institutions in need.

2. Individual families should be encouraged to cook additional amounts, these to be delivered to central diet kitchens for distribution, a standard list of prepared foods needed being devised and advertised, with recognition of racial customs and preferences.

3. It may be necessary to establish canteens in sections of the city.

VII. Laundry: 1. A special collection and distribution system may be essential both for homes and for institutions.

2. It may be necessary to take over a public laundry with compensation, or a private nonmedical institution laundry.

VIII. Provision for Fatalities: 1. Death reporting should be prompt (twenty-four hours) and a record kept so as to insure prompt disposal of bodies.

2. A daily canvass of available coffins should be made, labor assured for construction, and possibly no coffins sold without the permit of the influenza administration office.

3. If morgue facilities are inadequate, a central place should be provided, with embalming facilities, for the temporary disposal of bodies.

4. A canvass of hearses should be made and regulations issued prohibiting unnecessarily long hauls, insisting on maximum loads, etc. A central control will prevent unnecessary duplication as to routes, etc.

5. A reserve supply of trucks and automobiles should be at hand for use in various ways in connection with the handling of fatal cases.

6. The number of graves required should be estimated and labor released from public works or secured through other channels (possibly military) for digging. Possibly temporary trench interment may be necessary.

IX. Education, Instruction and Publicity: Literature and special instructions will be necessary on many phases, including the following:

1. Instructions to physicians as to reporting, facilities available, district arrangements, etc.

2. Advice to physicians regarding treatment standards and suggestions.

3. Instructions for families, to be distributed by nurses, physicians, social workers, druggists and others covering the problems of care during the physician's absence.

4. Instructions to the public as to where aid may be secured, to be printed in various languages, and distributed by druggists, displayed in street cars, used in the press, etc.

5. Instructions for families on "What to do till the doctor comes."

6. Instructions to physicians, factory managers, school superintendents and others, urging the necessity for immediate home and bed treatment at the first sign of respiratory disease.

7. Popular literature on the essentials of adequate care, the danger of returning to work too soon, etc. Popular press space is worth paying for, if it cannot be secured otherwise.

8. Popular publicity as to legitimate medical, nursing, undertaker, drug and other charges, to prevent profiteering.

X. Miscellaneous: 1. The cooperation of pharmaceutical agencies should be secured to insure an adequate supply of drugs and druggists.

2. Influenza victims and their families should have "first call" on fuel deliveries.

3. While follow up procedures are not legitimately a factor in the epidemic situation, their consideration is essential to an adequate meeting of the entire problem. This means adequate provision for medical examination and nursing care, relief measures, industrial employment problems, and the follow up of special sequelae, such as cardiac affections and tuberculosis.

4. It is finally suggested that the health department draw up a program based on the foregoing outline, holding it in reserve for future use, if not immediately needed, and modifying the proposal to fit the size and other characteristics of the particular community.

THE BACTERIOLOGY OF THE 1918 EPIDEMIC OF SO-CALLED INFLUENZA

The epidemic disease known as influenza is believed to be due to an undetermined organism which causes an infection that lowers the resistance of the body as a whole, and of the respiratory organs in particular. This allows the invasion of other pathogenic micro-organisms. The most important complicating infections are due to the influenza bacilli, different strains of pneumococci and different varieties of streptococci. Some careful observers regard certain of these organisms as the primary cause.

In each case, one or several of these micro-organisms may be present. In different portions of the country the dominating variety of organism has been found to differ.

VACCINES

Assuming that the cause of the epidemic is an unknown virus, it does not seem possible at present to prevent the primary disease by vaccination with known organisms. Against the secondary infections there would seem to be a theoretical basis for the use of vaccines, and especially for the use of vaccines prepared from organisms responsible for complications which may differ in various localities at various times. This variable bacterial flora may militate against the practical application of vaccination on a large scale, because it would seem to require frequently repeated vaccinations with the flora that may be encountered. It is impossible at present to evaluate the reports from the use of these vaccines adjusted to meet local conditions. More data obtained under carefully controlled conditions are needed.

Stock vaccines made from the influenza bacillus alone or from other bacteria have been used to a considerable extent. The injections of stock vaccines have seemed to mitigate to some degree some outbreaks of influenza, and also the severity of the complicating infections; but in those instances in which the results of the use of vaccine have been controlled, no appreciable results have been obtained. The fact that the vaccine is usually employed after the epidemic has broken out and is perhaps on a decline, and the fact that an unknown number of people have been exposed, make it very difficult to draw conclusions as to its efficacy.

RECOMMENDATIONS

Your committee recommends that until such time as the efficacy, or the lack of efficacy, of prophylactic vaccination against influenza is established, vaccine,

if used, should be employed in a controlled manner, under conditions that will allow a fair comparison of the number of cases and of deaths among the vaccinated and nonvaccinated groups. Particular attention should be directed to securing data as to the period in the epidemic at which vaccinated and nonvaccinated persons developed the disease.

Your committee is of the opinion that the indiscriminate use of stock vaccines against influenza and influenza with pneumonia cannot be recommended.

Nothing in these recommendations should be interpreted as discouraging the use of a pneumococcus stock vaccine against lobar pneumonia.

This epidemic emphasizes the importance of properly equipped laboratories.

HISTORY AND STATISTICS OF THE EPIDEMIC

Your subcommittee wishes to say that in view of the fact that the historical and other data of the epidemic are still in process of collection, no positive statement can be made at the present time on the precise incidence of the disease in the American population. On the basis of the best data available, your subcommittee estimates that there were not less than 400,000 deaths from the disease in the United States during the months of September, October and November, 1918. The major portion of this mortality occurred between the ages of 20 and 40, when human life is of the highest economic importance. We would suggest that this subcommittee be authorized to cooperate with the special committee on statistical study of the epidemic of the section on vital statistics of this association, and that the data collected through the latter special committee be reported through the subcommittee on history and statistics of the epidemic to the general reference committee on the influenza epidemic. Standard forms for purposes of statistical tabulation, analysis and graphic presentation will be submitted in a supplementary report at an early date.

SUGGESTIONS

In view of the probability of recurrences of the disease from time to time during the coming year, health departments are advised to be ready in advance with plans for prevention, which plans shall embody the framework of necessary measures and as much detail as is possible. Laws plainly necessary should be enacted and rules passed now. Emergency funds should be held in reserve or placed in special appropriations, which appropriations can be quickly made available for influenza prevention work.

The probability that as an after-effect of the influenza epidemic there will be an unusually high pneumonia rate for several years should be taken into consideration.

Of measures for the control of the disease, bacteriologic studies as to the nature of the organisms causing the primary infection and as to bacteria associations, new and improved procedures leading to the production and use of effective vaccines and curative serums, and the fresh air treatment of the infected appear to offer most promise.

Catalase and Oxidation.—W. E. Burge reports in *Science*, Aug. 16, 1918, that as the result of investigations in the physiologic laboratory of the University of Illinois, it is determined that physical work and the ingestion of food increase oxidation in the body by stimulating the liver to an increased output of catalase.

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A GENTLE REMINDER

A blue slip to be used in remitting subscriptions and dues for Fellowship in the American Medical Association for 1919 is inserted in *THE JOURNAL* this week. Last week we explained its use under the heading "Practical Economy." The use of this slip by Fellows and subscribers will result in a considerable saving on the cost of sending the customary bills. Over 20,000 subscribers utilized the slip last year, and it is hoped that an even greater number will use it this year. Don't delay! It's the little things in life that count.

FACT AND OPINION ON THE PRESENT EPIDEMIC OF RESPIRATORY DISEASE

The recent meeting of the American Public Health Association in Chicago was devoted largely to the present epidemic of influenza. An abstract of the proceedings of the sessions devoted to this subject appears in this issue of *THE JOURNAL*. This abstract is not, of course, a verbatim report of the proceedings, but represents that which seems of permanent value, eliminating a large mass of discussion that was argumentative rather than of the nature of scientific evidence. There are certain large phases of the subject on which much evidence was presented leading to what might be expressed as a consensus of opinion. It must be borne in mind that this organization consists primarily of public health officials, though it includes many research workers and physicians engaged in medical practice and investigation.

The discussions relative to the etiology of the present epidemic resolve themselves into the belief that the bacillus of influenza is not the primary etiologic factor, and that the actual cause is as yet unknown. As indicated by present evidence, a coccus, perhaps a pneumococcus of Type IV, or the coccus described by Mather's and others as a green-producing streptococcus, or the diplostreptococcus described by numerous investigators abroad, seems to have impressed many as of impor-

tance in causing death. It seems reasonable to suspect that perhaps these observations all may refer to the same organism or to closely related organisms; but sufficient work has not yet been done with this organism to prove a definite etiologic relation to the epidemic. The reports, however, indicate that such organisms are found in a large majority of the cases of the disease, especially in those resulting fatally, and that if they are not the primary etiologic factors, they seem to bear a definite relationship to the complicating pneumonia and the resulting mortality.

A second point of elaborate discussion in the proceedings concerned the use of the face mask as a means of prevention. Arguments were made for and against the use of this mask. Most of those who took part in the discussion seemed to lose sight of the fact that definite evidence has been presented to show that the wearing of a face mask prevents the diffusion of pathogenic organisms of which we have definite knowledge. If a person coughs toward a plate of medium exposed at a certain distance from the mouth and nose, a large number of colonies of bacteria develop on the plate. If the same person provides himself with an adequate face mask and coughs toward the plate, the organisms do not appear and grow on the plate. This is a simple experiment which any investigator may easily demonstrate for himself. The organisms found on the plates are, in many cases, bacteria similar to those found in the lungs of persons dying in the present epidemic. There is reason to believe that a face mask properly worn will aid in the prevention of infection from these organisms. There is also evidence to the effect that face masks, properly worn and controlled, have prevented the spread of the epidemic in certain institutions, whereas it spread rapidly in other institutions where the face mask was not worn. While not conclusive, this evidence leads to the opinion that, properly used, the face mask has value in the prophylaxis of influenza. Whether or not it is worth while to attempt to mask entire communities, either small villages of a few hundred or a few thousand inhabitants or large municipalities, such as San Francisco, compelling all of the persons in the municipality to wear the mask in public over an extended period of time, there is grave doubt as to whether this procedure can be sufficiently controlled to make it of practical value. Not that the public does not cooperate fully with the health department in its effort, but that the efficiency of the cooperation cannot be made sufficiently perfect.

Incidentally, a paper presented by Lieutenant-Colonel Cummings of Newport News, Va., indicated to the satisfaction of most listeners that a significant factor in the spread of infection in Army camps was the inadequate washing of mess kits. Cummings was strongly imbued with the belief that hand to mouth infection was more important than mouth to mouth or, rather, face to face, infection. It was his belief that a

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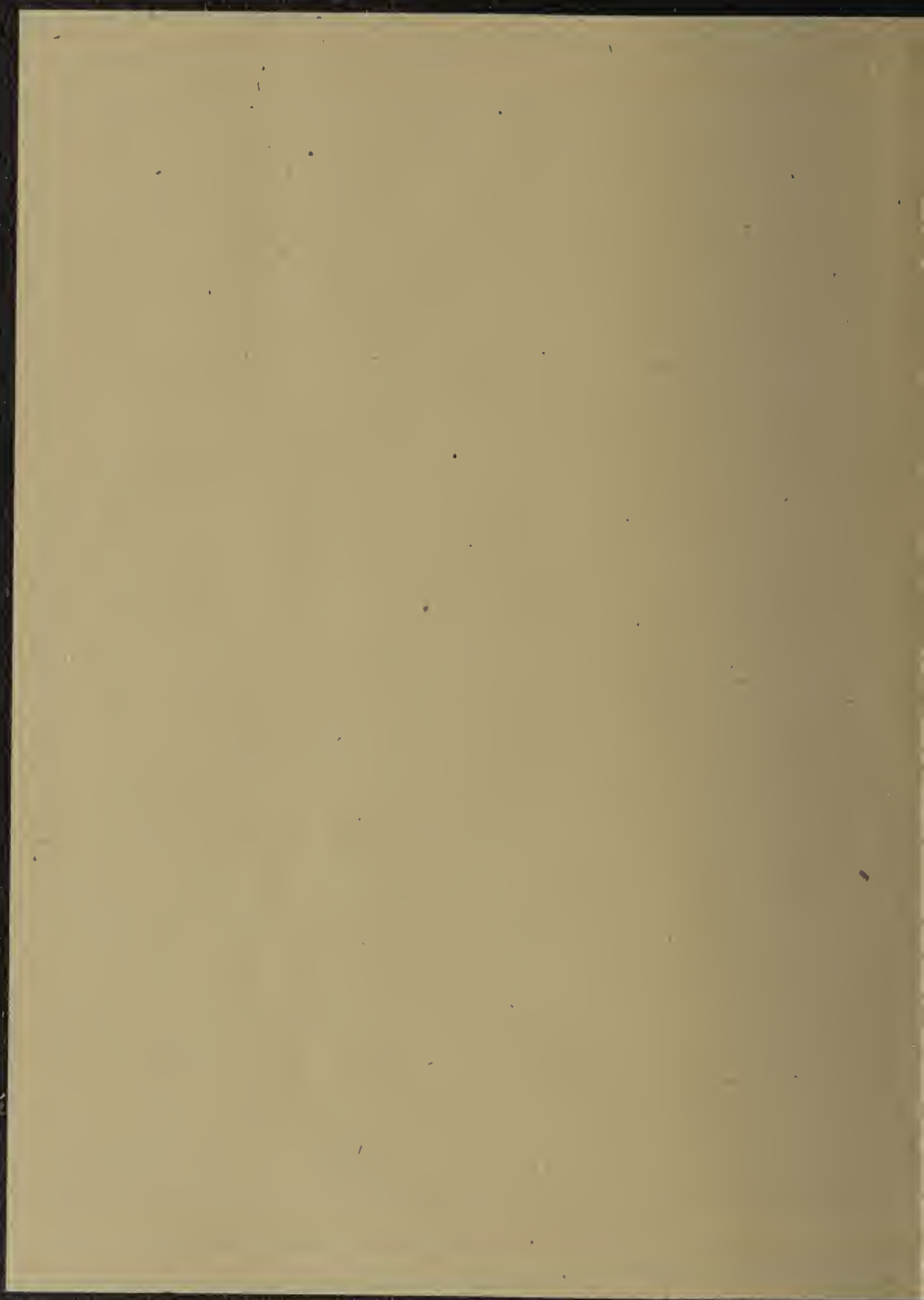
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special value attaches to the face mask in aiding in the prevention of hand to mouth infection.

Another greatly debated point concerned the use of prophylactic vaccines. As we have stated before, these vaccines are at present of two main types. One is a vaccine composed of various strains of the influenza bacillus, the other a mixed vaccine containing the various types of pneumococci, also streptococci, influenza bacilli and staphylococci. Both types have been given extensive trial, unfortunately, however, except in a few cases, without adequate scientific control. The indiscriminate vaccination of the population, vaccinating those who come and not vaccinating others, without keeping adequate records of both, can hardly yield evidence worthy of consideration for or against the use of vaccines as a prophylactic measure. We recently¹ pointed out that the use of the vaccines was wholly in the experimental stage. Since that time reports have appeared of definite, adequately controlled experiments with each of these vaccines. These indicate that this use is at best still in the experimental stage, and that these vaccines are probably not efficacious in the prophylaxis of influenza. It is well to repeat here that the question as to whether or not these vaccines are efficacious cannot be settled by argument as to the theory of their use or by statement of opinion. The question is one that is susceptible of scientific proof.

SCURVY AND CONSTIPATION

In view of the departures from the customary character of the diet that are impending or already in operation to a large extent among the civil population, as well as among the armies of the world, it is fortunate that scurvy has again become the subject of extensive scientific investigation. This disease is admittedly associated with alterations in the diet, and commonly has manifested itself prominently when certain extensive changes in the usual rations have been necessitated by force of altered food conditions. We have recently referred to some of the conflicting views regarding scurvy, particularly as they are elucidated by modern experience with antiscorbutic methods.² The symposium on diseases due to deficiencies in nutrition—an important feature of the session of the American Medical Association last June—helped to secure the formulation of the debated points of view.³

We must revert here to the theory of McCollum, which has been widely quoted of late. As he was unable to maintain guinea-pigs—the classic animal for the study of experimental scurvy—in health on a diet of oats and milk, from which he asserts that nothing

is lacking for the adequate nutrition of rats and swine, McCollum believes that the physical texture rather than the chemical make-up of the scorbutic diet must be at fault. As he develops his view, the guinea-pig ordinarily thrives only on diets that contain a succulent vegetable, since its cecum becomes packed with feces on diets that are unsuited to its digestive tract. The cecum in this species is very large and delicate, and such a constipating diet as oats and milk causes malnutrition because of the physical properties of the feces that are formed from it, rather than because of a lack of any antiscorbutic substance.

The investigations of Cohen and Mendel⁴ at Yale University are not in harmony with the belief that intestinal stasis is the sole predisposing factor in the production of scurvy or that the action of well known antiscorbutics can be explained as due to their laxative effects. For example, in the case of certain selected diets a small amount of milk ingested daily permitted the onset of symptoms of scurvy, while larger quantities, which were not less constipating, caused the scorbutic symptoms to disappear. Moreover, aids to the ready elimination of feces, like differing amounts and kinds of roughage, caused no corresponding change in the course of the disease. The Yale investigators conclude that roughage in the diet plays, if anything, a minor accessory rôle in the prevention of scurvy. This disease is not essentially dependent on constipation as a causative factor, though the latter may aggravate the symptoms.

Hess has expressed himself in a similar vein:

Observations of many cases of infantile scurvy have convinced us that constipation plays no essential rôle in this disease. In reviewing the many cases that we have seen we find that the infants were not constipated to a greater degree than normal babies, and that the disorder bore no parallel relationship to the activity of the bowels. Furthermore, as brought out in a recent paper, potato, which is a sovereign remedy for scurvy, is not a laxative, and malt soup preparations, which most readily lead to this disorder, are rather laxative than constipating. To this evidence may be added a recent experience that infantile scurvy does not yield to treatment by liquid petrolatum, but that its symptoms are rapidly alleviated by small additions of orange juice to the dietary, so small as to be without apparent effect on the bowels.

The accord between the English investigators, Chick, Hume and Skelton,⁵ and the American workers just quoted serves to keep scurvy for the present in the domain of diseases due to deficiencies of nutrition, and gives renewed significance to the careful study of antiscorbutic agents. For, as Hess³ has remarked, if the protective or curative values of antiscorbutic foods are, as McCollum and Pitz have recently contended, merely dependent on their laxative properties, and interchangeable with laxatives, such as liquid petrolatum or phenolphthalein, then scurvy is in no sense whatsoever due to food deficiency.

1. Serums and Vaccines in Influenza, editorial, *THE JOURNAL A. M. A.*, Oct. 26, 1918, p. 1408.

2. Scurvy and Antiscorbutics, editorial, *THE JOURNAL A. M. A.*, Dec. 14, 1918, p. 2000.

3. McCollum, E. V.: The "Vitamin" Hypothesis and the Diseases Referable to Faulty Diet, *THE JOURNAL A. M. A.*, Sept. 21, 1918, p. 937.
Hess, A. F.: The Rôle of Antiscorbutics in Our Dietary, *ibid.*, p. 941.

4. Cohen, B., and Mendel, L. B.: Experimental Scurvy of the Guinea-Pig in Relation to the Diet, *Jour. Biol. Chem.*, 1918, **35**, 425.

5. Chick, H.; Hume, E. M., and Skelton, R. F.: The Antiscorbutic Value of Cow's Milk, *Biochem. Jour.*, 1918, **12**, 131.

THE RELATION OF SANITATION AND DRAINAGE TO MALARIA

In the scheme of disease prevention, sanitation is an essential factor; and in no disease has this been more decisively established than in malaria. Malaria flourishes chiefly in tropical or semitropical climates where drainage is defective, and consequently where conditions are propitious for the breeding of mosquitoes. The campaigns in eastern Europe have afforded excellent opportunities for emphasizing the force of this statement. In the Struma and Vardar valleys, consisting of marshy lands in which mosquitoes abound, malaria was extremely prevalent. Entente armies have been stationed there for years. The reclamation and drainage undertakings set in motion by British and French engineers have had the result already of destroying many of the mosquito breeding haunts and have decreased the prevalence of malaria. When the drainage plans have been completely carried out, these regions, which have been practically uninhabited for generations, will again become fruitful tracts of land able to support a large population.

Another conspicuous instance of the good effects of drainage and sanitation is provided by the island of Cyprus.¹ In 1878 malaria was so prevalent in this island that it was referred to as a "hotbed of malaria," and troops were withdrawn from the island. Anti-malarial measures were inaugurated there in 1913 by Sir Ronald Ross. These measures included drainage, the clearance of land by cutting grass, and the stocking of tanks with goldfish. During this war both troops and prisoners have been quartered there, and yet no primary cases of malarial infection have occurred among the prisoners, while the incidence rate of malaria among the troops has been 0.4 per cent. Assistant Surgeon-General H. R. Carter has pointed out² that mosquitoes will breed freely in wild celery, which grows in water varying from 2½ to 6 feet in depth, and in lotus beds where the leaves of the plant have fallen into the water and adhered together as they decay. The water hyacinth, *Eichhornia crassipes*, although a highly ornamental plant, provides one of the most frequent means of shelter for the mosquito. In the Madras Presidency an outbreak of malaria was due to the fact that the plant afforded a convenient refuge to mosquitoes.

A problem of a similar nature confronted Colonel Truby, M. C., U. S. Army, who, in his annual report as chief medical officer of the health department of the Panama Canal, stated that the water lettuce, *Pistia stratiotes*, gives shelter to *Mansonia titillans*, and that additional studies will be carried on from time to time with the view of discovering an economical and practical method of eradicating the plant and its associated

mosquito. If malaria were extirpated, as it is possible for it to be extirpated, the tropics would lose a great deal of their unhealthfulness for white people.

Sanitation, agriculture and economics are inextricably bound together, and the war, in the instances of Mesopotamia and Greece, has once again brought into prominence the fact that drainage and other obvious sanitary measures will abolish the mosquito and render the tropical and subtropical zones sufficiently healthful for the white man. Thus we may reasonably hope that the time is not far distant when the wonderfully fruitful soil of tropical climates may be cultivated and made useful in the support of humankind.

THE UTILIZATION OF CALCIUM AND SOME OTHER ELEMENTS IN CERTAIN VEGETABLES

"It is not difficult," the Food Guide of the United States Food Administration tells us, "to understand why vegetables and fruits are so important. Only a few are especially valuable as fuel or as a source of protein, but almost all are high in mineral salts and can supply the 'roughage' desirable in the diet. Some also contain the vitamins, the leafy vegetables being especially valuable because, like milk, they contain the two kinds. The 'green,' leafy vegetables, like spinach, cabbage, Brussels sprouts, asparagus and lettuce, are the ones that help most in these last ways—'protective foods,' they have been called. They are rich in the iron, calcium and other minerals that some of the other foods lack. The use of plenty of these vegetables should go far toward keeping up health."¹

Hasty generalizations of this sort, helpful as they may be, are liable to include much that is conjecture or derived from reasoning by analogy. It is the duty of the contemporary science of nutrition to check up every pronouncement of fundamental scope so far as it is not already firmly established on the bed rock of experimental observation. On one aspect of the use of certain vegetables in the dietary, recent investigations have shed some light. In infant nutrition, suitable plant products, such as carrots and spinach, have come more and more into dietary vogue within the past two decades. It is understood that they are comparatively rich in calcium, an element essential to the nutrition of growth, found at best in small quantities in cereals and flesh products, but abundant in milk. The value of these green vegetables has been attributed in part to their effect on the mineral metabolism.² McClugage and Mendel³ of the Yale Labora-

1. Food Guide for War Service at Home, prepared under the direction of the United States Food Administration, New York, Charles Scribner's Sons, 1918.

2. Courtney, A. M.; Fales, H. L., and Bartlett, F. H.: Some Analyses of Vegetables, Showing the Effect of the Method of Cooking, Am. Jour. Dis. Child., July, 1917, p. 34.

3. McClugage, H. B., and Mendel, L. B.: Experiments on the Utilization of Nitrogen, Calcium and Magnesium in Diets Containing Carrots and Spinach, Jour. Biol. Chem., 1918, 35, 345.

1. Trop. Dis. Bull., Oct. 15, 1918, p. 233.

2. Carter, H. R.: Breeding of *Anopheles Quadrimaculatus* in Deep Water and at a Distance from Shore, Pub. Health Rep., 1918, 33, 571.

tory of Physiological Chemistry have specially investigated the relative availability of the calcium of carrots and spinach in the animal economy. Their results show that when these vegetables were added to the diets of animals the calcium was not so well utilized as is the calcium in milk or in calcium carbonate. Hence McClugage and Mendel arrive at the deduction that so far as calcium is concerned, if milk were not available, the addition of a suitable calcium salt would be quite as rational a procedure as a vegetable addition. Furthermore, in order to add to the diet an appreciable amount of calcium from a vegetable source, it would be necessary to feed large quantities of the vegetables, which in itself is a rather difficult procedure in the case of infants.

As the Yale investigators remind us, this outcome does not speak in any way against the vegetables as sources of vitamins, iron or other dietary factors. The implied warning is that it may be an unsafe procedure to use vegetables extensively as a dietary substitute for milk in the nutrition of children unless they respond to these foods differently from the laboratory animals on which experiments were made. It is always wise to be prepared to meet the contentions of the faddist, who is likely to see only advantages and be blind to the shortcomings of his preferred practices.

Current Comment

THE HEALTH OF THE NAVY

The annual report of the Surgeon-General of the Navy, covering the fiscal year 1918, has just been received. Under present circumstances it is a more interesting and human document than in normal times of peace. The rapid expansion in the personnel of the Navy during the war included enlargement of the Medical Corps to over 3,000 officers, this enlargement following the widening of the Navy's entire sphere of activity. The activities, as pointed out by Surgeon-General Braisted, included the establishment of hospitals abroad, care of the battleship fleet, medical personnel for the marines and the manning of three hospital ships, and finally, the care of the great inland training station, as well as of several training stations situated on the coasts. The health of the Navy has been excellent, affected only by epidemics which have seized the community in general. The general admission rate for the entire Navy for all causes—disease, injuries and casualties—during the six months from Jan. 1 to June 30, 1918, is 716.50 per thousand per year as compared with the average annual rate of 624.23 for the eight peace years from 1909 to 1916. The annual death rate for disease for the six month period was 5.9 per thousand as compared with 2.7 for the ten year period from 1907 to 1916. It is pointed out that this record is related to the severe weather conditions of last winter so that the death rate for disease during the first three months was 8.9 and for the

second three months, 3.3—a figure approaching the average for peace times. The work of all the different departments of the Naval Medical Corps is described in detail, as well as the sanitation of individual ships and stations. Special reports are devoted to the various diseases that have been prevalent, as cerebro-spinal meningitis, the pneumonias and measles. In discussing the venereal diseases, it is pointed out that the figures now obtainable from men examined for induction into the Army under the selective draft indicate that the percentage of men in either the Army or the Navy infected with venereal disease is lower year after year than the percentage of males of corresponding ages in civil life. The records for 1918, while higher than for 1917, are nevertheless much lower than for the previous eight or nine years. This report is of especial interest to those studying sanitation problems of military forces.

WHY NOT ISOLATION AND QUARANTINE?

The present epidemic of so-called influenza is as contagious, and certainly as fatal, as smallpox, scarlet fever or measles. While we know little of its etiology or mode of transmission, we know as much of these two factors in this disease as we know of the same factors in the three other diseases mentioned. There is reason to believe that all four spread by contact—from man to man. When smallpox, scarlet fever or measles is prevalent, rigid isolation and quarantine are enforced, and it is quite certain with at least a fair measure of success. Should not the same methods of prevention be more vigorously adopted in the present epidemic? When it is realized that already from one fourth to one third of the population of this country has been subject to the disease, that more than 300,000 persons have died as a result of the infection, the suggestion that every case of influenza be isolated and that quarantine against these cases be rigidly enforced is worthy of serious consideration.

A BACTERIAL FACTOR IN AUTOINTOXICATION

Before the complex of uncertainties vaguely described as gastro-intestinal autointoxication can be intelligently unraveled and understood, it will be necessary to know far more than is at present appreciated regarding the manifold factors involved. Although some would limit the use of the term "auto-intoxication" to poisoning with products of cellular metabolism, it is practically impossible at present to separate this eventuality from the effects that may be traceable to the absorption of toxic products formed by putrefaction within the alimentary canal or introduced into it with the ingested food. Judging by the fact that transformation products of phenol are almost always present in the urine, we may properly assume that this aromatic compound is a common product of the bacterial disintegration of proteins in the gastro-intestinal tract, even if it be admitted that a small amount may be of endogenous origin.¹ In cases of

1. Moore, C. U.: The Phenol Excretion in the Urine of Infants, Including the New-Born, *Am. Jour. Dis. Child.*, January, 1917, p. 15.

ileocecal fistula in which the food residues do not delay in the large intestine, phenol derivatives are usually absent from the urine. Furthermore, in the few reported classic instances of animals kept alive without bacteria, the same failure of phenol production has been reported.² The immediate precursors of phenol are assumed to be the aromatic amino-acids tyrosin and, perhaps, phenylalanin, both of which are obtained as familiar digestion products of proteins. The question as to the micro-organisms specifically responsible for the reactions involved has remained more uncertain. Indol formation, another phenomenon long defined as a characteristic feature of autointoxication and for which the tryptophan group in the protein molecule is essential, has been attributed to the *Bacillus coli* group so abundantly found in feces. Recent studies by Rhein³ at the Hygienic Institute in Posen have led him to conclude that the familiar production of phenol in the human alimentary canal is due to a special race or type of *B. coli* designated as *B. coli-phenologenes*. It is characterized by failure to form indol. If this conclusion is further substantiated, the observation will serve to add another fact of definite character with the help of which the complete story of autointoxication can perhaps ultimately be written.

THE PSYCHOLOGY OF THE HEALTH OFFICER

An unbiased observer after listening to the discussions concerning influenza at the session of the American Public Health Association would come to the conclusion that some of those present were concerned largely with justifying their course of action during the epidemic; in other words, that they had not come with an open mind. Argument after argument was made on the basis of broad generalization or of unverifiable statistics. This is especially to be regretted because most of the points under discussion concerned questions susceptible of scientific proof. None of the health officers need to apologize for what they have done or left undone. The prophylaxis and treatment of this disease on a scientific basis depend on an accurate knowledge of its etiology and epidemiology. But the etiology of the epidemic is unknown, and its mode of transmission is unknown. Health officers had no guide of action and, by the very nature of things, could not have such a guide as long as our knowledge of the disease is as meager as it is. All had done what they thought was for the best; this was indicated by the spirit of the meetings and the discussions. These showed that the health officers of the states and of the large and small communities realized their responsibility and were more than anxious to do the right thing.

2. Nuttall, G. F., and Thierfelder, H.: Ztschr. f. physiol. Chem., 1896, **22**, 62.

3. Rhein, M.: Ueber die Bildung von Phenol im menschlichen Darm, Biochem. Ztschr., 1917, **84**, 246.

Stammering.—Treatment rests on the principle of educated self-control. Concrete application of this principle is directed, first, toward conscious control of the peripheral speech mechanism, and, second, toward direct control of the emotional and nervous disturbance.—E. L. Kenyon.

Medical Mobilization and the War

Personnel of the Medical Corps

For the week ending December 13, there were in the Medical Corps 31,045 officers, a decrease of fifty-nine since the previous week. This personnel includes four major-generals, five brigadier-generals, 219 colonels, 513 lieutenant-colonels, 2,487 majors, 10,098 captains and 17,719 lieutenants. There were in active service 30,222, a decrease of 157 since the previous week. Discharges to date include 4,148 officers.

Medical Division of the Provost-Marshall's Office Disbanded

The Medical Division of the Provost-Marshall's Office is being disbanded. Lieut.-Col. Hubert Work and Capt. D. Chester Brown have received honorable discharges and have returned to their homes. Col. F. R. Keefer will shortly return to service with the regular Medical Corps.

Colonel G. L. Edie Recommended for Promotion

Colonel Guy L. Edie of the Army Medical Corps, at present chief surgeon at Base Section No. 5, services of supply, France, has, it is reported, been recommended for promotion to the rank of brigadier-general by Gen. George H. Harries, commanding general of the base. In making this recommendation General Harries says:

It would be impossible to fairly set forth, within the limits of such a communication as this, the many reasons why Colonel Edie is deserving of recognition. In a situation where difficulties mounted so high and advanced so swiftly that they seemed at times to be almost overwhelming he accomplished greatly. Despite the lack of medical personnel and the construction which he strove to secure, he never approached failure. Especially was he supremely successful during the epidemic of influenza-pneumonia, which came to us on transports; for the service he then rendered the Army owes him more than it can ever pay. An officer of rich experience, mature judgment and keen initiative, he has earned much more than I now recommend be given to him.

Extracts from Weekly Bulletin A. E. F., No. 32 Nov. 18, 1918

This bulletin calls attention to the necessity for continued warfare against disease in the A. E. F., and points out that the job is 99 per cent. prevention of disease. Special attention again is called to the necessity of plenty of fresh air in disease prophylaxis. The weekly report of disease indicates that diphtheria again shows an excessive rate, the cases being reported widely from the A. E. F., especially concentration of cases occurring at hospital centers. It is said that many of the cases are secondary cases developing within the hospital and among the hospital personnel. Good aseptic ward technic and the conscientious wearing of masks it is believed will prevent much of the secondary infections.

A warning is issued to troops not to open boxes which the enemy has left behind in certain regions. These wooden boxes bear the inscription "Vorsicht! Infectiöse Materiel."

An Item for the Sports Department

In the final battle of the season the Camp Greenleaf football eleven defeated the eleven from Camp Dix by a score of 34 to 0. The Camp Greenleaf team was entirely medical, trained by doctors and composed of the enlisted men of the medical department. According to Washington papers, the Camp Greenleaf eleven thus become the Army football champions of 1918.

Decorated for Bravery

Decorations for bravery in action have been conferred on the following medical officers of the American Expeditionary Forces: Capt. Earl V. Morrow, M. C., U. S. Army, Portland, Ore.; Capt. George P. O'Malley, M. C., U. S. Army, Cleveland, on duty with a British unit, the distinguished service medal by the British government for bravery in rescuing wounded under fire; Lieut. Frank H. McGregor, M. C., U. S. Army, Mangum, Okla., awarded a medal for bravery by the British forces; Ernest C. Rowland, Allentown, Pa., an American Army ambulance driver serving with the French army, although wounded by shell fragments, stuck to

his post and delivered the wounded under his care to the hospital, has been awarded the Medaille Militaire and Croix de Guerre with palms.

Prisoners

It is reported that Lieut. Henry L. Rothman, M. C., U. S. Army, Washington, Mo., is a prisoner in Germany.—It is reported that Capt. Benjamin P. Burpee, M. C., U. S. Army, Manchester, N. H., is a prisoner in Camp Villingen, Germany, and is in good health.

Medical Officers Gassed

It is reported that the following medical officers on duty with the American Expeditionary Forces in France are suffering from having been gassed: Licut. Robert H. Breslin, M. C., U. S. Army, Providence, R. I., on duty with the 103d Infantry; Lieut. Eugene H. McCaffery, M. C., U. S. Army, Sprague, Wash.; Capt. Fred A. Licuallen, M. C., U. S. Army, Portland, Ore.; Major Philip G. Cole, M. C., U. S. Army, Helena, Mont.; James P. H. Ruddy, Scranton, Pa., and Lieut. Walter T. Bronson, Pueblo, Colo.

Wounded

The following medical officers are reported to have been wounded: Lieut. Bernard Bolka, M. C., U. S. Army, Chicago, slightly; Lieut. Sloan A. Brown, M. C., U. S. Army, Corapolis, Pa., slightly; Lieut. Thomas S. Williams, M. C., U. S. Army, Dallas, Texas, severely; Major Frank E. Winter, M. C., U. S. Army, Santa Ana, Calif., severely; Lieut. Herbert G. Hempler, M. C., U. S. Army, Creal Springs, Ill., degree undetermined; Lieut. Samuel J. Benoit, M. C., U. S. Army, Gardner, Mass., degree undetermined; Lieut. Charles C. Ryan, M. C., U. S. Army, Republic, Pa., severely; Lieut. Robert LeRoy Leighton, M. C., U. S. Army, Spring Lake, N. J., slightly; Lieut. J. Armin Stackhouse, M. C., U. S. Army, Ambler, Pa., degree undetermined; Lieut. Lomax Gwathmey, M. C., U. S. Army, Norfolk, Va., degree undetermined; Capt. William S. Horn, M. C., U. S. Army, Fort Worth, Texas, severely; Lieut. Milford Arthur Leach, M. C., U. S. Army, Grand Rapids, Mich., slightly; Lieut. Edward S. Huckins, M. C., U. S. Army, Bay City, Mich., degree undetermined; Lieut. Lloyd E. Wurster, M. C., U. S. Army, Philadelphia, severely.

HONORABLE DISCHARGES AND RESIGNATIONS, MEDICAL CORPS, U. S. ARMY

ALABAMA
Gurley—Graham, B. E.
Montgomery—Salter, P. P.

ARIZONA
Nogales—Gustetter, A. L.

ARKANSAS
Hoxie—Stidham, J. H.

CALIFORNIA
Los Angeles—Chambers, W. J.
Pasadena—Smith, R. L. I.
San Francisco—Fish, J. B.
Wagner, H. L.
Wilcox, R. W.
Santa Cruz—Hosford, W. J.
Tulare—Puller, R. N.

COLORADO
Colorado Springs—Swan, W. H.
Denver—Allen, J. H.
Gorsuch, J. C.
Holden, G. W.
Lewis, R.
Idaho Springs—Morehouse, J. A.

CONNECTICUT
Bridgeport—Fleck, H. W.
Hartford—Blair, E. H.
Middletown—Coleburn, A. B.
New Haven—Braude, S. H.
Whiting, L. C.

DISTRICT OF COLUMBIA
Washington—Bryan, J. H.

FLORIDA
Arcadia—Edmondson, J. W.
Miami—Jaudon, E. K.
Petersburg—Wood, A. J.
Plant City—Alsobrook, J. W.
Tampa—Coon, G. B.

GEORGIA
Acworth—Humphries, W. C.
Ashburn—McKenzie, G. G.

Atkinson—Moody, E. A.
Atlanta—Cromer, J. L.
Daly, R. R.
Columbus—Anderson, J. M.

IDAHO
Nampa—Hull, A. R.

ILLINOIS
Barry—Beavers, C. E.
Bloomington—Sanderson, C. R.
Blue Mound—Moffet, W. T.
Bridgeport—Schrader, J. F.
Champaign—Hoffman, J. N.
Chicago—Dorland, W. A. N.
Fuller, W.
Keyes, A. B.
Linnell, B.
Magnuson, P. B.
McCahill, M.
McKenna, H.
Meyers, J. K.
Miller, H. C.
Reinhart, M. D.
Sondel, H. M.

Dallas City—Wayland, T. A.
Highland—Meloy, E. S.
Hillsboro—Hamilton, R. A.
Joliet—Cohen, O.
Maywood—Wallingford, W. J.
Milledgeville—Runnels, B.
Oak Forest—Moran, J. M.
Pittsfield—Wells, F. N.
Springfield—Trapp, A. R.
West Chicago—McClurg, C. B.
West Point—Bryant, J. R.

INDIANA
Batesville—Sanms, M. L.
Ellettsville—Harris, W. W.
Greenfield—Allen, J. L.
Indianapolis—Allen, H. R.
Wheeler, J. T.
LaPorte—Wilcox, F. T.
Logansport—Ballard, C. A.
Muncie—Kirklin, B. R.

North Webster—Druley, G. N.
Peru—Van Mater, G. G.
South Bend—Lent, E. J.
Terre Haute—Caffee, A. H.
Vincennes—Anderson, R. A.

IOWA

Armstrong—Knipe, J. B.
De Witt—Lyon, M.
Fort Madison—Grimwood, W. H.
Hazelton—Hunt, H. H.

KANSAS

Americus—Brickell, J. B.
Kingsley—Gafford, G. M.
McPherson—Engberg, A.
Soldier—Adams, J. H.

KENTUCKY

Louisville—McKinney, W. T.
Martha—Bailey, O.

LOUISIANA

Caspiana—Stamper, J. R.
Lake Charles—Martin, J. G.
Shreveport—Hunt, R.

MARYLAND

Baltimore—Howland, J.
Shearer, J. P.
Stuart, D. D. V.
Whittle, H. L.
Wislocke, G. B.

MASSACHUSETTS

Boston—Dodge, A. M.
Frothingham, C.
Kelly, J. M.
Lund, F. R.
Treamor, J. P.
Brockton—Fullerton, W. W.
Brookline—Barnes, H. A.
Lawrence—Merrill, W. H.
Waverly—Abbott, E. S.
West Somerville—Pillsbury, E. D.

MICHIGAN

Detroit—Hathaway, J. H.
McAlpine, A.
Holland—Thomas, G. H.
Owosso—Wilson, E. T.

MINNESOTA

Howard Lake—Moffatt, A. G.
Minneapolis—Elliot, J. N.
Owatonna—Stewart, A. B.
St. Paul—Hubert, R. I.
St. Peter—Daniels, J. W.
State Sanatorium—Beach, G. W.

MISSISSIPPI

Meridian—Klein, K. T.

MISSOURI

Cane Hill—Alder, A. E.
Cassville—Bailey, W. T.
Excelsior Springs—Grace, T. W.
Fairview—Russell, S. A.
Grand Pass—Coon, E. H.
Hurricane—Vaughan, S. C.
Kansas City—Dersheimer, G. V.
Jackson, J. D.
Wallerdorf, L. H.
St. Louis—Hamel, A. H.
Koessel, A. W.
Paugh, P. G.
Walsh, L. S. N.

MONTANA

Malta—Blankenhorn, C. E.

NEW JERSEY

Grantwood—Brundage, P. E.
Jersey City—Rubacky, J. F.
Palmyra—Voorhis, C. F.
Passaic—Smith, E. W.
Paterson—McDede, F. F.

NEW MEXICO

Rosewell—Presley, T. E.
Tyrone—Davis, E. P.

NEW YORK

Albany—Giffen, J.
Bath—Parkhurst, G. M.
Bedford Hills—Norman, M.
Brooklyn—Ferstler, M. P.
Gusman, F.
Margulies, A. C.
Staub, G. C.
Walther, J. W.
Huntington—Donahue, W. J. A.
Katonah—Noe, P., Jr.
Lockport—Mayne, H. H.
Mount Morris—Leach, A. E.
New York—Allis, J. A.
Banker, G. N.
Berens, P.
Ellis, T. F.

New York—Hyman, S. M.
Kammerer, F.
Kane, A. M.
Kaunitz, J.
Lipsett, P. J.
Pollitzer, S.
Reece, H. B.
Spellman, D. S.
Young, F. G.

Oneonta—Smith, J. C.
Richmond Hills—Parizot, E. H.
Rochester—Hohndorf, J. L.
Knape, F. H.
Schenectady—Healy, J. A.
Syracuse—Banford, T. E.
Champlin, P. M.

NORTH CAROLINA

Greensboro—Roberson, G. B.
Highlands—MacPherson, G. S.
Waynesville—Abel, J. F.

NORTH DAKOTA

Fargo—Kaess, A. J.
Lisbon—Patterson, T. C.

OHIO

Athens—Merwin, J. T.
Cincinnati—Fox, A. J.
Jenkins, W.
Cleveland—Bruner, W. E.
Columbiana—Mellon, J. A.
Columbus—Bay, W. F.
Coshocton—Lower, J. D.
Delphos—Wolfe, J.
Elyria—Hart, W. E.
Fostoria—Leonard, W.
Fremont—McKenney, S.
Kalida—Watterson, J. D.
Logan—Little, C. E.
Monroeville—Pilkey, B. C.
North Fairfield—MacKintosh, A.
Tiffin—Gosling, J. A.
Toledo—Baldwin, M. G.
Newberg, F. L.

OKLAHOMA

Boswell—McPherson, V. L.
Kingfisher—Pendleton, J. W.

OREGON

Ashland—MacCracken, G.

PENNSYLVANIA

Braddock—Morrow, F.
Carlisle—Spangler, H. A.
Cassville—Hamilton, W. M.
Monessen—Israel, I. J.
Philadelphia—Anderson, H. B.
Bunting, J. T.
Burns, J. P.
Chance, B.
Epstein, A.
Foltz, J. C.
Furbush, C. L.
Pearce, R. M.
Smith, A. D.
Van Horn, L.
Pittsburgh—Boggs, J. C.
Williams, I.
Pittston—Madden, J. T.
Ridgway—Flynn, J. G.
Sharpesburg—Graham, N. R.
York—Wise, F. R.

SOUTH CAROLINA

Santuck—Jeter, J. T.

SOUTH DAKOTA

Alexandria—Maytum, W. J.
Beresford—Elliott, A. V.

TENNESSEE

Alexandria—Cotten, L. D.
Columbia—Porter, O. J.
Martin—Haley, C. F.
Memphis—Levy, L.

TEXAS

Call—Martin, J. D.
Dallas—Bernard, J. T.
Poulter, J. W.
Fort Davis—Harris, J. M.
Friendship—Hadley, W. A.
Greenville—Cantrell, C. E.
Sequin—Bergfeld, A. W.
Shamrock—McDowell, J. E.
Snyder—Howell, R. L.
Waco—Hale, J. W.

VIRGINIA

Norfolk—Williams, R. L.
Palmer Springs—Herman, W. C.
Salem—Brown, W. E.

WASHINGTON

Everett—Durand, W. S.
Wellpinit—Wise, A. H.

WEST VIRGINIA
Martinsburg—Tonkin, H. G.

WISCONSIN
Milwaukee—Dudley, L. W.
Nashotah—Donnelly, F. J.
Oconomowoc—Wilkinson, M. R.

Rice Lake—Dawson, D. L.
Knapp, E. J.
Stevens Point—Walters, F. A.
Waupun—Taylor, L. L.

WYOMING
Sheridan—Newell, M. A.

ORDERS TO OFFICERS OF THE MEDICAL CORPS, U. S. ARMY

Alabama

To Camp Forrest, Ga., from Fort Oglethorpe, Lieut. C. E. FARISH, Mobile.
To Camp Logan, Texas, from Fort Oglethorpe, Capt. W. A. SELLERS, Montgomery.
To Camp McClellan, Ala., base hospital, from Fort Oglethorpe, Lieut. A. B. PICKERING, Plantersville.
To Camp Shelby, Miss., base hospital, from Fort Oglethorpe, Lieut. W. H. ANDERSON, Athens.
To Camp Sheridan, Ala., base hospital, for instruction, from Camp Crane, Capt. N. P. COCKE, Birmingham; G. J. WINTHROP, Mobile; from Camp Jackson, Capt. E. M. PRINCE, Birmingham.
To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Major H. T. LAY, Montgomery.
To Eastview, N. Y., from Fort Oglethorpe, Major J. N. BAKER, Montgomery.
To Fort Des Moines, Iowa, for instruction, from Camp Custer, Major J. M. MASON, Birmingham.
To Fort McPherson, Ga., from Fort Oglethorpe, Capt. W. L. THORNTON, Birmingham.
To Hoboken, N. J., from Camp Sevier, Lieut. P. Y. DONALD, Marion Junction.

Arizona

To Fort Logan H. Roots, Ark., for instruction, from Camp Crane, Capt. L. P. KAULL, Jerome.

Arkansas

To Camp Crane, Pa., from Hoboken, Lieut. T. E. SANDERS, Hot Springs.

California

To Camp Beauregard, La., as tuberculosis examiner, from Camp Cody, Lieut. J. Y. BARTHOLOMEW, San Francisco.
To Camp Crane, Pa., from Hoboken, Capt. J. H. TITUS, Ontario.
Surgical group, from Camp Kearney, Capt. J. C. ROBERTSON, Modesto.
To Camp Custer, Mich., from Ann Arbor, Lieut. J. de ANGULO, Stanford University.
To Camp Dix, N. J., base hospital, from Camp Crane, Major C. G. TOLAND, Los Angeles.
To Camp Kearney, Calif., from Camp Cody, Lieut. W. W. MULVEHILL, Los Angeles.
To Camp Lewis, Wash., from Fort Oglethorpe, Lieut. R. A. SANDS, Ocean Park.
To Camp Meigs, Wash., from Fort Oglethorpe, Lieut. P. L. WISE, San Jose.
To Camp Wadsworth, S. C., base hospital, from Camp Crane, Capt. H. K. FABER, San Francisco.
To Camp Zachary Taylor, Ky., base hospital, from Camp McClellan, Capt. T. C. McCLEAVE, Oakland.
To Colonia, N. J., from Camp Crane, Lieut. H. W. NIELSEN, Fresno.
To Eastview, N. Y., from Fort Oglethorpe, Capt. A. F. HIGGINS, Sacramento.
To Fort McDowell, Calif., from Camp Fremont, Lieut.-Col. H. H. SHARPE.
To Fort McHenry, Md., from Cape May, Capt. F. F. SPRAGUE, Los Banos.
To Fort McPherson, Ga., from Camp Crane, Capt. B. S. STEVENS, San Francisco.
To Fort Snelling, Minn., from Camp Fremont, Capt. P. RICE, Los Altos.
To Pittsburgh, Pa., from Fort Oglethorpe, Major P. M. THOMAS, San Francisco.
To Riverside, Calif., March Field, from Camp Kearney, Capt. G. H. HASTINGS, Los Angeles.
To San Francisco, Calif., Letterman General Hospital, from Camp Fremont, Capt. J. E. COLLORAN, Los Angeles; H. V. HOFFMAN, Lieut. F. J. BRESLIN, San Francisco. For instruction, from Vancouver Barracks, Major F. R. FAIRCHILD, Woodland.
The following orders have been revoked: To Lakewood, N. J., for instruction, from Camp Crane, Lieut. A. H. CURRIE, Los Angeles.
To New Haven, Conn., Yale Army Laboratory School, from Hoboken, Lieut. T. L. ROGERS, Long Beach.

Canal Zone

To Camp McClellan, Ala., base hospital, from Camp Jackson, Major W. M. JAMES, Ancon.

Colorado

To Boston, Mass., from Camp Devens, Capt. C. G. McEACHERN, Denver.
To Camp Bowie, Texas, base hospital, from Fort Oglethorpe, Major H. S. FINNEY, Denver.
To Fort Des Moines, Iowa, from Fort Oglethorpe, Lieut. L. M. MAITLAND, Drake.
To report to the commanding general, Central Department, from Denver, Major F. H. McNAUGHT, Denver.
To San Diego, Calif., Rockwell Field, from Mineola, Capt. F. L. DENNIS, Colorado Springs.
The following order has been revoked: To Camp Lee, Va., from Camp A. A. Humphreys, Lieut. A. H. PETERS, Colorado Springs.

Connecticut

To Camp Lee, Va., base hospital, from Williamsbridge, Capt. F. C. HYDE, Greenwich.
To Camp Upton, N. Y., from Fort Oglethorpe, Capt. J. D. GOLD, Bridgeport. Base hospital, from Camp Crane, Capt. J. B. SULLIVAN, New Haven.

To Camp Zachary Taylor, Ky., base hospital, from New Haven, Major J. S. SIMMONS.

To Fort McHenry, Md., from Hoboken, Capt. C. K. PETERSON, Lakeville.

To Hoboken, N. J., from Camp Sevier, Lieut. S. B. WELD, Hartford.

To report to the commanding general, Northeastern Department, from New Haven, Lieut. J. W. CHURCHMAN, New Haven.

To Walter Reed General Hospital, D. C., from Army Medical School, Capt. C. H. TURKINGTON, Litchfield.

District of Columbia

To Army Medical School, as commandant, from Surgeon-General's Office, Col. W. P. CHAMBERLAIN.

To Camp Jackson, S. C., base hospital, as commanding officer, from Southern Department, Col. A. H. WEBBER.

To Camp Knox, Ky., as sanitary inspector, from Camp Dix, Major J. S. HOUGH, Washington.

To Hoboken, N. J., from Surgeon-General's Office, Major H. N. KERNS.

To Rochester, Minn., Mayo Clinic, for instruction, from Washington, Lieut.-Col. E. C. McCULLOCH, Major C. L. BEAVEN.

To Walter Reed General Hospital, D. C., from Camp Gordon, Lieut. J. H. ALLEN, Washington; from Camp Meade, Major R. Y. SULLIVAN.

The following order has been revoked: To New Haven, Conn., Yale Army Laboratory School, from Rockefeller Institute, Capt. F. A. HORNADAY, Washington.

Florida

To Boston, Mass., from Camp Sheridan, Capt. G. R. HOLDEN, Jacksonville.

To East Norfolk, Mass., from Surgeon-General's Office, Capt. R. E. BALDWIN, Tampa.

To Fort McPherson, Ga., from Camp Crane, Capt. D. FORSTER, Hawks Point.

To Richmond, Va., from New York City, Lieut. H. M. SMITH, Chattanooga.

Georgia

To Boston, Mass., from Camp Devens, Lieut. J. D. BLACKBURN, Atlanta.

To Camp Pike, Ark., base hospital, from Camp Crane, Major W. B. CRAWFORD, Savannah.

To Camp Sheridan, Ala., with the board examining the troops for cardiovascular diseases, from Fort Oglethorpe, Capt. W. R. DANCY, Savannah.

To Camp Wheeler, Ga., base hospital, for instruction, from Camp Crane, Capt. C. BARROW, Savannah.

To Carlisle, Pa., from Fort Oglethorpe, Capt. L. W. CHILDS, Atlanta.

To Chicago, Ill., from Fort Oglethorpe, Capt. I. H. ADAMS, Macon.

To Fort Des Moines, Iowa, from Fort Oglethorpe, Capt. L. O. NICKELL, Macon.

To Fort McHenry, Md., from Fort Oglethorpe, Lieut. R. L. JOHNSON, Waycross.

To Fort McPherson, Ga., from Camp Sheridan, Capt. H. J. ROSENBERG, Atlanta.

To Fort Totten, N. Y., from Camp Lee, Capt. W. K. SWANN, Monroe.
To Hoboken, N. J., from Fort Oglethorpe, Lieut. P. H. CHRISTIAN, Columbus.

To Rochester, Minn., Mayo Clinic, for instruction, from Fort McPherson, Major W. T. WEISSINGER; from Fort Oglethorpe, Lieut.-Col. N. T. KIRK, Major C. L. GANDY.

To West Baden, Ind., from Camp Crane, Lieut. H. J. PEAVY, JR., Byron; from Fort Oglethorpe, Capt. T. H. STEWART, JR., Atlanta.

Idaho

To Fort Tilden, N. Y., from Syracuse, Lieut. C. W. WILLIAMS, Laclede.

To Hoboken, N. J., from Surgeon-General's Office, Capt. R. E. MASON, Mackay.

Illinois

To Arcadia, Fla., Dorr Field, from Rantoul, Major L. C. COLLINS, Chicago.

To Azalea, N. C., from Fort Screven, Capt. C. M. CHEADLE, Rockford.

To Biltmore, N. C., from Fort Oglethorpe, Capt. M. T. GOLDSTINE, Chicago.

To Boston, Mass., from Camp Crane, Lieut. L. C. BASSETT, Farina.

To Camp A. A. Humphreys, Va., to examine the command for cardiovascular diseases from Camp Sevier, Lieut. T. S. HUGGARD, Chicago.

To Camp Beauregard, La., from Camp McClellan, Major T. P. WARD, Mount Vernon. As tuberculosis examiner, from Camp Cody, Capt. E. S. GILLESPIE, Wenona. Base hospital, from Fort Oglethorpe, Capt. D. B. HAYDEN, Chicago. To examine the command for cardiovascular diseases, from Camp Sevier, Lieuts. C. J. McMULLEN, E. F. MIELKE, Chicago.

To Camp Bowie, Texas, from Camp Beauregard, Lieut. I. F. KUCERA, Chicago.

To Camp Crane, Pa., from Hoboken, Major D. B. POND, Chicago; Capt. G. B. BUSHEE, Arlington; Lieuts. I. W. STEINER, Harvey; G. P. GILL, Rockford.

To Camp Gordon, Ga., from Fort Oglethorpe, Lieut. E. W. WHITE, Chicago.

To Camp Grant, Ill., from Fort Oglethorpe, Lieuts. F. R. BUTTERFIELD, Z. J. LITTLE, Chicago. Base hospital, from Camp Crane, Major W. W. HAMBURGER, Chicago; from Fort Oglethorpe, Lieut. W. H. MILLER, Chicago.

To Camp Greene, N. C., base hospital, from Fort Oglethorpe, Lieut. W. B. McCLURE, Evanston.

To Camp Meigs, D. C., from Camp Lee, Capt. D. M. KEITH, Rockford.

To Camp Zachary Taylor, Ky., from Camp Crane, Lieut. T. W. HAGERTY, Chicago.

To Dansville, N. Y., from Camp Crane, Lieut. C. J. CHALLENGER, Chicago.

To Fort Benjamin Harrison, Ind., from Camp Lewis, Capt. J. H. GREGORY, Milford.

To Fort Des Moines, Iowa, for instruction, from Camp Crane, Capt. M. PFEFFENBERGER, Alton.

To Fort Leavenworth, Kan., from the Surgeon-General's Office, Major H. M. ADLER, Chicago.

To Fort Logan H. Roots, Ark., from Camp Hancock, Capt. J. H. EVANS, Chicago.

To Fort McHenry, Md., from Camp Crane, Lieut. G. H. WILSON, Mount Carmel; from Cape May, Lieut. E. A. SCHLAGETER, Chicago.

To Fort Riley, from Fort Oglethorpe, Lieut. J. H. MITCHELL, Chicago.

To Fort Sheridan, Ill., from Camp Grant, Capt. H. W. DUERINGER, Elgin; Lieut. H. L. DAY, Bluffs; from Camp Wadsworth, Major R. T. WOODYATT, Evanston; from Fort Oglethorpe, Capt. J. M. WASHBURN, Chicago; W. F. McNARY, East St. Louis; T. A. BRYAN, Mattoon; Lieut. B. F. DAVIS, Chicago; from Newport News, Major R. L. MORRIS, Decatur. For instruction, from Camp Crane, Capt. F. W. BRIAN, Bloomington; F. A. NORRIS, Jacksonville; W. F. SCOTT, Melrose Park; J. B. MOORE, Zeigler.

To Lakewood, N. J., from Camp Crane, Capt. S. R. CATLIN, Rockford.

To Millington, Tenn., Park Field, as flight surgeon, from Mineola, Capt. F. E. BRAWLEY, Chicago.

To report to the commanding general, Central Department, from Chicago, Lieut.-Col. E. J. DOERING, Chicago.

To Richmond, Va., from Camp Greene, Capt. E. M. RUNDQUIST, Rockford, from Camp Hancock, Capt. H. A. WARE, Chicago.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Camp Upton, N. Y., base hospital, for instruction, from Fort Oglethorpe, Lieut. J. C. R. WETTSTEIN, Effingham.

To Urbana, Ill., and on completion to Fort Sheridan, Ill., from Camp Grant, Lieut. R. H. WOODS, La Salle.

To Walter Reed General Hospital, D. C., from Camp Grant, Lieut. W. H. MILLER, Chicago.

To Washington, D. C., from Philadelphia, Lieut.-Col. P. P. SCHUYLER DOANE, Chicago.

The following orders have been revoked: To Camp Logan, Texas, from Fort Oglethorpe, Lieut. J. G. BERKOWITZ, Chicago. To Camp Sevier, S. C., base hospital, from Camp Travis, Lieut. W. K. REED, Chicago. To Rockefeller Institute for instruction in treatment of infected wounds, and on completion to Camp Upton, N. Y., base hospital, for instruction, from Fort Oglethorpe, Capt. W. H. GALLAND, Chicago.

Indiana

To Camp Bowie, Texas, from Camp Cody, Capt. G. W. BOWMAN, Indianapolis.

To Camp Crane, Pa., from Hoboken, Lieut. C. E. JUMPER, Terre Haute.

To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Capt. O. E. FINK, Terre Haute.

To Camp Upton, N. Y., base hospital, for instruction, from Camp Crane, Capt. A. L. BRANKAMP, Richmond.

To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Lieut. J. W. CARMACK, Indianapolis, J. L. WILSON, South Bend.

To Edgewood, Md., as tuberculosis examiner, from Camp A. A. Humphreys, Lieut. J. J. GROSVENOR, Richmond.

To Fort Sheridan, Ill., from Camp Grant, Capt. E. A. STURM, Jasper.

To Lakewood, N. J., for instruction, from Camp Crane, Lieut. V. GORDON, Blountsville.

To Otisville, N. Y., from New Haven, Capt. W. A. McBRIDE.

To Walter Reed General Hospital, D. C., from Camp Meade, Capt. O. L. McCAY, Romney.

To Washington, D. C., Catholic University, from Army Medical School, Lieut. E. C. GARBER, Dunkirk.

To West Baden, Ind., from Camp Crane, Lieut. R. A. GILMORE, Michigan City; from Fort Oglethorpe, Capt. H. H. WHEELER, Indianapolis.

Iowa

To Camp Cody, N. M., base hospital, from Fort Oglethorpe, Lieut. J. E. REEDER, Sioux City.

To Camp Crane, Pa., from Hoboken, Lieut. M. O. BRUSH, Shenandoah.

To Camp Jackson, S. C., from Fort Oglethorpe, Capt. G. F. HARKNESS, Davenport.

To Fort Sheridan, Ill., from Camp Grant, Lieut. W. CORNS, Montone.

To Fort Snelling, Minn., from Camp Crane, Capt. H. E. MEYER, Hampton, Lieut. J. H. WOLFE, Iowa City.

To Lakewood, N. J., for instruction, from Fort Oglethorpe, Lieut. A. C. DAVIS, Iowa City.

Kansas

To Camp Bowie, Texas, from Camp Beauregard, Lieut. A. G. KOCH, Hutchinson.

To Camp Greene, N. C., base hospital, from Fort Oglethorpe, Major M. HAHN, Arkansas City.

To Fort McHenry, Md., from Camp Crane, Lieut. C. H. SMITH, Pittsburg.

To West Baden, Ind., from Fort Oglethorpe, Capt. E. D. EBRIGHT, Wichita.

Kentucky

To Asalea, N. C., from New Haven, Capt. D. P. CLAYPOOL, Waverly Hill.

To Biltmore, N. C., from Fort Oglethorpe, Capt. H. J. McKENNA, Louisville.

To Camp Abraham Eustis, Va., to examine the command for nervous and mental diseases, from Camp Zachary Taylor, Lieut. E. MOORMAN, Harned.

To Camp Greene, N. C., as tuberculosis examiner, from Camp A. A. Humphreys, Lieut. W. T. LITTLE, Calvert City; G. M. WELLS, Glasgow.

To Camp Zachary Taylor, Ky., from Fort Oglethorpe, Capt. L. L. SMITH, Covington.

To Fort Snelling, Minn., from Camp Crane, Capt. L. KAHN, Louisville.

To report by wire to the commanding general, Central Department, from Bowling Green, Capt. P. E. BLACKERBY, Bowling Green.

To Walter Reed General Hospital, D. C., from Camp Colt, Lieut. G. L. THOMPSON, Lovelaceville.

Louisiana

To Biltmore, N. C., from Fort Oglethorpe, Capt. W. H. HAMLEY, Lake Providence, Lieut. G. B. DICKSON, Shreveport.

To Camp Sheridan, Ala., from Camp Shelby, Lieut. R. D. MARTINEZ, Bunkie.

To Camp Travis, Texas, from Fort Oglethorpe, Lieut. H. B. SEEBOLD, New Orleans.

To report by wire to the commanding general, Southeastern Department, from Baton Rouge, Capt. C. McVEA, Baton Rouge, from New Orleans, Major I. DYER, New Orleans.

To Rochester, Minn., Mayo Clinic, for instruction, from Camp Beauregard, Major W. E. HALL.

Maine

To Camp Gordon, Ga., base hospital, from Camp Wadsworth, Major W. L. COUSINS, Portland.

To Camp Greene, N. C., base hospital, from Fort Oglethorpe, Capt. H. J. EVERETT, Portland.

To Chicago, Ill., from Fort Oglethorpe, Lieut.-Col. T. O. VANAMEE, Portland.

To Fort Benjamin Harrison, Ind., from Camp Sherman, Major F. E. LESLIE, Andover.

To Fort Des Moines, Iowa, from Fort Oglethorpe, Capt. W. B. MOULTON, Portland.

To Walter Reed General Hospital, D. C., for instruction, from Boston, Lieut. L. F. CARTER, Bradley.

Maryland

To Camp A. A. Humphreys, Va., from Fort Oglethorpe, Capt. R. H. FORD, Queenstown.

To Camp Cody, N. M., with the board examining the troops for cardiovascular diseases, from Fort Oglethorpe, Major H. R. CARTER, Jr., Baltimore.

To Camp Logan, Texas, with the board examining the troops for cardiovascular diseases, from Camp Travis, Lieut. B. J. SANGER, Baltimore.

To Camp McClellan, Ala., from Fort Oglethorpe, Capt. J. S. WILLOCK, Roland Park.

To Camp Meade, Md., base hospital, from Camp Crane, Lieut. H. H. WARNER, Baltimore.

To Camp Shelby, Miss., to examine the troops for cardiovascular diseases, from Fort Oglethorpe, Major H. R. CARTER, Jr., Baltimore.

To Fort Benjamin Harrison, Ind., as commanding officer, from Camp Meade, Lieut.-Col. E. KING.

To Fort McHenry, Md., from Fort Oglethorpe, Lieut. W. T. ANDERSON, Baltimore.

To Hoboken, N. J., from New Haven, Lieut. W. C. VON GLAHN, Baltimore.

To Perry, Ohio, from Camp Lee, Capt. P. L. TRAVERS, Easton.

To Pittsburgh, Pa., from Camp Meade, Lieut. B. B. BRUMBAUGH, Denton.

To Plattsburg Barracks, N. Y., from Fort Oglethorpe, Capt. M. LEVY, Baltimore.

To report to the commanding general, Eastern Department, from Baltimore, Capt. J. S. DAVIS, Baltimore.

To Rochester, Minn., Mayo Clinic, for instruction, from Fort McHenry, Lieut.-Col. L. J. OWEN.

Massachusetts

To Army Medical School, for instruction, from Fort Oglethorpe, Capt. D. S. LUCE, Canton, Lieut. C. W. BRESSLER, L. H. ROCKWELL, Boston.

To Boston, Mass., from Fort Oglethorpe, Capt. F. G. BARNUM, Boston.

To Camp Crane, Pa., from Hoboken, Lieut. A. O. METIVIER, Springfield; Lieut.-Col. F. B. LUND, Boston. From Camp Wheeler, Capt. E. A. KNOWLTON, Holyoke.

To Camp Custer, Mich., base hospital, from Camp Crane, Capt. S. S. ORR, Weston.

To Camp Devens, Mass., to examine the troops for cardiovascular diseases, from Camp Crane, Lieut. F. C. HALL, Boston.

To Camp Greene, N. C., with the board examining troops for cardiovascular diseases, from Lakewood, Lieut. C. C. STURGIS, Boston.

To Camp Jackson, S. C., from Fort Oglethorpe, Capt. R. H. PECK, Springfield.

To Camp Lee, Va., from Fort Oglethorpe, Capt. H. F. MACLEOD, Boston.

To Camp Meade, Md., base hospital, from New Haven, Major H. L. CONNOR, Haverhill.

To Camp Meigs, D. C., to examine the command for nervous and mental diseases, from Camp Jackson, Lieut. M. W. PECK, Marblehead.

To Camp Upton, N. Y., from Fort Oglethorpe, Capt. E. C. SULLIVAN, Springfield. Base hospital, from Camp Crane, Lieut. C. W. STANSFIELD, Fall River.

To Camp Wadsworth, S. C., from Fort Oglethorpe, Lieut. T. B. DELANEY, Lowell.

To Camp Wheeler, Ga., from Camp Joseph E. Johnston, Lieut. C. BEARSE, Boston.

To Carlisle, Pa., from Camp Devens, Capt. R. A. GREENE, Palmer.

To Fort McHenry, Md., from Camp Greene, Capt. E. S. BAGNALL, Groveland, from Fort Oglethorpe, Lieut. J. DANE, Boston. For instruction, from Camp Crane, Capt. W. G. DROUIN, Holyoke; Lieut. A. R. GARDNER, Lowell, W. A. BISHOP, North Abington.

To Fort Mott, N. J., from Camp Colt, Capt. E. S. LEWIS, Princeton.

To Hoboken, N. J., from Camp Crane, Lieut. E. E. SMITH, Webster.

To Richmond, Va., for instruction, from Camp Crane, Capt. E. A. KNOWLTON, Holyoke.

To Rockefeller Institute, for instruction in the treatment of infected wounds, and on completion, to Camp Upton, N. Y., base hospital for instruction, from Fort Oglethorpe, Lieut. H. L. HIRSCH, Springfield.

To Walter Reed General Hospital, D. C., from Camp Greene, Lieut. A. H. GALVIN, Springfield.

To Williamsbridge, N. Y., from Camp Crane, Capt. J. H. WYMAN, Medway; from Hoboken, Capt. G. HARTMAN, Lynn.

The following orders have been revoked: *To Camp Abraham Eustis, Va.*, from Newport News, Lieut. W. W. MARSTON, Newton. *To Camp Upton, N. Y.*, from Eastern Department, Capt. W. H. ALLEN, Mansfield.

Michigan

To Americus, Ga., Souther Field, from Mount Clemens, Lieut. J. J. McCANN, Ionia.
To Biltmore, N. C., from Fort Oglethorpe, Capt. D. P. MAYHEW, Detroit.
To Boston, Mass., from Camp Crane, Major C. D. BROOKS, Detroit.
To Camp Crane, Pa., from Hoboken, Capt. R. K. YOUNG, Detroit.
To Camp Custer, Mich., from Fort Oglethorpe, Lieut. S. W. GREEN, Detroit.
To Camp Dix, N. J., base hospital, from Fort Oglethorpe, Capt. J. G. R. MANWARING, Flint.
To Camp Greene, N. C., as tuberculosis examiner, from Camp A. A. Humphreys, Lieut. A. W. SCHMIDT, Gay.
To Camp McClellan, Ala., base hospital, from Fort Oglethorpe, Lieut. R. G. JAMES, Detroit.
To Camp Meade, Md., from Fort Oglethorpe, Capt. H. W. PLAGGE-MEYER, Detroit.
To Camp Meigs, D. C., to examine the command for nervous and mental diseases, from Camp Gordon, Capt. J. F. BERRY, Kalamazoo.
To Chicago, Ill., from Camp Dodge, Capt. J. G. CARR, Detroit.
To Fort Benjamin Harrison, Ind., for instruction, from Camp Crane, Lieut. E. M. CHAUNCEY, Albion.
To Fort Oglethorpe, from Belvidere, Ill., Lieut. S. A. STEALY, Charlotte.
To Fort Sheridan, Ill., from Camp Crane, Lieut. C. E. TRUESDELL, Detroit. For instruction, from Camp Crane, Capt. C. GEORGE, JR., Ann Arbor.
To Fort Snelling, Minn., from Fort Oglethorpe, Lieut. L. H. TOWER, Battle Creek.
To Pittsburgh, Pa., from Camp Crane, Major W. H. MARSHALL, Flint.
To report to the commanding general, Northeastern Department, from Boston, Lieut. E. J. LYNCH, Detroit.
To Roland Park, Md., from Camp Crane, Lieut. L. G. CAMPBELL, Birmingham.
The following order has been revoked: *To Camp Crane, Pa.*, Major C. D. BROOKS, Detroit.

Minnesota

To Benbrook, Texas, Carruthers field, from Fort Sill, Capt. G. T. AYRES, Ely.
To Camp Crane, Pa., from Hoboken, Capt. W. E. RICHARDSON, Slayton, Lieut. H. VAN DE ERVE, Minneapolis.
To Camp Dix, N. J., from Camp Crane, Capt. F. W. BRIGGS, Moorhead.
To Camp Dodge, Iowa, base hospital, from Camp Crane, Capt. A. W. HILGER, St. Paul.
To Camp Grant, Ill., base hospital, from Fort Sheridan, Capt. E. BOECKMANN, St. Paul. With the board examining the troops for cardiovascular diseases, from Camp Meade, Major L. L. TENBROECK, Minneapolis.
To Camp Sheridan, Ala., as tuberculosis examiner, from Camp Cody, Lieut. L. W. POLLOCK, Rochester.
To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Capt. H. L. ULRICH, Minneapolis, Lieut. B. RAVN, Windom.
To Chicago, Ill., for instruction, from Camp Grant, Capt. N. H. SCHELDROP, Minneapolis, Lieuts. G. G. MOREHOUSE, Owatonna, J. M. ARNSON, St. Paul.
To Columbus Barracks, Ohio, Lieut. T. B. SMITH, Minneapolis.
To Fort McHenry, Md., from Cape May, Lieut. C. B. DRAKE, St. Paul.
To Fort Porter, N. Y., from Lake Charles, Lieut. A. D. CORNIEA, St. Paul.
To Fort Sheridan, Ill., from Camp Dodge, Capt. G. E. BENSON, Minneapolis.
To Fort Snelling, Minn., from Camp Crane, Major A. T. MANN, Minneapolis, Lieut. F. O. SWANSON, St. Paul; from Camp Gordon, Lieut. O. L. WINTER, St. Paul.
To Lakewood, N. J., from Camp Crane, Capt. R. J. E. ODEN, Minneapolis.
To report to the commanding general, Central Department, from Minneapolis, Capt. R. S. PERRY, Minneapolis.
To Walter Reed General Hospital, D. C., from Camp Crane, Major E. M. JONES, St. Paul.
To Washington, D. C., Surgeon-General's Office, from Camp Crane, Major C. H. KEENE, Minneapolis.
The following order has been revoked: *To Fort McPherson, Ga.*, from Fort Oglethorpe, Major H. M. MORTON, Minneapolis.

Missouri

To Camp Benning, Ga., from Fort Oglethorpe, Lieut. T. T. HOSSEY, St. Louis.
To Camp Bowie, Texas, from Camp Beauregard, Lieut. N. ZOGLIN, Kansas City.
To Camp Greene, N. C., base hospital, for instruction, from Camp Jackson, Capt. R. S. TILLES, St. Louis.
To Camp Kearney, Calif., base hospital, from Camp Wadsworth, Capt. L. A. KEMPF, St. Louis.
To Camp Lee, Va., base hospital, from New Haven, Major D. L. HARRIS, St. Louis.
To Camp MacArthur, Texas, base hospital, from Camp Crane, Major J. H. OUTLAND, Kansas City.
To Camp Upton, N. Y., base hospital, for instruction, from Camp Crane, Capt. J. R. GREEN, Independence.
To Colonia, N. J., for instruction, from Camp Jackson, Lieut. R. F. HYLAND, St. Louis.
To Cooperstown, N. Y., from Dallas, Capt. A. L. LUDWIG, Kansas City.
To Fort Des Moines, Iowa, for instruction, from Camp Crane, Lieut. A. M. GREGG, Joplin.
To Fort McHenry, Md., for instruction, from Camp Crane, Capt. H. E. HAPPEL, St. Louis.
To Fort McPherson, Ga., from Fort Oglethorpe, Lieut. F. R. McDONALD, St. Joseph.
To Fort Sheridan, Ill., from Camp Grant, Lieut. J. L. LOUTZENHISER, Revanna.

To Fort Sill, Okla., Post Field, from Benbrook, Capt. N. W. SHARPE, St. Louis.
To Lakewood, N. J., for instruction, from Fort Oglethorpe, Lieut. H. A. ELKINS, Hardin, Lieut. J. L. SWARTS, St. Louis.
To report to the commanding general, Central Department, from Kansas City, Capt. J. G. HAYDEN, Kansas City; from St. Louis, Major W. H. LUEDDE, St. Louis.

The following orders have been revoked: *To Camp Crane, Pa.*, from Hoboken, Lieuts. H. B. PRYOP, Ashland; J. C. ROTTER, St. Louis.

Montana

To Camp Dodge, Iowa, from Fort Oglethorpe, Lieut. J. T. HOLMES, Polson.
To Camp Hancock, Ga., from Fort Oglethorpe, Capt. S. E. SCHWARTZ, Butte.
To Camp Zachary Taylor, Ky., base hospital, from Camp Crane, Capt. E. W. THUERER, Billings.
To Fort Snelling, Minn., from Camp Joseph E. Johnston, Lieut. E. S. PORTER, Moore.
The following order has been revoked: *To Camp Crane, Pa.*, from Hoboken, Capt. A. C. KNIGHT, Butte.

Nebraska

To Biltmore, N. C., from Fort Oglethorpe, Major F. J. WURTELE, North Platte.
To Camp Beauregard, La., to examine the command for nervous and mental diseases, from Camp Cody, Capt. H. R. CARSON, Norfolk.
To Fort Des Moines, Iowa, from Fort Oglethorpe, Lieut. W. H. CRUTCHER, Lincoln.
To Fort McHenry, Md., for instruction, from Camp Crane, Major S. R. HOPKINS, Hastings.
To Hoboken, N. J., from Camp Logan, Capt. P. A. ROYAL, Normal.
To report by wire to the commanding general, from Fort Oglethorpe, Lieut. C. H. SHEETS, Cozad.
To Williamsbridge, N. Y., from Camp Greene, Lieut. H. A. ROSENBAUM, Harvard.

New Hampshire

To Army Medical School, for instruction, from Fort Oglethorpe, Major R. J. GRAVES, Concord.
To Chicago, Ill., from Fort Oglethorpe, Major G. C. WILKINS, Manchester.
To Fort McPherson, Ga., from Camp Joseph E. Johnston, Capt. R. S. PERKINS, Exeter.
To Fort Totten, N. Y., from Camp Lee, Lieut. A. BORLAND, Meredith.
To Walter Reed General Hospital, D. C., from Camp Leach, Capt. E. C. DURGIN, East Andover.
The following orders have been revoked: *To Camp Crane, Pa.*, from Hoboken, Lieut. F. E. ROWE, Nashua.

New Jersey

To Boston, Mass., from Camp Crane, Major E. B. ROGERS, Col-lingwood.
To Camp Abraham Eustis, Va., base hospital, from Hoboken, Major L. O. TARLETON, Lieuts. J. E. BOLAND, C. W. CUMMINGS.
To Camp Crane, Pa., from Hoboken, Capt. J. H. ORAM, Paterson, Lieut. F. L. MARTINE, Newark.
To Camp Dix, N. J., base hospital, from Camp Crane, Lieut. G. S. LAIRD, Westfield; from Fort Oglethorpe, Lieut. W. P. DAVIS, Atlantic City. For instruction, from Camp Crane, Capt. M. A. SHANGLE, Elizabeth.
To Camp McClellan, Ala., base hospital, from Camp Greene, Lieut. P. S. STOUT, Jersey City.
To Camp Pike, Ark., from Fort Oglethorpe, Lieut. R. D. SWAIN, Newark.
To Carlisle, Pa., from Fort Riley, Lieut. A. L. L. BELL, Englewood.
To Chicago, Ill., from Fort Oglethorpe, Capt. E. ACKERMANN, Dover.
To Colonia, N. Y., from Fort Oglethorpe, Major H. D. CORBUSIER, Plainfield. For instruction, from Camp Jackson, Lieut. W. SPICKERS, Paterson.
To Garden City, N. Y., from Mineola, Lieut. E. EASTWOOD, High Bridge.
To Hoboken, N. J., from Camp MacArthur, Texas, Lieut. N. W. PINTO, Hoboken.
To Richmond, Va., from Fort Oglethorpe, Lieut. C. B. MAXSON, Jersey City.
To report to the commanding general, Eastern Department, from Atlantic City, Capt. J. J. G. WILLIAMS, Atlantic City.
To Walter Reed General Hospital, D. C., from Fort Oglethorpe, Capt. H. V. HUBBARD, Plainfield, Lieut. M. K. SMITH, Morristown.
To West Point, N. Y., from Hoboken, Lieut. F. C. TYNG.

New Mexico

To Camp Bowie, Texas, as assistant to the camp surgeon, from Camp Cody, Major R. E. PARRISH.
To Camp Crane, Pa., from Camp Cody, Capt. L. V. SMITH, Deming.
To Camp Jackson, S. C., as camp surgeon, from Camp Cody, Lieut. Col. J. J. REDDY.
To Denver, Colo., from Camp Cody, Lieut. S. H. JAMES, Lordsburg.
To Fort Ontario, N. Y., for instruction, from Camp Crane, Capt. L. V. SMITH, Deming.
To report to the commanding general, Southern Department, from Fort Bayard, Major J. F. HAMMOND.

New York

To Army Medical School, for instruction, from Fort Oglethorpe, Lieut. H. C. MONTGOMERY, Watertown.
To Azalea, N. C., from New Haven, Capt. L. KARMIOHL, New York, Lieuts. W. G. HAYWARD, Jamestown, J. KRANER, New York.
To Biltmore, N. C., from Camp Crane, Capt. J. A. COX, Albany; from Camp Hancock, Capt. E. N. WILCOX, Pleasantville.
To Boston, Mass., from Camp Crane, Capt. A. H. TERRY, JR., New York, Lieut. N. MILLS, Mount Vernon.
To Camp Abraham Eustis, Va., to examine the troops for cardiovascular diseases, from Lakewood, Lieut. R. A. CORBIN, New York.
To Camp Devens, Mass., from Walter Reed General Hospital, Capt. L. C. DUBOIS, Beacon. Base hospital, from Camp Crane, Major W. M. FORD, New York.

To *Camp Dix, N. J.*, base hospital, from Rockefeller Institute, Lieut. F. W. BISHOP, New York.

To *Camp Greene, N. C.*, base hospital, from Camp Crane, Capt. R. M. JONES, New York.

To *Camp Lee, Va.*, as orthopedic surgeon, from Camp Sevier, Lieut. F. B. RING, Brooklyn. Base hospital, from Fort Oglethorpe, Lieut. H. L. SLOAN, New York.

To *Camp Logan, Texas*, for instruction, from Fort Oglethorpe, Capt. M. M. LUCID, Cortland.

To *Camp Meade, Md.*, from Camp Crane, Lieut. J. M. McTIERNAN, New York.

To *Camp Meigs, D. C.*, to examine the command for nervous and mental diseases, from Washington, Lieut. J. V. SWIERAT, Lancaster.

To *Camp Pike, Ark.*, from Fort Oglethorpe, Lieut. G. J. MECCA, New York.

To *Camp Sevier, S. C.*, from Fort Oglethorpe, Lieut. G. C. BARONE, Buffalo.

To *Camp Sheridan, Ala.*, from Fort Oglethorpe, Lieut. A. F. CALVELLI, New York. As tuberculosis examiner, from Camp Shelby, Lieut. H. M. SPOFFORD, Batavia.

To *Camp Sherman, Ohio*, base hospital, from Camp Crane, Lieut. R. W. MORIARTY, New York.

To *Camp Upton, N. Y.*, from Fort Ethan Allen, Capt. F. W. SEYMOUR, Rochester. Base hospital, from New Haven, Capt. R. A. LAMBERT, New York. Base hospital, for instruction, from Camp Crane, Lieut. S. S. FRIEDMAN, New York.

To *Camp Wadsworth, S. C.*, base hospital, from Fort Oglethorpe, Lieut. E. LEVY, New York.

To *Camp Wheeler, Ga.*, from Camp Joseph E. Johnston, Lieut. G. E. BLUE, New York.

To *Camp Zachary Taylor, Ky.*, base hospital, from Camp Crane, Lieut. H. J. WILSON, New York.

To *Cape May, N. J.*, for instruction, from Camp Custer, Capt. J. HORNI, Brooklyn.

To *Chicago, Ill.*, from Camp McClellan, Major C. J. HUNT, Clifton Springs.

To *Colonia, N. J.*, from Fort Oglethorpe, Capt. T. D. BUCK, Rochester, Lieut. E. M. STERN, New York; from Lakewood, Lieut. W. W. LASHER, New York.

To *East View, N. Y.*, for instruction, from Camp Custer, Capt. E. M. ARMSTRONG, New York.

To *Edgewood, Md.*, to examine the command for nervous and mental diseases, from Washington, Lieut. H. C. BURGESS, Canadaigua.

To *Fort Benjamin Harrison, Ind.*, from Camp Lee, Lieut. F. D. ZEMAN, Brooklyn; from Williamsbridge, Major D. D. ROBERTS, Brooklyn, Capt. C. C. CORYELL, New York.

To *Fort Des Moines, Iowa*, from Walter Reed General Hospital, Lieut. H. L. PRINCE, Rochester.

To *Fort McHenry, Md.*, from Fort Oglethorpe, Capt. L. W. CALLAN, New York.

To *Fort McPherson, Ga.*, from Camp Crane, Lieut. J. L. KINNER, Elmira; from Fort Oglethorpe, Lieut. C. A. HARGITT, Brooklyn.

To *Fort Sheridan, Ill.*, from Camp Crane, Lieut. H. M. THOMAS, New York. For instruction, from Camp Crane, Capt. A. H. RODGERS, Corning.

To *Garden City, N. Y.*, from Mineola, Lieut. F. B. MAGUIRE, Albany.

To *Hoboken, N. J.*, from Camp Greene, Lieut. B. P. BROWN, Brooklyn; from Camp Lee, Major T. DARLINGTON, New York; from Camp McClellan, Lieut. H. W. KEMP, Brooklyn.

To *Hot Springs, Ark.*, from Fort Oglethorpe, Capt. B. J. BECK, New York.

To *Houston, Texas*, Ellington Field, from Mineola, Lieut. G. BERGER, Port Chester.

To *Lakewood, N. J.*, from New Haven, Lieut. H. T. HYMAN, New York. For instruction, from Camp Jackson, Major J. P. F. BURKE, Buffalo; from Fort Oglethorpe, Lieuts. R. G. BLOOD, A. C. HERRING, New York.

To *Mineola, N. Y.*, Hazelhurst Field, from Princeton, Lieut. P. B. JENKINS, New York.

To *Newport News, Va.*, from New Haven, Lieut. E. KELLERT, Albany.

To *Otisville, N. Y.*, from New Haven, Capt. P. McPARTON, Schenectady.

To *Plattsburg Barracks, N. Y.*, from Fort Oglethorpe, Lieut. T. HALPERN, New York.

To report by wire to the commanding general, Eastern Department, from Newark, Major J. MacDONALD, JR., New York; from New York, Major I. F. FRASER, New York; from Philadelphia, Capt. A. S. MADDIX, New York.

To *Richmond, Va.*, from Fort Oglethorpe, Major P. W. NATHAN, New York.

To *Rockefeller Institute*, from New York, Capt. T. F. X. SULLIVAN, New York. For instruction, from Camp Zachary Taylor, Lieut. F. L. GATES, New York.

To *San Antonio, Texas*, Kelly Field, as flight surgeon, from Hicks, Texas, Capt. G. M. CLOWE, Schenectady.

To *San Francisco, Calif.*, Letterman General Hospital, from Camp Crane, Lieut. A. E. GORDIN, New York.

To *Walter Reed General Hospital, D. C.*, from Fort Oglethorpe, Lieut. W. O. HILL, Buffalo; from Fort Sheridan, Capt. C. P. HUTCHINS, New York; from New York, Lieut. M. KOHLENBERG, Brooklyn.

To *West Baden, Ind.*, from Fort Oglethorpe, Capt. P. W. ROBERTS, New York; Lieut. H. BLAUVELT, Brooklyn.

To *Williamsbridge, N. Y.*, for instruction, from Camp Crane, Capt. E. A. KING, New York.

To the retired list, from Ithaca, Major J. R. HARRIS.

The following orders have been revoked: To *Camp Crane, Pa.*, base hospital, from Camp Sevier, Capt. W. E. BOWEN, Rochester; from Fort Douglas, Lieut. G. N. BANCKER, New York. To *Camp Grant*, as assistant to camp surgeon, from Army War College, Major T. F. PATTERSON, Brooklyn. To *Camp Meade, Md.*, base hospital, from Camp Crane, Capt. H. W. JACKSON, New York. To *Fort Riley*, base hospital, from Fort Oglethorpe, Capt. A. S. RULAND, Syracuse.

To *Houston, Texas*, Ellington Field, from Princeton, Lieut. P. B. JENKINS, New York. To *Philadelphia, Pa.*, from Eastern Department, Capt. A. S. MADDIX, New York. To *Williamsbridge, N. Y.*, from Walter Reed General Hospital, Lieut. S. DANZER, Brooklyn.

North Carolina

To *Otisville, N. Y.*, from New Haven, Lieut. J. W. WILLCOX, Laurel Hill.

To *Waynesville, N. C.*, from Fort Oglethorpe, Lieut. J. H. ROZZELLE, Salisbury.

North Dakota

To *Chicago, Ill.*, for instruction, from Camp Grant, Capt. R. R. HOGUE, Linton.

To *West Baden, Ind.*, from Fort Oglethorpe, Major W. A. GERRISH, Jamestown.

Ohio

To *Army Medical School*, from Washington, Lieut. I. B. SMOCK, Canton.

To *Boston, Mass.*, from Camp Crane, Major A. H. SMITH, Marietta; from Fort Oglethorpe, Capt. H. B. DORNBLASER, Springfield.

To *Camp Greene, N. C.*, from Camp Crane, Capt. H. B. BLAKEY, Columbus.

To *Camp Logan, Texas*, for instruction, from Fort Oglethorpe, Lieut. L. F. LAUFERSWEILER, Columbus.

To *Camp MacArthur, Texas*, with the board examining the troops for cardiovascular diseases, from Camp Pike, Lieut. C. H. CHASE, Cleveland.

To *Camp Sherman, Ohio*, from Fort Oglethorpe, Lieut. R. R. BOND, Dayton.

To *Carlisle, Pa.*, from Fort Oglethorpe, Lieut. D. M. SKINNER, Hamilton.

To *Colonia, N. J.*, from Walter Reed General Hospital, Lieut. E. J. ROSE, Gallipolis.

To *Dansville, N. Y.*, from Camp Lee, Lieut. G. A. ROWLAND, Columbus.

To *Fort DuPont, Del.*, from Camp Holabird, Lieut. R. A. ELLIOTT, Alger.

To *Fort Logan H. Roots, Ark.*, from Fort Oglethorpe, Lieut. P. G. SMITH, Cincinnati.

To *Fort Michie, N. Y.*, from Camp Lee, Lieut. T. H. LAUTENSCHLAGER, Youngstown.

To *Fort Sheridan, Ill.*, from Camp Grant, Lieut. C. H. HEFFRON, Metamora; from Fort Oglethorpe, Lieut. R. E. STEPFIELD, Barbertown.

To *Fort Snelling, Minn.*, from Fort Oglethorpe, Lieut. R. K. FINLEY, Xenia.

To *Lakewood, N. J.*, for instruction, from Camp Jackson, Capt. D. W. PALMER, Cincinnati.

To *Madison Barracks, N. Y.*, from Camp Hancock, Major H. M. OSBORNE, Youngstown.

To report to the commanding general, Central Department, from Cleveland, Lieut. C. A. BOWERS, Cleveland.

To *Walter Reed General Hospital, D. C.*, for instruction, from Boston, Capt. J. R. TILLOTSON, Delphos; from Fort Oglethorpe, Capt. R. L. CAMERON, Youngstown, Lieut. L. E. PHIPPS, Youngstown; from Newport News, Lieut. E. J. ROSE, Gallipolis.

To *Williamsbridge, N. Y.*, from Hohoken, Lieut. W. L. LATHROP, Metamora.

The following order has been revoked: To *West Baden, Ind.*, from Camp Crane, Capt. W. F. LAUTERBACH, Dayton.

Oklahoma

To *Boston, Mass.*, from Camp Crane, Capt. M. RODGERS, Clinton.

To *Camp Sheridan, Ala.*, with the board examining the troops for cardiovascular diseases, from Fort Oglethorpe, Capt. O. HOVENDEN, El Reno.

To *Fort Sam Houston, Texas*, base hospital, from Camp Cody, Capt. G. H. APPLEWHITE, Shawnee.

To *Fort Sheridan, Ill.*, from Camp Grant, Lieut. J. ASHLEY, Fletcher.

To report to the commanding general, Southern Department, from Fort Reno, Lieut. W. W. D. AKERS, Tyrone.

The following orders have been revoked: To *Camp Sevier, S. C.*, base hospital, from Camp Joseph E. Johnston, Capt. B. LOVELADY, Guthrie; Lieut. V. C. TISDAL, Elk City.

Oregon

To *Boston, Mass.*, from Camp Crane, Capt. E. A. SOMMER, Portland.

To *Camp Lewis, Wash.*, base hospital, for instruction, from Camp Crane, Lieut. G. L. BOYDEN, Pendleton.

To *Camp Wadsworth, S. C.*, base hospital, from Camp Crane, Capt. C. E. SEARS, Portland.

To *Fort Snelling, Minn.*, from Hoboken, Capt. C. J. McCUSKER, Portland.

To *Lakewood, N. J.*, from Camp Crane, Capt. J. F. WOOD, Portland.

To report to the commanding general, Philippine Department, from Camp Meade, Major E. C. DALTON, Portland.

To *Walter Reed General Hospital, D. C.*, from Camp Fremont, Capt. S. H. SHELDON, Portland.

Pennsylvania

To *Azalea, N. C.*, from Camp Crane, Capt. J. B. McMURRAY, Washington.

To *Camp Abraham Eustis, Va.*, base hospital, from Hohoken, Lieut. H. P. BLAKE, Walston.

To *Camp Bowie, Texas*, as tuberculosis examiner, from Camp Cody, Lieut. U. H. REIDT, Jeannette. To examine the troops for cardiovascular diseases, from Camp Travis, Lieut. W. D. STROUD, Philadelphia.

To *Camp Crane, Pa.*, from Hoboken, Capt. H. T. SMITH, St. Peters.

To *Camp Custer, Mich.*, to examine the troops for cardiovascular diseases, from Camp Crane, Capt. J. G. TAYLOR, Tunkhannock.

To *Camp Gordon, Ga.*, from Fort Oglethorpe, Lieut. C. F. LEONARD, Philadelphia.

To *Camp Greene, N. C.*, from Fort Oglethorpe, Lieut. D. H. EDWARDS, Washington.

To *Camp Jackson, S. C.*, for instruction, from Fort Oglethorpe, Capt. J. HEMPHILL, JR., West Chester.

To *Camp Lee, Va.*, base hospital, from Fort Oglethorpe, Lieut. E. P. LONGAKER, Philadelphia.

To *Camp Sheridan, Ala.*, base hospital, from Camp Wheeler, Capt. R. F. RIDPATH, Philadelphia.

To Camp Upton, N. Y., base hospital, for instruction, from Camp Crane, Capt. W. L. CAMPBELL, New Castle.

To Camp Wheeler, Ga., base hospital, from Camp Crane, Capt. C. B. NOCKER, Scranton.

To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Lieuts. W. E. CAMPBELL, Sharon; H. C. GRIM, Trumbauersville.

To Cape May, N. J., from Fort McHenry, Capt. G. H. CROSS, Chester.

To Colonia, N. J., from Fort Oglethorpe, Capt. W. C. BRYANT, Pittsburgh; from Fort Slocum, Capt. C. N. SILMAN, Pittsburgh.

To Dansville, N. Y., from Fort Oglethorpe, Lieut. J. P. BOYLE, Philadelphia.

To Detroit, Mich., from Fort Oglethorpe, Capt. A. R. MATHENY, Pittsburgh.

To Edgewood, Md., to examine the command for nervous and mental diseases, from Washington, Lieut. T. F. ERDMAN, Reading.

To Fort Benjamin Harrison, Ind., from Fort Oglethorpe, Major R. E. BRENNEMAN, Pittsburgh.

To Fort McHenry, Md., from Camp Crane, Major E. H. GOODMAN, Philadelphia; from Camp Meade, Capt. W. T. ELLIS, Philadelphia; from Fort Oglethorpe, Lieut. H. L. SHAFFER, Pittsburgh.

To Fort McPherson, Ga., from Camp Crane, Capt. J. R. COWAN, Danville.

To Fort Ontario, N. Y., from Fort Oglethorpe, Capt. W. B. SMALL, Philadelphia.

To Fort Sheridan, Ill., from Camp Grant, Capt. S. J. REPPLIER, Philadelphia.

To Fort Terry, N. Y., from Camp Lee, Lieut. E. RANDALL, Jr., Philadelphia.

To Fort Washington, Md., from Camp Lee, Capt. C. I. WENDT, Pittsburgh.

To Hoboken, N. J., from Camp Logan, Lieut. G. A. PARKER, South Bethlehem. From Fort Slocum, Lieut. P. B. MEANS, Philadelphia.

To Lakewood, N. J., from Camp Crane, Major C. H. HENNINGER, Pittsburgh; Capt. A. E. THOMPSON, Washington. For instruction, from Fort Oglethorpe, Lieut. J. L. ARNOLD, Harrisburg.

To Newport News, Va., from Camp Sherman, Major B. F. DUCKWALL, Pittsburgh.

To Pittsburgh, Pa., from Fort Oglethorpe, Lieuts. J. D. KISTLER, Pittsburgh; G. E. CRAMER, Sharpsburg.

To Richmond, Va., from Camp Greene, Major S. C. BURNS, Philadelphia.

To Rochester, Minn., Mayo Clinic, for instruction, from Camp Crane, Capt. A. W. SMITH.

To Washington, D. C., Surgeon-General's Office, from Camp Zachary Taylor, Major J. H. Austin, Ardmore; from Fort Oglethorpe, Lieut. Col. E. MARTIN, Philadelphia.

To West Baden, Ind., from Camp Crane, Lieut. B. F. FULTON, Pittsburgh; for instruction, from Camp Jackson, Capt. F. S. MORRIS, Pittsburgh.

To report to the commanding general, Eastern Department, from Philadelphia, Capt. J. W. WEST, Philadelphia; from Schenectady, Lieut. J. E. MOORE, Carnegie.

The following orders have been revoked: To Rockefeller Institute, for instruction in the treatment of infected wounds, and on completion to Camp Dix, N. J., base hospital, from Fort Oglethorpe, Capt. E. M. COWELL, Athens. To Camp Sevier, S. C., base hospital, from Camp Joseph E. Johnston, Lieut. T. B. HERRON, Monesson.

Rhode Island

To Azalea, N. C., from Fort Oglethorpe, Major G. W. GARDNER, Providence.

To Camp Sevier, S. C., base hospital, from Camp Crane, Capt. C. E. HAWKES, Providence.

To Fort McHenry, Md., from Fort Oglethorpe, Capt. E. W. BURT, Providence.

South Carolina

To Azalea, N. C., from New Haven, Major J. D. McDOWELL, York.

To Camp Beauregard, La., with the board examining the troops for cardiovascular diseases, from Camp Jackson, Major W. WESTON, Columbia.

To Camp Sevier, S. C., from Camp Wadsworth, Lieut. R. CATHCART, Charleston.

To Camp Wadsworth, S. C., from Fort Oglethorpe, Major C. B. EARLE, Greenville.

To Fort Snelling, Minn., from Fort Oglethorpe, Lieut. F. D. GILLIS, Mitchell.

To Newport News, Va., and thence to Charleston, S. C., from Camp Sevier, Col. P. C. FAUNTLEROY.

South Dakota

To Lakewood, N. J., for instruction, from Camp Crane, Lieut. T. J. DEVEREAUX, Aberdeen.

Tennessee

To Camp Dodge, Iowa, to examine the troops for cardiovascular diseases, from Camp Zachary Taylor, Lieut. I. O. PARK, Union City.

To Camp Meade, Md., for instruction, from Fort Oglethorpe, Lieut. E. M. DELAY, Chattanooga.

To Camp Sheridan, Ala., as tuberculosis examiner, from Camp Cody, Capt. F. B. BREWER, Nashville.

To Detroit, Mich., for instruction, from Camp Jackson, Capt. E. D. MITCHELL, Memphis.

To Fort Des Moines, Iowa, for instruction, from Camp Crane, Lieut. O. W. ROGERS, Knoxville.

To report to the commanding general, Southeastern Department, from Fort Logan H. Roots, Lieut. W. H. NILES, Tellico Plains.

The following orders have been revoked: To Camp Crane, Pa., from Hoboken, Lieut. L. E. TRENT, Nashville. To Rockefeller Institute, for instruction in the treatment of infected wounds, and on completion to Camp Dix, N. J., base hospital, for instruction, from Fort Oglethorpe, Lieut. B. L. JACOBS, Chattanooga.

Texas

To Camp Abraham Eustis, Va., base hospital, from Hoboken, Lieut. E. H. INMON, Tahoka.

To Camp Bowie, Texas, from Fort Oglethorpe, Capt. K. V. KIBBIE, Fort Worth. As tuberculosis examiner, from Camp Cody, Lieut. W. E. CAMPBELL, Cedar Creek. Base hospital, from Camp Shelby, Lieut. C. H. BROOKS, Waco. Base hospital, for instruction, from Camp Crane, Capt. D. A. MANN, Beaumont; I. A. WITHERS, Fort Worth; A. M. McELHANNON, Sherman.

To Camp Crane, Pa., from Hoboken, Lieut. H. T. SMITH, Dallas.

To Camp Joseph E. Johnston, Fla., base hospital, for instruction, from Camp Custer, Major G. HAMILTON, Houston.

To Camp Logan, Texas, base hospital, from Fort Oglethorpe, Capt. A. P. HOWARD, Houston; Lieut. W. TRAYLOR, San Antonio.

To Camp MacArthur, Texas, Lieut. A. J. STREIT, Marlin.

To Camp Meade, Md., from Camp Kendrick, Capt. A. W. C. BERGFELD, Sequin.

To Camp Sheridan, Ala., base hospital, from Camp Crane, Capt. H. M. LANHAM, Waco.

To Fort Des Moines, Iowa, from Fort Oglethorpe, Capt. W. C. DURINGER, Fort Worth.

To Fort Ontario, N. Y., from Camp Crane, Lieut. I. E. COLGIN, Waco.

To Fort Sheridan, Ill., from Fort Oglethorpe, Lieut. R. M. FRANCHER, Houston.

To Garden City, N. Y., from Mineola, Lieuts. A. J. POLLARD, Alvin; B. C. SMITH, Brandon.

To Urbana, Ill., and on completion to Fort Sheridan, Ill., from Camp Grant, Lieut. S. J. PATE, Beaumont.

To Walter Reed General Hospital, D. C., for instruction, from Boston, Lieut. H. SHANNON, Dallas; from Camp Meade, Lieut. J. CAMP, Pecos.

The following orders have been revoked: To Camp Jackson, S. C., from Atlanta, Capt. E. C. FOSTER, Whitt. To Camp Meade, Md., from Camp Colt, Lieut. O. H. TALLEY, El Paso.

Utah

To Camp Sevier, S. C., from Fort Oglethorpe, Lieut. G. A. LIGHT, Salt Lake City.

Vermont

To Edgewood, Md., to examine the command for nervous and mental diseases, from Camp Humphreys, Capt. S. L. GOODRICH, Waterbury.

Virginia

To Biltmore, N. C., for instruction, from Camp Jackson, Capt. J. T. BUNTON, Newport News.

To Chicago, Ill., from the Surgeon-General's Office, Capt. L. M. ALLEN, Gaylord.

To Dansville, N. Y., from Camp Wadsworth, Lieut. G. G. HANKINS, Phoebus.

To Fort Sill, Okla., base hospital, from Camp Cody, Capt. L. N. HARRIS, Harrisonburg.

The following order has been revoked: To Fort Adams, R. I., from Fort Oglethorpe, Lieut. W. H. REMINE, Lodi.

Washington

To Camp Lewis, Wash., from Camp Crane, Lieut. L. S. DEWEY, Okanogan.

To Houston, Texas, from Fort Oglethorpe, Capt. W. M. KARSHNER, Puyallup.

The following order has been revoked: To Camp Lewis, Wash., Lieut. L. D. LONG, Seattle.

West Virginia

To Boston, Mass., from Camp Crane, Capt. W. S. FULTON, Wheeling.

To Camp Crane, Pa., from Camp Beauregard, Lieut. R. U. DRINKARD, Wheeling; from Hoboken, Lieut. H. H. ESKER, Clarksburg.

To Camp Gordon, Ga., base hospital, from Camp Sheridan, Capt. H. H. YOUNG, Charleston.

To Camp Lee, Va., from Hoboken, Capt. E. A. HILDRETH, Wheeling.

To Fort Des Moines, Iowa, from Walter Reed General Hospital, Capt. C. A. BARLOW, Beverly.

To Fort Sheridan, Ill., from Camp Crane, Major J. E. CANNADAY, Charleston.

To Garden City, N. Y., from Pittsburgh, Major W. T. OWENS, Clarksburg.

To Richmond, Va., for instruction, from Camp Crane, Lieut. R. U. DRINKARD, Wheeling.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Camp Dix, N. J., base hospital, for instruction, from Fort Oglethorpe, Capt. W. E. GRIM, Cameron.

Wisconsin

To Biltmore, N. C., from Camp Wadsworth, Capt. A. O. SANDERS, Superior.

To Camp Custer, Mich., from Fort Oglethorpe, Capt. A. DE PIERRE, Green Bay.

To Camp Jackson, S. C., base hospital, from Camp Joseph E. Johnston, Capt. S. G. PAKE, Hayward.

To Detroit, Mich., from Fort Oglethorpe, Capt. V. F. MARSHALL, Appleton.

To Fort Sheridan, Ill., from Fort Oglethorpe, Lieut. J. F. McNARY, Milwaukee.

To Lakewood, N. J., from Camp Crane, Capt. P. A. FOX, Milwaukee; from Fort Oglethorpe, Capt. C. W. GIESEN, Superior; Lieut. V. J. JACOBSON, La Crosse.

To Mineola, N. Y., from Garden City, Capt. E. J. ROLLEFSON, Superior.

To report by wire to the commanding general, Central Department, from Madison, Wis., Lieut. V. C. JACOBSON, La Crosse; from Milwaukee, Capt. J. D. MADISON, Milwaukee.

The following order has been revoked: To Rockefeller Institute, for instruction in the treatment of infected wounds, and on completion to Camp Wadsworth, S. C., base hospital, for instruction, from Fort Oglethorpe, Capt. R. W. JONES, Wausau.

Wyoming

To Garden City, N. Y., from Mineola, Lieut. E. R. VAN COTT, Diamondville.

ORDERS TO OFFICERS OF THE UNITED STATES PUBLIC HEALTH SERVICE

Passed Asst. Surg. F. A. CARMELIA, proceed to Columbus, Ohio, and Wheeling and Charleston, W. Va., for conference concerning the influenza situation.

Asst. Surg. R. P. SANDIDGE, proceed to necessary places in the state of Virginia for duty in connection with extracantonment sanitation.

Asst. Surg. R. W. HART, proceed to Stapleton, N. Y., for duty at the Marine Hospital.

Acting Asst. Surg. R. E. GRAMLING, proceed to necessary places in Kansas, including Topeka and Kansas City, for conference relative to venereal disease control.

Acting Asst. Surg. PARK HOWELL, proceed to Pensacola, Florida Quarantine Station for temporary duty.

Acting Asst. Surg. J. I. WHITTENBERG, proceed to Lexington and other places in the state of Kentucky for duty in the influenza control.

Constructing Engineer N. V. PERRY, proceed to Dawson Springs, Ky., to inspect certain property tendered for hospital uses.

Sanitary Engineer L. C. FRANK, proceed to Jackson, Miss., to attend conference of state health officers.

Sanitary Engineer H. W. STREETER, proceed to Baltimore, Md., for duty in epidemiological studies in influenza.

Scien. Asst. G. H. DECELL, proceed to Baltimore, Md., to collect data relative to the epidemiology of influenza.

Scien. Asst. W. L. WOOD, relieved at Alexandria, Va., proceed to Philadelphia, Pa., for duty in shipyard sanitation at Chester, Pa.

Chemist OLIVER H. SCHUNK, proceed to Milwaukee, Wis., to investigate pollution by industrial waste of the city water supply.

Chief Sanitary Inspector A. C. SHAW, proceed to Columbus, Ga., to study the milk and dairy situation in extracantonment zones.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARIZONA

New County Officers.—The Maricopa County Medical Society at its annual meeting in Phoenix elected the following officers: president, Dr. Robert R. Brownfield; vice president, Dr. Harlan P. Mills; secretary, Dr. Kimball Bannister, and treasurer, Dr. Henry T. Bailey, all of Phoenix.

COLORADO

Medical Veterans of the World's War.—Officers and members of the Medical Corps of the United States Army, and of the Federal Draft and Advisory Boards met at the capitol, Denver, at the call of Capt. Horace G. Wetherill, M. C., U. S. Army, medical aide to the governor, to take preliminary steps toward the organization of the Colorado unit of the Medical Veterans of the World's War. Members of nineteen medical advisory boards, of seventy local boards of the several counties and of two district boards, in all about 600, are eligible to membership. Captain Wetherill presided and was instructed to appoint a committee on permanent organization.

ILLINOIS

Palmer to Move Office.—Dr. George T. Palmer, assistant director of the state department of public health and president of the Illinois State Tuberculosis Association, expects to move his office from Chicago to Springfield, by January 1.

Fire at Camp Grant.—Fire of unknown origin at Camp Grant, Rockford, is said to have destroyed the building occupied by the medical examination board handling discharge examination work, and it is said that 6,000 qualification cards and records of examination were lost.

District Society Meeting.—At the annual meeting of the North Central Illinois Medical Association held in Dixon, December 10, Dr. Otho B. Will, Peoria, was elected president, Dr. John C. White, Seatonville, vice president, and Dr. George A. Dicus, Streator, was reelected secretary-treasurer.

Chicago

Fire at State Hospital.—A fire at the Dunning State Hospital, December 11, did great damage to the tuberculosis building, a one-story frame structure, from which 400 patients were removed, many of them ill with influenza. No casualties occurred.

Special Number.—In celebration of the meeting of the American Public Health Association in Chicago during the week of December 9, the city department of health issued a

special number of the *Bulletin of the Chicago School of Sanitary Instruction*. This bulletin gives details of the organization of the health department, together with a description and statistics of the activities of the various divisions and bureaus, including special investigations conducted by the department in 1917 and 1918.

Dudley Leaves Active Faculty.—Dr. Emilius C. Dudley, after thirty-seven years as professor of gynecology at Chicago Medical College and Northwestern University, Medical School, has retired from the faculty and has been made emeritus professor of gynecology. In commemoration of his long and faithful work for the school, the faculty gave a dinner in his honor, December 12, at which Dr. Archibald Church, Chicago, presided and at which addresses laudatory of Dr. Dudley were made by President Holgate of the Northwestern University, Dr. E. Quine, Dean Arthur I. Kendall, Major Samuel C. Stanton and Lieut.-Col. Nathan William McChesney.

KENTUCKY

State Aid to Visiting Nurses.—The state has a law enacted in 1918 providing that from any funds in the treasury not otherwise appropriated the state board of health may appropriate to any county, tuberculosis district commission, or other public welfare organization, a sum not to exceed \$25 a month to pay the state's part of the salary of a visiting nurse employed under the act. Such nurses have been made a part of the health system of the state under a rule of the state board made on the advice of the attorney-general for the purpose of making legal the payments named.

Every Physician a State Health Officer.—Recognizing that the weak point in public health organization is the failure to secure and act promptly on reports of contagious or infectious diseases, the state board of health has endeavored to remedy this situation by making every physician in the state holding a certificate to practice medicine or other system of healing a permanent sanitary inspector of the board. A certificate is issued to such persons giving authority and instructions to isolate all cases of influenza or other communicable diseases for a period of ten days after recovery, and all cases suspected as such until it is known that it is not a communicable disease. They are required to report all cases of such disease to the county or city health officer within twenty-four hours. Delay in reporting or in taking proper action in regard to such infectious cases has been a handicap in all epidemic work, and has proved especially disastrous in the prevailing epidemic of influenza.

LOUISIANA

Mrs. Matas Dies.—Mrs. Adrienne Matas, partner in all professional labors and activities of Dr. Rudolph Matas, New Orleans, died December 10, from pneumonia following influenza. She regularly accompanied her husband to the meetings of the American Medical Association. For several years she had been an invalid, suffering with nephritis, and for the last five months, angina pectoris.

Vital Statistics of the State.—Louisiana has at last been placed in the registration area of the United States by the census bureau, so far as statistics of deaths are concerned. To obtain this recognition it is necessary that at least 90 per cent. of all deaths shall be reported. Louisiana is the fifth Southern state to be admitted, and the first in the Southwest to qualify.

Health Board Activities.—Dr. Oscar Dowling, Shreveport, president of the state board of health, has issued a formal statement setting forth the importance of the "Come Clean" campaign in which he is now engaged for the abolishment of diseases arising from social vice. The campaign is now an antivice crusade by a crusade against venereal disease. It is being conducted by the state board of health under orders of the United State Public Health Service, and its details are first, to clean up and enforce all repressive measures, second, to establish medical work in clinics and detention homes, third, to instruct the public through pamphlets, exhibits and literature, and fourth, to provide wholesome recreation, attractive lounging places, organized sports, reading rooms, and other good amusements.—Dr. Oscar Dowling has just returned from a two weeks' trip through the state undertaken in an effort to establish at various points a series of laboratories where physicians may be assisted in making quick and active diagnosis. The tentative points for laboratories are Shreveport, Monroe and Baton Rouge, and one will probably be established in the southwestern part of the state.

MARYLAND

New Officers.—At the meeting of the Baltimore City Medical Society, December 6, the following officers were elected: president, Dr. Guy L. Hunner; vice president, Dr. Harvey G. Beck; secretary, Dr. Emil Novak, and treasurer, Dr. William S. Gardner, all of Baltimore.

Personal.—Lieut. Alexander J. Gillis, Baltimore, has been awarded the British Military Cross. Lieutenant Gillis is confined to a hospital at Wandsworth, London, recovering from shell wounds in his side, received while on duty with the British Expeditionary Forces.

Fresh Outbreak of Influenza.—The increase in the number of new cases of influenza being reported to the health department has led the Advertising Club to request Health Commissioner John D. Blake to take immediate steps to prevent another epidemic. The health department is prepared to act should it become necessary to do so, but at the present time Health Commissioner Blake sees no reason for drastic action. Dr. Blake blames what appears to be a fresh outbreak of Spanish influenza on the failure of people to exercise care in keeping away from crowds after he lifted the bans that were put into effect during the late epidemic.

Jewish Health Board Organized.—At a meeting of the Jewish Health Board, recently organized, the following officers were elected: A. Ray Katz, president; Dr. Harry J. Moss, vice president; Herbert Wyle, treasurer, and Mrs. Isidore, secretary. The board will undertake to solve the questions of health and sanitation in Jewish families whenever possible. The organizations interested are: Hebrew Hospital, Social Service Department Hebrew Hospital, Hebrew Benevolent Society, Jewish Country Home, Jewish Home for Incurables, Young Ladies' Benevolent Society, Council Milk and Ice Fund, and the Jewish Home for Consumptives.

MINNESOTA

Death of Mrs. Hilbert W. Hill.—The death is announced of Mrs. Hill, wife of Dr. Hilbert W. Hill, St. Paul, the executive secretary of the Minnesota Public Health Association. The death occurred at the University Hospital, Minneapolis, November 27, from pneumonia following influenza. Mrs. Hill was active in child welfare work.

Course in Public Health Nursing.—The *Minnesota Public Health Association Journal*, December 5, announces that the four months' course in public health nursing, arranged for by the University of Minnesota in cooperation with the Minnesota Public Health Association, is now in operation. The course has been provided as an emergency measure to remedy the shortage of nurses and is offered to a limited number of graduate or senior nurses from accredited training schools. It is expected that a similar course extending over a period of at least eight months will be offered at the University hospital during the coming year.

NEW YORK

Bay Ridge Wants Hospital Returned.—At a recent meeting of the Medical Society of Bay Ridge, resolutions were adopted requesting the United States to rescind its action in taking over the Norwegian Hospital, inasmuch as taking over the hospital has deprived a district six miles square, with an approximate population of 300,000, of proper hospital facilities.

Typhoid at Herkimer.—The typhoid fever epidemic in the village of Herkimer is now believed to be well under control. During November only twenty-five cases developed against 105 cases during October. The majority of the new cases are believed to have been developed by contact rather than by water pollution. The original source of the epidemic was impure water.

Staff of Bureau of Venereal Diseases.—The following permanent appointments have been made to the staff of the Bureau of Venereal Diseases of the state department of health: Dr. Joseph S. Lawrence, Albany, chief; Dr. Edward H. Marsh, Brooklyn, consultant; Dr. Walter S. Goodale, Buffalo, hospital and dispensary inspector and organizer; Dr. Frederick S. Honsinger, Syracuse, lecturer on social diseases; Maud Casey, supervising nurse and social worker.

State Conference of Charities.—The State Conference of Charities and Corrections was held in Rochester, December 10 to 12. At the session of December 11, the problems of mental hygiene were discussed by Dr. Charles W. Pilgrim, Poughkeepsie, president of the State Hospital Commission, and Dr. Walter B. James, New York City, chairman of the state commission of the feeble-minded, spoke on "The Duty

of the Medical Profession and the State Toward the Mentally Defective."

Influenza Epidemic and Infant Mortality Rate.—The New York State Health Department calls attention to the fact that many babies were born during the period of the influenza epidemic, unattended by either a physician or a midwife. Since the infant mortality rate is based on the number of reported living births, it is very important to have all such unattended births reported by physicians, midwives and nurses as soon as they are discovered in order to prevent the recording of a high infant mortality rate that is not in accord with actual conditions.

Personal.—Dr. Cassar Smith, Olean, is reported seriously ill as the result of a cerebral hemorrhage.—Capt. H. Judson Lipes, M. C., U. S. Army, Albany, formerly of the Sanitary Corps of the One Hundred and Fifth Regiment, at Troy, who was seriously wounded in France, underwent an operation in New York, December 4.—Dr. Esther E. Parker, Ithaca, has returned after thirteen months spent in clinical and roentgen-ray work in France.—Dr. Ralph E. Clogher, Utica, has been invalided home after serving with the medical department of the American Red Cross in France.

Influenza Commission.—The first work of the Influenza Commission appointed by Governor Whitman, October 21, of which Dr. Hermann M. Biggs is chairman, is now under way. The attempt is being made to reach a definite conclusion as to the value of influenza vaccines in preventing the disease. A large number of different groups of people in institutions, cantonments, factories, hospitals, prisons, and patients of various physicians will be studied. Surveys of certain cities where influenza has been most severe will be made, not only in this state but in others, in order to study the cause of the local epidemic, the probable point of entry, the method of spread, types of the disease, the effect of age, sex, and nationality, and the incidence, mortality and morbidity rates. It is probable that in the states that have not been invaded, especially in the west, special studies will be made in regard to prevention by vaccines and the value of quarantine.

New York City

Personal.—Dr. William V. P. Garretson has been appointed consulting neurologist to the Hospital for Functional Reeducation of Disabled Soldiers and Sailors affiliated with Cornell University Medical College.—Major Sigmund Politzer, M. C., U. S. Army, attached to Base Hospital No. 1, was thrown from his car in a collision between automobiles, November 30, suffering a fracture of the skull.—Dr. Pang Yuen Tseo, a Chinese woman, has been assigned to the ambulance staff of Bellevue Hospital.

Influenza and Pneumonia.—The new cases of influenza and pneumonia reported to the health department show that the extent of the disease has neither increased nor diminished during the past few weeks, the number of cases reported daily varying from 100 to 200. The department of health points out that the number of cases will probably continue higher than the average and that sporadic outbreaks are to be expected. A comparison of the mortality rate for influenza in New York with that of other eastern cities shows that New York had a death rate of 27 per thousand population, against 54 in Philadelphia, 47 in Baltimore, 41 in Boston, 34 in Buffalo and 32 per thousand in Newark.

PENNSYLVANIA

Academy Meeting.—At the annual meeting of the Harrisburg Academy of Medicine, held December 6, Dr. M. Howard Fussell, professor of medicine in the University of Pennsylvania, delivered an address on influenza.

Tablet to Influenza Victim.—A bronze memorial tablet in memory of Dr. William B. Shick in Logan was unveiled in the Logan Methodist Episcopal Church, December 8. Dr. Shick died a martyr of his profession during the recent influenza epidemic.

University Offers Occupational Courses.—The school of occupational therapy for maimed soldiers, now stationed at the University of Pennsylvania, is to be united with the university proper and the work of men covers industrial and scientific subjects, including lectures on physiology education and correction for mental speech defects.

Personal.—Lieut.-Col. Richard H. Harte, head of Base Hospital Unit No. 10, one of the first American Hospital units to arrive in France, is in the Pennsylvania Hospital recovering from a serious operation.—Dr. Edward Martin,

major in the Medical Reserve Corps and stationed at a camp in Georgia, has been elected emeritus professor of surgical physiology at the University of Pennsylvania.—Dr. Herman D. Boyles, Newcastle, has been appointed coroner of Lawrence County to fill the unexpired term of the late Dr. Elmer P. Norris.

WEST VIRGINIA

Personal.—Dr. Vincent T. Churchman, Charleston, has succeeded Dr. Floyd F. Farnsworth, Frenchton, as president of the state health council, the latter having been appointed director of the Bureau of Venereal Diseases with headquarters at Charleston under the supervision of the United States Public Health Service.

WISCONSIN

Personal.—Dr. Henry C. Sibree has resigned as health officer of Sturgeon Bay, and has been succeeded by Dr. Thomas C. Proctor. Owing to illness of Dr. Proctor, Dr. Joseph J. Curtin has been placed temporarily in charge of the health office.

Sanatorium Item.—The new tuberculosis sanatorium for LaCrosse County, the tenth institution of its kind to be erected in the state, has been completed at a cost of \$95,350.98. The institution has accommodation for forty patients, and already has thirty-five patients and a waiting list more than sufficient to tax the accommodation of the building. Miss L. S. Dietrichson is superintendent of the sanatorium.

CANADA

Unification of Health Boards.—The Essex Border Utilities Commission at the meeting held in Windsor, December 2, expressed themselves favorably toward the unification of the health boards of the five border municipalities of Ford, Walkerville, Windsor, Sandwich, and Ojibway, and decided to ask Dr. John W. S. McCullough, chief medical officer of health of Toronto, for suggestions looking toward a joint system of health inspection.

Hospital News.—A hospital building to cost \$500,000 is to be erected near Woodbridge, Ont., about 15 miles from Toronto, by the Soldiers' Civil Re-Establishment. The cost is to be borne jointly by the provincial and federal governments. The site consists of 175 acres. It is to be used for patients with tuberculosis.—The Royal Air Force Buildings at Beamsville, Ont., near Hamilton, have been inspected by Dr. Edward Ryan, Kingston, Ont., assistant director of invalided services, Toronto military district. It is quite likely they will be used for returned soldiers.

Personal.—William Edward Gallie, M.B., of the University of Toronto has received a diploma from the Royal College of Surgeons, England.—Among those who have recently returned from overseas are: Major A. D. Irvine, Montreal; Major G. M. Foster, Lieut.-Col. Alfred T. Bazin, Montreal, and Lieut.-Col. Gilbert Royce, Toronto.—Major Wesley Wright Pirt, Carman; Capt. Frederick Charles A'Court; Capt. Henry Maclaren, Ottawa, Ont.; Capt. Henry Clinton Pearson, Toronto, and Capt. Wallace Balfour Seaton, Carman, Man., have been appointed to the board of pension commissioners.—Major Malcolm M. Crawford has been appointed registrar at the new Rosedale Military Hospital, Toronto.—Lieut.-Col. Thomas A. Starkey, professor of Hygiene in McGill University, has returned to Montreal from overseas. He has been appointed consultant in sanitation in the eastern military districts, 4, 5, 6 and 7.

Public Health Act of New Brunswick.—As provided in the Public Health Act, 1918, Province of New Brunswick, the province has been divided into three health districts, each under the supervision of a district medical health officer, who in turn is responsible to the minister of health, a member of the provincial government. The act in addition provides for a chief medical officer, a chief health officer and a chief of laboratories, who complete the central bureau of health. Under the act three branches of public welfare are administered by the same officers, namely, public health and sanitation, medical inspection of schools, and collection of vital statistics. One provision of the act provides that "special attention shall be given to child welfare." The bureau at present consists of Hon. William F. Roberts, M.D., minister of health, St. John, N. B.; George G. Melvin, M.D., D.P.H., St. John, N. B., chief medical officer; Harry L. Abramson, M.D., chief of laboratories, and three district medical health officers, Francis J. Desmond, M.D., Newcastle, N. B.; John F. L. Brown, M.D., Woodstock, N. B., and Joseph A. Wade, M.D., St. Andrews, N. B.

GENERAL

Bayer Company Sold.—It is reported that the Bayer Chemical Company has been sold to the Sterling Products Company for \$5,310,000.

Venereal Subjects' Travel Restricted.—Under an amendment to the interstate quarantine regulations announced by the Surgeon-General of the United States Public Health Service, persons having venereal disease must obtain a permit in writing from the local health officer before they will be permitted to engage in interstate travel. This permit must state that such travel is not dangerous to the public health.

Fenger Memorial Fund.—The directors of the Fenger Memorial Fund have set aside \$500 for medical investigation. It is preferred to assist in work of a direct clinical bearing which may be carried out in an established institution, which will furnish the necessary facilities and ordinary supplies free of cost. Applications with full particulars should be sent to Ludvig Hektoen, 637 South Wood Street, Chicago, before Jan. 15, 1919.

Bequests and Donations.—The following bequests and donations have recently been announced:

Dr. D. Bryson Delavan, New York City, \$25,000 and Woman's Hospital in the State of New York, New York City, two fifty-seconds of the estate of \$40,000,000 by the will of Mrs. Russell Sage.

St. Lukes Hospital and the Society of Hospitals of New York City, each \$17,436 by the will of Clara Sutton Macy.

Hamilton, Mont., Hospital, a donation of \$1,000 by Mrs. Margaret Daley, Hamilton.

Enlargement of Marine Hospitals.—Assistant Surgeon-General Arthur M. Stimson, U. S. P. H. S., has asked the house building committee, with the approval of the secretary of the treasury, for an appropriation of \$10,000,000 to provide the first 5,000 beds of the 13,000 estimated as necessary to care for discharged soldiers. The completed plan calls for hospitals costing \$26,000,000, and in this is included a substantial addition to the United States Marine Hospital at Chicago.

Obligation to Provide Pure Water.—Damages totaling \$50,462 on account of typhoid fever and other sickness alleged to have been caused by drinking polluted water on the lake steamer *South American*, sailing from Detroit, have, it is reported, been awarded to eleven plaintiffs, passengers on the vessel. The damages were fixed by a master in chancery after Judge Tuttle of the United States District Court had held that the evidence submitted proved beyond question that typhoid fever was contracted on the trip. It was alleged that the steamer, after being out thirteen hours from Detroit, stranded in the Hay Lake Channel of the Sault Ste. Marie River, and that after using up the water in the tanks aboard, impure water from the river was supplied for drinking purposes.

Ten Million for Medical Research.—The will of Capt. James Raphael De Lamar bequeaths his residuary estate estimated at \$10,000,000 to the Harvard University Medical School, the College of Physicians and Surgeons of Columbia University, and Johns Hopkins University, for medical research into the cause of disease and into the principles of correct living; for the study and teaching of dietetics and of the effects of different foods and diets on the human system. The will provides that, in connection with the foregoing purposes, fellowships, instructorships, scholarships and professorships be maintained, and clinics, dispensaries and other places for such study and research be provided. Provision is also made for the dissemination of the results of such study among the people of the United States. The will suggests that the legatees use any means they deem expedient for the purposes named, and request that the fund be kept intact.

Social Hygiene Monthly.—This publication in the October number announces that the work begun and conducted for sixteen months under the auspices of the government, the Surgeon-General's Office, the Commissions on Training Camp Activities of the War and Navy Departments, through the Public Health Service, will not cease with the signing of peace, but that it is the desire to have it go on as a social movement. The monthly will continue publication on that basis and at present has a circulation of 30,000 copies. It is the intention to send the monthly without charge for an indefinite period to leaders of thought and action throughout the United States—to boards of health, educators, legislators, women's clubs, commercial bodies, labor leaders, clergy, etc. The work already accomplished, it is believed, could probably have been done under ordinary circumstances in a generation, and consequently the publication should not now be allowed to lapse.

Major-General Gorgas Investigating Yellow Fever.—In January, 1917, the International Health Board of the Rockefeller Foundation, with the permission of the Secretary of War, secured the services of Surgeon-General Gorgas to act as director of a commission to investigate yellow fever and malaria in Central and South America. In addition to General Gorgas, the commission consists of Henry R. Carter, clinician; Juan Guiteras, clinician and general adviser; Theodore C. Lyster, clinician; Eugene R. Whitmore, pathologist, and W. D. Wrightson, sanitary engineer. Preparations for carrying out this project had been practically consummated when the United States entered the world war making it impossible for General Gorgas to give up his official connection with the Army. Major-General Gorgas, having been retired on account of age, was again available for the work. Immediately on his retirement preparations were again entered into for carrying out the project as originally proposed, and last week he sailed for Ecuador as the first field of operations. Dr. N. E. Horner and other workers had preceded him. Accompanying him are Col. C. L. Furbush, who had acted as General Gorgas' executive officer during the latter's incumbency as Surgeon-General during the war, and Dr. Victor G. Heiser. The work is one in which General Gorgas has shown very especial interest; his sole ambition now, he says, is to rid the world of yellow fever.

Report of the U. S. Chemist.—The report of the Chief Chemist of the Department of Agriculture for the year reflects the influence of the war requirements in the way of personnel and direction of the work of the bureau, which necessitated the side-tracking or closing up of many lines in progress, and the rendering of all possible assistance to aid in winning the war. On account of the high price of drugs it is said that there was a tendency to revive flagrant types of adulteration, but with the aid of state and local authorities and the Food Administration it was often possible to suppress violations of the Food and Drugs Act more quickly than in normal times. The statistics of arrests and prosecutions with their results are given. Conservation of foodstuffs occupied some of the attention of the bureau, and the campaign for the extension of the use of new food fish was pushed, and such subjects as dehydration of vegetable products received considerable attention. Technologic investigations concerned such subjects as dust explosions, color investigations, naval stores, leather tanning and finishing materials, mildewproofing, fiber containers, the nutritive value of proteins and their chemistry, sugars and syrups, beverages and vinegar, fruits and vegetables, cereals and flour and the biologic causes of food spoilage and fermentation, beside researches in drugs and pharmacology, etc. In collaboration with other departments much good work was done, such as helping to secure fraud orders against fraudulent medicinal preparations, making recommendations to the railroad administration on the subject of standard refrigerator cars, assisting in food surveys, and methods of poisoning rats; this last in connection with the biological survey.

Influenza.—In a bulletin issued by the Public Health Service, December 11, a warning was given that the influenza epidemic is not passed and it is shown that severe epidemic conditions exist in various parts of the country. Since that date, according to later reports, the general condition has remained much the same, with improvement in some states and communities, and recurrences in others. The following summary by the service very well represents the present situation: In California increases in the number of cases of influenza are reported by San Francisco and several other cities in California. Indiana reports no improvement in the situation, except that the recent cases are milder. In Iowa a marked increase in the number of cases is reported. Kentucky reports a decided recrudescence in Louisville and some of the larger towns in the state. A few rural sections also report serious conditions. In contrast to the earlier part of the epidemic, the disease now appears to affect large numbers of schoolchildren. In Louisiana the disease has again increased in New Orleans, Shreveport, Lake Charles, Natchitoches, Standard, Zwolle, Noble, Convent and Kilbourne. At Lake Charles the recrudescence began December 1, and reached a height equal to that of the original epidemic. In Massachusetts the disease is apparently mild in character, but 5,500 cases were still reported last week. St. Louis reports more than 1,700 cases of influenza in three days, ending December 9. Mississippi reports a recrudescence in Hattiesburg. In Nebraska the situation is still very serious. New Jersey reports a substantial increase in a number of districts in which the disease had subsided and the disease is still prevalent throughout the state. From

Ohio recrudescences are reported as occurring in Cincinnati, Cleveland, Columbus, Akron, Ashtabula, Bucyrus, East Liverpool, Salem, Lakewood, Medina, Franklin, Marion, Niles and Youngstown. The disease appears to be milder than during the first period of the epidemic. Pennsylvania reports a recurrence of influenza in a number of localities. Conditions are said to be worse than the original outbreak in Erie, Newcastle, and Johnstown. In South Carolina there is a general recurrence, especially in those sections where the epidemic raged some time ago. Vermont reports a recrudescence, but the disease appears to be milder in character. The state of Washington shows a sharp increase in the number of cases of influenza reported. West Virginia reports a recrudescence of the disease in Charleston, South Charleston, Bluefield and Clarksburg. In Wheeling conditions are said to be as bad as ever. The Surgeon-General advises the closing of the public schools on the first sign of the reappearance of the epidemic and points out that the disease apparently now tends to occur more frequently among schoolchildren.

FOREIGN

Roux to Retire.—Dr. Pierre Roux, for many years director of the Pasteur Institute, Paris, is about to retire and will be succeeded by Dr. A. C. Calmette, director of the Pasteur Institute of Lille.

Awards of the Royal Society Medals.—The *British Medical Journal* announces that the Copley medal this year goes to Prof. H. A. Lorentz, late professor of physics in the University of Leyden, for his researches in mathematical physics; the Davy medal to Prof. F. S. Kipping, professor of chemistry at University College, Nottingham, for his studies in the camphor group and among the organic derivatives of nitrogen and silicon; the Darwin medal to Dr. H. F. Osborn of New York, for his researches on vertebrate morphology and paleontology, and one of the Royal medals to Prof. F. G. Hopkins, professor of biochemistry in the University of Cambridge, for his researches in chemical physiology.

Deaths in the Profession Abroad.—Dr. Ruperto Borrás, a member of the Uruguayan Medical Mission in France. After the return of the mission he remained in France, serving for many months at the Vaugirard military hospital at Paris.—Dr. L. Merelli, a prominent bacteriologist and serologist of Pisa, a victim of influenza.—Dr. F. Todaro, professor of anatomy at Rome, rector of the university and senator of the realm, aged 83.—Dr. C. Remy, professor of surgery at the University of Paris.—Dr. Marty, one of the oldest members of the Paris Académie de Médecine, a consulting chemist for the government.—Dr. C. Colombo, director of the Instituto kinesiterapico at Rome, and leader in the movement for physical culture for the young.—Dr. O. Duurloo of Copenhagen, president of the organized medical officers of the sickness insurance societies, aged 46.—Sir H. Weber, London, author of "Prolongation of Life," aged 95. He retired from practice at 80 but spent daily two or three hours in the open air, walking for 30 to 50 miles a week. He was among the first to advise the tuberculous to go to the mountains, even in winter. He was an honorary member of many learned societies, and with his son, Dr. F. Parkes Weber, published "Climatotherapy."

Fifth International Psychoanalysis Congress.—The world war interfered with the meeting of this congress which had been planned to be held at Dresden. Besides the war, there were also certain difficulties in the way in connection with Jung's so-called "split" in the psychoanalytic movement. A Netherlands physician, Dr. J. H. W. van Ophuijsen, now relates in the *Nederlandsch Tijdschrift*, Oct. 19, 1918, that the postponed congress was finally summoned to meet at Budapest, Sept. 28-29, and he describes his impressions of the congress as he made the trip from 's-Gravenhage, Holland, to Budapest. The main theme for discussion was the treatment of war neuroses, and the addresses by Ferenczi of Budapest, K. Abraham of Allenstein and E. Simmel of Posen, all concurred in estimating war neuroses as merely manifestations of the mechanism of the reaction to fright, the "fright neuroses" of peace times. The speakers were also unanimous in classifying these neuroses, with Freud, as anguish-hysteria and repression-hysteria. The number of cases of actual psychasthenia which have developed during the war was stated to be extremely small. Some brief communications discussed psychoanalysis from the medical standpoint, and others discussed it in its application to other sciences. Between these two fields stood Freud's own address on "Ways for Psychoanalytic Therapy." Jellinek and Rohcim

discussed "Friendship" and "The Ego Among Primitive Peoples," and Tausk outlined the principles for psychoanalysis of the faculty of judgment. It was decided that the next international Psychoanalysis Congress will be held in the Netherlands.

SOUTH AND CENTRAL AMERICA, MEXICO AND WEST INDIES

Resignation of Surgeon-General of Colombian Army.—The *Repertorio* of Bogotá states that Dr. M. Canales has resigned his position as chief of the medical department of the Colombian army.

Recent Deaths in the Profession.—Dr. E. Peña, director at one time of the Asistencia Publica of Buenos Aires, and initiator of the Hospital Tornu for the tuberculous.—Dr. V. Grau, city physician of Tres Arroyos, aged 71.—Dr. C. C. Sundblad, one of the founders of the Children's Hospital of Buenos Aires, aged 62.—Raphael Rubirosa, formerly a leading surgeon of the Dominican Republic, aged 33, died recently in the Manhattan State Hospital, New York.

Finlay Souvenir Volume.—The July-August number of the handsome journal issued by the national public health authorities of Cuba is entitled "Numero extraordinario en homenaje a la memoria de Dr. Carlos J. Finlay," on the anniversary of his death. It contains 197 pages, the size of the pages nearly as large as those of THE JOURNAL, and contains a photograph of Dr. Finlay and of the monument with his portrait bust which has been installed in the court of the headquarters of the public health department, the *Secretaria de Sanidad y Beneficencia*. All of Finlay's scientific works are reproduced or summarized, from 1865 to 1912. His communication on the transmission of yellow fever through an intermediary agent was presented to the International Sanitary Conference at Washington, D. C., in 1881. He did not specify the mosquito in that communication, but did this in his address before the Academia de Ciencias Medicas, Fisicas y Naturales, at Havana, Aug. 14, 1881. His address was republished in English and Spanish with the title "The Mosquito Hypothetically Considered as the Agent of Transmission of Yellow Fever." This journal issued by the National Public Health Service in Cuba, *Sanidad y Beneficencia*, is always a large handsomely printed and illustrated journal with articles in Spanish and in English, bearing on matters of sanitation, vital statistics, etc. The director of the service is Dr. F. M. Capote, with Dr. Juan Guiteras and Dr. R. Menocal as sub-directors. The editor of the journal is Dr. E. Aragon. It is now in its twentieth volume.

MEXICO LETTER

MEXICO CITY, Dec. 1, 1918.

Influenza

Influenza spread throughout the whole of the Republic, from north to south, during October and November. The central tableland was most seriously affected, the seacoast much less.

Puebla suffered most, the deaths totaling 300 a day, to a population of 100,000. The City of Mexico also had its daily death rate increase from seventy-five to 250. The disease appeared in a hemorrhagic form, a nervous with delirium and a gastro-intestinal form, but the highest mortality was in the respiratory form, frequently complicated with bronchopneumonia. It seems—in accord with what has been observed elsewhere—that young persons were affected most, and that persons who had the disease in a severe form in 1890 escaped it this time.

Bacteriologic research revealed nothing new, only the usual microbes of bronchitis and pneumonia being encountered, and the Pfeiffer bacillus only occasionally. Dr. F. Paz of the National Bacteriologic Institute, cultivated the *Micrococcus catarrhalis* from the blood of patients on two occasions.

At date of writing, the disease seems to have died out in this city and throughout most of the country.

Smallpox

There have been some cases of hemorrhagic smallpox at Puebla recently, but the disease has not spread owing to prompt isolation of the sick and vaccination of the others.

The Liberty Loan in Mexico

The Fourth Liberty Loan was a complete success in Mexico, as the quota assigned, \$1,000,000, was oversubscribed, over \$2,250,000 being collected. The bonds were bought not only by citizens of the United States residing here, but by citizens of the other Allied countries and by a goodly num-

ber of Mexican sympathizers with the noble cause. The boche propaganda tried to make the public believe that the business would be a failure, but like the propaganda itself, it lost influence and failed of effect because it had been placed in the hands of foreign adventurers or of Mexicans with antecedents not particularly honorable.

The Armistice

There was great rejoicing in the Capital when the news arrived that the armistice had been signed in Europe. The majority of the cultivated elements of the nation had sustained the cause of the Allies, and they joined with the foreigners in celebration of the victory. Impressive religious services were held as well as balls and banquets to celebrate the success obtained by the American arms in the cause of justice for the world. The most eloquent of Mexican orators, Lic. Urueta, said at one important meeting in Mexico that only imbeciles or the ignorant had sided with the cause which Germany sustained, and he was much applauded.

Personal

The director of the National Medical School, Dr. R. Amor, has been appointed *senador suplente* for the federal district.—Dr. A. F. Alonso, a well known ophthalmologist of San Luis Potosi, has recently moved to Mexico City. He represents the state of San Luis in the senate where he has always expressed opinions favorable to the cause of the Allied nations.—Dr. E. L. Abogado died recently. He was president of the local medical society, known as the "Pedro Escobedo." For many years he published a medical journal, now defunct, the *Cronica Medica Mexicana*.

New Society

A scientific and mutual aid society has recently been founded in Mexico, entitled the Sociedad Mexicana de Agricultura y Veterinaria. Its headquarters are 4/a de Donceles, 87, Ateneo Ceres, Mexico, D. F.

Cultivation of Quinin

The government through the agricultural department has applied to Ceylon and to Peru for a good quantity of seeds of different species of "cinchona," with the object of cultivating this useful plant in the warm regions of the country. Attempts have been made on other occasions to cultivate the quinin plant in the state of Veracruz, but even although it was found to thrive well there, its cultivation never was carried to a point where it would have commercial importance.

Infant Welfare in Yucatan

The municipality of Merida, Yucatan, recently organized a competitive baby show with certificates and money prizes. The show was a great success. The *Universal*, the leading Mexican daily, has organized on different occasions two competitive exhibitions of the kind.

Aid for the People of the Devastated Regions

The ladies of the Allied colonies here are still busily at work making garments to be sent to Europe to relieve the peoples freed from the yoke of the invader.

Donation

A number of persons contributed money to aid in the combating of the epidemic of influenza, among others, Mr. E. L. Doheny of New York, president of the Huasteca Petroleum Co., who donated 30,000 pesos for the purpose.

Vital Statistics

As a curiosity, I add the official record of the deaths over a certain period in a town in San Luis fifty years ago: Died a natural death, 1; died of grief, 5; died of fright, 2; died of disease, 2.

LIMA LETTER

LIMA, PERU, Nov. 7, 1918.

Personal

The National Academy of Medicine has just resumed its labors with important discussions on the compulsory registration of tuberculosis and the sanitary improvement of Lima. The existing vacancies in its membership have been filled by the election of Drs. Carlos Monge, Ramon Ribeyro and Carlos Enrique Paz Soldan.

Sanitation of Lima

Congress has just passed the bill, which will soon become a law, on the sanitation of Lima. It includes rebuilding of the city sewers, provision for a new water supply, and street paving. The law contemplates the placing of a loan of \$5,000,000, 70 per cent. of which will be offered in foreign

countries, most probably in the United States. Proposals for these works will be requested from constructing firms, thus offering an excellent opportunity for American houses which might wish to invest money in Peruvian enterprises. Mr. Spalding, a civil engineer, is under contract with the city of Lima for the preparation of the necessary plans.

Febrile Epidemic

At present, Lima, Callao and the smaller towns in that vicinity, as likewise other cities in the country, are suffering an epidemic of catarrhal character, probably influenza, which has caused a great deal of sickness. The chief symptoms are a high fever (100.2 to 104 F.) with no initial chills, abundant expectoration, cough, nasopharyngeal catarrh, prostration, and nosebleeding on the third or fourth days coinciding with the subsidence of the fever and the bronchial cold that follows. The fever lasts only three or four days, is mild and only causes death when previous lesions existed among the infected persons. In order to avoid the spread of the disease, a number of measures have been adopted; as closing the schools, issuing popular pamphlets of instruction and the appointment of a special commission to perform bacteriologic examinations. The work of the commission has not been made public as yet, but it seems that the presence of a gram-positive diplococcus has been verified a number of times. The Academy of Medicine has also appointed a commission of investigation.

The Orphan Asylum

The Society of Public Welfare of Lima has begun the construction of an adequate orphan asylum for which contributions have already been received to the extent of \$250,000. Steps are also being taken for the establishment of an indigent asylum.

PARIS LETTER

PARIS, Nov. 21, 1918.

Etiology and Transmission of Trench Fever

At a recent meeting of the Académie de médecine, Dr. Strong read a report on this subject. Trench fever raged in some of the armies on the western front, causing a considerable morbidity. In order to secure information as to the development of the disease, it was considered necessary to investigate the mode or method of transmission. A commission appointed by the American Red Cross undertook this work, and conducted experiments on American soldiers which disclosed the method of transmission. Trench fever is not transmissible to animals. Of 103 experiments on men, infected by bites of lice or transmission by the blood, the urine or the sputum, the disease was produced in sixty-three. These experiments confirmed the belief that trench fever is a specific infectious disease. The causative organism is a nonfiltrable virus, present in the blood plasma; inoculating healthy persons with this plasma produces the disease. The disease is usually transmitted through the bites of lice. The virus may be found in the urine and in the sputum. These excretions should, therefore, always be sterilized and every effort should be made to protect the soldiers against the bites of lice.

A Ministry of Public Health

In the name of the Commission d'hygiène of the Chambre des Députés, M. Navarre, deputy of the département de la Seine, proposed the creation of a ministry of public health to coordinate and have control of all the public health services, civil and military hospitals, asylums, etc.

In Honor of the American Red Cross

M. Davison, president of the war committee of the American Red Cross, was received at the Hotel de Ville de Paris, the day following the signing of the armistice. The city authorities made it a festive occasion. Dr. Louis Mourier, undersecretary of state for the Service de Santé militaire, was present at the ceremony, accompanied by Maréchal Joffre. M. Chassaing-Goyon, president of the Conseil municipal de Paris, addressing Mr. Davison, expressed deep gratitude for the miracles accomplished by the Red Cross, and for the generosity of countless Americans who had made these miracles possible.

Control of Radium

A decree has been published in the *Journal Officiel* organizing the control of the manufacture and distribution of radium and, in a general way, of all radio-active substances and luminous products derived from them. This Bureau des corps radioactifs, created in the ministère de l'armement, will have supervision of manufacture, importation and exportation.

The consumption will be controlled by the office of the under-secretary of state for the Service de Santé militaire, and the geographic service of the army.

Death of Dr. Gaston Humbert

Dr. Gaston Humbert, assistant professor on the medical faculty of Paris, and surgeon to the hospitals, is dead.

Personal

At its last meeting the Académie de médecine elected to membership in the section de pathologie médicale, Dr. Charles Dopter, médecin principal of the army, professor of epidemiology in the Ecole d'application de médecine et de pharmacie militaires du Val-de-Grâce.

LONDON LETTER

LONDON, Nov. 14, 1918.

Sir Auckland Geddes

In this country, unlike France, very few physicians enter Parliament, and much fewer attain a prominent position in the political world. However, there are two ministers in the present government who before they entered politics were qualified though not practicing physicians. Curiously, they were both lecturers on anatomy. Dr. Addison, the minister of reconstruction and former minister of munitions, was lecturer on anatomy at St. Bartholomew's Hospital before he entered Parliament as liberal member for the working class constituency in London. Sir Auckland Geddes, the minister of national service, graduated with the degree of M.D. at Edinburgh in 1906 and subsequently became professor of anatomy at the Royal College of Surgeons of Ireland and later at McGill University, Montreal, where he made a reputation as a biologist. He served in France during the war and attained the rank of brigadier-general. Unlike Dr. Addison, he was not a politician before he entered the government. The prime minister, Mr. Lloyd George, made a new departure when he formed his government by appointing ministers who were not politicians but experts in regard to the duties they had to take up. Sir Auckland Geddes' brother, Sir Eric Geddes, the first lord of the Admiralty, is another example. He was previously controller of the Admiralty. Sir Auckland Geddes has just been appointed president of the Local Government Board, the duties of which he will combine with those of his present duties of minister of national service. With the close of the war the latter duties must considerably diminish. It is thought that he will become the first minister of health, an office which, as foreshadowed in previous letters, is to be created. The results of the examination of the whole male population of military age by the ministry of national service has disclosed an enormous amount of physical unfitness in the population, only about one third being found fit for Grade 1. The new ministry of health will combine all the duties with regard to the health of the people that have been performed by many departments, with consequent waste of energy and want of cooperation.

Strike at an Irish Lunatic Asylum

More than 180 attendants at Ballinasloe Asylum went on strike from the institution at half an hour's notice, leaving about 1,500 lunatics unguarded. There were in the asylum at the time about 280 patients with suicidal and homicidal tendencies. The committee offered a 10 per cent. rise on prewar wages without the bonus, but this was refused. Fifty patients, several of the most dangerous type, escaped. After six hours' absence the staff was prevailed on by a priest to resume work. The resident magistrate on his own responsibility guaranteed the required wages.

Marriages

WALKER ATWOOD YEAKLE, Assistant Surgeon (j. g.), U. S. N. R. F., Norristown, Pa., on duty at Norfolk, Va., to Miss Elizabeth M. Wheeler of Towson, Maryland, November 27.

HUGH QUITMAN ALLISON, Lieut., M. C., U. S. Army, Grayville, Ill., to Miss Bessie Williams of Mount Carmel, Ill., at Belleville, Ill., February 8.

ALOYSIUS JAMES LARKIN, Melvin, Ill., to Miss Florence Mary Garvy of Chicago, September 4.

HENRY H. SELTZER, Washington, D. C., to DR. SARAH L. BEHM of Colorado, recently.

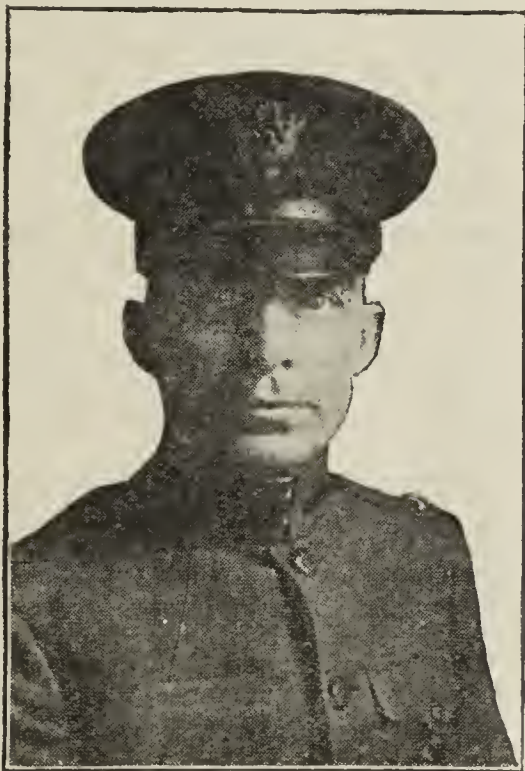
Deaths

Samuel Abbott Green, Boston; Harvard Medical School, 1854; aged 88; a member of the Massachusetts Medical Society; surgeon of the Second Massachusetts Militia in 1858; assistant surgeon, First Massachusetts Volunteers, and surgeon, Twenty-Fourth Massachusetts Volunteers, and brevetted lieutenant-colonel for gallant and distinguished services in the field during the Civil War; superintendent of the Boston Dispensary from 1865 to 1872; city physician of Boston from 1871 to 1881; mayor of Boston in 1882; a member of the board of experts appointed by Congress to investigate yellow fever in 1878; for thirty years an overseer of Harvard College; a trustee of the Peabody Education Fund since 1888; librarian and vice president of the Massachusetts Historical Society; author of many monographs on historical subjects; died in the Hotel Lennox, Boston, December 5.

Benjamin Troop Phillips, Menominee, Mich.; Rush Medical College, 1870; aged 78; a member of the Michigan State Medical Society; president of the Wisconsin State Medical Society in 1892; a veteran of the Civil War; chief surgeon of the Lumbermen's Provident Hospital and St. Joseph's Hospital; one of the founders and for a time professor of surgical anatomy and operative surgery on the cadaver in the Wisconsin College of Physicians and Surgeons, Milwaukee; local surgeon of the Chicago and Northwestern system since 1871; died at his home, November 29, from cerebral hemorrhage.

Howard Walter Beal, Major, M. C., U. S. Army ⊕ Worcester, Mass.; Harvard Medical School, 1898; aged 49; a member of the American Association of Genito-Urinary Surgeons, and American Urological Association; formerly Acting Assistant Surgeon, United States Army, surgeon to the out-patient department and cystoscopist to the Worcester Memorial Hospital, and cystoscopist to the Worcester City Hospital; who was injured by a shell fragment, while on duty with the American Expeditionary Forces in France, July 18, died from his wounds in Paris, two days later.

Stephen John Henry Reed ⊕ Capt., M. C., U. S. Army, Fultonville, N. Y.; Albany (N. Y.) Medical College, 1907; aged 37; for two terms coroner of Montgomery County; who went to France with the One Hundred and Thirtieth U. S. Infantry, in May last, and afterward was assigned to the One Hundred and Thirtieth Field Hospital, Sanitary Train No. 108; was killed in action at Hill No. 281, October 21, and buried in the military cemetery at Glorieux, France.



Died in the Service
IN FRANCE

CAPT. STEPHEN J. H. REED, M. C.,
U. S. ARMY, 1881-1918

Irvin Edmund Bennett, San Francisco; University of Boulder and Denver, 1889; Jefferson Medical College, 1891; at one time a member of the Medical Society of the State of California; a veteran of the Spanish-American War, in which he served in the Philippine Islands as captain of United States Volunteers; a member of the staff of the Southern Pacific Hospital; died, October 28, from influenza.

William Breinig Erdman ⊕ Macungie, Pa.; University of Pennsylvania, Philadelphia, 1860; aged 80; a member of the state legislature in 1881 and 1883; for more than fifty years a member and for many years president of the Macungie School Board; one of the organizers of the Lehigh County Medical Society; a specialist on diseases of the eye and ear; died at his home, November 30, from influenza.

Andrew B. Gloninger, Lebanon, Pa.; University of Pennsylvania, Philadelphia, 1883; aged 57; formerly chief surgeon of the Good Samaritan Hospital, and founder and chief surgeon of the Lebanon Sanatorium; surgeon of the Fourth Pennsylvania Infantry during the war with Spain; died in his office, December 3, from heart disease.

Albert Bellingraph Mason, Waycross, Ga.; Atlanta, Ga., College of Physicians and Surgeons, 1909; aged 31; a member of the Medical Association of Georgia and American Academy of Ophthalmology and Oto-Laryngology; a specialist on diseases of the eye, ear, nose and throat; died at his home, December 4, from pneumonia following influenza.

Albert Hayden, Shellsburg, Wis.; Washington University, St. Louis, 1876; aged 67; a member of the State Medical Society of Wisconsin, and a charter member of the Lafayette County Medical Society; local surgeon of the St. Paul System for twenty-five years; died at his home, December 6, from cerebral hemorrhage.

William Thomas Murphy ⊕ Lieut., M. C., U. S. Army, Waukesha, Wis.; Wisconsin College of Physicians and Surgeons, Milwaukee, 1904; aged 38; on duty with the Three Hundred and Thirtieth Aero Squadron; died in a hospital in Grantham, England, November 2, from pneumonia following influenza.

Daniel MacNorton, Yorktown, Va. (license, Virginia, 1885); aged 63; a practitioner for forty years; first collector of customs for the port of Newport News, Va., and once a member of the Virginia state senate and house of representatives; died in the Dixie Hospital, Newport News, November 29.

Joseph S. Gentile, Chicago; Chicago College of Medicine and Surgery, 1913; aged 33; a member of the staff of the Columbus Extension Hospital; who was shot, December 14, by a patient whom he was called to attend; died in the Columbus Extension Hospital the following morning.

James Russell Stewart ⊕ Colorado Springs, Colo.; Johns Hopkins University, Baltimore, 1909; aged 36; secretary of the El Paso Medical Society from 1916 to 1918; a specialist in tuberculosis; died in a hospital in Colorado Springs, December 6, from pneumonia following influenza.

Amos Frank Baumann, Waterloo, Ont.; Trinity Medical College, Toronto, 1885; aged 61; for ten years medical officer of health of Waterloo; a medical director of the Dominion Life Insurance Company since its organization in 1889; died at his home, November 25, from heart disease.

Frank Edgar Simons, Canajoharie, N. Y.; Albany (N. Y.) Medical College, 1879; aged 67; a member of the Medical Society of the State of New York, and president of the Montgomery County Medical Society; died in Canajoharie, October 1, after an operation for prostatic abscess.

George Joseph Spencer, Chicago; University of Illinois, Chicago, 1908; aged 41; at one time a member of the Illinois State Medical Society; city physician of Chicago, in 1911; who was in government service in Albany, N. Y.; died in that city, December 6, from pneumonia.

Clyde Edward Prudden ⊕ Major, M. C., U. S. Army, Duluth, Minn.; Northwestern University Medical School, Chicago, 1909; aged 30; a specialist in obstetrics and gynecology; is reported in the *Official Bulletin* of December 2, to have died from disease in France.

Robert Armistead McLean, Berkeley, Calif.; University of California, Berkeley, and San Francisco, 1874; aged 67; at



Died in the Service
IN FRANCE

CAPT. JAMES MACFARLAND, M. C.,
U. S. ARMY, 1887-1918

(See *The Journal*, last week, p. 2011)

one time a member of the Medical Society of the State of California; emeritus professor of surgery in his alma mater; died at his home, December 4.

Robert Archibald Gray, Shreveport, La.; University of Louisville, Ky., 1853; aged 88; a member and at one time president of the Louisiana State Medical Association; surgeon in the Confederate Service during the Civil War; died at his home, November 25.

William Sarsfield Morriss ♂ Lieut., M. C., U. S. Army, Fall River, Mass.; Harvard Medical School, 1915; aged 29; on duty at Camp Joseph B. Johnston, Jacksonville, Fla.; while on furlough, died at his home, October 11, from pneumonia following influenza.

Joseph Vincent Kelly ♂ Philadelphia; Jefferson Medical College, 1868; aged 74; medical director of St. Mary's Hospital and visiting physician to St. Timothy's Hospital; who served in the Navy throughout the Civil War; died at his home, December 6.

Charles LeRoy Griswold, Nanticoke, Pa.; University of Pennsylvania, Philadelphia, 1907; aged 35; a member of the Medical Society of the State of Pennsylvania; died at the Nanticoke State Hospital, October 7, from pneumonia following influenza.

Clarence Howarth White ♂ Lieut., M. C., U. S. Army, Cohoes, N. Y.; University of Michigan, Homeopathic Medical School, Ann Arbor, 1909; aged 30; is reported to have died in a military hospital in France, November 12, from pneumonia.

William H. Moore, Martinsdale, Mont.; St. Louis University, 1905; aged 40; a large ranch owner of Montana; formerly a specialist on diseases of the eye, ear, nose and throat; died in St. Peter's Hospital, Helena, Mont., December 1, from pneumonia.

James Malcolm McKibbin ♂ Capt., M. C., U. S. Army, Buck Valley, Pa.; University of Pennsylvania, Philadelphia, 1899; aged 46; died in Mobile Hospital No. 4, France, October 23, from wounds received while on duty on the fighting line.

Thomas Lindsley Bradford, Philadelphia; Homeopathic Medical College of Philadelphia, 1869; aged 71; author of several books and monographs on homeopathy; librarian of Hahnemann Medical College; died at his home, December 3.

Benjamin William Carlson ♂ Capt., M. C., U. S. Army, Denver; University Medical College of Kansas City, Mo., 1903; aged 44; on duty at Kelly Field, South San Antonio, Texas; died at that post, November 20, from pneumonia.

William Frank Guilfoyle ♂ Lieut., M. C., U. S. Army, Philadelphia; University of Pennsylvania, Philadelphia, 1905; aged 36; on duty with Base Hospital No. 31 in France; after having been gassed, died, September 2, from exhaustion.

Joseph Augustine McGowan, Philadelphia; University of Pennsylvania, Philadelphia, 1899; aged 43; physician to the Church Dispensary Southwark; died at his home, September 7, from carcinoma of the glands of the neck and throat.

Porton Rivolo Bennett, Los Angeles; Bellevue Hospital Medical College, 1879; aged 75; at one time a member of the Medical Society of the State of California; died in Daytona, Fla., November 19, from locomotor ataxia.

William Preston Harden, Bushville, near Commerce, Ga.; Emory University, Atlanta, Ga., 1886; aged 52; a member of the Medical Association of Georgia; died at his home, November 13, from pneumonia following influenza.

John D. Gordon Smith, Zolfo, Fla.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1912; aged 30; a member of the Florida Medical Association; died at his home, October 15, from pneumonia following influenza.

Herbert Ewing Larkins, Charlotte, Tenn.; University of Nashville, Tenn., 1909; aged 40; a member of the Tennessee State Medical Association; died at his home, October 16, from bronchial pneumonia following influenza.

Thomas Tounge Perkins ♂ Cliftondale, Mass.; Boston University, 1898; Harvard Medical School, 1901; aged 45; a specialist on diseases of the eye, ear, nose and throat; died at his home, December 6, from heart disease.

Herbert Conrad Goings ♂ Matewan, W. Va.; University of Louisville, Ky., 1896; aged 42; for ten years owner of the Matewan Sanitarium; died at his home, October 14, from bronchial pneumonia following influenza.

L. F. Alfred Ouellet, Orwell, Vt.; Laval University, Quebec, 1894; aged 48; a member of the Vermont State Medical Society; died at his home, October 5, from bronchopneumonia.

Harvey Lasher Thorpe, ♂ Capt., M. C., U. S. Army, Los Angeles; Rush Medical College, 1909; aged 36; who left California, for overseas, October 15, died at sea, November 4, from pneumonia, following influenza.

Romulus Falardeau, Montreal, Que.; Montreal School of Medicine and Surgery, 1908; aged 34; assistant to the surgical clinic of Laval University, and chief surgeon of the St. Justine Hospital; died, October 5.

Albert Marinius Larkin ♂ Lieut., M. C., U. S. Army, Jasper, Minn.; University of Minnesota, Minneapolis, 1917; aged 29; is reported in the *Official Bulletin* of December 2, to have died from disease in France.

Allison Brown, Memphis Tenn.; Memphis Hospital Medical College, 1898; aged 46; at one time acting assistant surgeon, U. S. P. H. S., and on duty at Fort Stanton, N. M.; died at his home in Memphis, November 25.

William Johnston Calhoun ♂ St. Charles, Ill.; University of Pittsburgh, 1891; aged 56; health officer of St. Charles; local surgeon of the Chicago, Great Western System; died at his home, December 9, from pneumonia.

Samuel Howard Monell, New York City; Bellevue Hospital Medical College, 1890; aged 61; a charter member of the Roentgen-Ray Society of the United States; died at his home, December 3, from pneumonia.

David Frank Hallett, McCool Junction, Neb.; Hahnemann Medical College, Chicago, 1878; aged 63; who was stricken with cerebral hemorrhage while making a professional call, November 23, died, November 30.

John Edward Williams ♂ Lieut., M. C., U. S. Army, Roselle Park, N. J.; College of Physicians and Surgeons in the City of New York, 1913; aged 26; died in Chaumont, France, in August, from paratyphoid fever.

Eugene Van Valkenburgh Riker ♂ Flint, Mich.; University of Michigan, Ann Arbor, 1887; aged 57; a specialist on diseases of the eye, ear, nose and throat; died at his home, November 25, from pneumonia.

Eliza F. Pettingill, Philadelphia; Womans Medical College of Philadelphia, 1864; aged 77; one of the promoters and visiting physician to the Women's Homeopathic Hospital; died at her home, December 2.

Leech Key Cracraft ♂ Lieut., M. C., U. S. Army, Elm Grove, Wheeling, W. Va.; University of Virginia, Charlottesville, 1905; aged 36; died at his home, November 26, from pneumonia following influenza.

John N. Judy, Petersburg, W. Va. (license, West Virginia, 1901); aged 49; a member of the West Virginia State Medical Association; died at his home, October 27, from pneumonia following influenza.

William Hamilton Young, Starkville, N. Y.; Albany (N. Y.) Medical College, 1899; aged 39; D.P.H., McGill University, 1907; died at his home, October 14, from pneumonia following influenza.

George W. Caldwell, Waggoner, Ill. (license, years of practice, Illinois, 1877); aged 84; for sixty-three years a practitioner of Montgomery County, Ill.; died at his home, November 28.

Alexander Cairns, Coeur d'Alene, Idaho; St. Louis University, 1907; aged 49; who was awaiting commission in the Medical Corps, U. S. Army; died at his home, recently, from pneumonia.

Willoughby Dozier, Nashville, Tenn.; University of Tennessee, Nashville, 1877; aged 75; surgeon in the Confederate service throughout the Civil War; died at his home, November 8.

Edwin James Gravatt, Troy, N. Y.; New York University, New York City, 1891; aged 48; for six years coroner of Rensselaer County; died at his home, December 2, from pneumonia.

Alphonse F. Mercier, Montreal, Que.; Montreal School of Medicine and Surgery, 1894; aged 48; professor of the history of medicine in his alma mater; died, October 24.

Owen Harrison Foringer ♂ Erie, Pa.; University of Pittsburgh, 1913; aged 32; a specialist in anesthesia; died at his home, October 20, from pneumonia following influenza.

George Elliott Merrick, Pittsburgh; College of Physicians and Surgeons, Baltimore, 1903; aged 45; died suddenly at Newcastle, Pa., November 5, from heart disease.

Henry James Mueller ♂ Les Vegas, N. M.; Missouri Medical College, St. Louis, 1893; aged 49; died at his home, October 15, from pneumonia following influenza.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

GOLDWATER ORDINANCE DEFEATED—ITS PRINCIPLE UPHELD

A Hollow Victory for the Nostrum Interests

On Dec. 31, 1914, the Department of Health of the City of New York revised the Sanitary Code so as to require that on and after Dec. 31, 1915, no proprietary or "patent medicine" should be sold in the city of New York until certain requirements had been met. The requirement was, in effect, that "the names of the ingredients of every such medicine to which the therapeutic effects claimed are attributed, and the names of all other ingredients except such as are physiologically inactive, shall be registered in the Department of Health." The ordinance did not apply to those proprietary or "patent medicines" which already gave the names—not quantities—of the ingredients on the label. This revision of the Sanitary Code—popularly known as the "Goldwater Ordinance"—was made, of course, in the interest of the public health. The ordinance left much to be desired from a public health standpoint, in that it did not require a quantitative formula, and further, in that it permitted an alternative of giving the public the facts. As THE JOURNAL pointed out at the time, if a layman desires to treat his own simple ailments—as he has a perfect right to—he has a right to demand the names and quantities of the drugs he is pouring down his throat.

In spite of its shortcomings, and in spite of the fact that the ordinance was not an onerous one, it was bitterly fought by the "patent medicine" interests. The fight was led by E. Fougere & Co., E. N. Crittenton Co., and H. Planten & Son. The case dragged its way through the courts and finally reached the Court of Appeals of the State of New York, which, a few weeks ago, handed down a decision in the matter. The decision was, in effect, that the ordinance had one real defect, although, as the court pointed out "one that amendment may correct," and that was that it did not protect the rights of dealers who had such preparations on hand at the time the ordinance went into effect. The court held, therefore, that in this regard, the Board of Health had exceeded the power delegated to it.

In discussing the objections raised by the Fougere concern to the ordinance, the Appellate Court said that most of them "we reject as inadequate." Quoting from the opinion handed down:

"The argument is made that the ordinance is an arbitrary exercise of the power of government. We do not think so. Its purpose and effect are well within the limits of the police power. The purpose is the preservation of the public health and safety. . . . The form of protection is publicity. THERE MUST BE DISCLOSURE OF THE TRUTH TO RESPONSIBLE OFFICIALS WHO WILL PREVENT OR PUNISH THE SALE OF FRAUDULENT OR NOXIOUS COMPOUNDS. IF THAT IS NOT A LEGITIMATE PUBLIC AIM, WE ARE AT A LOSS TO KNOW WHERE ONE MAY BE FOUND. It is not important that the ordinance fails to compel disclosure to all the world. Laws are not invalid because they fall short of the maximum of attainable efficiency. Disclosure to all the world, as in *Savage v. Jones*, might make the protection more complete, but it would also make the hardship more severe. Something less, therefore, has been exacted. Disclosure is to be made to the health officers of the city, and to them only. If fraud or other wrong is discovered, then and then only exposure will result. 'NO MAN HAS A CONSTITUTIONAL RIGHT TO KEEP SECRET THE COMPOSITION OF SUBSTANCES WHICH HE SELLS TO THE PUBLIC AS ARTICLES OF FOOD.' IF THAT IS TRUE OF FOOD, IT IS EVEN MORE PLAINLY TRUE OF DRUGS. A danger exists, and the only question is whether the means of correction are appropriate. We cannot say that the means have no relation to the end.

"The public health is safeguarded by disclosure to public officers charged by law with its protection. We are not called

upon to approve the wisdom of the ordinance. We stop when we satisfy ourselves that it has a reasonable relation to the end to be attained." [Capitals and small capitals ours.—Ed.]

Another argument made by the Fougere concern is that which has been made by the defenders of "patent medicine" interests before, namely, that, by requiring nostrum makers to publish their formula, they would be thus made to give evidence against themselves. THE JOURNAL has before commented on the moral status of a trade which cannot stand publicity—and admits it! In discussing this, the court said:

"The sale of medicines is a business subject to governmental regulation. One who engages in it is not compelled by this ordinance to expose himself to punishment for any offense already committed. He is simply notified of the conditions upon which he may do business in the future. He makes his own choice. To such a situation, the privilege against self-accusation has no just application."

The objection made by the Fougere counsel, also, and one of the stock objections, it might be said, of the "patent medicine" fraternity, that prosecution for misstatement of therapeutic action would be the infliction of punishment for "mere error of opinion" was likewise dismissed by the court as inadequate. So, too, was the alleged objection that the ordinance would conflict with the federal constitution. On this the court's opinion was summed up in the statement:

"The dominant scheme of the ordinance is disclosure of ingredients. That disclosure may be compelled, and the failure to make it punished, without trespassing upon the field which has been occupied by Congress."

From the foregoing it would seem that, while the "patent medicine" interests profess to see in the finding of the court a victory, the victory in fact, rests with the Law Department of the City of New York. The underlying principle of the ordinance was the right on the part of the city to compel disclosure of ingredients. That right the Appellate Court upholds. Further, practically every other objection to the ordinance that was raised by the expensive and impressive array of legal talent employed by the "patent medicine" interests, was dismissed by the Appellate Court as "inadequate"; finally the one weakness which made it necessary for the court to hold the ordinance void, is, as the court records, "one that amendment may correct."

Correspondence

WILL AMERICAN MUNICIPALITIES PROFIT BY EXPERIENCE?

To the Editor:—Now is the time for American small municipalities to rise and demand health protection and pay for it. Thousands of able, educated, experienced young medical officers from the Army, Navy and Public Health Service will soon be discharged or will leave by resignation. Give these young, able men a chance to work as paid health officers in each community of, say, 5,000 inhabitants and above. Pay them living salaries and make them independent from the start. Place them in groups under older officers as supervisors, and let the U. S. Public Health Service do the general supervision and direction of the work so that uniform and advanced procedure may be maintained. Establish suitable, perhaps small, but still well equipped laboratories in some centrally located larger city for bacteriologic and biologic work, and place an efficient officer in charge. Build hospitals.

Have an adequate staff of nurses on hand, not only to supervise the school hygiene, but also to visit and instruct families in their homes, and detect overcrowding in the slums of the city. Arrange self-sustaining, sanitary boarding houses for single men and women; protect the children from the evil influences of star boarders and the like. Segregate tuberculous subjects. Have a social welfare committee regularly appointed and managed by Red Cross staffs to teach the American way of clean living to the foreign born and to see

that pure air and, in winter, heat is supplied the needy, and see that the children are properly clothed. Give the American public the benefit, the experience for which they had to pay so dearly. Americanize the foreigner, by paying more attention to his welfare.

J. F. C. LUHAN, PH.G., M.D., New York.
Acting Assistant Surgeon, U. S. P. H. S.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

EXPERIMENTAL NATURE OF INFLUENZA VACCINES

To the Editor:—Can you give me anything definite as to the consensus of opinion of physicians in private practice with reference to the prophylactic and therapeutic vaccines in influenza? My own experience in several hundred cases seems to demonstrate their value, but our health officer has publicly announced that all preventive inoculations are useless.

H. A. VENNEMA, M.D., Mcnorniee, Mich.

ANSWER.—An editorial in THE JOURNAL, Oct. 26, 1918, after describing the two main types of vaccine now being used in this epidemic said:

It will require many more carefully elaborated and controlled observations before anything definite may be learned in regard to the effect of these vaccines, and it is probably safe to say that nothing on which to rely in the future can be learned from the indiscriminate vaccination now going on. There is, therefore, no basis on which promise of protection from vaccines may be made. They may be harmless, and they may or may not be of preventive value.

In other words, at the time the editorial was written, the use of such vaccines was wholly in the experimental stage. Up to the present time there have been published, so far as we know, but two definite reports of adequately controlled experiments on the use of the vaccines. The first of these, that of Barnes (THE JOURNAL, December 7, p. 1899), concerned the use of the Leary vaccine, composed of strains of the influenza bacillus. This work indicated that the vaccine was not of prophylactic value. At the same time practically all of the recent bacteriologic work indicates that the influenza bacillus does not bear a causative relation to the present epidemic.

The second report, by G. W. McCoy, V. B. Murray and A. L. Teeter (THE JOURNAL, December 14, p. 1997), concerned a carefully controlled experiment on the use of a mixed vaccine similar to that brought out by Dr. E. C. Rosenow. The investigation indicates that this vaccine is not efficacious as a prophylactic against the present epidemic.

At this time it may be said that the use of vaccines in influenza is *at best* in the experimental stage, and that carefully controlled experiments exist which indicate that neither of the two main types of vaccines now offered to the profession are efficacious in preventing the spread of the present epidemic.

MARIJUANA, SYNONYM FOR CANNABIS INDICA

To the Editor:—I am told that on the Mexican border the natives make a cigaret out of a plant called Mara Huiwana. The Yaqui Indians are especially noted for this practice, and smoke the cigarets heavily, which results in producing hallucination and intoxication. Will you kindly give me some information concerning this plant? I at first thought it was loco weed, but am now positive that it is not.

F. F. YOUNG, M.D., Covington, La.

ANSWER.—In THE JOURNAL, July 6, 1918, p. 60, in answer to an inquiry regarding this drug we said:

We can find no reference to "maruhwana" or "marajuana" in available works dealing with drugs. According to Squire's "Companion to the British Pharmacopeia" (Edition 19, 1916) marihuana is a synonym in the Mexican Pharmacopeia for *cannabis indica*. The same name is also mentioned as a synonym for *cannabis indica* in "Plant Names," by A. B. Lyons (Edition 2, 1907).

Information received since suggests that the name may be applied to a stramonium plant, and that, as is generally the case, the same name is applied by the public to a number of plants. The symptoms mentioned in the query as being produced by smoking Mara Huiwana or marajuana are similar to those produced by the mescal plant, which was fully discussed in an editorial in THE JOURNAL, Jan. 15, 1916, p. 194.

CALCIUM HYPOCHLORITE

To the Editor:—Where can I buy a small quantity of calcium hypochlorite? I enclose clipping from THE JOURNAL.

GEORGE MARTIN, M.D., Elk Mound, Wis.

ANSWER.—The clipping enclosed entitled "Prophylactic Treatment of War Wounds" is an abstract of an article by H. Vincent, *Bulletin de l'Académie de médecine*, 1917, 77, 136, which appeared in THE JOURNAL, March 31, 1917, p. 1009. Vincent gives this formula for the antiseptic powder:

Hypochlorite de chaux titrant 100 à 110 litres de Cl.....10 grammes
Acide borique officinal pulvérisé et bien sec.....90 grammes

The "hypochlorite de chaux titrant 100 à 110 litres de Cl" referred to in the foregoing formula corresponds to the chlorinated lime of the U. S. Pharmacopeia. This is essentially a mixture of calcium hypochlorite and calcium chlorid, and like the product referred to above is required to contain 30 per cent. of "available" chlorine. So far as we know, chemically pure calcium hypochlorite cannot be purchased.

HOME FOR AGED

To the Editor:—I wish to know if there is an endowed home for old men in the United States where care could be had for about \$15 or \$20 per week. I have a patient 77 years old who is in such condition that he needs a great deal of care and the family cannot pay the \$25 per week that the hospitals charge.

M.D.

ANSWER.—THE JOURNAL will forward replies to the inquirer.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALABAMA: Montgomery, Jan. 14. Chairman, Dr. S. W. Welch, Montgomery.

ARIZONA: Phoenix, Jan. 7. Sec., Dr. Allen H. Williams, 219 Goodrich Bldg., Phoenix.

COLORADO: Denver, Jan. 7. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

DISTRICT OF COLUMBIA: Washington, Jan. 14-16. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

HAWAII: Honolulu, Jan. 6. Sec., Dr. J. R. Judd, Honolulu.

MINNESOTA: Minneapolis, Jan. 7-10. Sec., Dr. Thomas McDavitt, 741 Lowry Bldg., St. Paul.

NEW HAMPSHIRE: Concord, Dec. 27-28. Sec., Dr. Charles Duncan, Concord.

NEW MEXICO: Sante Fe, Jan. 13. Sec., Dr. W. E. Kaser, East Las Vegas.

NEW YORK: Jan. 28-31. Albany, Buffalo, New York City and Syracuse. Mr. Herbert J. Hamilton, Asst. Prof. Exams., New York Dept. of Education, Albany.

NORTH DAKOTA: Jan. 7. Sec., Dr. G. M. Williamson, 860 Belmont Ave., Grand Forks.

OKLAHOMA: Oklahoma City, Jan. 7-8. Sec., Dr. J. J. Williams, Weatherford.

OREGON: Portland, Jan. 7. Sec., Dr. H. S. Nichols, Corbett Bldg., Portland.

PENNSYLVANIA: Philadelphia, Jan. 7-9. Sec., Mr. Nathan C. Schaeffer, State Capitol, Harrisburg.

RHODE ISLAND: Providence, Jan. 2-3. Sec., Dr. B. U. Richards, State House, Providence.

SOUTH DAKOTA: Pierre, Jan. 14. Sec., Dr. P. B. Jenkins, Waubay.

UTAH: Salt Lake City, Jan. 6. Corres. Sec., Dr. G. F. Harding, 405 Templeton Bldg., Salt Lake City.

WASHINGTON: Spokane, Jan. 7-9. Sec., Dr. C. N. Suttner, 415 Old Nat'l Bk. Bldg., Spokane.

WISCONSIN: Madison, Jan. 14. Sec., Dr. J. M. Dodd, 220 E. 2d St., Ashland.

Annual Congress on Medical Education and Licensure

The fifteenth annual conference of the Council on Medical Education will be held at the LaSalle Hotel, Chicago, Monday, March 3, 1919. On the following day, March 4, the Federation of State Medical Boards of the United States and the Association of American Medical Colleges will hold their annual meetings.

The discussions at this conference will be of problems arising from the world war, and will include the "Needs of Medical Education Revealed by the War" and such other topics as military training, hygiene, preventive medicine, condensed courses in premedical education, continuous sessions in medical schools, and other related topics. The discussions will be of interest from the standpoint of both colleges of arts and sciences and medical schools.

Among the speakers will be a number of prominent medical officers, presidents of universities and leaders in medical education.

Peking Union Medical School, Peking, China

The Peking Union Medical School was organized by a group of American and British missionary societies and began active teaching about 1906. It was supported by these societies until in 1915 the property was purchased for \$200,000 by the Rockefeller Foundation. The control is now vested in the China Medical Board consisting of seven trustees appointed by the Rockefeller Foundation and six by the missionary societies formerly in full control. New buildings have been planned, several of which have already been completed, the curriculum has been revised, a new faculty has been selected, including ten all-time professors, and an ample endowment has been provided. The institution now offers a three year premedical course entrance to which is the completion of the middle school. This premedical course includes instruction in physics, chemistry, biology, English, Chinese and German. The work of the three years are said to correspond with the last year of the best high schools in the United States and the first two years of the best American universities.

The medical course will not begin until September, 1919. It will cover five years and will be followed by a sixth year to be spent by the student as an intern in a hospital. There will be no graduates under these higher standards, therefore, until 1925.

North Dakota July Examination

Dr. G. M. Williamson, secretary of the North Dakota State Board of Medical Examiners, reports the oral, practical and written examination held at Grand Forks, July 2-5, 1918. The examination covered 13 subjects and included 110 questions. An average of 75 per cent. was required to pass. Of the 3 candidates examined, 2 passed and 1 failed. Two candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Rush Medical College	(1903)	75
John A. Creighton Medical College	(1913)	75.1
FAILED			
Chicago College of Medicine and Surgery	(1916)	62
College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Illinois Medical College	(1905)	Indiana
University of Minnesota	(1915)	Minnesota

Connecticut November Examination

Dr. Charles A. Tuttle, secretary of the Connecticut Medical Examining Board, reports the practical and written examination held at New Haven, Nov. 12-13, 1918. The examination covered 7 subjects and included 70 questions. An average of 75 per cent. was required to pass. Of the 12 candidates examined, 9 passed and 3 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
College of Physicians and Surgeons, Los Angeles	(1912)	75.6
George Washington University	(1917)	78.6
Howard University	(1912)	75.6
University of Maryland	(1917)	78
Tufts College Medical School	(1917)	80.3
Fordham University	(1918)	86.6
Long Island College Hospital	(1918)	80.7
University of Pennsylvania	(1918)	76
University of Rome	(1893)	77.3
FAILED			
Tufts College Medical School	(1918)	70.1, 72.1
Columbia University	(1915)	73.2

Iowa Reciprocity Report

Dr. G. H. Sumner, secretary of the Iowa State Board of Medical Examiners, reports that 1 candidate was licensed through reciprocity at the meeting held at Des Moines, Nov. 12, 1918. The following college was represented:

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Northwestern University	(1917)	Missouri

Book Notices

PSYCHOLOGY AND THE DAY'S WORK. A Study in the Application of Psychology to Daily Life. By Edgar James Swift, Professor of Psychology and Education in Washington University. Cloth. Price, \$2 net. Pp. 388. New York: Charles Scribner's Sons, 1918.

There is nothing more interesting than the human mind; and though we realize at times its influence on the most intimate details of our daily existence, we seldom stop to take account of the fact. As Swift says in his opening sentence, "Man's response to situations in the day's work is the measure of his efficiency." This book is not the typical dry as dust text on psychology, but all of the author's points are illustrated by anecdote from experience and from extensive literature which makes the book extraordinarily entertaining.

The first chapter, on organization for mental efficiency, gives attention incidentally to the various medical cults, the psychologic blunders of the German authorities, the penal system, the life of Al Jennings, the noted bandit, and of Patrick Henry, the noted lawyer, and to efficiency in public health. The second chapter concerns thinking and acting. This chapter describes the beginnings of numerous great inventions and the thought that led up to the discoveries. Especial attention is given to the habits of mind of the vivisectionists, and the author shows particularly the "power of empty words to cajole the human mind into placid assent in the conviction that it is thinking."

In the third chapter the author considers habit in the preparation for efficiency, discussing the theory of the formation of habit, the value of habit and its influence for perfect, as well as against perfect, efficiency. Special attention is drawn to the difficulties which great thinkers or discoverers have had in changing the point of view of contemporary men; for example, Harvey with the discovery of the circulation; Benjamin Franklin, with his work on electricity; Oliver Wendell Holmes, with puerperal fever; and incidentally, Galvani, Couvier, La Voisier, Young and Plenciz.

The fourth chapter, on the psychology of learning, relates mainly to the credulity of the human race, the teaching of animals, and the adoption of method, particularly the learning of the touch system of typewriting and the study of golf.

The fifth chapter is on fatigue and its psychology; the sixth, on curiosities of memory, in which especial attention is given to lightning calculators, what occurs in the mind during drowning, crystal gazing, hypnotism and also the training of the mind for permanent memory. Here especial attention is given also to the question of rapid, intensive or prolonged, careful study. The next chapters concern memory and its improvement and then testimony and rumor, the latter devoted especially to legal conditions. The ninth chapter, entitled "Our Varying Selves," is a psychologic study of personality, special attention being given to Kaiser Wilhelm; also to President Wilson, and to numerous characters from literature. The final chapter, on the physiology of digestion, describes the work of Pawlow, discusses the work of Carlson and then considers the general aspects of the influence of the mind on the stomach and vice versa.

The book contains numerous aphorisms which are worthy of especial consideration; for example:

Experience is a filing-case from which man draws reports from his past life.

Every experience is a scientific experiment reduced to its lowest terms.

Unorganized knowledge is only wayward information, unfitted for application because incapable of being combined into a single impulse leading toward a definite conclusion.

It is characteristic of the human mind to be attracted and impressed by the unusual or sensational and to fail to notice events that are daily occurrences.

The basis of a good memory is to discover valid relations, such as those of time, place, similarity and dissimilarity, cause and effect.

Experiments have proved that in general when the average man reports events or conversations from memory and conscientiously believes that he is telling the truth, about one fourth of his statements are incorrect.

The book is one that will pay every physician to read. Too many of us fail to appreciate the practical value of an understanding of the mental processes of the ordinary human being.

Medicolegal

Slight Evidence Suffices for Affirming Conviction of Manslaughter Through Malpractice

(*State v. Young* (N. J.), 103 Atl. R. 173)

The Court of Errors and Appeals of New Jersey, in affirming a judgment of the supreme court, which affirmed a judgment of conviction of the defendant of manslaughter for causing the death of a woman through malpractice in the performance of a surgical operation on her, she having died on the operating table, says that the argument, elaborately and forcefully addressed to the court of errors and appeals by counsel for the defendant on the merits of the case, could not properly be considered here, where the court deals exclusively with the legal questions presented by the record. It might very well be that the testimony tending to establish the guilt of the defendant was of such meager and attenuated character that, tested by a strict analysis, it was not clearly convincing of the guilt of the defendant; and even though it might appear to the court of errors and appeals that on a motion for a new trial in the trial court such a motion might properly prevail, nevertheless such a situation afforded no legal ground for disturbing the verdict in this case, so long as there was some testimony, no matter how slight, tending to support the finding of the jury. It is only when there is no testimony to support a verdict, and a motion is made for a direction of a verdict of not guilty, and such motion is refused, that such refusal may be properly assigned as error, reviewable here.

In the trial court one of the points made in behalf of the accused was that the removal of two parts of the smaller intestine together with the larger intestine could not possibly have been accomplished with the instruments that were alleged to have been used by the defendant in performing the operation. On the other hand, there was testimony tending to show that, in fact, there was no disturbance of the abdominal tract after death, and that when opened its contents were gone; and there was the testimony of every medical expert, except one physician, that they could not have been removed by the use of the instruments exhibited. The legitimate inference from all this would be that the contents were removed before death, and by some instruments other than those exhibited. On the other hand was the defendant's claim that, in fact, the removal of the contents had occurred after death. The jury evidently adopted the view that the contents were removed before death and by some instrument or instruments other than those exhibited. There was evidence on which to base such finding, and hence it would have been improper for the trial judge to charge, as requested, that there was no evidence whatever to show that any other instruments were used.

Insurer Cannot Be Sued for Malpractice

(*Bowers v. Gates et al.* (Mich.), 166 N. W. R. 880)

The Supreme Court of Michigan, in this action in tort for alleged malpractice brought against defendant Gates and an insurance company, reverses an order which denied a motion in the nature of a demurrer which the company made asking that the action be dismissed as to it. The court says that, as disclosed by his declaration, the sole tort charged by the plaintiff was that of malpractice inflicted on him by defendant Gates while professionally employed as his physician and surgeon to care for a fractured leg and ankle. The declaration contained two counts. The first one was against defendant Gates for malpractice, directed and exclusively devoted to his alleged lack of skill, malfeasance, and neglect while professionally attending the plaintiff as a physician, and the damaging consequences that the plaintiff experienced. The second count recited that the insurance company had by a described obligation in writing covering the period during which the plaintiff was under the treatment of defendant Gates contracted to hold the latter harmless against claims for damages, etc., wherefore the plaintiff was entitled to recover from the defendants his damages. The contract

by virtue of which the plaintiff sought to make the company a party to this action was an ordinary one of indemnity insurance, headed "Physician's Liability Policy," by which the company contracted with defendant Gates to indemnify him against loss for liability imposed on him by law for damages on account of bodily injuries or death suffered by any person or persons in consequence of any malpractice, error or mistake made by him in the practice of his profession, or of any assistant aiding him in the administration of medical or surgical treatment, during the term of the policy. But, as to all the contractual obligations in the policy, the difficulty in seriously considering the plaintiff's theory was that he was in no sense a party to the contract or to the consideration for it. He was a stranger to it, and there was no privity of contract between him and the company issuing the policy. The insurer made no promises to him, did not know him in the transaction, and assumed no obligation for his benefit. Any right of action which might arise out of this engagement was vested in the person to whom and with whom the promise, or contract, was made. No statutory provision and nothing in the contract gave the plaintiff any right of action in tort, or otherwise, against the insurer of the alleged tort-feasor or wrong-doer. The law on that subject is elementary in principle. Nor did the company in fact or effect intervene and become a defendant in appearing, represented by the same counsel who appeared for defendant Gates, and taking on itself the burden of his defense pursuant to its contract with him.

Pneumatic Ambulatory Splint Malpractice

(*Vander Wal v. Abbott & Wilcox et al.* (Iowa), 167 N. W. R. 182)

The Supreme Court of Iowa in affirming, in this case "not to be officially reported," a judgment for damages for alleged malpractice by the defendants in the reduction and treatment of a fracture of the plaintiff's left leg, says that there was exacted, as the jury was told, that degree of knowledge, skill and care ordinarily had and exercised by the average of the profession in that or similar localities, having regard to the improvements and advances in their profession at the time. The contention of the plaintiff was that the defendants fell short of this measure of skill and care in several respects, and the sole issue presented was whether the evidence was such as to make out a case for the jury. The fracture was an impacted one at the base of the neck of the femur, and extended in an oblique line. It appeared to have extended from the greater trochanter down to and past the lesser trochanter, with a spiral fracture accompanying it below. A pneumatic ambulatory splint was made use of. The entire apparatus was approved by the experts who testified. The fault found was with the manner of the use of the apparatus, the adjustment thereof to the plaintiff's leg, and the attention given thereto. The plaintiff contended that the splint was not adjusted to the leg as it should have been, in that a bolt holding together the upper parts was left out when the bones were set, and the laces of the shoe were loosened, so that the splint did not hold the parts together, so as to be immovable. One of the defendants denied that the bolt was out when he called, but admitted to loosening the lace of the shoe, and asserted that he had drawn the buckle over the foot a notch tighter, which offset the change in lacing. The other defendant, on calling after about thirteen days' absence, remarked, according to the plaintiff, that the leg did not look good to him, and then inquired, "Who unloosened this strap?" and was told that it was done by his partner. Then he inquired, "Where is that screw?" and when told by the plaintiff that it was never in there, put his hand into his vest pocket, remarking, "Here it is; I forgot to put it in; . . . this is one of the essential things" to keep the leg stretched; and he put the bolt in with a screwdriver. The court sets out other evidence, but it says merely enough to show whether the bolt was in place, and whether the shoe was unlaced so as to leave the splint loose was an issue for the jury. And that body was warranted in finding from the evidence that leaving the bolt out or unlacing the shoe would have been improper practice. Evidence in behalf of the defendants tended to show that the instep was very high, and that there was a contraction of the tendon on the

bottom of the foot which tended to draw the foot inward, and it rotated slightly inward. Another physician testified that if the splint had been properly adjusted, and kept adjusted, "you would not expect any disalignment of the foot"; and another one, that "when you have to refracture a limb, you do not usually get as good result." From this evidence the jury might have found that the defendants were negligent in omitting to adjust properly and keep adjusted the splint on the plaintiff's leg in that the bolt was omitted and the lace unfastened, thereby loosening the apparatus from the leg so as not to retain it in alinement, and that in consequence the leg was broken again, causing the plaintiff great pain and suffering. This pain and suffering furnished a basis for damages, even though the result may have been good. But there was evidence tending to show that there was a shortage of the left leg greater than ordinarily results from the setting of the fractured femur, for, though the physicians may have measured, the plaintiff stood in the presence of the jury, and with books under the short leg indicating its condition, the jury might have found from such demonstration that the leg was considerably more than 2 inches shorter than the other leg. That some of the facts may have been established by nonexpert testimony was not objectionable.

Not Barred from Testifying in Insanity Inquest

(*In re Harmsen (Iowa)*, 167 N. W. R. 618)

The Supreme Court of Iowa, in affirming a judgment confirming a finding of the commissioners of insanity of Story County that the appellant was insane and a fit subject for custody and treatment in the hospital for the insane, holds that it was not error to permit a physician to testify to matters concerning which he acquired knowledge while the appellant was in his retreat and being treated by him. The court says that protection was sought by the appellant from this testimony under Section 4608 of the Code of 1897, prohibiting physicians and surgeons from giving testimony concerning matters of which they obtained information in that capacity. The inhibition relates to communications properly intrusted to the physician in his professional capacity, and necessary and proper to enable him to discharge the functions of his office according to the usual course of practice or discipline. This, however, does not disqualify a physician from testifying as to the mental condition of the patient whom he has attended as he observed it, even though he attended him professionally. The court adds that no communications seemed to have been made to this physician by the appellant as patient to physician. Nor does the court consider that another physician was barred from testifying, in whose case it appeared that he had never been called to treat the appellant professionally, but for twenty-five years had been a member of the commissioners of insanity, and was a member of the commissioners at the time the appellant was examined by the commissioners, and detailed what was said by the appellant at that time and what he observed at that time.

Employer Not Liable for Malpractice

(*Congdon v. Louisiana Sawmill Company, Limited (La.)*, 78 So. R. 470)

The Supreme Court of Louisiana says that the plaintiff sued to recover \$5,000 damages against the defendant, and, for cause of action, showed that, while he was in the employ of the defendant, he sought the medical aid of "the sawmill physician of said company" to remove a wart that was on his back, and which had been a source of annoyance to him for some time; that, in endeavoring to remove the wart, the physician applied an acid negligently, poured it on the plaintiff's naked back, and it circled around his body, consuming skin and flesh in its course; that the physician, through negligence or lack of proper knowledge and skill, utterly failed to relieve the plaintiff, etc. In affirming a judgment dismissing the plaintiff's suit at his costs, because he failed to state a cause of action in his petition, the court holds that when an employer employs a physician or surgeon of ordinary skill and ability to attend to his employees, and pays the physician from a fund collected from the employees and from which fund the employer derives no profit, he is not

responsible in damages to an employee for mistakes of or malpractice by such physician, particularly, when it is not charged and proved that the employer was negligent in the selection of the physician. A petition for damages in such case should contain allegations of neglect on the part of the employer as to employing a competent physician, and that he derived some profit from the fund contributed by the employees to pay the physician. In the absence of such allegations, the petition discloses no cause of action.

Society Proceedings

COMING MEETINGS

Society of American Bacteriologists, Boston, Dec. 30-Jan. 1.

AMERICAN PUBLIC HEALTH ASSOCIATION

Forty-Sixth Annual Meeting, held in Chicago, Dec. 8-11, 1918

The President, DR. CHARLES J. HASTINGS, Toronto, in the Chair

The Etiology of Influenza

DR. WILLIAM H. PARK, New York: We concluded that whether or not the bacillus of influenza was the initiating cause of the present epidemic, it gave evidence that it has a marked pathogenic action, and this seemed to be sufficient reason for us to make a thorough trial of an influenza bacillus vaccine on the prevention, if not of the pandemic, at least of a number of the cases of infection with this bacillus.

The problem of producing immense quantities of vaccine, of determining the best dosage, the time for immunity, if any, to be established, of getting the proper controls in communities not yet infected, and above all of keeping good records and gathering and analyzing them, is one of the most important and staggering of problems.

We began the use of the influenza vaccine after the pandemic had already started, and some groups were not vaccinated until after the peak of the pandemic had been passed; so unless we have been able to get sufficient control cases, that is, presumably susceptible unvaccinated persons, exposed to the same degree, and observed at the same time as the vaccinated persons, we could arrive at no conclusion with regard to the efficiency of the vaccine. The reports from the use of the vaccine are being analyzed now, and it is already apparent that the majority of them are lacking in many essentials.

The intelligent use of the vaccine might have given us strong evidence in regard to the etiologic relationship of the influenza bacillus to the present pandemic; as it is, unless the finished reports prove to be better than they now promise, we must wait for such evidence as may be gathered from a serologic study of the various strains of the influenza bacillus isolated by us from the typical cases and from control cases.

DISCUSSION

DR. E. O. JORDAN, Chicago: In the present outbreak of influenza, conditions have been very different from those of which I have record. Instead of 8 or 9 per cent. of the deaths occurring between the ages of 20 and 40, over 60 per cent. have been of persons between the ages of 20 and 40. Where we find a similar bacteriologic picture in the true respiratory tract infections, it seems fair to suppose that neither the Pfeiffer bacillus, the pneumococcus nor the various varieties of streptococci are responsible alone for these outbreaks. We have in cases of pandemic influenza an infection with an unknown or unrecognized virus which increases the susceptibility of the individual normally to infection with the various pathogenic respiratory tract organisms, and superimposed on the initial infection we have a variety of secondary infections.

DR. J. W. NUZUM, Chicago: As regards the use of vaccines in influenza, we have seen some cases of the disease developing after the first injection of the vaccine, and we know of instances occurring after three injections of the vaccine; but we do not care to venture an opinion until we have been able to do considerable control work.

We have been impressed with the frequency of empyema in these cases. In our wards at the Cook County Hospital we have had from fifty to a hundred cases with empyema, and the predominating organism is the hemolytic streptococcus, a late secondary invader.

DR. WILLIAM H. STOKES, Baltimore: We have found the streptococcus and the pneumococcus, Types II and IV, in about 10 per cent. of the cases, both at necropsy and in the sputum; we also found the influenza bacillus.

LIEUT.-COL. JAMES G. CUMMINGS, Washington, D. C.: In a series of 100 specimens, we have found only 12.4 per cent. of influenza bacilli. In 27.6 per cent. we have found the hemolytic streptococcus, in 90 per cent. Group IV pneumococci. We have found a low percentage of the fixed types of pneumococci. We have likewise found about 20 per cent. of *Micrococcus catarrhalis*, and a few staphylococci.

DR. LUDVIG HEKTOEN, Chicago: I think we must be dealing with a disease of unknown etiology, complicated by secondary infections of different kinds depending on local conditions in different parts of the country.

DR. M. J. ROSENAU, Boston: In the first twenty-six or more necropsies we recovered the influenza bacillus described by Pfeiffer in 83 per cent. of the cases examined. We also found it in pure cultures in the lungs of the fatal cases in a number of instances. In the remaining 70 per cent. fatal pneumococcal cases we failed to find the influenza bacillus. These patients died of croupous pneumonia due to Types II and IV of the pneumococcus, and in a few instances of the hemolytic streptococcus.

DR. WILLIAM C. WOODWARD, Boston: What has been the prevalence of the various kinds and strains of streptococci and pneumococci in the civil population prior to the appearance of influenza, and what has been the relative prevalence of these particular organisms among groups of persons in infected communities who have not had the disease?

DR. WILLIAM D. STOVALL, Madison, Wis.: Unless a vaccine is made by growing the type in pure culture and mixing the types according to the organisms present, a vaccine of definite value probably cannot be obtained, because the mediums favorable to the growth of the pneumococcus cannot be favorable for everything. One type may overgrow the other. If they are grown in pure culture one may get definite effects from each type.

DR. H. W. HILL, St. Paul: There is a prevalent belief among a great many people that relatively few tuberculous persons have escaped influenza. I should like to know the experience of the members in regard to tuberculosis and influenza.

DR. J. O. COBB, U. S. Public Health Service, Chicago: At Fort Stanton, N. M., they have had a very decided outbreak of influenza, with 149 cases out of 300 tuberculous patients, with 18 per cent. of deaths. The cases are identical with our present epidemic, and the patients died just as promptly at the government sanatoriums there as they did elsewhere.

DR. WILLIAM H. PARK, New York: In the East we have had very little influenza complicated by empyema, but in different parts of the country there have been important and different secondary complicating organisms. In our own hospitals in the East we have only had one case of empyema in some sixty deaths.

As to the prevalence of the influenza bacillus in the cases prior to this outbreak over other organisms, I will say that the influenza bacillus has been present in the East in a great many cases in this epidemic. Every person with whooping cough seems to have the influenza bacillus.

Prophylactic Inoculation in Pneumonia and Influenza

DR. EDWARD C. ROSENOW, Rochester, Minn.: By the use of a properly prepared vaccine it is possible to afford a definite degree of protection for individuals, including pregnant women, during an epidemic of influenza. There is no noticeable increase in the number of cases immediately following the inoculations, and protection lasts for a period of at least six weeks. The favorable results from inoculations indicate that these so-called secondary invaders, which appear to have

exalted and peculiar infecting powers, bear a close etiologic relation to epidemic influenza. This relation, however, may be in merely favoring the invasion of an unknown virus. Nearly all physicians report that the attacks of influenza are milder and of shorter duration, and that convalescence is more rapid in inoculated patients as compared with uninoculated individuals. The tendency of infection of the lower respiratory tract to develop pneumonia is noticeably less in the inoculated. According to the evidence at hand, the prophylactic vaccinations have conferred a decided immunity in pregnant women. This infection has proved very fatal among the uninoculated of this class.

DISCUSSION

DR. GEORGE W. MCCOY, Washington, D. C.: See the article on "The Failure of a Bacterial Vaccine as a Prophylactic Against Influenza," THE JOURNAL, Dec. 14, 1918, p. 1997.

DR. TIMOTHY LEARY, Boston: In the treatment of influenza with an autogenous vaccine of mixed strains of influenza bacilli grown on human blood agar, we started on a local piece of work with our students and nurses in certain institutions which were receiving the first cases of influenza, and in which the incidence and mortality were very high. The results indicated definite value, and we proceeded from that to offer the vaccine for immunization to physicians and nurses generally. Again, the reports came back distinctly favorable, and if the agent is of definite value it seems to me that its use should be spread. We have as yet no definite information on which to draw final conclusions.

DR. F. O. TONNEY, Chicago: The ratio of influenza patients developing pneumonia in the unvaccinated of industrial groups studied was 1 in 21, while in the vaccinated it was 1 in 184. The ratio of influenza cases terminating fatally in the unvaccinated of the industrial groups in Chicago was 1 in 408, and in the completely vaccinated there were none in the 1,201 cases reported.

The influenza in vaccinated individuals occurred almost exclusively in those who had received one vaccination. No bronchopneumonias or deaths occurred in the vaccinated group after the second or third vaccination. The number of severe local reactions following vaccination was at the rate of 3 per thousand, and of severe constitutional reactions at the rate of 2 per thousand. These results are incomplete, but we offer them for what they may be worth.

DR. J. J. MOORE, Chicago: We have found hemolytic streptococci in the sputum, bronchi, lungs and especially, as Dr. Nuzum has said, from the pleural complications of this disease.

DR. W. O. SHERMAN, Pittsburgh: At the Homestead plant, there were 1,687 of the employees who were not inoculated; 588 of those, or 30 per cent., contracted the disease. The number of deaths was forty-two, a percentage of 2.5. There were 5,964 who received one inoculation; of these, 213, or 3.5 per cent., developed the disease. There were nine deaths among these, or a percentage of 1.5; 5,222 received two inoculations, and 174 developed the disease, or a percentage of 3.2 with four deaths. The death rate was 0.08. There were 4,720 that received three inoculations; sixty-six of these, or a percentage of 1.4, contracted the disease. There were no deaths in those with three inoculations. There were 4,007 who received four inoculations at the one plant, and these data are accurate; 108, or 2.8 per cent., contracted the disease, and there were two deaths, giving a death rate percentage of 1.05.

ADMIRAL E. R. STITT, Washington, D. C.: We have been successful at the Naval Hospital, as they have in Boston, in treating postinfluenzal pneumonias with the serum of convalescents, and a very interesting thing in connection with trying out the serum of some of the convalescents is the potency of the serum therapeutically. It seemed to be almost a specific. I had the laboratory workers in the Naval School try out immunity reactions with this potent serum, which we knew was potent from treating different cases. There was no evidence that this serum possessed any antibodies for various strains of influenza bacilli.

COL. VICTOR C. VAUGHAN, Washington, D. C.: Before a barracks was built for the accommodation of our soldiers, Surgeon-General Gorgas understood thoroughly that the dis-

eases we should have to deal with would be the respiratory diseases, as we call them. It is not generally known, but it is true that of all the diseases that General Gorgas had to deal with on the Canal Zone, neither malaria nor yellow fever was the most difficult. It was pneumonia. He knew how to prevent yellow fever and malaria, but he did not know how to take care of pneumonia. Three of us, with Surgeon-General Gorgas, went to the Secretary of War before there was a barracks built, and we told him that the diseases we should have to deal with would be pneumonia and kindred diseases, and we asked that sufficient space be provided in barracks for the men. The Secretary of War was highly appreciative of what we said and ordered it done. I want to say that with respect to crowding in our armies, I have come to realize that in the Army, especially in our camps, crowding in barracks is of very little importance compared with crowding under other conditions. When men are in the barracks and are asleep, they are not coughing, they are not sneezing, or doing anything of that kind. Most of them are asleep. It is when they are assembled in a large hall that trouble comes. At Camp Forest there were 9,000 people in a hall, for instance, and if every individual was perfectly upright, inclining his head neither forward nor backward, and the noses of these people were within 16 inches of one another, that being the greatest distance laterally, or 26 inches, with coughing and sneezing violently, you can readily understand what the condition of the atmosphere must have been, and it would have made but little difference if that building had had no roof and no walls to it. You can crowd men outdoors, and while they are outdoors you can crowd them just as much as when they are indoors; and I must say that this was something I had never thoroughly appreciated.

One word with reference to pneumonia, before we come to influenza: We had a splendid record for the first six months of the war. We had a death rate but little above that of the same age group at home; and thirteen out of the twenty-nine large cantonments had a death rate lower than the same age group at home. The Illinois division at Waco, Texas, had a death rate in the first six months of the war of less than one half of what occurred during the same time among the same age group in the city of Chicago, because they were selected men. You remember that the infectious diseases, especially the respiratory diseases, kill 40 or more per cent. men than women, and all these were men. So it is a wonderful record, and the same is true of New York, Pennsylvania, Ohio and various other organizations.

So far as pneumonia is concerned, during the first six months these facts seemed to be established so far as figures can establish anything: The city boy lived, the country boy died; the Northern boy lived, the Southern boy died. Whether these two are exactly the same or not, I do not know. Of course, the rural population is greater in the South.

Influenza—clinical influenza—struck our camps last February. It has been written up by Major Soper, and the report was published before the present epidemic of influenza came. It possessed all the clinical features of influenza that have existed this fall. At Camp Forest it came as it came on Camp Devens last fall, like a thunderbolt out of a clear sky, and prostrated a large number of people, and it was not followed by pneumonia. There were no deaths. Normally deaths did not increase as a result of it. We were on the outlook for influenza all the while. The first intimation we had in the Surgeon-General's Office of influenza's threatening this country came in August. A steamship on its way across the ocean from France was struck by influenza, and it was so badly hit that all of the seamen were prostrated and it had to put into Halifax before it could proceed to New York. We had that warning in August, and when this steamer reached New York it was thoroughly disinfected, and all this time this procedure was carried out at New York and Newport News: All troops ordered to France were sent to Hoboken and to Newport News and held in quarantine fourteen days. Every man was examined and his temperature taken once every day. No man with any elevation of temperature was allowed to go on board. As the men went on the boat in single file they were examined; the examinations were made daily, and if the men were found

with elevation of temperature or signs of illness they were sent back home. We were looking for influenza of the virulent type at Newport News and New York, but influenza did not occur in New York, nor did it come into New York; it came in Boston. It may be a mere coincidence, there may be something more in it, but the influenza in 1899 entered the port of Boston. I think I can say with reasonable certainty that this influenza epidemic came into Boston Harbor, was landed at the Commonwealth Pier, struck Boston and Camp Devens only a few miles from Boston, spread from Camp Devens all over the country, and has traveled rapidly ever since. There cannot be any question as to how influenza travels; it travels on two legs, and man is the carrier.

I went to Camp Devens as soon as the epidemic was reported, and I might say that I thought my eyes would never see such horror as I saw there. I went through the Spanish-American War; I saw thousands and thousands of cases of typhoid fever, but I never had anything so depress me as the conditions that existed at Camp Devens.

Unfortunately, it has been almost impossible for us to study influenza. Why? Because men were dying from pneumonia, and we cannot spend the time to examine the blood of patients with influenza when so many people are dying from pneumonia. We are going to have influenza with us; it is not going to disappear very soon. I do not want to be a pessimist; I am always an optimist.

The second year of the epidemic of 1899 showed more deaths from influenza than the first year, and we are going to have the influenza epidemic for some time to come. Let us make a study of influenza as well as of pneumonia. Let us find out what is the cause of influenza. If I were asked to define influenza, I should say it is a disease of unknown origin, characterized by a marked leukopenia, and I am sorry that that has not been studied more carefully. As a result of the leukopenia the gateways of invasion are open, and any micro-organism that is lying around may invade the lungs if it is capable of growing and multiplying there.

So far as pneumonia is concerned, I am convinced that any micro-organism that will grow and multiply in the lungs may cause pneumonia. It is not the pneumococcus or streptococcus alone; it is not the Pfeiffer bacillus or the Friedländer bacillus alone. Any organism that may grow and multiply in the lungs will cause pneumonia. One man who studied pneumonia at Camp Devens came to the conclusion that the influenza and pneumonia were due to the Pfeiffer bacillus. Another man equally competent who studied it here at Camp Grant said it was due to a pneumococcus; another man studying it somewhere else said that it was due to the streptococcus, and so on. We can say, I think, with a great deal of certainty that influenza is very much like measles in this respect. It takes away resistance; and the organism that takes advantage of this is the prevailing organism in that community. We have streptococcus pneumonia; we have Friedländer's bacillus pneumonia, and so on. It has been observable all the way through this epidemic, and it has been mentioned in other epidemics of pneumonia following influenza, that it kills the strongest and most vigorous. Typhoid fever is more prevalent in men than in women and more prevalent in young women than among old men, because those people have the greatest range of activity. The man who is in a hospital, or the man who is on scout duty, is drinking water here and there. The greatest mortality was highest among the strongest and most vigorous because these have the greatest range of activity.

The death rate is higher in the civilian population between 20 and 40 years of age. Of course, in the Army we have only those between 20 and 45 years of age, and we have most susceptible material. We have been trying to find out what we could about this, and we calculate that these figures may not be exactly right. In Richmond, Va., for example, of the inhabitants between 20 and 40 years of age, there was one in six times as many deaths as had occurred. So we compared the death rate of all the inhabitants between 20 and 40 years of age with the death rate in the civilian population according to the number of those between 20 and 40 years of age. Here is the point: These diseases find suitable material between 20 and 40 years of age. I did not quite believe this, and there is

an easier explanation than that. I think it is like typhoid fever, and that is, people between 20 and 40 years of age herd together, and on the whole the people who crowd together are the people between 20 and 40 years of age, either in military or civilian life. I want to exclude the possibility that there may be greater susceptibility at that age. Some say the older people have had it, and have asked why the younger people do not have it more. I will not go into that phase of the subject.

In the civilian population there are going to be recrudescences of it. Whether there are going to be recrudescences in the camps or not, I do not know. From a scientific standpoint, it is unfortunate that our camps are soon to be dissolved. We should like to know about this. We have been trying to distinguish between relapses and recurrences. We find a small number of people who have had influenza without pneumonia, who have thoroughly recovered, who have been apparently perfectly well from two to three weeks, and then they have come down again with all the original symptoms just as though they never had it. There is a larger number who think they have not entirely recovered. These were relapses, and we are trying to distinguish between recurrences and relapses. You cannot put any trust at all in the figures. In some places they call everything influenza if a man sneezes once or twice. In other cases they call it influenza pneumonia. In one camp there was an order that nothing should be called influenza unless the Pfeiffer bacillus was found, so we cannot tell how many cases existed in any camp in the United States. We can give the figures as they are put in, but we cannot tell what the percentage of influenza cases with pneumonia was. One thing that is certain is death. The diagnosis of death is certain. There is no question about that. We are figuring out that a certain percentage in this cantonment or this camp, etc., died.

So far as the prevention of the respiratory diseases is concerned, we do not know anything more than our ancestors knew a hundred years ago, and we may as well admit it. I say that in the face of the greatest pestilence that has ever struck our country we are just as ignorant as the Florentines were with the plague described in history. Now that the war is over and we have whipped the Hun, it devolves on the medical profession to work hard over the respiratory diseases, and see what we can do for them, and we must not stop until something of great value is done.

DR. J. O. COBB, Chicago: We should like to hear the incidence among the vaccinated in the Army with lipovaccines.

COL. VICTOR C. VAUGHAN, Washington, D. C.: We have tried with the greatest thoroughness the vaccines for influenza. We have used influenza vaccine in great quantities, all they could make in the Army Laboratory, and have used all that Dr. McCoy could spare, and also have used that which Dr. Park has furnished us from the New York laboratory, and I do not hesitate to say that it has not done one bit of good. Speaking on this point with the evidence of the Pfeiffer bacillus not being the cause of influenza, I can agree with those who have spoken. To me the evidence that the Pfeiffer bacillus is the cause of influenza is not at all convincing, because, in the first place, it is by no means constantly found in the influenza or the sequelae. In the second place, it is often even with greater frequency found in other diseases than it is in influenza. In the third place, influenza is characterized by a marked leukopenia, a matter that must be investigated more thoroughly. Injection of the Pfeiffer bacillus causes a leukocytosis, just the opposite, so I think the weight of evidence at least is against the Pfeiffer bacillus as being the cause of influenza. Besides, the first evidence that we had in the Army that virulent influenza was spreading through the world was the news we got in August that during the month of July influenza was exceedingly deadly in Germany. It was rife in Germany and caused a very high death rate. In July two conferences were called, one at Berlin and one at Munich, and Pfeiffer himself could not demonstrate in a large number of cases the Pfeiffer bacillus, and as you know, the general finding was a diplopneumococcus.

So far as vaccination against pneumonia is concerned, we have encouraging results, not, however, overwhelming, but

encouraging results, concerning vaccine for pneumonia. At Camp Upton last year some 12,000 out of 30,000 men were vaccinated with lipovaccines of Types I, II and III. They were under observation six or eight weeks, after which they went overseas, and there was much less pneumonia among them. The report has been published by Major Cecil and Major Austin, and it was less during that six or eight weeks than it was among the unvaccinated. Since August, Major Cecil has vaccinated 80 per cent. of the troops at Camp Wheeler, about 15,000 or 16,000 troops altogether. He has vaccinated 80 per cent. of the troops that have been coming in all the time. They began at Wheeler with 4,000; then they came in bunches of several hundred. The latest report I had from Major Cecil, a day or two ago, was to the effect that there was practically the same number of cases of pneumonia among the vaccinated as among the unvaccinated; in other words, that there was just as much pneumonia among the 20 per cent. unvaccinated as there was among the 80 per cent. vaccinated. The pneumonias that did prevail were altogether of Type IV.

I agree that we should approach this subject with an open mind, ever ready to accept facts; but let us know they are facts before we accept them.

When it was decided to try vaccination, it was perfectly understood that this vaccination is not compulsory, and that every time an individual was vaccinated or had to be vaccinated he should be told that it is not compulsory. We have said to the men, "You can do as you please; we do not know whether it will protect you against influenza or pneumonia or not. It is an experiment." There is no compulsory vaccination at Camp Wheeler or anywhere else for pneumonia or influenza. There is compulsory vaccination for typhoid fever, but we are not justified in making any vaccination compulsory until we have overwhelming evidence of its value; and any man, whether he be in private life, in the Army or in the Public Health Service, who vaccinates anybody for pneumonia or for influenza and tells him that it is going to prevent the disease is not telling the truth.

With reference to the mask, I am strongly of the opinion that we have overestimated its value. That is nothing against the mask, however. When I went to Camp Devens they were not using the mask. I called the doctors together and I simply said, "Shall we use the mask or not? It is not compulsory." But I said, "Every doctor who took care of cases of pneumonic plague and did not wear a mask died from it, and every man who cared for pneumonic plague cases and didn't wear a mask did contract it. You can do as you please."

I am pretty certain, not convinced, that hand to mouth infection is of more importance than droplet infection. The most frequent way in which respiratory diseases are conveyed from one to the other is by hand to mouth. I feel that we should at least think of this in order to make an effort to prevent the spread of the disease.

DR. B. FRANKLIN ROYER, Harrisburg, Pa.: Our experience has been that there are no dependable data thus far relative to the value of vaccines so that their use can be recommended. I could mention a dozen communities as examples where the epidemic of influenza was apparently snuffed out just as efficiently with the measures we used as in those communities where the vaccine was used.

DR. G. H. WOOD, Detroit: There have been some very severe reactions, some marked depressing effects from the use of vaccines in influenza. A safe rule to follow is not to give more than one half of the dose recommended at the beginning, then watch the patient, and increase the dose as the results warrant.

DR. EDWARD C. ROSENOW, Rochester, Minn.: We cannot solve the problem of influenza or any other problem regarding the management of disease unless we try out experimentally certain methods. I have watched the occurrence of this disease through my section of the country, and for me to sit down quietly and do nothing was impossible. I stopped very vital work of other kinds to try and do something for my countrymen.

(To be continued)

AMERICAN ASSOCIATION FOR THE STUDY AND PREVENTION OF INFANT MORTALITY

Ninth Annual Meeting, held at Chicago, Dec. 5-7, 1918

The President, MRS. WILLIAM LOWELL PUTNAM, Boston,
in the Chair

Public Health Service Program for the Nation Wide Control of Venereal Diseases

LIEUT.-COL. C. C. PIERCE, U. S. S. P. H. S., Washington, D. C.: Venereal disease is a problem which affects not only the soldier and the sailor, but also the civilian of today and tomorrow. Section 6 of the act to control venereal disease passed by Congress provides for the allotment to state boards of health of \$1,000,000 each year for the two fiscal years beginning July 1, 1918, for the fight against venereal diseases. For the second of these two years the payment of the state's allotment is conditioned on the expenditure of a like amount by the state in the prevention of venereal diseases. For the first of these two years this condition is not imposed.

1. State boards or departments of health receiving their respective allotments have to agree to these cooperative measures: (a) Venereal diseases must be reported to the local health authorities in accordance with state regulations approved by the U. S. Public Health Service. (b) A penalty will be imposed on physicians or others required to report venereal infections for failure to do so. (c) Cases are to be investigated, so far as practicable, to discover and control the sources of infection. (d) The spread of venereal diseases should be declared unlawful. (e) Provisions are to be made for the control of infected persons that do not cooperate in protecting others from infection. (f) The travel of venereally infected persons within the state is to be controlled by state boards of health by definite regulations that will conform in general to the interstate regulations to be established. (g) Patients are to be given a printed circular of instructions informing them of the necessity of measures to prevent the spread of infection and of the importance of continuing treatment.

2. The Division of Venereal Diseases details to each of the various state boards of health an officer of the Public Health Service in uniform. His work is directed jointly by the Public Health Service and the state board of health. The general plan of work for the state bureau is: (a) The securing of reports of venereal infectives from physicians. (b) Suppressive measures, including the isolation and treatment in detention hospitals, and establishment of free clinics. (c) The extension of facilities for early diagnosis and treatment through laboratory facilities for exact diagnosis and scientific determination of conditions before patients are released as noninfectious. (d) Educational measures, which include informing the general public, as well as infected individuals, in regard to the nature and manner of spread of venereal diseases and measures to combat them. (e) Cooperation with local civil authorities in their efforts to suppress public and clandestine prostitution. (f) The keeping of accurate, detailed records of all the activities of the venereal disease work, copies to be forwarded to the U. S. Public Health Service.

3. Local or legislative funds that may be available shall be used by the state or city health authorities having jurisdiction for extension of the work.

4. In extension of the educational measures, the state's health authorities and its bureau of venereal diseases shall exert their efforts and influence for the organization of a state venereal disease committee for furthering the comprehensive plan for nation-wide venereal disease control.

5. The state health authorities shall take such measures as may be practicable for the purpose of securing such additional legislation as may be required for the development of control of the spread of venereal infections.

6. The state allotment shall be expended along general standard lines for all states and in accordance with an accounting system, to be forwarded by the interdepartmental social hygiene board, approximately thus: (a) For treatment of infected persons in hospitals, clinics and other institutions,

including arsphenamin and other drugs, 50 per cent. of the allotment. (b) In carrying out educational measures, 20 per cent. (c) In carrying out repressive measures, 20 per cent. (d) In general administration and other activities of venereal disease control work, 10 per cent.

This distribution is provisional and subject to modification after conference and agreement between each state and the U. S. Public Health Service to best meet the needs of the particular state.

During the 609 clinic days represented, there was a total of 25,224 visits to the clinics, with an average daily attendance of 41.09 at each clinic. During the past month, 2,301 new cases were admitted. November 15, there were 11,149 cases remaining under treatment; 28,981 treatments were administered during the month; 2,777 doses of arsphenamin were administered to syphilitics. A total of 2,933 prostitutes were treated in the clinics, detention homes and jails. Of the prostitutes placed in detention during the month, 812, or 98.5 per cent., were found to be infected with venereal disease.

DISCUSSION

DR. JOHN M. DODSON, Chicago: The west Australian type of ordinance has been adopted in Chicago for the reporting of venereal diseases. The ordinance does not permit of reporting the name of the individual, but the case is reported by number by the physician, and it is made compulsory that he report it with the understanding that if the patient fails to keep himself under proper treatment, his name shall be reported and proper steps taken to see that he is kept under treatment until he is not a menace to the community.

DR. EDWARD P. DAVIS, Philadelphia: I desire to call attention to an apparent danger in the management of syphilitic cases. Since our knowledge of the cause of syphilis is now very evident, it was formerly considered that a woman giving birth to a syphilitic child could nurse the infant without infecting herself, and that the normal relationship of the nursing mother to the child could be maintained. It is now known that the reason a syphilitic infant does not infect the mother is that the mother is latently syphilitic. It is the duty of physicians and nurses having under observation women bearing syphilitic children to see to it that those women are kept under observation to prevent the development of syphilis.

Syphilis and Its Relation to Infant Mortality

DR. P. C. JEANS, St. Louis: When conception has taken place, the effect of maternal infection on the product of conception is dependent to a large extent on the duration of the pregnancy at the time of fetal infection. The infection of the germ cell, if such an event ever occurs, would preclude the possibility of its further development. The earlier in pregnancy the infection of the fetus takes place, the more likely is pregnancy to terminate in a dead or nonviable infant. The birth of a viable syphilitic infant signifies its infection late in pregnancy. The time at which fetal infection occurs is dependent on the activity of the infection in the mother, and this in turn is dependent to a large extent on the time that has elapsed since the onset of her infection. In many instances, in untreated mothers, pregnancies occurring ten years or more after the infection of the mother have resulted in the birth of nonsyphilitic children. A compilation of statistics shows that of 4,148 pregnancies in syphilitic families, 1,258, or 30 per cent., resulted in the death of the fetus at or before term. That this is more than three times greater than what might be considered the normal waste of life at this early age is shown by a similar study among the poorer class in both St. Louis and London, and including no obvious syphilis. In St. Louis, 9.9 per cent. of 886 pregnancies, and in London, 9.4 per cent. of 826 pregnancies resulted in the death of the fetus at or before term.

In St. Louis, clinical study was made of 854 infants of 1 year or under, and Wassermann reactions were made on all infants whose family history, personal history or examination gave any suspicion of syphilis. Of the 854 infants studied, forty-two, or 4.9 per cent., were found to be syphilitic. This figure represents the minimum in this group because it was not a complete Wassermann survey. In New York, Holt found 6.2 per cent. of positive Wassermann reactions among 161 infants under 2 years of age. Holt's series was selected

to the extent that it contained no cases of clinical syphilis, but did contain a certain number of infants whose history or examination gave a suspicion of syphilis. Comisky reports 3.2 per cent. of positive Wassermann reactions in 1,074 newborn babies in Brooklyn. Because of the frequency of a negative Wassermann reaction in a syphilitic new-born baby, such a study, though interesting, does not represent the true incidence of syphilis. It would seem safe to assume an incidence of about 5 per cent. for syphilis in our infant population. A survey of about 300 syphilitic families in which there occurred 1,366 living births shows that 30 per cent. of these infants died at an early age.

From 10 to 20 per cent. of adult males and about 10 per cent. of married women are syphilitic, and a minimum of 10 per cent. of marriages involve a syphilitic individual. Seventy-five per cent. of all the offspring in a syphilitic family are infected. In a syphilitic family, 30 per cent. of the pregnancies terminate in death at or before term. Thirty per cent. of all infants born alive in a syphilitic family die in infancy, as compared to a normal rate of 15 per cent. in the same class. Probably 30 per cent. of clinically syphilitic infants die as a result of syphilis. Only 17 per cent. of all the pregnancies in syphilitic families result in living non-syphilitic children that survive the period of infancy. About 5 per cent. of our infant population is syphilitic. According to St. Louis vital statistics, 3.5 per cent. of all infant deaths are ascribed to syphilis.

The City Nurse as an Agent for the Prevention of Infant Mortality

DR. HARRIET L. HARTLEY, Philadelphia: In the matter of determining with some degree of accuracy the health of a given district or locality, we have no better or more intelligent surveyor than the city nurse. Her experience has brought her into contact with all kinds and conditions of men. Her method of approach to the keeper of the home, usually the mother, is one that breeds friendliness and confidence. An understanding of the true condition of the home and its inmates is arrived at from a standard point of view with a minimal waste of time. The city nurse, with her general training as a nurse, knows the earmarks of disease. As a public health nurse, she readily recognizes poverty, destitution and alcoholism. She can judge whether the family income is large enough or expended in such a way as to insure the proper amount of health and comfort to the family. Her connection with the board of health makes her an authorized sanitary inspector, and her general knowledge of the principles of housing and sanitation makes her a good judge of the conditions surrounding the young infant. She can intelligently observe the care of the food, the refrigerator, utensils, etc., which either intimately or remotely affect the health of the baby. She also brings into use her knowledge of ventilation, and readily determines whether the baby gets the proper ventilation to guard it against respiratory disease. In prenatal work the city nurse has no peer. The expectant mother is much more apt to confide in the nurse who gives advice about babies than she is any other type of health worker. The nurse often learns of the pregnancy early in its history, becomes the mother's friend and confidante, and leads her in the direction she should go.

Problems of Infant and Maternal Welfare in Rural Communities

MISS KATHERINE M. OLMSTED, Chicago: The existence or development of a well and a broadly organized public health nursing section in every state health department is the first and the most important need in any movement for better care of our rural health conditions. The obligation of this department should be: 1. To stimulate local county demand for public health nursing service and secure public funds for maintenance of work in counties. 2. To provide well trained, competent nurses to meet the demand. 3. To coordinate and supervise the work of all the nurses throughout the state, much as is done with the county health officers now with a view to standardizing fundamentals and stimulate the tendency toward a higher type of public health nursing in rural sections.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of the Medical Sciences, Philadelphia

November, 1918, 156, No. 5

- 1 *New Diagnostic Sign of Foreign Body in Trachea or Bronchi. C. Jackson.—p. 625.
- 2 *Demonstrating Tubercle Bacilli in Urine. E. M. Watson.—p. 636.
- 3 *Blood-Pressure and Kidney Function Findings in Orthostatic Albuminuria. E. H. Mason and R. J. Erickson.—p. 643.
- 4 *Fractional Estimation of Stomach Contents. III. Effects of Hydrochloric Acid Therapy on Acid Titer of Stomach During Digestion. B. B. Crohn.—p. 656.
- 5 *Autoserotherapy in Tuberculous Pleurisy, with Effusion. J. C. Lyter.—p. 665.
- 6 *Relation of Housing to Pulmonary Tuberculosis: Report on 36,062 Cases. F. F. D. Reckord.—p. 670.
- 7 Focal Infections in Childhood. S. Blum.—p. 681.
- 8 Comparative Value of Radium and Roentgen Radiation. R. H. Boggs.—p. 690.
- 9 *Influence of Radium Water Therapy on Creatinin and Uric Acid Metabolism in Chronic Arthritis. F. H. McCrudden.—p. 702.
- 10 *Anatomy of Coronary Arteries. F. M. Smith.—p. 706.
- 11 Fat Redistribution in Hypophyseal Type of Dystrophy Adiposogenitalis. H. G. Beck.—p. 711.
- 12 *Complement-fixation in Hodgkin's Disease and Allied Affections. H. T. Kristjanson.—p. 720.
- 13 *Hypothyroidism in Recruit. H. Brooks.—p. 726.
- 14 Effects of "Mustard Gas" on Eyes. G. S. Derby.—p. 733.
- 15 Influenza Epidemic in Soldiers. S. Bradbury.—p. 737.

1. The "Asthmatoid Wheeze": An Intrapulmonary Foreign Body Sign.—The presence or absence of the asthmatoïd wheeze has been recorded by Jackson in sixty-two cases of intrabronchial foreign body, therefore he is inclined to regard this sign as of great value in many cases in which the foreign body is not opaque to the roentgen ray. He has called this new sign the asthmatoïd wheeze because the sound is somewhat similar to the wheezing heard when the ear is placed to the open mouth of an asthmatic patient. The chief difference is that there is more or less association of the sounds of râles with the wheezing in asthma, while in the asthmatoïd wheeze of the foreign-body case the sound is drier, when typically elicited, though it may be associated with more or less secretion, adding more or less of the sounds of bubbling. In a typical case the wheeze is much more marked after the coughing out of all secretion than before.

2. Demonstrating Tubercle Bacilli in the Urine.—In studying numerous specimens of urine for the presence of acid-fast organisms in various conditions of urogenital tuberculosis, Watson found that one important factor not previously given much attention is to use large amounts of urine, also to keep the specimen in the original container until the final sediment is obtained and to centrifugalize thoroughly.

3. Blood-Pressure and Kidney Function Findings in Orthostatic Albuminuria.—Five cases of orthostatic albuminuria, four of which are quite typical, were studied by Mason and Erickson especially as to pulse-pressure and kidney function when in different positions. They believe that the condition of orthostatic albuminuria is a general systemic disturbance, manifesting itself in faulty development, as shown by a general visceroptosis, a "drop heart," a generalized muscular and visceral atonia, which is known to be associated with varying degrees of vasomotor instability. The symptoms so commonly complained of, such as headache, lassitude, constipation and loss of weight, are the natural results of physical conditions. The increased lordosis that is usually present is regarded as a symptom due to the faulty muscular development and tone of the lumbar muscles. This exaggerated lordosis is well recognized in many muscular dystrophies and atrophies and in other conditions involving the lumbar and abdominal muscles.

The low pulse-pressure, in the opinion of the authors, is undoubtedly the cause of the albuminuria rather than a mechanical interference with the venous return from the kidneys. The interesting observation was made that the pulse-pressure can be lowered to almost the same degree by artificially producing lordosis while in the horizontal

position as when erect. The albuminuria in all these cases varied inversely as the pulse-pressure, regardless of the position.

4. Fractional Estimation of Stomach Contents.—Hydrochloric acid medication is discussed by Crohn. The results following the therapeutic administration of acid are correlated and conclusions drawn as to the best method for the administration of this commonly employed medicinal agent. A study of the effects of acid on the stomach during digestion was made. Particular reference was paid to the changes in acid titer of the chyme both directly after the taking of the acid and during the subsequent cycle of digestive activity. In order to study the effect of a single dose of acid, cases of achylia gastrica or cases of pernicious anemia, with complete anacidity, were chosen. These cases were all uniform in presenting in the control fractional estimation tests a complete absence of free acid throughout digestion.

Crohn found that hydrochloric acid administered therapeutically to the fasting stomach promptly disappears from that organ, the last trace leaving within twenty-five minutes. The administration of acid before a meal exerted no influence on the acid secretion of the subsequent digestive cycle. Twenty minims of dilute hydrochloric acid failed to improve the condition of anacidity when given with a test meal. Forty minims of dilute hydrochloric acid gave a definite though moderate increase of acidity; this increase was temporary in duration, being usually limited to the short period directly after taking the medication. Ten minims of dilute hydrochloric acid administered every half-hour was a mild though efficient method of increasing total acidity during digestion. It was, however, insufficient to produce free acid at any time in the cycle of digestion.

It is conceded by Crohn that the method of administering repeated small doses of acid at frequent intervals is hardly a practical one for every-day clinical use. Where it is possible, however, the method should be adopted. For temporary usage it is often highly satisfactory. The customary method of administering hydrochloric acid as a single dose is, in most instances, insufficient to relieve the abnormal condition. Small single doses (5 to 20 minims dilute HCl) fail completely. Larger doses (25 to 40 minims) give better results, though the effects are but temporary, lasting usually for the first half hour only after administration. Administering small doses at frequent intervals, that is, every half—or better every quarter—hour, is more efficient for accomplishing the desired effect. The custom of giving acid before a meal has no advantages. The best results are seen when it is taken during the early part of the digestive cycle. The effect of acid so administered is purely a local chemical one. A resultant physiologic stimulation of the mucosa was never demonstrable from Crohn's experiments.

5. Autoserotherapy in Tuberculous Pleurisy.—Twenty-three cases of tuberculous pleural effusion were treated by Lyter by Gilbert's method (withdrawing a few cubic centimeters of the fluid from the chest and immediately injecting it into the subcutaneous tissues of the patient). Eight cases of the series underwent complete absorption within two weeks of the beginning of the treatment. Lyter believes that the absorption in these eight cases was more probably due to the natural physical phenomena than to the stimulating effect of the treatment. His results indicate not only that the treatment does not cause absorption, accompanied by diuresis, diaphoresis, rise of temperature and leukocytosis, but that in some cases it is not entirely devoid of deleterious effects on the tuberculous process in the lung. Lyter advises that the assertion that 80 per cent. of all tuberculous effusions undergo spontaneous absorption should be qualified, as the spontaneous absorption may not occur for months, depending most probably on the organization of the fibrinous covering of the pleura.

6. Relation of Housing to Pulmonary Tuberculosis.—Reckford analyzes the statistics which he has gathered together from the 116 Pennsylvania State Tuberculosis Dispensaries and describes details of procedure followed by that department of state activities.

9. Influence of Radium Water Therapy on Creatinin and Uric Acid Metabolism in Chronic Arthritis.—The authors

had an opportunity to study the influence of radium on the metabolism of three patients with chronic arthropathies. These patients, who were on a purin-free, creatin-free diet, received, five times a day, 3 ounces of water impregnated with radium emanations, 20,000 Mache units in all. Only one definite change in the metabolism was observed: A slight increase in the rate of creatinin excretion with a somewhat increased variation in the day-to-day values, an effect which persisted for a time after discontinuing the radium treatment. The radium therapy had no influence on the uric acid content of the blood or on the rate of excretion of uric acid, total nitrogen or water.

10. Anatomy of Coronary Arteries.—Smith's study of injection specimens of dog and human hearts showed that there is an anastomosis between the branches of the right and left coronary arteries, which is, for the most part, by means of many small vessels, but distinctly numerous and large enough to functionate.

12. Complement-Fixation in Hodgkin's and Allied Affections.—Kristjanson claims that the complement-fixation test in Hodgkin's disease, using *Bacillus hodgkini*, preferably an autogenous culture, in the preparation of antigens, may give a positive, possibly a specific, reaction if the serum be obtained from the individual at the proper phase or stage of the disease. Experimentally, animals inoculated with *Bacillus hodgkini* give a specific positive complement fixation. Normal individuals and those suffering from syphilis and tuberculosis have not given this reaction in the limited number tested by the author.

13. Hyperthyroidism in Recruit.—Brooks expresses surprise at the large number of these cases which he has seen among recruits. The most striking feature of these cases in nearly every instance is tachycardia, rarely accompanied by arrhythmia even in cases of very marked degree, and polygraphic studies, except in instances complicated by other vascular conditions, show, aside from rapidity, few signs of abnormal action, except that in the same case there is, under varying conditions, usually great variation in the rate of systoles. Practically always the rate is increased by exercise, though there are exceptional cases in which, as in ordinary palpitation, exercise may slow the rate, especially when the attention is thereby distracted; but speed of action is even more constantly accelerated by excitement and disturbing emotional factors. Closely associated with tachycardia is an obvious and subjective throbbing of the superficial vessels, notably of the carotids, of the brachials and even of the femorals, while that of the aorta, in moderately thin persons, is also quite evident.

Under excitement, instead of an increase in systolic stroke, there is a fall in the stroking power, and this is much more evident in the medium sized vessels, as the smaller ones seem to contract while the larger vessels expand in their arc of pulsation. There is a wide area of apical pulsation, and so violent is this at times that an actual sucking sensation is produced on the palpating palm at the diastole. The heart sounds, because of their rapidity, are usually very difficult to analyze, but in many cases a soft systolic murmur is detected at the apex, and is transmitted at times with decreasing intensity toward the axilla. The marked alteration in the quality and occurrence of this murmur in the same case at different times is occasionally a striking diagnostic feature. Everything in the nature of graphic methods seems to indicate that these murmurs are functional and not organic in origin. The tachycardia is not controlled by digitalis, even when given in massive doses. The sedatives at times, notably the bromids, give marked relief in some instances, but are apparently without effect in others. Postural and emotional rest appear to be the most efficient measures of control. Cold applications to the precordium have little or no effect. Very closely associated with these definitely circulatory symptoms are those of dizziness and fainting. Commonly these attacks are accompanied either by a marked paling of the face or by a marked hyperemia. Such attacks are directly precipitated by exercise or by emotional stress, such as, for example, occurs during a physical examination.

Next to the tachycardia the manifestations which seem most striking to Brooks are numerous evidences of emotional

instability, which is an invariable accompaniment of the disease. Irritability of temper, headaches and insomnia are almost constant, and during aggressive periods an intense feeling of fear, apprehension and terror, often quite beyond the control of the patient, is manifest. Outbursts of emotionalism are followed by a stage of great exhaustion, almost amounting to prostration, in which the patient may appear to be in extremis. The neurovascular instability is further shown by the *tache cérébrale*, by dermatographia, by urticarial rashes and by the almost constant symptom of tremor, most marked in the hands; breathlessness at times, almost a dyspnea, is manifest, but without cyanosis or definite signs of asphyxia. The deep reflexes are excited, especially the knee jerks.

A considerable number of men give a history of ancestral goiter, particularly on the maternal side and sisters, less commonly brothers of the patients, commonly show similar goiter. There is also, in most instances, a familial history of nervous instability, of hysteria, insanity, perversions or of genius. Exophthalmos, which is so striking a feature of ordinary exophthalmic goiter, is present also in long-standing instances of this type. Not infrequently it develops very suddenly: it may be bilateral or monolateral or it may vary in either eye. During periods of excitement it is most evident, and as the tachycardia and emotionalism subside so also does the exophthalmos. In fact these men present, though in mild degree in some instances, all the cardinal signs and symptoms of true exophthalmic goiter. Rest is the one factor which gives relief from symptoms.

American Journal of Syphilis, St. Louis

October, 1918, 2, No. 4

- 16 *Syphilis of Nervous System. D. J. Kaliski and I. Strauss.—p. 609.
- 17 Syphilitic Meningitis in Infants and Young Children: Report of Case. P. A. Bly.—p. 712.
- 18 Histogenesis of Cerebral Hypertrophic Pachymeningitis and Its Relation to Syphilis. G. B. Hassin.—p. 715.
- 19 Syphilis of Larynx. J. J. Kyle.—p. 727.
- 20 *Differential Count in Syphilis. A. Blumberg.—p. 734.
- 21 Serum Diagnosis of Syphilis and Gonorrhea Employing Human Complement. J. A. Kolmer.—p. 739.
- 22 Increasing Potency of Low Titer Antisheep Amboceptor by Means of Chemical Fractionation. R. Gilbert, and A. I. Van Saun.—p. 755.
- 23 Debatable Phases of Wassermann Technic. E. A. Vectors.—p. 758.
- 24 *More Intensive Form of Arsphenamin Therapy. H. H. Hazen.—p. 778.
- 25 Treatment of Neurosyphilis. J. B. Gooker.—p. 781.
- 26 Id. R. W. Harvey.—p. 785.

16. **Syphilis of Nervous System.**—A plea is made by Kaliski and Strauss for more intensive intravenous treatment of syphilitic diseases of the central nervous system. They claim to have proved that arsphenamin and immune bodies pass the barrier of the choroid plexus and appear in the spinal fluid after intravenous therapy. It is shown that after therapeutic doses of arsphenamin intravenously arsenic is found in the spinal fluid in greater concentration than can be effected by the introduction of arsphenaminized serum or arsphenamin into the fluid. The intensive and prolonged use of arsphenamin intravenously combined with the exhibition of mercury and iodids has give the authors the best results in the treatment of syphilis of the nervous system. Intraspinal medication is of occasional and secondary value only. It may be tried in selected cases after intravenous and combined therapy have proved ineffectual in the event that the biologic reactions in the spinal fluid are positive. Reeducational measures are of great value in the treatment of ataxic patients. Forty-one cases are cited in detail.

20. **Differential Count in Syphilis.**—Blumberg claims that a high percentage of either small or large lymphocytes—or both—is present in almost every case of syphilis and that increase in lymphocytes may confirm the diagnosis of syphilis even when the blood Wassermann test presents a negative reaction, provided, that other conditions, usually accompanied by lymphocytosis, are absent.

24. **Intensive Form of Arsphenamin Therapy.**—In selected cases Hazen has been giving injections of arsphenamin at seventy-two hour intervals. He has given ninety-eight injections to twenty-two different patients, never giving less than

three and several times as high as eight doses. There was not a single untoward result; while a number gave the usual reactions of nausea, vomiting, diarrhea and headache, there were no evidences of any increased intolerance toward the drug. In no instance was albumin demonstrated in the urine. None of the patients showed any jaundice and none lost any weight. The dose employed was 0.4 grams per 150 pounds of body weight. For such a dose 70 c.c. of distilled and double boiled water was used, and the sodium hydroxid solution was pure and fresh. All injections were given in the office and the patients allowed to go home immediately afterward. The clinical results were very good: lesions cleared up very shortly. Nineteen of the patients showed positive Wassermanns: in one instance a course of three injections failed to change this finding, but in all other instances, bar one, the Wassermann became negative with great promptness.

Archives of Pediatrics, New York

October, 1918, 35, No. 10

- 27 Clinical Study of Fifty-Five Cases of Hypothyroidism in Children. M. B. Gordon.—p. 577.
- 28 Establishment and Maintenance of Breast-Feeding. J. P. C. Griffith.—p. 597.
- 29 Some Causes of Still Birth. J. C. Edgar.—p. 603.
- 30 Unusual Type of Vesical Calculus. B. Bashinski.—p. 615.

Boston Medical and Surgical Journal

Nov. 28, 1918, 179, No. 22

- 31 Attempt to Prevent Influenza at Harvard College. G. R. Minot.—p. 665.
- 32 Tooth Impacted in a Secondary Bronchus of Left Lung: Removal by Lower Bronchoscopy. S. Thomson.—p. 669.

Endocrinology, Los Angeles

July-Sept., 1918, 2, No. 3

- 33 *New Pluriglandular Compensatory Syndrome (Thymus-Adrenal-Pituitary). W. Timme.—p. 209.
- 34 *Is There a Thymic Hormone? E. R. Hoskins.—p. 241.
- 35 Active Cooperation Between Physiologist and Clinician in Study of Internal Secretions. C. E. de M. Sajous.—p. 258.
- 36 Iodin as Active Principle of Thyroid. W. W. Swingle.—p. 283.
- 37 *Effect of Roentgen Ray on Response of Tadpoles to Thyroid Stimulation. C. P. McCord and C. J. Marinus.—p. 289.
- 38 Use of Suprarenal Products in Addison's Disease. J. Daland.—p. 301.

33. **Thymus-Suprarenal-Pituitary Compensatory Syndrome.**—Seven cases are cited by Timme in which the chief complaint was great muscular fatigability, usually combined with headache referred to the frontal region and midway between the temples. Included in the history was frequently a statement of recent or concurrent rapid growth in height as well as of the extremities. The syndrome begins in youth, some years before puberty, and goes through its varying stages in about two decades. In its incipency it presents largely the characteristics of the so-called status thymicolymphaticus, or status hypoplasticus of Bartels. The clinical history of these cases consists of a syndrome of thymus-suprarenal-pituitary combination, one Timme says frequently met with and its various stages are easy of recognition. The main characteristics of fatigability, low pressure, headache and growth are invariable components of the syndrome and depend on maladjustments of endocrine interactivity. Stabilization of the balance may be produced spontaneously providing the sella turcica may be made to accommodate a hyperactive hyperplastic pituitary gland. This is done presumably by erosion of the bony capsule of the gland. In cases of inability of such enlargement of the sella, the syndrome persists, but the symptoms may be alleviated by the feeding of pituitary extract continuously. In the course of the syndrome other glands may be brought into the complex and alter the picture somewhat, but these are vagaries and seemingly have no great determining effect on the course of events. Once recognized in any of the early stages, the further general progress of these cases can be prognosticated with a great degree of accuracy; and intervention, if necessary, can be undertaken with a large degree of success in the amelioration of the distressing symptoms.

34. **Is There a Thymic Hormone?**—Hoskins says that whatever be the real function of the thymus, certain it is that its

production of an internal secretion has not been proved. The evidence in favor of such a theory is but circumstantial at best and very meager. It is equally difficult to prove that the thymus does not produce a secretion.

37. Effect of Roentgen Ray on Response to Thyroid Stimulation.—Selected tadpoles were subjected to the action of roentgen rays in small amounts. Certain individuals were then treated with preparations of thyroid gland and the rate of their metamorphosis compared with the metamorphosis rate of (1) normal tadpoles, of (2) thyroid-fed tadpoles which had not been irradiated, and of (3) irradiated but not thyroid-fed tadpoles. The results of these experiments indicate that irradiation is without apparent effect on normal tadpoles, but determines a slight but distinct increase in the susceptibility of young tadpoles to thyroid stimulation.

Journal of Cancer Research, Baltimore

July, 1918, 3, No. 3

- 39 *Experimental "Carcinomas" of Animals and Their Relation to True Malignant Tumors. F. D. Bullock and G. L. Rohdenburg.—p. 227.
40 Adenocarcinoma or Adenoma of Liver in a Mouse. S. Itami.—p. 275.
41 Hereditary Tumor in Fruit Fly, *Drosophila*. M. B. Stark.—p. 279.
42 *Biologic Treatment of Cancer. G. Fichera.—p. 303.

39. Experimental "Carcinomas" of Animals.—Bullock and Rohdenburg record the results of experiments on chronic irritation, undertaken with the view of reproducing, through means other than those employed by others, such lesions as they have described, in order to ascertain whether these might not be interpreted as hyperregenerative processes rather than as true carcinomas. The authors urge that extreme caution should be observed before reports of the production of cancer by artificial means are accepted. In irritation tumors, atypical proliferation and invasive growth, even when extensive, are held to be doubtful criteria on which to base a judgment of malignancy; and in the absence of continued growth after the action of the extrinsic irritant has ceased, experimental tumors should not be classed as malignant however close be the morphologic resemblance. It is a fact that the lesions reported by the various observers quoted are produced as readily in young as in old animals, and apparently do not possess the power of continuous growth on transplantation into animals of the same species, thus increasing the doubt regarding their malignant properties. All these facts Bullock and Rohdenburg believe point to the conclusion deduced from clinical observation, that age, organ specificity, and congenital defects play an important and, in many cases, a decisive rôle in the determination of the origin of cancer, and that irritation alone is an insufficient factor.

42. Biologic Treatment of Cancer.—Fichera reviews critically the work done during the past twenty years in the biologic treatment of cancer. He says that certain fundamental principles of treatment may be derived from such a review. Importance must be attributed to suitable dosage, to the proportion between the mass to be destroyed and the curative agent, and to the alternation of oncolytic stimulation with various histogenic products. Finally histogenic treatment adds to its indirect action on antitlastic organs an important direct action by reason of the oncolytic substances introduced. In developing the biologic treatment of tumors, Fichera is convinced that chemotherapy should be practiced by means of autolysates.

Medical Record, New York

Nov. 30, 1918, 94, No. 22

- 43 Case of Perforation of Duodenum Treated Successfully by Duodenal (Jejunal) Alimentation. M. Einhorn.—p. 927.
44 Case of Labyrinthal Meningitis. A. Kahn.—p. 930.
45 Syphilis in 1918. B. S. Dunn.—p. 933.
46 Meaning of the Term "Crippled." D. A. McMurtrie.—p. 939.
47 Case of Abducens Paralysis Complicating Mastoiditis. P. D. Kerrison.—p. 941.
48 Gas Poisoning. E. G. Rankin.—p. 942.

Military Surgeon, Washington

November, 1918, 63, No. 5

- 49 *Epidemiology of Virulent Oriental Smallpox. C. E. Riggs.—p. 485.
50 Physical and Mental Training of Convalescents at Base Hospital, Camp Zachary Taylor. S. J. Myers.—p. 497.

- 51 Prompt Management of Fractures of Nose. L. Cohen.—p. 506.
52 Syphilis in Relation to Central Nervous System. L. H. Cornwall.—p. 510.
53 *Midclavicular and Midsternal Lines as Landmarks in Recording Cardiac Outline. E. H. Goodman and H. C. Harris.—p. 528.
54 *Empyema. Fluoroscopic Study of Sixty-Four Cases. C. H. Nims.—p. 538.
55 Suggested Improvements in Methods of Petrolization of Mosquito Breeding Areas. W. L. Mann and E. C. Ebert.—p. 543.
56 *D. Meningitis in Adenoid Tissue of Nasopharynx. J. D. Aronson and S. A. Friedberg.—p. 546.

49. Epidemiology of Virulent Oriental Smallpox.—Riggs presents the results of his study of eight cases of smallpox occurring among a thoroughly vaccinated group of men. During the winter of 1917-1918, China suffered severely from epidemics of smallpox, diphtheria, scarlet fever and plague, and each of these diseases manifested an unusual degree of virulence. The eight men attacked were believed to be as fully protected against smallpox as is possible by means of vaccination. The interest in the situation, then, was in the result which might be expected to follow when a most virulent type of smallpox encounters a thoroughly vaccinated group of men.

In this instance, when more than 1,000 men were fully exposed to the most virulent epidemic that had visited the Chinese coast in many years, there resulted eight cases of smallpox representing five varieties of the disease. The ordinary variety of smallpox, that is, the discrete type of the disease, was not to be found in this series of eight cases. The virulent infection overcame whatever immunity had been established in the individuals by vaccination and resulted in one or another of five uncommon varieties of the disease. The discrete variety, the type that is ordinarily met with, was conspicuously absent.

The five varieties occurring in this epidemic were modified, abortive, confluent pustular hemorrhagic, and purpuric smallpox. Four of the eight cases were very mild and soon terminated in recovery without complications. With the remaining four, the infection took on a violent form and ran a rapidly fatal course. Riggs urges that in the presence of a virulent epidemic of smallpox, at least three vaccinations in series of one week interval should be restored to, as this method seems to obtain a large number of "retardation" takes which in all probability have considerable immunizing power.

53. Midclavicular and Midsternal Lines for Recording Heart Outlines.—The authors' studies had for their object the question of the distance of the midclavicular line from the midsternal line, the relation of the left border of the heart to the midclavicular line, and the relation of the midclavicular line and the left border of the heart to the individual's height, weight and chest measurement. A group of normal men (307) was studied, irrespective of their nativity, physique and color, the only demand being that they must be free of any appreciable physical defect. These men were weighed, their height and chest were measured and, in addition, the distance from the midsternal to the midclavicular line was determined, the heart was percussed and the position of the left border expressed in centimeters distant from the median line. All methods were essentially clinical; no corroboration of the percussion was made orthodiagraphically. It was found that the position of the midclavicular line on the chest wall varies disproportionately with the height. Nor is the left border of the heart a fixed quantity, nor does it vary proportionately with the height. Thus a man of 5 feet 5 inches may have a heart 0.7 cm. larger than the man of 6 feet 2 inches. The largest hearts were seen in the man of 65 to 66 inches, and in these individuals the left border was over 1 cm. outside the left midclavicular line. As a matter of fact, in only two instances was the left border within the midclavicular line, namely, in the men of 69 and 74 inches.

Obviously this line is not a safe landmark, and equally obvious is the observation that no standard of comparison between the height and cardiac outline can be made. The only possible deduction is that irrespective of height and the midclavicular line, the distance of the left border from the median line is the only fair criterion, and, from the authors' figures, this distance is 9 to 10.5 cm. The midclavicular line is variable and also the size of the heart, but the left border

in all but three instances (in the men of 150 to 159, 160 to 169, 200 to 209 pounds) was beyond the left midclavicular line, sometimes as far out as 1 cm.

54. **Emypema.**—Nims claims that much light is cast on the proper interpretation of the fluoroscopic image if the type of infection is known. Cases due to infection with *Streptococcus hemolyticus* are much more difficult of interpretation than are those with the standard types of pneumococcus, and more fatal. The diagnostic value of rolling the patient slightly from side to side for fluoroscopic study is strongly emphasized, for by this means only can the location of pus be determined in its anteroposterior relations.

56. **Meningitis Carrier.**—The authors cite the case of a soldier who was a carrier of meningitis. The organism was harbored in the nasopharynx exclusively. The persistence of the carrier condition was due to the localization of the organism in the adenoid tissue.

Neurological Bulletin, New York

September, 1918, 1, No. 9

57 *Temperature Reaction in Nervous Diseases. E. L. Cornell.—p. 335.

57. **Temperature Reaction in Nervous Diseases.**—The reaction to simultaneous cold and hot stimulation in twenty-two cases of syringomyelia, tabes dorsalis, multiple sclerosis, peripheral neuritis, and a case presenting a capsulothalamic syndrome was investigated by Cornell. It was found that patients suffering from syringomyelia, tabes dorsalis, multiple sclerosis, and the type of thalamic lesion presented in this study, generally show some disturbance in reactions to double thermal stimuli, whether or not evinced by ordinary clinical tests. There is a larger proportion than normal of single responses to double stimuli. There is more than a normal tendency, in many cases, to call temperatures of 41 degrees to 44 degrees C. or higher, warm instead of the usual hot. Reactions to double stimuli are in general more disturbed than reactions to single; and H-C responses more than C-H. C-H responses indicate the nearest approach to the normal reaction; they are the most frequent type in the least disturbed cases (with one exception); and they are nearest to normal in time for each individual. The differences between the different syndromes are sufficiently distinct to be suggestive, although there is some overlapping. Multiple sclerosis has a particularly clear-cut characteristic—a dissociation of the perception of doubleness. The double stimulation acts in such a way as to delay the perception of hot more often than that of cold.

New York Medical Journal

Nov. 30, 1918, 108, No. 22

- 58 New Method of Making Gonorrheal Complement Fixation Test. R. B. H. Gradwohl.—p. 929.
- 59 Detection and Measurement of Latent Ocular Deviations. F. W. Marlow.—p. 936.
- 60 Clinical Observations in Splanchnoptosis. G. L. Lambright.—p. 939.
- 61 Nonsurgical Treatment of Exophthalmic Goiter. I. Bram.—p. 942.
- 62 Congenital Fistula of Lacrymal Sac. Three Cases. W. B. Weidler.—p. 944.
- 63 Mechanics of Defecation. C. D. Spivak.—p. 945.
- 64 Cerebrospinal Meningitis. Case Treated by Ten Serum Injections. R. W. Angevine.—p. 946.

Pennsylvania Medical Journal, Athens

November, 1918, 22, No. 2

- 65 War and the Child. S. McC. Hamill.—p. 45.
- 66 *Reeducation of Injured Soldier. T. McKenzie.—p. 50.
- 67 Cardiovascular Problem in Aviation Recruit. J. I. Johnston.—p. 53.
- 68 Roentgen-Ray Examination of Heart and Great Vessels. G. W. Grier.—p. 56.
- 69 Health Insurance. J. B. McAlister.—p. 58.
- 70 Id. W. F. Donaldson.—p. 62.
- 71 Id. F. L. Van Sickle.—p. 63.
- 72 County Society Dues and Per Capita Assessment for 1919. W. H. Mayer.—p. 64.
- 73 Id. J. L. Lenker.—p. 65.
- 74 Id. J. B. F. Wyant.—p. 67.
- 75 What Can County Society Do for Its Members in Service? W. T. Sharpless.—p. 68.
- 76 Id. J. M. Quigley.—p. 70.
- 77 County Secretary. F. M. Crandall.—p. 71.

66. **Reeducation of Injured Soldier.**—McKenzie says that the majority of the men who fill our war hospitals and convalescent homes must depend for most of their present treatment, and for their future efficiency, on the masseuse, the practitioner of electro and hydrotherapy, the physical instructor, and the teacher of vocational training. The course usually followed begins with preparation by heat, either wet or dry, or produced by electricity, on through the stimulation of nutrition by massage and passive movement, then to simple exercise taken voluntarily and eventually to skilled movements by gymnastics, games and handicrafts, and graduating into industrial training. The various steps of the treatment are described in detail.

Southwestern Medicine, El Paso

October, 1918, 2, No. 10

- 78 Operative Indications in Acute Mastoiditis. J. J. McLoone.—p. 1.
- 79 Pellagra. Report of Cases. P. Rigney.—p. 4.
- 80 Tuberculous Meningitis. W. R. Smith.—p. 9.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy

October, 1918, 23, No. 5

- 1 Portable Roentgen-Ray Generating Outfit. W. D. Coolidge and C. N. Moore.—p. 137.
- 2 Electro-Physics of Ionic Medication. H. H. U. Cross.—p. 149.
- 3 Spur-Like Formations of Bone Following Amputation. J. D. Morgan, B. A. Cantab and C. M. McGill.—p. 154.
- 4 Method of Preventing Dust From Getting Between Fluorescent Screen and Lead Glass. D. Stone.—p. 161.

British Journal of Surgery, London

October, 1918, 6, No. 22

- 5 Bone Growth and Bone Repair. A. Keith.—p. 160.
- 6 Weight Extension in Treatment of War Fractures. W. H. Ogilvie.—p. 166.
- 7 *Diagnosis and Treatment of Injuries to the Crucial Ligaments. Report of Cases. S. A. Smith.—p. 176.
- 8 *Affections of Large Joints Due to Gunshot Wounds: Their Late Results and Treatment. S. W. Daw.—p. 190.
- 9 *Ununited Fractures, with Special Reference to Gunshot Injuries and Use of Bone Grafting. E. W. H. Groves.—p. 203.
- 10 *Treatment of Disabilities of Upper Extremity in Military Surgery. N. Dunn.—p. 248.
- 11 *Results of Primary Excision for Wounds of Elbow-Joint. A. E. Moore.—p. 265.
- 12 Structure, Forms, and Conditions of Ends of Divided Nerves: Regeneration Neuromata. E. M. Corner.—p. 273.
- 13 *Injuries of Peripheral Nerves from Surgical Standpoint. H. S. Souttar and E. W. Twining.—p. 279.
- 14 *Suture of the Musculospiral Nerve: Three Cases. G. Williams.—p. 315.
- 15 Operative Procedure in Nerve Injuries. R. Kennedy.—p. 317.
- 16 Case of Gunshot Injury of Meckel's Diverticulum. G. Taylor.—p. 324.
- 17 Case of Congenital Defect of Thorax, with Sprengel's Deformity. H. Burrows.—p. 325.
- 18 Case of Torsion of Appendix. J. E. Payne.—p. 327.

7. **Treatment of Injuries to Crucial Ligaments.**—Generally speaking, Smith says, the immediate treatment of injuries to crucial ligaments should be conservative rather than operative. Recent injuries to the joint that show abnormal mobility should be roentgenographed as a routine. This will eliminate avulsion of the tibial spine. Where there is rupture of both crucials, due to lateral or posterior dislocation of the knee, the limb should be immobilized with the knee flexed to 20 degrees for at least three months, but faradism to the quadriceps and general massage with movements of the patella should be practiced daily. Good results have been reported from treatment by prolonged fixation of the joint. When the lesion is accompanied by a paralysis of one or both of the popliteal nerves due to stretching, postural and electrical treatment for the nerve injury must also be undertaken. Where there is a recent avulsion of the tibial spine, Smith advises to try the effect of immobilization of the knee in the fully extended position for twelve weeks, combined with massage and faradism, rather than to treat the case by primary operation and fixation of the detached ligament and its bony insertion. In cases of old standing, however, operative mea-

tures are indicated. The after-treatment of anterior crucial injuries can generally be undertaken by means of appliances worn for an indefinite period.

In the operative treatment of anterior crucial injuries, the following operations have been done at varying times, apart from those of immediate suture of the ligaments: (1) plication; (2) reefing; (3) wire loops; (4) silk ligament substitution; (5) fascial substitution. Smith's experience with these operations leads him to endorse only fascial substitution.

8. Gunshot Wounds of Large Joints.—Daw discusses this subject in all its aspects. He is convinced that improvement of mobility is more likely to be gained by slight movements followed by periods of rest, or by slow stretching of contracted parts—in other words, by gradual change of position—rather than by forcible movements through a large range. Open operations to obtain mobility, he thinks, are rarely advantageous, except in the case of the elbow joint, where they are usually satisfactory. He does not favor passive movements which he says have very limited value, and are often harmful. Active movements, however, especially those of normal use and occupation, Daw regards as being most valuable, often doing more to increase mobility than surgical measures.

9. Treatment of Ununited Fractures.—This paper deals with a series of sixty consecutive cases treated by Groves during the last two years, and refers almost entirely to gunshot injuries. Loss of substance was the most important factor in the production of nonunion. This cause accounted for thirty-four cases (56.6 per cent.). Necrosis, which is a common cause of delayed union, but a very rare cause of nonunion, was operative in three cases. In twenty-one cases nonunion was due to displacement of the main fragments. In two cases eburnation was the cause of nonunion. The series contains thirty-four cases of autogenous bone grafting. Of these, ten (29.4 per cent.) have been failures, five (14.7 per cent.) have been eventual successes in producing bone union after extrusion of the graft, and nineteen (55.8 per cent.) have been complete successes. In every one of the fifteen cases where success was not complete, the cause of failure was traced. The reasons for failure were: operation performed too early; scanty contact between the graft and its bed; a sliding graft; patient fell on his arm and broke the graft, bursting open the wound; the graft was laid in unhealthy bone which should have been removed; too complicated a procedure was adopted, and the patient died of shock; the humerus was not immobilized adequately, and the arm, hanging on the graft, broke the fixation; scars in front of the tibia were not sufficiently replaced by healthy tissue before grafting; periosteal flaps with thin bone scales adhering to them were turned down over the gap and produced only a thread of bone.

10. Treatment of Disabilities of Upper Extremity.—Dunn recommends nerve suture as the prime consideration in the treatment of disability of the joints of the upper extremity, and emphasizes the importance of tendon transplantation as the final operation to be undertaken in the treatment of disabilities of these joints. For it to be successful, the muscles must be strong and healthy and these will only be available if the joints they control have allowed of their free development.

11. Primary Excision for Elbow-Joint Wounds.—Eleven consecutive cases were recently treated at the Bristol orthopedic center after having had primary excision of the elbow joint performed at the front. Ten have flail elbows to a greater or lesser degree, and the uselessness of the limb is—if the length of time from the original wound be taken into account—in almost direct proportion to the amount of bone removed. As the amount of bone removed decreases so does the functional result improve. Moore says that extensive primary excision must result in a flail joint. Limited excision, however, is satisfactory. If the bone is comminuted, a muscle-fascia flap should be carried in to cover comminuted bone as is done in arthroplasty. The postoperative support of the forearm is essential, and rest is more important than early movement. Capsulorrhaphy in certain chosen cases of flail elbow has been effective.

13. Injuries of Peripheral Nerves.—The lesson which Souttar and Twining have learned best from their observation of 122 cases is that success in nerve surgery is a matter of organization. The investigation of the cases is so complex, the operations involve such unusual details of experience and technic and the after-treatment required is so tedious and varied, that only by means of an extensive organization can they all be satisfactorily carried out. The highest operative skill is of no use in the face of incompetent physiotherapy, while the most perfect physical treatment is powerless to remedy the mistakes of a clumsy surgeon. The authors plead for the concentration of all nerve cases in centers where they will have at their disposal the extensive material resources, the clinical experience, and the trained patience without which their recovery is a matter of chance; and they plead for routine and for simplicity in such a center.

A careful examination should be made in every case and recorded as soon as the patient is so far recovered as to enable it to be carried out. This examination is repeated once a month, and meanwhile he is every day under the close observation of the department until he leaves the hospital. After that an attempt is made to keep in contact with the man himself or his medical adviser. In operating, the surgeon should follow a simple and precise routine. He should have as clear and accurate a knowledge as is possible of the anatomy of the region, and the condition of the nerve which he may expect to find. He should have a clear idea of what he means to do, and he should do it in the simplest manner possible. The physical treatment of the case, before and after operation, should be based on a definite routine, although it should be directed to the special requirements of the patient, and should introduce all variety that is possible.

In the preoperative care of the patient the authors regard the whirlpool bath as the most powerful curative physical method at present at our disposal. It facilitates other methods, softening the limb for massage, and increasing its conductivity for electricity; it reduces pain; and it produces a feeling of wellbeing in the limb which stimulates the patient to those voluntary exertions without which no complete recovery can be obtained. A very important feature of the treatment is the great economy in massage effected. The duration of massage has been reduced from thirty to ten minutes, the actual process is easier and less laborious, while the results are in every way superior to those which could be obtained previously.

14. Suture of Musculospiral Nerve.—The three cases reported by Williams show the completeness with which motor recovery takes place after suture of the musculospiral nerve, and they emphasize the progressive downgrowth of the axis cylinder. The technic of the operation has in every case been quite simple, the nerve ends being brought together without any tension by a single catgut suture through the substance of the nerve. The line of suture was wrapped round the subcutaneous fat. Precautions were taken to prevent any tension on the union until a month had elapsed. In all cases the muscles paralyzed were relaxed by an extension splint.

Journal of State Medicine, London

May, 1918, 26, No. 5

- 19 Medical Services of the Italian Army. F. De Filippi.—p. 129.
20 Milk and Health. J. Crichton-Browne.—p. 140. (To be continued.)

June, 1918, 26, No. 6

- 21 Public Health and Alcoholism Among Women. D'Abernon.—p. 161.
22 Health Problems and State Ministry of Health. W. Astor.—p. 170.
23 Milk and Health. J. Crichton-Browne.—p. 178.

July, 1918, 26, No. 7

- 24 Women's Health and Work in War Time. O. Gordon.—p. 193.
25 Women Workers and Health of the Nation. A. M. Anderson.—p. 205.
26 *Membranous Colitis Treated with Enterococcus Vaccines. A. H. Drew.—p. 217.

November, 1918, 26, No. 11

- 27 Problem of Birth Control with Special Reference to Public Health Aspect. C. K. Millard.—p. 321.
28 Influence of a Ministry of Health on Local Organization and Administration. E. W. Hope.—p. 338.

26. **Membranous Colitis Treated with Enterococcus Vaccines.**—Fifteen cases of mucous or membranous colitis have been treated by Drew with great success by means of autogenous vaccines. The patients all exhibited most of the classical symptoms of this disease. All the patients with the exception of one, passed casts which examination showed to consist of a mucoid material, containing many goblet cells, leukocytes, and, in some cases, acicular crystals. The membrane in all cases swarmed with bacteria, of which the gram-positive forms predominated. In fourteen of the cases the enterococcus was observed together with *Streptococcus faecalis*. In no case could any evidence of agglutination be obtained with either organism, but in all cases a low opsonic index was obtained with the enterococcus. Complement fixation was obtained with four out of the six cases tested, using the enterococcus as an antigen. Drew found that many patients are extremely susceptible to the enterococcus, hence initial doses of vaccine of not more than 2 to 3 million cocci should be given. The treatment should be continued with gradually increasing doses till 500 million cocci can be injected without producing reaction.

Lancet, London

Nov. 9, 1918, 2, No. 4967

- 29 *Neuroses and Psychoses of War. W. A. Turner.—p. 613.
- 30 Factory and Workshop Conditions and Prevalence of Pulmonary Phthisis. B. Moore.—p. 618.
- 31 *What Are the Disabilities and Compensations Entailed by Reproductive Function of the Female? W. A. Lane.—p. 622.
- 32 Pharmacology of Alcohol. R. B. Wild.—p. 623.
- 33 Agglutinating Properties of Certain Sera Against B. Typhosus, B. Paratyphosus A and B. T. T. O'Farrell.—p. 626.

29. **Neuroses and Psychoses of War.**—There appears to be general agreement on the value of the segregation of soldiers suffering from the neuroses of war, and Turner says three to four years' experience has justified the principle. It is essential that these patients, when segregated, should be under specially trained medical officers and that "an atmosphere of cure" should pervade the special hospital. The great value of segregation is that all patients may be studied individually and all agents determining causation, exaggeration of prolongation of symptoms may be sought out and eliminated. There is no evidence that in properly conducted hospitals these patients imitate each others' tremors or abnormal gaits, while it is well known that in general hospitals the eccentricities of conduct and behavior of the hysterical patients make them objects of curiosity and often of humor to the other patients. It has long been recognized that the sooner the patients are brought under skilled treatment the more rapid and satisfactory is the cure. By these means the symptoms which in the early stages are removable and "fluid" are prevented from becoming fixed and a "habit" established.

The French Military Medical Service recognized this early in the war and established neurologic centers in the zones of their armies. In consequence of the success attending the treatment of the war neuroses in these centers similar centers were established in the areas of the British armies in the winter of 1916-1917. A large number of cases of war neuroses in the early stages of their disability derive great benefit from a modified rest cure. In the later or "habit" stages a judicious combination of suitably directed psychotherapy and selected occupation, according to the mental and physical fitness of the soldier, gives the most satisfactory results. Occupation further supplies the best means of grading the soldier when the time arrives for his discharge from hospital to duty.

31. **Disabilities and Compensations Entailed by Reproductive Function of the Female.**—Lane speaks particularly of the thyroid. It is most closely associated with the sexual function in the female. The variations in the size of the thyroid afford clear confirmation of the preponderating influence of sex in the woman as compared to the part it plays in man. The thyroid enlarges periodically during the whole period of the woman's sexual life. This is more marked during a few days preceding menstruation, and continues while the period of sexual desire is at its height. After this the thyroid diminishes in size. This condition exists all through the

sexual life of the woman. The enlargement of the thyroid is accentuated by intercourse and still more by pregnancy. The thyroid and the ovary would appear to go through associated stages of activity and rest.

Lane calls attention to the fact that one of the most marked features in advanced cases of chronic intestinal stasis in the woman is the total absence of sexual desire, it being replaced in many instances by a feeling of disgust for intercourse. Associated with this there is in this disease great wasting of the thyroid. This wasting is most conspicuous in the isthmus, which cannot be detected by the finger though the rings of the trachea can be accurately and clearly defined. The thyroid varies in size in the circumstances described in women whose hair is towy or red, as compared with the variations in women with dark hair. It alters with the intensity of the sexual appetite, which is a more marked feature in women of this colored hair than it is in the brunette. It is obviously the case that this type of woman resists the poisonous influences of chronic intestinal stasis with much more vigor and that she retains her sexual appetite up to a later stage in that disease than does her dark-haired sister.

Lane has noted that one of the most remarkable effects of freeing ileac effluent in chronic intestinal stasis by the removal of the colon is the rapid return of sexual desire, which may have been lost for some considerable time. Not only does it return to normal conditions, but in many cases it becomes manifestly exaggerated. In the female the toxins or organisms which are derived from the intestine in chronic intestinal stasis produce by their influence on the overstrained thyroid, directly through its blood supply or indirectly through its nerve supply, a far greater change than in man, and this occurs during the period of greatest sexual activity. Pregnancy affords the static woman with the prolapsed, angulated, and dilated gastro-intestinal tract, who exists in enormous numbers in the community, an opportunity of rehabilitating herself by reestablishing temporarily the normal flow of the intestinal contents, and so permitting her to store up in her body such a quantity of fat and muscle as will serve to retain her viscera in their correct positions and functions. How often, asks Lane, does one see a poor, thin, static virgin converted into a plump, healthy, happy mother by a pregnancy? How often is the surgeon called on to perform operations of a more or less mutilating character on the breasts and intestinal tract of women who, if they were able to perform the normal functions which they were born to carry out, would be restored to a state of health and happiness instead of leading lives of necessarily increasing invalidism and being a nuisance to themselves and to those with whom they are brought in contact?

Medical Journal of Australia, Sydney

Oct. 5, 1918, 2, No. 14

- 34 Symptomatology of Disorders of Stomach from Physiological Aspect. A. E. Mills.—p. 279. (To be continued.)
- 35 Principles Underlying Surgery of Gastric Ulcer. G. Craig.—p. 282.

Oct. 12, 1918, 2, No. 15

- 36 The Mentally Deficient. P. A. R. Lalor.—p. 299. (To be continued.)
- 37 Symptomatology of Disorders of Stomach from Physiological Aspect. A. E. Mills.—p. 301.

Oct. 19, 1918, 2, No. 16

- 38 From Soldier to Civilian. F. J. Chapple.—p. 321.
- 39 The Mentally Deficient. P. A. R. Lalor.—p. 323.

Oct. 26, 1918, 2, No. 17

- 40 Prophylaxis and Treatment of Gastro-Enteritis. T. H. R. Mathewson.—p. 343.

National Medical Journal of China

September, 1918, 4, No. 3

- 41 Uncinariasis in Pinghsiang Colliery, Hunan. F. C. Yen.—p. 81.
- 42 Pneumonic Plague. Ministry of Home Affairs Report.—p. 88.
- 43 Smallpox in China. K. C. Wong.—p. 94.
- 44 Chinese Ginseng, Its Distribution and Manufacture. F. J. Brumfield.—p. 97.
- 45 Manufacture of Serum. M. F. Wilson.—p. 104.

Tropical Medicine and Hygiene, London

No. 1, 1918, 21, No. 21

- 46 Heart Block in a Sudanese. A. J. Chalmers and E. Gibbon.—p. 213.

Archives Médicales Belges, Paris

October, 1918, 71, No. 10

- 47 *Surgical Shock; Nature and Treatment. E. H. Starling.—p. 369.
48 *Latent Period in Shock. D. Baruch.—p. 377.
49 *Meningeal Reactions in Syphilis. B. Dujardin.—p. 390.
50 Treatment of Syphilis in a Training Camp. M. Cheval and M. Moreau.—p. 411.
51 *Treatment of Gonorrhea in Men on Active Service. F. Van den Branden.—p. 419.
52 *Deep Antisepsis. J. Voncken.—p. 437.
53 Epinephrin Test of Hyperthyroidism. J. De Laet.—p. 481.

47. **Surgical Shock.**—Starling is professor of physiology at London, and he concludes this report of his research on shock by emphasizing that shock is a state of hyperstimulation rather than of paralysis. Stimulants therefore are directly contraindicated, while morphin becomes the main reliance. There is general constriction of the blood vessels, and this is increased by the action of cold. The low pressure is due to the small amount of blood in actual circulation. The lacking blood must be replaced, and the acidosis from reduction of the alkaline reserve in blood and tissues must be combated with an alkaline fluid. Experience has shown the advantages for this of a 5 per cent. solution of gum acacia containing 2 per cent. of sodium bicarbonate. An injection of 500 c.c. of this solution should be given whenever an operation is to be done on a wounded man in shock.

48. **Latent Period in Shock.**—Baruch explains shock as the initial nervous shock, the effect of the traumatism. This sets in play a number of inhibitory actions, and these in turn entail profound modifications in important functions of the organism. Usually several hours elapse before they become manifest, and this latent period seems to be the preparation, the passage of the organic functions towards a deficiency, an upsetting of the balance, which permits complications of all kinds, and especially infection to get a foothold in the organism.

49. **Meningeal Reactions in Syphilis.**—Dujardin discusses the import for diagnosis and prognosis of the tension of the cerebrospinal fluid, its lymphocytosis, globulin and albumin content, and the Wassermann reaction in the fluid and in the blood. He assumes that the antibodies inducing the Wassermann reaction are derived from the blood, and that they pass into the fluid only when the meninges are pathologic. The normal meninges are not permeable for them, and hence the relative quantity of these antibodies in the fluid is an index of the degree of the involvement of the meninges. He determines this permeability index by ascertaining the minimal amounts of the fluid and of the serum which give the Wassermann reaction. If the serum gives it at a dilution of 1:10 and the fluid at 1:2, the former is thus five times stronger, and the permeability index is 1/5. The different forms of syphilitic nervous affections have special types of this index, and it is modified specifically by the effect of treatment. His extensive experience has demonstrated that with a zero index, every case of syphilis of the nervous system (not having presented paralysis or epilepsy), can be regarded as fit for military service provided the treatment can be kept up systematically, even if the Wassermann reaction in the blood is still positive. Men can be regarded as fit only for limited duty when the meningeal lesions persist (over 1.5 albumin) and the index persists after two courses of arsenical treatment. Also those who have had transient paralysis or epilepsy. Also those with incipient tabes, the reflexes abnormal, and the index persisting. Men should be discharged from the service who present syphilis of the nervous system with a permeability index persisting high (from 1/1 to 1/5) after two courses of arsenical treatment, and with more than ten units of antibodies in the blood and high albumin content in the spinal fluid.

51. **Treatment of Gonorrhea in Troops on Active Service.**—Van den Branden has no faith in the men treating themselves, but says that he has cured 65 per cent. of 410 acute cases and 53 per cent. of 232 chronic cases; 11 per cent. in each group are still under treatment, and 17 and 33 per cent. have been lost track of. The venereal morbidity in the Belgian army is probably higher than in other armies, as

the men had no homes to go to when given furloughs, their homes and families being in the hands of the Germans. In treatment he applied the same measures as in peace times, with as scrupulous care, endoscopy, etc.

52. **Latest German Method of Antisepsis.**—The antiseptic is injected deep into the tissues all around the focus, making from seven to thirteen or more deep injections to encircle the focus. This is expected to form a barrier to wall in infection and keep it from spreading. The antiseptics preferred are derivatives of quinin: ethylhydrocuprein (optochin) and isoctylhydrocuprein (vuzine). The latter is extracted from a tropical plant *Remijia cuprea*, the Brazilian *quina do serra*. Another method by which this principle is applied is by expelling the blood from the limb and keeping it out with a tourniquet. Then 100 c.c. of a 1 per thousand or ten thousand solution of the antiseptic is injected into a vein, under considerable pressure. In half an hour or an hour the tourniquets are removed. Tuberculin has been injected in this way and other drugs, but serious by-effects have been observed, gangrene and pyemia with some war wounds. The addition of 0.1 gm. of lactic acid to the liter of the solution of the antiseptic prevents precipitation from the alkaline blood left in the veins. The favorable evolution of war wounds treated in this way has recently been ascribed to the biochemical properties of the quinin rather than to any direct antiseptic action, so that the principle, after all, Voncken says, is like that of Carrel's method.

Bulletin de l'Académie de Médecine, Paris

Oct. 22, 1918, 80, No. 42

- 54 *Air in Transmission of Epidemics. A. Trillat.—p. 369.
55 *Surgical Suturing of Lips Together. H. Morestin.—p. 372.
56 *Gas Embolism in Caisson Work. G. Jean and Viguiet.—p. 377.
57 Operation on Frontal Sinus Through Nose. J. Bourguet.—p. 378.

54. **Microbes in the Air.**—THE JOURNAL has summarized some of Trillat's previous communications on the condensation of moisture on microbes floating in the air. He says here that this moisture condensed on the microbes serves as a culture medium as it dissolves gases that come in contact with it, especially the gases in expired air. The microbes expelled in droplets of spray in coughing and sneezing are preexisting microbes, but the microbes floating in the air in the condensed-moisture culture medium are liable to propagate and send forth swarms of newly born microbes to carry on the game. This invisible microbial mist condenses on cooler surfaces, as on the clothing when coming into a warm room from out of doors. The more vitiated the air, the more concentrated the culture medium formed by the moisture condensed on the microbes. A draft of air may sweep a cloud of these newly born microbes far from their primal source, and explain many otherwise mysterious cases of contagion. Or when the moisture condenses on the cooler surface of clothing this may provide the microbes with a still better culture medium from sweat or other matter on the clothing or hair. The propagation of the microbes may thus keep on indefinitely, and they may be spread broadcast wherever the person goes. Trillat's research has demonstrated the actual occurrence of all these phenomena with ordinary microbes, and naturally, he says, they must occur in a still more pronounced form the smaller the microbes, such as the filtrable causal agents of influenza.

55. **Suturing the Lips Together.**—Morestin expatiates on the advantages of cheilorrhaphy after an operation on one or both lips, or a burn. It averts cicatricial retraction and ensures as symmetrical a healing as conditions permit, the sound lip serving to balance and hold in a good position the lip that is being repaired. The patient can be fed easily from a catheter or nursing bottle introduced at the corners of the lips. His patients thus treated found no difficulty in spitting and smoking and none complained, while this cheilorrhaphy rendered possible certain autoplasmic operations otherwise impossible to realize.

56. **Gas Embolism in Caisson Work.**—In the case described the workman was new at the task and the third day developed intense pain in his left thigh with other symptoms of caisson sickness, followed by a vast eschar in the left buttock,

corresponding to the course of the deep gluteal artery. Recovery followed under inhalation and subcutaneous injection of oxygen, with camphorated oil and strychnin, and excision of the devitalized tissue. It is the only instance Jean and Viguier know of in which the bubbles of gas were large enough to obstruct an artery of this size.

Journal de Médecine de Bordeaux

October, 1918, 89, No. 10

58 *Bone Grafts. Charbonnel.—p. 279.

59 Early Detection of Tuberculosis in Soldiers. Meslier.—p. 289.

60 Secondary Suture of War Wounds. Mongie.—p. 291.

61 *Mishaps with 914. Petges, Gratiot and Cottu.—p. 293.

62 *Enteropathies in Soldiers. Dargein.—p. 298.

58. **Free Bone Grafts.**—Charbonnel discusses the various methods for bridging the gap after loss of a section of the tibia, and describes the successful outcome in a case in which the fibula of the man's other leg was used for the graft. The fine results in this case justify, he thinks, the extensive application of this method of autografts with bone plus periosteum from the sound mate. The exact technic is described with illustrations. His case was subjected to a trying test, as at the fifth month the patient fell and fractured both the graft and the other bone in the leg. But they healed well and by the twentieth month radiography shows that the graft has not lost any of its opacity, while it is gripped firmly by callus coming from the stumps of the tibia. The graft itself does not seem to have participated in the callus production.

61. **Mishaps with Neo-Arsphenamin.**—Petges reports seven cases of severe therapeutic complications and one death among the 3,500 injections of this drug in the last seven months at an army skin and venereal center. The two cases with convulsions rapidly improved; the two with grave encephalomyelitis, and the two with the same plus meningitis also recovered but very slowly, and certain sequelae still persist. The graver cases were with recent infection and the primary dose was small. The one fatality occurred after the second injection, and the next gravest cases after the fifth and sixth injections. The paraplegia persisted for several months and in one case was accompanied with hematuria and gangrenous cystitis but clinical recovery followed in six months, except for slight paresis of the legs and Babinski sign. There had been preceding mercurial treatment only in one case as some of these patients were in the chancre stage. Neurofixation of the syphilis virus must be excluded, and as the technic cannot be incriminated, the disturbances must be ascribed to the drug itself. The patient should be warned of the possible danger from arsenical preparations, and he should assume some responsibility as well as the physician.

62. **War Enteropathies.**—Dargein emphasizes the necessity for explaining to the men the mechanism of the reflex sensations of which they may complain, and which are out of all proportion to the insignificant initial disturbance. He warns against measures liable to breed the "sincere pseudosick," the *pithiatiques de l'intestin*. An individual card or booklet for the pathologic data of each man would save a great deal of groping in the dark, and save many cases of purely functional disturbance from having the general health compromised by ill-advised therapeutic and dietetic measures.

Paris Médical

Sept. 23, 1918, 8, No. 39

63 The Model Sanatorium. E. Sergeant.—p. 245.

64 *The Meninges in Malaria. L. Barrillon and others.—p. 250.

65 *Partial Tetanus. H. Français.—p. 255.

66 Remote Sequels of Acute Poliomyelitis. Pfeiffer.—p. 257.

Oct. 19, 1918, 8, No. 42

67 *Aviators' Heart. G. Etienne and G. Lamy.—p. 293.

68 *Opium in Heart Disease. Laubry and Esmein.—p. 296.

69 *Complete Juvenile Arrhythmia. L. Gallavardin.—p. 301.

70 *Rupture of Heart Valves by Shell Wind. Perrin and Richard.—p. 304.

71 *Slow Malignant Endocarditis. R. Debré.—p. 308.

72 *Serofibrinous Pericarditis. Soulié and Benhamou.—p. 313.

73 Viscosity of the Blood in Heart Disease. M. Leconte.—p. 316.

64. **The Meninges in Malaria.**—Instead of being a disease of remote colonies, malaria is entering the current practice

of physicians throughout France, as so many native and colonial soldiers have spread malaria germs broadcast. In this article a series of ten recent cases are reported in which meningism or meningitis dominated the clinical picture. The patients were all between 20 and 22 except one child of 4. The malarial parasite has never been found in the spinal fluid, so the meningeal disturbances must be of a toxic nature. This should be suspected with every meningeal reaction in persons known to have malaria or to have lived in a malaria infested region, and the blood should be examined.

65. **Partial Tetanus.**—Eleven days after a seton wound of the calf, intense pain, contracture and muscular spasms developed in the leg and persisted for a month without other symptoms. By the end of two months and a half, recovery was complete except for slight weakness in that leg. Intraspinal injection of 2 per cent. magnesium sulphate attenuated remarkably the pains and spasms, although it did not shorten the course of the disease.

67. **Aviator's Heart.**—Etienne and Lamy found in examining thirty aviators, including a number apparently healthy, that the left ventricle was enlarged, the apex rounding. This occurs early and persists, and is more pronounced the higher the flights. The hypertrophy keeps moderate, and there was associated dilatation of the right heart only in one instance. They warn aviators against useless feats, sudden changes of level, and abrupt rises and descents when such unnecessary strains on the circulation can be avoided. With care, the heart which has thus adapted itself to aviation will function normally.

68. **Opium in Heart Disease.**—Laubry and Esmein expatiate on the harmlessness of morphin and its success in many cases of heart disease. They regard the symptoms from cardiovascular affections as the result of physical rather than chemical forces, more dynamic and mechanical than toxic. There is no need with them to fear the specter of elimination of waste and danger from its brief partial suspension. The beneficial action of morphin on the vasomotor nerve centers can thus be utilized to the full. It usually reenforces the action of the usual heart tonics, and paves the way for the more slowly acting drugs to display greater efficacy. When the distress of angina pectoris persists under the usual measures, morphin should be injected and even repeated, warning the family of the gravity of the circumstances and that abstention may be graver than the injection. The same is true, they say, of acute edema of the lung, agreeing with Vaquez "that the injection of 0.01 or 0.02 gm. morphin is the best means to remedy the sudden danger which results from an attack of acute edema of the lung." Whatever the cause of the acute pulmonary edema, there occurs a sudden vasodilating excitation of the vessels in the lungs. In this sudden upset of the vasomotor balance, entailing a sudden profuse bronchopulmonary secretion, obstructing the air passages, why not utilize the drug which has an instantaneous sedative action on the vasomotor and secretory centers? Some are deterred from it by the fear of paralyzing some salutary secretion, especially renal secretion, and adding a drug poison to the unknown poisons from which the organism is already suffering. But in Vaquez' and the writers' experience they have always had cause for rejoicing that they had not been frightened away from its use. They always apply local or general venesection, with or without camphorated oil, but it was almost the constant impression that the subsidence of the secretory storm was the result of the sedative injection. In some cases of recurring pulmonary edema with aortic disease of different kinds, the morphin alone proved as effectual as when associated with venesection, when conditions prevented the latter. The same favorable result was obtained even in a case of sudden edema with high blood pressure and advanced kidney disease. Morphin is equally effectual also in relieving the mechanical, secretory and nervous disturbances entailed by paroxysmal hypertension, as in lead colics, sudden amaurosis, transient aphasia, asthmiform attacks, and dyspnea without organic cause. Even in cases of albuminuria with high blood pressure and scanty urine, the attacks of dyspnea subsided under the morphin, the pulmonary and renal symptoms disappearing

together as a flood of urine was voided. The oliguria which seemed to contraindicate the morphin must have been itself the result of some spasm of the renal vessels. With permanent high tension, greater caution is necessary, but they have often relieved continuous dyspnea and insomnia in these patients with 0.2 gm. Dover's powder plus 0.1 gm. digitalis powder. They discuss further the indications for morphin in actual heart disease. With pulmonary embolism, congestion and acute edema, a local injection of morphin arrests the dyspnea and a Dover's powder maintains the salutary immobilization, and by keeping the entire organism quiet suppresses other factors liable to further hamper the heart. Paroxysmal tachycardia may also be relieved by the opiate when the pains and distress resemble those of angina pectoris. Among the formulas given is one in which 0.02 gm. each of caffein and pulverized opium are mixed with 0.2 gm. each of quinin sulphate and antipyrin. A cachet of this can be ordered every three hours, thus keeping the patient under the influence of mild opium medication for several days. To soothe attacks of pain, when instantaneous action is not imperative, they combine morphin with the rapidly diffusible vasomotor drug, trinitrin. Their formula calls for 0.06 gm. morphin hydrochlorid; 60 drops of a 1 per cent. alcoholic solution of trinitrin; 20 gm. distilled cherry laurel water, with plain distilled water q. s. to 100 gm. Two or three teaspoonfuls of this can be taken during the day.

69. **Juvenile Arrhythmia.**—Gallavardin describes six cases of total arrhythmia without valvular lesion. Some of these arrhythmias seem to cause no disturbance, but the outlook is much graver than with simple extrasystolic arrhythmia.

70. **Rupture of Heart Valve.**—In the man of 36 and woman of 46 the rupture occurred from shell concussion, without direct injury, but obesity or other predisposing cause was manifest.

71. **Slow Malignant Endocarditis.**—Debré describes the anemic, the pseudomalarial, nervous and rheumatismal forms among others, and mentions a psychic form. The streptococcus can usually be incriminated, but the pneumococcus, influenza bacillus, etc., may sometimes be responsible. In one case, in a child of 8, the typhoidal state and joint troubles were not accompanied by any appreciable symptoms on the part of the heart, and the endocarditis was only casually discovered. It proved fatal in less than five months. This type of endocarditis is most frequent in adolescents and young adults, and almost invariably there is an old history of acute articular rheumatism, with some recent infectious sore throat or other process in the mouth or in the female genitals. The skin manifestations are of primordial importance; purpura is more frequent, but the pathognomonic manifestation is a transient and painful erythematous eruption, minute red lumps appearing in successive waves on different regions of the skin. The pulpa of fingers and toes is a favorite site. The sudden appearance of this special eruption at the tip of the finger may suggest a coming felon. Periods of apyrexia may intervene, but the disease is always fatal in from six to twelve months.

72. **Serofibrinous Pericarditis.**—This affection should always suggest a tumor in the mediastinum. In a case described, necropsy revealed two tumors, and the pericarditis was symptomatic of the irritation from them.

Presse Médicale, Paris

Oct. 24, 1918. 26. No. 59

74 *Epidemic Jaundice in Roumania. J. Cantacuzène.—p. 541.

75 *Tumors of Large Intestine. V. Pauchet.—p. 543.

76 *Secondary Endocarditis in Heart Disease. R. Lutembacher.—p. 546.

77 Present Status of Icterohemorrhagic Spirochete. M. Romme.—p. 548.

78 *War Wounds of Nerves. Congress Report.—p. 549.

79 *Treatment of Gonorrhea. Congress Report.—p. 551.

74. Practically the same article was reviewed November 23, p. 1779.

75. **Tumors of Large Intestine.**—Pauchet has had very favorable experiences with resection of long segments of the large intestine for inflammatory and tuberculous tumors and for cancer. Once released from its moorings, the large intestine

can be pulled around as readily as the small intestine. The ultimate outcome depends on the character of the cancer, and cancers of the large intestine are among the less virulent. By leaving a strip of the mesentery and the marginal artery the circulation is guarded, while the anatomy of the lymphatics of each segment of the colon allows the segment and its blood and lymph vessels to be removed in one block. He gives illustrations of the technics required for tumors at different points in the bowel. If there is occlusion he makes an artificial anus and waits a month before resecting the tumor. If the bowel is still permeable, for a tumor in the descending colon, he draws the loop out and makes a side-to-side anastomosis at once, or keeps the tumor loop thus exteriorized for a week, first suturing together, like two gun barrels, the legs of the loop just below the skin. After cutting off the projecting portion level with the skin, he waits a month before the final anastomosis of the stumps. A tumor in the sigmoid region he resects at once, and ties the upper stump on a rubber tube and invaginates this in the rectum by drawing down with forceps the lower end of the tube and out through the anus. The tube drops out spontaneously in about ten days. With a tumor in the transverse colon, he makes an end-to-end anastomosis after resection, fastening the point of junction to the abdominal wall. The worst that can happen is an abscess in the wall, with a briefly transient fistula.

76. **Secondary Endocarditis in Heart Disease.**—Lutembacher says that infectious endocarditis is responsible for the fatal outcome with valvular defects more often, probably, than asystoly. In such patients, any intervention on the veins requires the most minute asepsis, as the dilated cavities of the heart offer a peculiarly favorable site for location of an infectious process. If this process is of an abortive type, fever is its only manifestation. It keeps up irregularly for months, sometimes accompanied by chills and malaise, but its essential character is its extreme tenacity. The preexisting heart lesion does not seem to be modified, and the fever is ascribed usually to every cause but the right one. By the end of six or twelve months, however, the debility becomes extreme and death may ensue, even without embolism, a minute abscess in the wall the only necropsy finding. In the subacute form, septic thrombosis and embolism dominate the clinical picture. These are particularly redoubtable when it is a question of pregnancy or an operation or overexertion of any kind. It is by escaping such secondary infectious complications that some persons with serious valvular defects live to an advanced age while others with milder lesions die young. Treatment of these secondary infectious processes is discouraging. Intravenous injections of colloidal metals do no good, and he has never witnessed any benefit from specific serums and vaccines. Heart tonics had better be suspended as they lose their previous efficacy. This secondary infectious endocarditis is one of the main causes of what is called irreducible asystoly.

78. See Paris Letter, page 1759.

79. **Treatment of Gonorrhea.**—This was the leading question discussed at the French Urologic Congress in October, and the main addresses are summarized here. The reports bear on both military and civilian conditions. Janet related that abortive treatment is successful in about two third of the cases provided that it is begun within twelve hours after the first signs of a discharge. He has found antigonococcus vaccine beneficial in gonorrheal rheumatism, and he thinks a vaccine may yet serve in local treatment of the primary gonorrheal process when the technic is better worked out. Cathelin stated that, at most, the vaccine is useful only for the complications of gonorrhea and has no influence on the evolution of the urethritis itself. The *centre d'urologie* of the fifth district had 300 simple and 704 complication cases in the hospital; all the others were outpatients and 25,000 treatments were given. He urged standard uniform treatment with permanganate, but Hamonic extolled the advantages of iodine vapors pumped directly into the urethra from the iodine heated in an ampule. Le Fur warned that the seminal vesicles are involved more often than is generally recognized, and this explains return of symptoms, when the gonorrhea had been apparently entirely cured.

Correspondenz-Blatt für Schweizer Aerzte, Basel

Nov. 2, 1918, 48, No. 44

- 80 *Progress in Ophthalmology. O. Haab.—p. 1457.
 81 *The Tenth Rib. H. Frey.—p. 1463.
 82 *Influenza in Children. H. Schultheiss.—p. 1467.
 83 *Predetermination of Sex. P. Scheurer.—p. 1473.

80. **Recent Progress in Ophthalmology.**—Haab insists that the new legislation on industrial accidents and workmen's compensation makes it imperative for the general practitioner to be able to recognize and apply first treatment to injuries of the eyes. Intensive illumination from the side in examining the eye with the magnifying glass is imperative. A 150 candle power electric light is his preference; the ordinary street electric current suffices for this. A binocular magnifying glass or corneal microscope is extremely useful, especially when used with Gullstrand's Nernst *Spalt* light. Gullstrand's magnifying stereoscope for examination of the eye is also a great assistance in examinations. Another recent improvement is the use of light free from red rays, as Vogt advocates. In teaching ophthalmology Haab lays great stress on wax models and on demonstration microscopes. He keeps two of the latter where the students have constant and ready access to them, the specimens being turned by hand into the field, while they are locked in against injury. The Swiss government has appointed a woman artist to make wax models and casts for the clinics as needed. One model of the half of the head of a lad with tuberculosis of the cornea shows the suppurating fistula of the lacrimal sac and swelling of the glands in front of the ear—a typical case of Parinaud's conjunctivitis, in which tubercle bacilli of the bovine type were cultivated from the lesions. There was a history of a blow on the eye with a stable broom three months before the first symptoms. Under tuberculin treatment and diverting the secretions of the lacrimal gland into the nose, the cure is now practically complete fifteen months later. Catheter treatment of dacryocystitis seldom proves effectual.

Further progress in ophthalmology has been realized with roentgen treatment of cancer of the eyelids, but the greatest advance in recent years, he declares, is the treatment of gonorrhea of the eye by subcutaneous injection of 1 c.c. of a typhoid bacilli vaccine, containing 5 millions, the injection repeated the next day, or later. This method was advocated in 1917 by Szily and Sternberg who reported the complete cure in a few days of sixty-eight cases in adults. Haab tried it with considerable skepticism on a girl of 5 with violent inflammation of the eye. In two days the eye was free of secretions and cocci. In his five other cases the results were not so promptly apparent, but the cure was complete in all in two or three weeks, and injury of the cornea averted. The adult typhoid cultures, grown on agar, are washed off with saline and the suspension is brought to 200 c.c. It is then vibrated for half an hour, and 0.5 per cent. phenol added. More than two injections can be given at need. There is a brief febrile reaction; then in two or three days the inflammation in the eye subsides and the cocci disappear. The effect is less pronounced in ophthalmia neonatorum, but in one new-born child the severe gonorrheal ophthalmia had completely healed in two weeks, a result attainable otherwise only in from five to eight weeks. We know that the new-born do not react to vaccination as a rule. Genital gonorrhea in young and old does not seem to be affected by the typhoid vaccine.

81. **The Floating Tenth Rib.**—Frey is an anatomist, and he insists that the floating tenth rib is not pathologic but a normal phenomenon for a certain stage of phylogenetic development.

82. **Influenza in Children.**—Schultheiss states that while at first children seemed to escape influenza, the last few weeks have brought numbers of cases to the children's hospital, and there have been five deaths. The children did not succumb to respiratory disturbance so much as to the general toxic action of the infection, with the respiration typical of acidosis. Three children with whooping cough in one family all died, the blood in two showing 100,000 leukocytes with predominance of lymphocytes. In one case a child developed typical Landry's paralysis and in another paralysis of one arm, the

eighth day. The paralysis in both gradually subsided but not completely.

83. **Predetermination of Sex.**—Scheurer analyzes the four main theories as to the predetermination of sex, those based on the assumption that the sex is preformed in the ovum or determined by the special structure of the spermatozoon, or by the battle of the sexes from the same or crossed heredity from the parents, or the assumption that the sex is determined by the age of the ovum at the day of conception. His conclusion is that the problem is still unsolved, but that the latter theory has much to sustain it. He describes Siegel's statistics in this line. (They were mentioned in *THE JOURNAL*, March 17, 1917, p. 883.) He found that in 180 cases in which the exact day of the husband's brief furlough was known and the date of the beginning of menstruation, 80 per cent. were boys of those children born when cohabitation had been within the first nine days after the beginning of menstruation; 80 per cent. were girls of those with cohabitation the fifteenth to the twenty-third day. Between these periods the sexes were about equally divided. From the twenty-fourth to the twenty-sixth day no conception occurred, and the twenty-seventh day only a total of five boys were born. If the proof can be produced that an ovum can actually survive menstruation, then Siegel's theory would have a basis. One observation on record sustains this, His' report of having found an unfecundated ovum in the human tube at the fifth day from the beginning of menstruation.

Gazzetta degli Ospedali e delle Cliniche, Milan

August 18, 1918, 39, No. 66

- 84 Measurement of the Velocity of the Blood Stream by Radioscopy of the Heart Compared with Sphygmodynamometer Findings. C. Talentoni.—p. 643.

Pediatria, Naples

November, 1918, 26, No. 11

- 85 Leukolysins in Leukopenic Blood. M. Sindoni.—p. 617.
 86 *Tuberculids in Children. A. Gismondi.—p. 635.

86. **Tuberculids in Diagnosis and Prognosis of Tuberculosis in Children.**—Gismondi discusses in particular the papulonecrotic type of tuberculids and their frequently grave prognosis. The literature cited confirms the unfavorable outlook with this form of tuberculids. They are generally found on the back, buttocks and limbs. In none of the cases described had there been preceding measles, although others have reported the development of these tuberculids after measles. In one case, however, there was a widespread eruption of tuberculids accompanying a tuberculous bronchopulmonary process following on scarlet fever. This child was 6 years old, with manifestations of inherited syphilis. The papulonecrotic tuberculids may be the only sign of tuberculosis in an infant or older child. By seeking them, many a puzzling diagnosis may be cleared up at once.

Policlinico, Rome

Oct. 27, 1918, 25, No. 43

- 87 *Factors in Freezing of Feet. V. Mazzi.—p. 1017.
 88 *Bleaching Powder in Sterilization of Skin. G. Egidi.—p. 1023.

87. **Freezing of the Feet.**—Mazzi's experience with trench freezing and frost-bite has shown that the humidity of the air is the predominant factor, next in importance is the long standing still. The cold itself is only third in importance.

88. **Bleaching Powder for Sterilization of the Skin.**—Egidi extols the superior advantages of chlorinated lime for sterilizing the skin, its efficacy, harmlessness, and lack of irritating properties for the hands of the physicians and nurses. He has been using it systematically in a saturated solution in his service for many months. As it turns blood and raw surfaces brown, he has found this a useful guide in excising devitalized tissues. (The Italian term is *cloruro di calce*.)

Riforma Medica, Naples

Sept. 28, 1918, 34, No. 39

- 89 *Plantar and Popliteal Reflexes. A. Roccavilla.—p. 766.
 90 *Comparative Nutritive Value of Cereals and Eggs. M. Maurizi.—p. 768.

- 91 Prophylaxis of Anaphylaxis by Small Preliminary Injection of Serum. A. Azzi.—p. 774.
92 Galileo and the Medical Sciences. A. Ferrannini.—p. 777.
Oct. 5, 1918, **34**, No. 40
93 Influenza. G. Arnone.—p. 786.
94 Hemorrhage After Nephrotomy. P. Tasca.—p. 790.
95 Scurvy in Italian Troops in Macedonia. C. Vallardi.—p. 793.
96 Tuberculosis of Male Genital Organs. E. Aievqli.—p. 794.

89. **Popliteal and Plantar-Cremaster Reflexes.**—As the subject lies prone and the popliteal space is tapped, certain physiologic reflexes occur. Roccavilla discusses the pathologic import of variations in the reflexes thus induced, and also in the variations in the cremaster reflex induced from the sole.

90. **Comparative Nutritive Value of Foodstuffs.**—Maurizi reviews recent investigations in this line, and reports personal research on rats. All tend to demonstrate that wheat and corn or their pure proteins have less nutritive value than eggs. It may be impossible to demonstrate this inferiority by a deficit in the nitrogen balance, but it becomes plainly manifest in the reduction in body weight.

Rivista Critica di Clinica Medica, Florence

Oct. 5, 1918, **19**, No. 40

- 97 *Pathology and Treatment of Asthma. R. Massalongo.—p. 469.

97. **Suprarenal-Pituitary Treatment of Asthma.**—Massalongo discusses the pathology of asthma as a perversion of the physiologic act of respiration. There is a centripetal and a centrifugal factor involved, and he regards the latter as of paramount importance while most clinicians incriminate almost exclusively the centripetal influence. He is convinced that the latter is merely the occasional cause. It is useful to get rid of this factor, but the primal factor is the inherited or acquired asthmogenic state of the medulla oblongata. It is a neurosis of the bulb and, in particular, of its respiratory center. There seems to be a close analogy between asthma and epilepsy. Persons with asthma have always proved to be neurotic, neuropathic, in his clinical experience. Treatment should aim to discover the source of the peripheral or internal centripetal irritation inciting the paroxysm, but the main point of attack should be the morbid sensitiveness of the asthmogenic center. The nervous system should be toned up by treatment as for neurasthenia, but the chief reliance should be on combined epinephrin and pituitary treatment. This, he says, has given marvelous results impossible to realize with either alone. He does not hesitate to call it an *infallibile metodo di cura dell' accesso astmatica*, and to say that his eight years of experience with it have fully determined its reliability. The dose found most effective was 0.0008 gm. of epinephrin (adrenalin) and 0.0004 gm. of pituitary extract (pituitrin), in solution in 1 c.c. injected subcutaneously. Even as little as 0.0002 gm. may prove effectual. The prompt action suggests that vasomotor paresis in the medulla oblongata may be the cause of the attack of asthma, as these substances overcome any such tendency at once. Their immediate efficacy further confirms the conception of the medulla as mainly responsible for the asthma.

Annaes Paulistas de Medicina e Cirurgia, S. Paulo

May, 1918, **9**, No. 5

- 98 *Diffusion of Antivariola Vaccine in Glycerin. T. Bayma and A. Medeiros.—p. 97.
99 Typhoid at S. Paulo. B. R. Pestana.—p. 101.
100 Various Therapeutic Experiences. C. Ferreira.—p. 116.

98. **Diffusion of Filtrable Viruses Through Glycerin Vehicle.**—April 13, 1918, p. 1123. THE JOURNAL summarized Remlinger's statements in regard to the diffusion of rabies virus through the fluid in which tissues from rabid animals had been submerged. Bayma and Medeiros have had similar experiences with the glycerin in which cowpox material had been soaked, and they remark that the same probably will occur with any of the thirty ultramicroscopic viruses known at present. Photographs of children and of calves vaccinated with the glycerin thus left in contact with the cowpox pulp show typically fine vaccination pustules, sometimes even when the glycerin had been thus treated only for three days. The pustules in the children developed silently, without any local

or general reaction; at most there was only a red border to the pustule. The cowpox virus seems to be more readily diffusible than rabies virus. None of the experiments gave negative results in any of the twenty of the five different series, while Remlinger had sixteen failures in his ninety animals with rabies virus and eleven died of septicemia. The same positive result was obtained in Bayma's eight children, there being scarcely any failures when there had been six days of contact. Parallel vaccinations with the usual whole vaccine showed constantly a more pronounced local reaction than with the glycerin alone, but in all the experiences, in the human and in animals, the typical pustule effect was unmistakable.

Brazil-Medico, Rio de Janeiro

July 27, 1918, **32**, No. 30

- 101 Gregarina Parasites of Arthropods. C. F. Pinto.—p. 233.
Aug. 3, 1918, **32**, No. 31
102 Flagellate Parasites. O. O. R. da Fonseca.—p. 241.
103 *Arsenical Treatment of Syphilis by the Rectum. S. Araujo, Jr.—p. 241. Commenced in No. 30, p. 234.
104 Some Clinical Notes. R. da Silva.—p. 243.

103. **Arsenical Treatment of Children by Way of the Rectum.**—Araujo reviews the extensive literature that has accumulated on the administration of arsphenamin preparations by enteroclysis. His list includes Oulmann and Wollheim's article in THE JOURNAL, Sept. 13, 1913, p. 867. They declared that the intrarectal route should be given the preference for children, and Araujo agrees with them, except that he regards mercury as the ideal remedy for syphilis in children. But when mercury fails, or exceptionally prompt action is necessary, or for other reasons arsphenamin is to be preferred, the enteroclysis method offers superior advantages for children. He reports four cases in detail, out of a much larger experience, emphasizing that he never witnessed any phenomena indicating a reaction, while the syphilitic lesions rapidly healed, even those in which spirochetes abounded. The results were invariably good, and the technic is the simplest possible. He used a 20 c.c. syringe and small Nélaton catheter. The bowels were emptied first, when possible, and the child constipated with paregoric, or 1 or 2 drops of laudanum were added to each injection. One female infant of 2 months was given a rectal injection of 0.03 gm. of Billon's 914 in 10 c.c. of distilled water, with 1 drop of laudanum. The injection was retained ten hours. Six days later another injection was given, which was retained only half an hour; two days later the injection was repeated with a dose of 0.08, retained for twelve hours. Five more injections were given, the last three with 0.10. Notwithstanding these large doses, there was never any appreciable reaction, and by the fourth, marked improvement was apparent, the papulous syphilids and patches in mouth and around the anus and vagina having completely retrogressed. The children were given usually about six intrarectal injections in doses of from 0.05 to 0.10 gm. at five or eight day intervals. The injection was generally retained from six to eight hours.

Gaceta Medica de Caracas

Sept. 30, 1918, **25**, No. 18

- 105 *Symposium on Ambard's Constant. V. Ruiz, L. Razetti, A. Benchetrit and J. B. Ascanio.—p. 187.

105. **Ambard's Ureosecretory Constant.**—Razetti laments that to date we have no reliable index of whether the liver and kidneys are able or not to stand general anesthesia. This can be estimated to date only by the comparison of the clinical data. Biologic chemistry has not given us yet the reliable guide which the surgeons are clamoring for. Even Ambard's constant has not proved to be the longed for practical guide in this line, whatever its usefulness otherwise. Benchetrit related that he has dropped the Ambard formula as its practical value does not compensate for the complicated technic required, especially, he adds, as the training of medical students in mathematics is in inverse proportion to the square root of the necessities of modern medicine—to parody Ambard's law. But from the purely scientific standpoint, he lauds the discovery of Ambard's laws as a gigantic progress, lifting medicine from empiricism toward the high station of an exact science.

Repertorio de Medicina y Cirugia, Bogotá

September, 1918, 9, No. 12

- 106 *Stab Wound of Spinal Cord. E. Montaña and M. Rueda.—p. 623.
107 *Paraurethral Passages. R. Zapata.—p. 644.

106. **Stab Wound of Spinal Cord.**—Montaña and Rueda comment on a case of compression of the spinal cord by a fractured vertebra with partial section of the cord. The operation was restricted to lifting up the compressing lamina with probe and fingers, and clearing out sequesters and clots from below, leaving a rubber drain tube. Relief was immediate and recovery followed, but certain sequelae suggest that it would have been better to perform laminectomy at the time. They remark, however, that this is perhaps the first case of recovery after such a serious injury of the spinal cord, notwithstanding the timid and simply exploratory operation. The symptoms indicated that the right posterior roots and cords had been severed, along with the direct and crossed pyramidal tracts of the same side.

107. **Para-Urethral Passages.**—Zapata refers to the diverticuli or the passages from infected glands which are found opening into the urethra in gonorrheal urethritis. They must be treated by catheterizing the minute passage, massaging the gland over a straight Beniqué, following with injection of some modifying substance such as silver nitrate or iodine. If these measures fail, the passage must be cut open its entire length.

Revista Clinica, Medellín, Colombia

September, 1918, 3, No. 10

- 108 *The Pains with Abdominal Disease. G. J. Gil.—p. 450.
109 Gummatous Meningitis. G. T. Villa.—p. 466.
110 Cerebral Syphilis. S. Serna G.—p. 473.
111 Appendicitis with Ascarides. F. Osorio V.—p. 479.
112 *Medical Ethics. N. A. Rojas.—p. 491.

108. **Abdominal Pain in Diagnosis.**—In the case described the young woman for about eight months had been having digestive disturbance, constantly growing more pronounced and finally accompanied by intense pain in the epigastrium, not radiating, and not constant, sometimes soothed and at other times aggravated by eating, occurring at times before and at other times after eating. Occasional vomiting but no blood in vomit or stools. The epigastrium and appendix region were extremely tender. A gastric ulcer had been assumed, but the operation revealed that the appendix was drawn up by a kink in the mesentery, thus pulling on the region above, and inducing spasm of the pylorus. All disturbances ceased at once after appendectomy. Gil compares with this case of appendicular dyspepsia the other abdominal affections liable to induce pain, emphasizing the various differential features of the pains. The appendix disturbances in his case were chronic from the start, as also the variation in the pain from day to day and from meal to meal. He advises to keep the patient under observation for a week and watch the type of the pains. He warns that with visceroptosis removal of the appendix will not banish all the symptoms. Chronic constipation with acute attacks of colic is also liable to prove misleading.

112. **Medical Ethics.**—Rojas discusses medical deontology in general terms, citing Faguet, Brouardel and others. He emphasizes in particular that as the principles of ethics should guide the physician's dealings with his colleagues and his clients, they should also guide his pen in his published works of a scientific nature.

Revista de la Universidad de Buenos Aires

August-September, 1918, 38, 39, No. 137

- 113 *Ruptures of the Uterus. J. B. González.—p. 347. Conc'n.
114 The First Curriculum, 1822. R. Levene.—p. 511; A. Saenz.—p. 520.
115 Research on the Double Decomposition of Silver Nitrate and Ammonium Bicarbonate. O. F. F. Nicola.—p. 539.
116 Influence of the Soil on Evolution of Cancers. A. H. Roffo.—p. 567.

113. **Rupture of the Uterus.**—This 152 page instalment of González' monograph brings the total to 209 pages, with sixty-three illustrations. He reviews the history of the sub-

ject from Hippocrates to date of writing, the causes, remote and direct, and tabulates the indications for treatment, with the outcome in twenty-six cases. In only one of his spontaneous rupture cases was the uterus in such a state of degeneration that the rupture was inevitable. In all the others it could probably have been avoided with extra care. He declares that podalic version is dangerous even when done by an expert. The condition of the resistance of the uterine wall should be ascertained before attempting it, investigating the obstetric and gynecologic history, and examining the uterus, especially the cervix, with palpation and the speculum. The measures required to combat the hemorrhage are liable to aggravate the state of shock and invite peritonitis, the main complications. Iodoform gauze drainage alone proved successful in the four cases in which it was applied, but this is possible only when the primary hemorrhage is slight, and there is always danger of its starting up again. Tamponing with iodoform gauze by the genital route is difficult, insecure and dangerous, as he shows by some necropsies. It is liable to kink and interfere with the nutrition of various tissues. In two of his cases abscesses formed in the vicinity. At the same time, it gave him 71 per cent. of recoveries and one continuous series of nine successful cases. In those with unfavorable outcome, the aggravation of the prognosis was due to the further injury from hastening the extraction of the fetus. Only in exceptional cases is it necessary to apply the tampon through a laparotomy incision. In his total cases, 52.35 per cent. of the women recovered.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

Sept. 21, 1918, 2, No. 12

- 117 Professor C. Winkler. C. A. Pekelharing.—p. 917.
118 *Medical Significs. G. van Rijnberk.—p. 941.
119 *The Behavior of the Kidneys in Respect to Glucose. H. J. Hamburger.—p. 943.
120 Rapid Cure of Scabies. W. J. Bais.—p. 953.
121 Subphrenic Abscess After Pseudo-Appendicitis. H. A. Lubbers.—p. 955.

118. **Medical Significs.**—"Significs" and "semantics" are recently coined terms to express workmanship in words, word-craft, and the deeper meaning of words. Van Rijnberk here commences a series of comments on medical word-craft.

119. **Behavior of Kidneys in Respect to Sugar.**—Hamburger recalls that sugar is always found in the blood but that it does not occur in normal urine. His research has apparently demonstrated that this difference is due to the fact that the membrane of the glomeruli possesses the property of holding back free glucose. This property of the membrane is influenced by the chemical composition of the fluid circulating through the glomeruli. In experiments on the frog, if the fluid passed through the glomeruli contained certain proportions of calcium, sodium and potassium, then the artificial "urine" after addition of 0.1 per cent. glucose contained 0.07 per cent. glucose, showing that 0.03 per cent. had been retained. Increasing the proportion of NaHCO_3 to 0.285 per cent., that is, to the proportion which normally occurs in the frog serum, then the glomeruli membrane holds back still more of the sugar, and the artificial "urine" is entirely free from sugar although the fluid passed through it contains 0.1 per cent. of glucose. The absence of sugar from normal urine is thus shown to be a phenomenon of permeability, and there is no reason for assuming any hypothetical binding of sugar with some colloidal substance—the *sucre virtuel* of Lépine. We have thus here a new form of physiologic permeability, in which the cells, under physiologic conditions, although readily permeable for salts, yet refuse to permit the passage of the equally crystalloid glucose. These researches throw light on the action of the usual therapeutic measures in diabetes and on phlorrhizin diabetes. Owing to the anatomy of the frog kidney, it was impossible to determine the share of the tubuli in this retention of sugar.

Hygiea, Stockholm

Oct. 16, 1918, 80, No. 19

- 122 The Development of the Treatment of Syphilis During the Centuries. J. Almkvist.—p. 1105.

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PROPHYLACTIC INOCULATION AGAINST PNEUMONIA

A BRIEF HISTORY AND THE PRESENT STATUS
OF THE PROCEDURE *

E. A. FENNEL, M.D.
Lieutenant, M. C., U. S. Army
WASHINGTON, D. C.

We have just passed through—or rather, are passing through—a pandemic of disease, the gross and microscopic pathologic anatomy of which seems to be fairly constant in the hands of many observers and investigators, but concerning the etiology of which we continue to remain in much doubt. This pandemic had high incidence and mortality rates. In the great majority of cases, death was directly due to a bronchopneumonia. In those cases in which a bronchopneumonia developed, the death rate was so high as to be the cause of a panic, which made itself evident in the use of a wide variety of unjustified therapeutic and prophylactic measures.

It is too early as yet to draw any definite conclusions as to the bacterial etiology of the disease. Apparently well founded opinions have been advanced by experienced investigators setting forth diametrically opposed views. Since all the evidence is not yet, by any means, collected, conclusions would be premature and probably fallacious. Whether the cause has been the Pfeiffer bacillus, which has taken on extreme virulence, or whether a filtrable virus, or a streptococcus, *S. viridans* or *S. hemolyticus*, or a heretofore unidentified gram-positive coccus, it is too early to say. Whether the pneumococci of fixed or heterogeneous type are the true etiologic factors in this pandemic, which has cost the world so much in suffering, death and economic values, is not to be determined at this time.

It seems, however, to be agreed by competent observers that the disease itself was one of but transient duration, of from three to five days, in uncomplicated cases; bronchopneumonia was the most frequent of the complications or sequelae; and when this condition superimposed itself, pneumococci were found with regularity in the nose, mouth, pharynx and sputum of these patients. Since the mortality in the cases of bronchopneumonias was very high (during the height of the pandemic, 50 per cent. would have been a conservative estimate), ample opportunity for necropsy presented itself. Direct smears from lung tissue, and cultures from lung, bronchi, heart's blood, pleural, pericardial and peritoneal fluid,

and from the spinal canal demonstrated the same regularity of the presence of pneumococci of the fixed and heterogeneous types. The presence or absence of other organisms does not bear on the subject in hand, though it might be said in passing that in a high proportion of cases, when careful technic was used, the pneumococci were found in pure culture. This fact has again stimulated research work on the pneumococcus, and has caused investigators and practitioners throughout the world to inquire, "Just what is the present status of prophylactic inoculation against pneumococcal infections?"

A bird's eye view of this subject presents, first, the great preponderance of the work on therapeutic measures in contradistinction to prophylactic measures, and, secondly, the apparent apathy of the profession as a whole concerning the prophylaxis of a disease that is of such vital and economic importance.

Theoretically, any disease of microbic origin, in which spontaneous recovery is at all possible, should yield to specific prophylactic measures. That recovery from pneumonia is spontaneously possible has long been known. During the years from 1881 to 1885, Pasteur¹ and Sternberg² produced a fatal septicemia in rabbits, and Frankel³ and Weichselbaum⁴ established the causal relationship of *Diplococcus pneumoniae* in lobar pneumonia. This was a great step in advance; but, though a large amount of work was done in the interim, some of which was highly confusing, it was not until Neufeld,⁵ in 1900, determined the diagnostic value of the fact that pneumococci are soluble in bile, that the next step was taken. This knowledge enabled investigators to fix their attention on pneumococci, and rule out those bacterial forms so similar in morphology and cultural characteristics.

It had been noticed, however, that strains of pneumococci from different sources have different properties.

In 1909, Neufeld and Händel⁶ definitely established the fact that some strains of disease-producing pneumococci had truly measurable antigenic properties. By injecting into animals a vaccine of a particular strain of pneumococci they were able to awake in that animal an immunity response. They also devised the method for measuring that immunity by conferring a passive immunity on a white mouse by injecting it with serum from the vaccinated animal, and then subjecting that mouse to an otherwise fatal dose of living pneumococci of the same strain. This fact, concern-

1. Pasteur, L.: Bull. de l'Acad. de méd., 1881, Series 2, p. 94; Compt. rend. Acad. de sc., 1881, **92**, 159.

2. Sternberg, G. M.: Bull. Nat. Board of Health, 1880-1881, **2**, 781.

3. Frankel, H. Z.: Klin. Med., 1886, **10**, 426.

4. Weichselbaum, A.: Med. Jahrb., 1886, n. f., **1**, 483.

5. Neufeld, F.: Ztschr. f. Hyg., 1900, **24**, 454.

6. Neufeld and Händel: Ztschr. f. Immunitätsforsch., Orig., 1909, **3**, 159.

* From the Department of Pathology, Army Medical School.

ing that particular Neufeld strain of pneumococci (which later became the Group 1 of Dochez and Gillespie, or Group C of Lister), is the basis on which prophylactic inoculation against lobar pneumonia is built.

We were then on a footing where rapid strides could be made. A therapeutic serum was the direct outcome of the foregoing discovery, but interests us, in prophylaxis, only in passing. The predominant fact stood out that a certain strain of disease-producing pneumococci could stimulate, in an animal, a specific immunity response to that one particular strain. The word "group" should replace the word "strain," for it was found that the "Neufeld strain" was not limited to a race of pneumococci, but was found as Type I in widely separated cases.

GROUPS OF PNEUMOCOCCI

The logical outcome of this work was an investigation of the groups into which pneumococci might be divided, on a basis of their ability to stimulate *specific* antibody production.

In 1913, Dochez and Gillespie⁷ in America, and coincidentally, though independently, Lister⁸ in South Africa (where lobar pneumonia has been a problem of paramount importance), published their classification of the groups of pneumococci. Dochez and Gillespie used the protection tests of Neufeld, and specific agglutinations to evaluate their results; Lister used phagocytosis and specific agglutinations to arrive at his conclusions.

Dochez and Gillespie divided all pneumococci into four groups:

Group I (the Neufeld strain), distinct in its antibody stimulation.

Group II, culturally indistinguishable from Group I, but specifically distinct in its antibody stimulation.

Group III (*Pneumococcus mucosus*), identified by its morphology and its peculiar cultural characteristics. (Later its specific antibody stimulation was more definitely brought out.)

Group IV, all strains that would not fit into the preceding groups, irrespective of the fact that they stimulated an antibody specific for the strain, or stimulated no antibody. Into Group IV fit many of the saprophytic strains found in human mouths.

Lister was able to carry his classification somewhat farther than Dochez and Gillespie because of the greater multiplicity of groups prevalent in South Africa, and because of his added work in the heterogeneous group.

While the original classification of Dochez and Gillespie still stands, and is now quite familiar to the profession in America, Lister's classification has undergone additions until now he groups them as A, B, C, D, E, F, G, H, J, K, X and unclassified. Group A, numerically most important in South Africa, is unknown in America. Groups B, C and E are identical with Dochez and Gillespie's Groups II, I and III, respectively.

In general, Lister classified the pneumococci into a number of groups, ten in number, into which most pneumococci may be classified according to their group antigenic qualities, another group into which

strains stimulating antibodies only against the specific strain, and an unclassifiable group into which are placed those few strains (3.3 per cent.) that give rise to no antibody production when injected into animals.

The relative importance, as measured by incidence and mortality of the pneumonias caused by these several types, varies from time to time and with localities. This fact does not seem to have been accorded the recognition it might better have received. While Groups A, B and C are of prime importance on the Rand, Group H, in a localized epidemic, suddenly sprang into prominence, and had to be specifically considered in prophylactic measures. The numerical preponderance of certain types of pneumococci in certain localities, during the pandemic, has called attention to this fact. The recent report of Friedlander and co-workers⁹ at Camp Sherman called attention to this phase of the subject. They reported an incidence of about 80 per cent. of Type IV in their pneumonias. An analysis of these IV's and a consideration of them in the construction of a vaccine for use in that particular locality would have been logical. That such an analysis is feasible is indicated by the work of Olmstead,¹⁰ and should be carried farther.

Particular attention is directed to Lister's classification, for two reasons; first, because it emphasizes the need of further investigation and classification within our American Group IV, and, second, because it demonstrates the multiplicity of factors to be considered in specific prophylaxis against lobar pneumonia.

WORK OF WRIGHT AND OF LISTER

It is unfortunate that so great an authority as Sir A. E. Wright, and his co-workers, should have undertaken an extended experiment in the inoculation of a large number of mine workers, in South Africa, at a time that was so unripe.

Between the time that Neufeld established the antigenic value of pneumococci, and the time that Dochez and Gillespie, and Lister established the varieties and specificity of the groups of pneumococci (namely, in 1911 and 1912), Wright and his co-workers¹¹ vaccinated a large number of native South Africans.

In the preparation of their saline vaccine they necessarily did not take into consideration the predominant types against which this measure was aimed. Further, in those cases of pneumonia that developed after vaccination, no cognizance could be taken of the groups to which the etiologic organisms belonged. Their results were evaluated by estimation of opsonic indexes—a method that has fallen into much popular disfavor, and by statistics, employing groups of "controls" for comparison, a method that brought about much argument concerning the method of selection.

In a historical study of pneumococcal vaccination, Wright's work must, of course, be considered; in a critical study of the subject it would be better to consider his work only in passing, lest the inopportune time at which it was undertaken and the paucity of our knowledge at that time befog any conclusions that might be drawn.

Lister's work, however, was built on an entirely different foundation. He was well armed with the

7. Dochez, A. R., and Gillespie, L. J.: A Biologic Classification of Pneumococci by Means of Immunity Reactions, *THE JOURNAL A. M. A.*, Sept. 6, 1913, p. 727.

8. Lister, F. S.: Pub. 2, South African Inst. for Med. Research, 1913.

9. Friedlander, Alfred; McCord, C. P.; Sladen, F. J., and Wheeler, G. W.: The Epidemic of Influenza at Camp Sherman, Ohio, *THE JOURNAL A. M. A.*, Nov. 16, 1918, p. 1652.

10. Olmstead, M.: *Jour. Immunol.*, 1917, 2, 425.

11. Wright, A. E., et al.: *Lancet*, London, 1914, 1, 1, 87.

knowledge of the types that predominated in his field of endeavor, and could take the selection of those strains into consideration in constructing his vaccine. The many technical difficulties of producing large numbers of pneumococci in a concentrated form were somewhat reduced by his apt adaptation of a cream separator for centrifugalizing broth cultures. Above all, his knowledge of the types of pneumococci permitted him to evaluate correctly the significance of those cases of pneumonia that did follow his inoculations.

Forearmed in such a fashion, he was enabled to construct a vaccine, limited to those types most potent in the production of lobar pneumonia on the Rand, namely, Groups A, B and C. He determined by extended animal experimentation that these vaccines intravenously, and subsequently subcutaneously, gave rise to demonstrable antibodies. A limited number of intravenous inoculations in human beings was next tried, but the apparent impracticability of such a method caused it to be discarded, though antibody production was good. A limited number of subcutaneous vaccinations in man then assured him that this method was not only productive of results, but quite applicable to large groups of native laborers. Pneumococcus vaccines are noticeably less toxic than many others we are more familiar with, and, coupled with the fact that the South African native is slightly disturbed by bodily discomfort, Lister was able to inoculate a large number of these natives subcutaneously, each with three doses of a saline vaccine, of high bacterial content, at seven day intervals, without undue disturbance.

He was able to keep a large proportion of these subjects under observation for a period of nine months or longer, and his results are startling. It would be presumptuous to try to sum up such a monumental work in a few words. To those interested in this subject Lister's most recent publication¹² is earnestly commended.

His Crown Mine experiment is of particular interest. During a nine months' period, approximately 11,000 natives were inoculated with a vaccine that included Groups A, B and C. During that time, in these 11,000 vaccinated natives, eighty-two cases of lobar pneumonia resulted, but not a single case was caused by a pneumococcus of either Group A, B or C. Had the prevalence of Groups A, B and C remained constant with the other types, lobar pneumonia cases due to Groups A, B and C to the number of 120 would have developed.

There seems to be no doubt, then, judging from Lister's work, that, if the prevalent types of pneumococci be considered in the elaboration of a vaccine, sufficiently rich to be effective, that vaccine should be almost 100 per cent. efficient for the specific types. (Lister rather inclines to large doses and considers a total of 6,000 million cocci of each group against which protection is sought as the minimum.) Three inoculations at intervals of seven days are necessary, and the local and systemic reactions following the vaccinations are far outweighed by the beneficial results.

As a matter of fact, these published results are so good that one is apt to recall the proverb, "Timeo Danaos et dona ferentes."

WORK OF CECIL AND AUSTIN

Their true worth is practically vouched for, and the results amply confirmed by the recent work of Cecil and Austin.¹³ They prepared a saline pneumococcal vaccine of Types I, II and III, much after the fashion of Lister. This vaccine, under the direction of Colonel Russell, was used at Camp Upton, to vaccinate 12,519 men. Animal experiments and limited ones in human beings had served to demonstrate that this vaccine had antigenic effect, measurable by agglutinins, and the protection the serum of vaccinated individuals conferred on mice. The vaccination of troops began Feb. 4, 1918, and these troops passed from observation about April 15, 1918, making the period of study about ten weeks. The three inoculations were given at seven day intervals, except in those cases that showed a marked reaction after the first or second dose, in which cases it was discontinued. For the sake of simplicity, their results might be tabulated as in Table 1. Any more critical analysis of these figures or cases serves only to accentuate the apparent efficacy of the vaccine.

It will be noticed that a Type I, II and III vaccine seemed to prevent practically all cases of pneumonia

TABLE 1.—INCIDENCE OF PNEUMONIA AMONG VACCINATED AND UNVACCINATED TROOPS: RESULTS OF CECIL AND AUSTIN *

Pneumonia Cases of Types	Vaccinated, 40%	Unvaccinated, 60%
Type I.....	1†	10
Type II.....	0	9
Type III.....	0	7
Type IV.....	9‡	33
<i>Streptococcus hemolyticus</i>	6	72
<i>Streptococcus viridans</i>	1	34
Undetermined.....	0	7
Total.....	17	172

* Average strength of command, 3,200.

† Developed twenty-four hours after first injection.

‡ In three cases only one injection was given.

due to those types, and caused an apparent protection, not only against Type IV, which might have been suggestive of cross protection, but also against *Streptococcus hemolyticus* and *S. viridans*. The authors offer no explanation of this fact. It is possible that so much foreign protein injected into the human being has caused him to mobilize his ferments and leukocytes, as demonstrated by Jobling and Petersen,¹⁴ to the increase of a natural resistance. It is further possible that this change in ferment-antiferment balance has conferred on the individual, besides the specific immunity, an additional resistance against a large number of other bacterial invaders.

There is little room, therefore, to doubt that saline pneumococcal vaccination is highly efficient for the specific types contained in the vaccine. Within that limitation, it bids fair to rival typhoid vaccination, about which there has for some time been no doubt.

SALINE VACCINE AND LIPOVACCINE

The saline pneumococcus vaccine has the advantage of being an efficient prophylactic. It has, however, certain distinct disadvantages. Production of such a vaccine on a large scale has always been a difficult, trying and somewhat expensive procedure. The time limit on such a vaccine, owing to compara-

13. Cecil and Austin: Jour. Exper. Med., 1918, 28, 19.

14. Jobling, J. W., and Petersen, William: The Nonspecific Factors in the Treatment of Disease, THE JOURNAL A. M. A., June 3, 1916, p. 1753.

12. Lister, F. S.: Publications VIII and X, South African Inst. for Medical Research, 1916 and 1917.

tively rapid autolysis, must be short, and this would serve to increase its price, an important consideration when widespread measures are contemplated. It must be given, so that a sufficiently large dose to be effective is administered, in at least three, preferably more doses, at seven day intervals. The difficulties that this offers to the general use of a prophylactic measure are most obvious to one who has worked in the public health field, though the rural practitioner, advocating the saline typhoid vaccine, has had ample opportunity to feel this disadvantage.

While pneumococcal vaccines in general are not so toxic as typhoid vaccines, the fact that quite frequently a saline injection is followed by a sharp reaction militates strongly against its general use.

Almost all of the foregoing disadvantages are overcome by the use of a pneumococcus lipovaccine. A lipovaccine is one in which the bacteria are suspended, not in saline solution, but in an oil or lipid vehicle. By this means autolysis is greatly prevented, absorption is slow, and massive doses can be given at one injection, thereby reducing the number of inoculations to one. Not only does the oil retard absorption, but there is good cause to believe that the lipid substances serve directly to reduce the toxicity. Such a vaccine was first elaborated by Le Moignic and Pinoy¹⁵ for triple typhoid vaccine, and has been adapted by the Army Medical School¹⁶ to a wide variety of vaccines.

As early as December, 1917, a pneumococcus lipovaccine had been elaborated at the Army Medical School.¹⁷ Colonel "W" received the first dose, and, along with Capt. "C," the other subject, responded by the production of agglutinins. The reactions to the vaccine were so mild that Colonel "W" repeated the vaccination on the two succeeding days, the third dose being followed by a slight chill. In each of these doses he received the total of three saline doses.

The work on the pneumococcus lipovaccine was somewhat delayed, owing to the fact that a triple lipovaccine had to be perfected, one that subsequently came into use in the Army to the exclusion of the saline vaccine.

Animal experiments with the pneumococcus lipovaccine of Types I and II seemed to show some protection as a result. A direct systematic comparison was then made between two types of saline vaccines, one of the latter being the one in use, at that time, at Camp Upton, which was to show, at a later date, such excellent results.

In these tests, one of the lipovaccines, which could be given in one dose and which caused only a slight reaction, was found to be so far superior to the other three types that it was made on a slightly larger scale and altered by the addition of Type III and used, to the extent of about 25,000 doses, in the military camps. This was a vaccine of high bacterial content, but the reactions following were very mild. The reports, following its use, and the coincidental pandemic, with the attendant pneumonias, confirmed the wisdom of adopting this vaccine as a general but voluntary measure in the Army, a step that had been taken some time previously.

It is to be emphasized that this was not a vaccine, developed over night, as a prophylactic against influenza; it was a vaccine aimed at pneumococcal infections, developed systematically at a time considerably antedating the present pandemic.

This lipovaccine seems to overcome all the difficulties associated with a saline vaccine except the expense and ease of production. It is somewhat more laborious to produce such a vaccine, and the use of oil and the mechanical equipment necessary make it more expensive.

UNITED STATES ARMY VACCINE

The particular type of vaccine in use in the U. S. Army is made as follows:

The three types of pneumococci are grown separately in a beef infusion broth, incubated not more than eighteen hours, and the organisms recovered by the use of a continuous feed type of centrifuge, a perfection of the type used by Lister. On this centrifuge, spinning at a rate of 40,000 revolutions a minute, depends the effective removal of the pneumococci. The organisms are thus secured in the form of a heavy mass of about the consistency of library paste. This mass, under glass hoods and under aseptic conditions, is then smeared in thin layers over the bottoms of Petri dishes, which are next covered with an earthenware top. In these Petri dishes the bacterial material is then brought to complete desiccation in a 53 C. incubator, liberally supplied with unslaked lime. The average water loss is about 80 per cent. This drying process is a matter of only a few hours, and little morphologic change in the organisms takes place, since they may again readily be suspended in saline and present themselves as gram-positive cocci of sharp, clear staining characteristics.

This material, now dry, readily flakes off from the glass, and is pooled, again under the hood, into one container. It is then measured out by weight to establish the dosage. The decided advantage of the use of weighed quantities of dry bacterial material to determine the dosage is, after a moment's thought, quite apparent. Many of the fallacies attending dose determinations in saline vaccines are obviated by the use of weights. It has been found that a unit of dry bacterial mass represents a fluctuating number of bacteria, depending on the virulence of the organisms, cultural environment and time of incubation.

The Army vaccine contains dry material equal, in round numbers, to 10,000 million of each type. Those figures are, of course, only relative, and it must be insisted on that dosage by weight is constant, while dosage by count is notoriously fluctuating and inaccurate.

After the dry material has been carefully weighed under sterile conditions, and calculated so that each cubic centimeter of the finished vaccine will contain 0.83 mg. of each type, the bacterial flakes are placed in a sterile grinding jar, along with sterile steel ball bearings, the jar is placed on a mill, and during the course of twenty-four hours the bacterial mass is ground to a fine, amorphous powder. At the end of that time a mixture of anhydrous lanolin and cottonseed oil, in a proportion of 1:2, is added, so that the completed vaccine shall contain 2 per cent. of lanolin. The mass is then thoroughly emulsified by grinding twelve hours, at the end of which time cottonseed oil is added to make the final dilution, along with 0.5 per cent. chlorbutanol as a preservative. The grinding is then continued twelve hours. The oil and the lanolin-oil mixture has been sterilized by autoclaving at 15 pounds for thirty minutes.

This completed vaccine is then subjected to rigorous cultural tests, and is finally injected into animals, to insure sterility. It is then ampuled and distributed for use. Its administration is a simple matter if a needle of 23 gage or any larger bore is used. While sedimentation does occur, cottonseed oil is only so slightly viscid that an even suspension is easily attained by slight shaking.

Several commercial firms are now actively producing, or preparing to produce, a vaccine modeled on the foregoing plan. Supervisional tests, by the gov-

15. Le Moignic and Pinoy: *Compt. rend. Soc. de biol.*, 1916, **79**, 201, 352.

16. Whitmore, E. R.; Fennel, E. A., and Petersen, W. F.: *An Experimental Investigation of Lipovaccines*, *THE JOURNAL A. M. A.*, Feb. 16, 1918, p. 427.

17. Whitmore, Fennel and Petersen: *Abstracts of Bacteriol.*, 1918, **2**, 16.

ernment, of sterility will be a relatively simple matter; tests to evaluate the antigenic efficiency of the vaccine will be attended by greater difficulties. These, however, no doubt will be met.

It might be interesting to mention that the Army Medical School has manufactured and sent out for use during October and November, 1918, more than two million doses of this vaccine. The magnitude of this undertaking is better understood when one recalls that Lister, the master himself, said that the manufacture of 40,000 doses for the British government on short notice was out of the question.

RESULTS OF VACCINATION

Much had been hoped for when the tabulated results of this widespread vaccination would have been available. The abrupt cessation of the war, and the rapid demobilization that must follow, will withdraw from observation this large number of vaccinated men. Much valuable information, however, should come to light in the due course of time. Laboratory methods that have stood the test of time were used to test the value of the vaccine, and the results have been found particularly gratifying.

Such a vaccine as is issued by the Army has been injected into human beings, and tests have been made. Ten weeks after injection, 0.2 c.c. of the serum of these subjects almost regularly protects a mouse against 1,000 times a dose of living pneumococci that would otherwise be fatal.

Preliminary clinical reports seem to be highly satisfactory. Some of the unexpected results, such as made their appearance at Camp Upton, seem to be following the use of the lipovaccine. While a specific immunity against the three types of pneumococci in the vaccine was all that was hoped for, a certain freedom from respiratory diseases in general seems to have followed its use. Absence of bronchial symptoms in influenza, after vaccination, was noticeable. While the information at hand is fragmentary, and not to be seriously considered, it may be a straw to show the direction of the wind. For example, fourteen women war workers living in one house were exposed to about the same conditions. Twelve were vaccinated at the beginning of the pandemic in Washington, and remained well and on duty throughout that pandemic. The two unvaccinated ones both contracted influenza. Of a number of men on duty in a Washington fire department, two refused the vaccine; these two alone of that company contracted influenza. Such apparent nonspecific protection seems somewhat visionary until one recalls the fact that even normal brain substance increases resistance against rabies, a disease of specific origin. Vaughan¹⁸ noted this resistance following the injection of his protein split products, Zinsser and Dwyer¹⁹ have discussed it, Joblin and Petersen²⁰ observed it after serotoxin injections, and Teague and McWilliams²¹ noted it after typhoid vaccine shock.

The studies of Jobling and Petersen²⁰ and of Scully,²² Culver²³ and Petersen²⁴ endeavor to explain the modus operandi of this increased resistance.

Studies have been made at the Army Medical School to note the relationship between triple vaccination and streptococcus infection. Medlar²⁵ shows that triple typhoid vaccination does not predispose to streptococcus infection and might seem to increase the resistance. Smith's²⁶ study of cytologic changes after the same vaccination might explain some of the nonspecific protection noted.

It is true that to demonstrate increased protection after the injection of foreign proteins it is customary to use large doses intravenously; it is possible that such small doses as 25 mg. (the total content of the Army vaccine) might serve to establish a relative immunity.

In connection with the nonspecific value of a vaccine, and in relation to the particular vaccine issued by the Army, Table 2 might be of interest. Mice, vaccinated with a saline and a lipopneumococcus vaccine, along with control mice, were subsequently

TABLE 2.—RESULTS IN A SERIES OF MICE INOCULATED WITH PNEUMOCOCCUS VACCINE, TESTED TO DETERMINE THEIR RESISTANCE TO HEMOLYTIC STREPTOCOCCUS TWO MONTHS AFTER VACCINATION; SEPT. 15, 1918

Series No.	Date of Vaccine Inoculation	Vaccine	Amount, C.c.	24 Hour Broth culture *	No. of Inoculations	D.	A.	D.	A.	D.	A.	Per Cent. Dead	Per Cent. Alive
1	7/16/18	Saline	1/8	1/25	5	3	2	4	1	5	0	100	0
13 mice	7/24/18	pneumo.	1/4	1/50	4	1	3	3	1	3	1	75	25
	8/ 1/18		1/4	1/100	4	0	4	1	3	1	3	25	75
2	7/16/18	Lipo-pneumo., unheated	1/4	1/25	4	4	0	4	0	4	0	100	0
12 mice				1/50	4	2	2	3	1	3	1	75	25
				1/100	4	0	4	0	4	0	4	0	100
3	7/16/18	Lipo-pneumo., heated 53 C. (Army)	1/4	1/25	2	1	1	1	1	1	1	50	50
7 mice				1/50	3	1	2	2	1	2	1	66	33
				1/100	2	0	2	0	2	0	2	0	100
Control	.....	.....	—	—	—	—	—	—	—	—	—	—	—
4	—	—	—	1/50	6	2	4	3	3	3	3	50	50
26 mice	—	—	—	1/100	20	1	19	3	17	4	16	20	80

* Twenty-four hour culture, low virulence *Streptococcus hemolyticus*.

injected with low virulence *Streptococcus hemolyticus* cultures. It would seem that the lipovaccines render the mouse more susceptible to large doses of streptococci, but render it more resistant to smaller doses. Since the latter case more closely simulates the natural mode of infection, the experiment, limited though the series is, may help to explain some of the so-called "cross protection" results. The more gradual absorption of the lipovaccine might account for the difference between it and the saline vaccine.

"MUSHROOM" VACCINES VERSUS PNEUMOCOCCUS LIPOVACCINE

Consideration of the many "mushroom" vaccines that sprang up over night during the pandemic, and which, besides a multiplicity of other organisms, were made to contain a questionable number of pneumococci, is purposely omitted. That they may have served some purpose in a specific immunity is possible, but hardly probable. In these justly called "shotgun vaccines" the content of the individual groups must necessarily have been so small as to be

18. Vaughan, V. C.: Protein Split Products, Philadelphia, Lea and Febiger, 1913.

19. Zinsser, H., and Dwyer, J. A.: Jour. Exper. Med., 1914, **20**, 387.

20. Jobling and Petersen: Jour. Exper. Med., 1914, **19**, 480.

21. Teague and McWilliams: Jour. Immunol., 1917, **2**, 167.

22. Scully, F. J.: The Reaction After Intravenous Injections of Foreign Protein, THE JOURNAL A. M. A., July 7, 1917, p. 20.

23. Culver, H.: Jour. Lab. and Clin. Med., 1917, **3**, 11.

24. Petersen, W. H.: Serum Changes Following Protein "Shock" Therapy. Arch. Int. Med., November, 1917, p. 716.

25. Medlar, E. M.: Personal communication to the author.

26. Smith, J. W., Jr.: Personal communication to the author.

unable to lift the patient over the threshold of appreciable immunity.

That the vaccines may have had some nonspecific value, comparable with that of the vaccine used at Camp Upton, cannot be denied. However, the burden of the proof rests with the originators of these vaccines, and their value should be weighed on the merits of the vaccines alone. Such a judicial decision is, at this time, of prime importance. We have not passed through the pandemic of influenza with its sequelae; we are passing through it. If the history of the last great pandemic²⁷ is to be of any value, it should teach us to be on the alert for the recrudescences that must occur throughout this year, as well as in the following three or four years.

It is a better policy to use one instrument, if one is thoroughly familiar with it, limited though its uses may be, than to use a wide variety of unfamiliar, complicated ones.

We feel that pneumococcus lipovaccine is such an instrument. We feel that we have definite assurance that it will prevent infection by Types I, II and III. Epidemiologic studies of localized epidemics, that would justify the addition of purely local types to the vaccine, are to be encouraged. The lipovaccine is such that much additional pneumococcus material may be added, without increasing its toxicity.

The advantages of such a vaccine—its lack of toxicity, its simplicity of administration, and the high degree of immunity conferred—should, during the remainder of this winter, and during the next several years, when we shall most probably be called on to combat recrudescences of the pandemic, with its attendant pneumonia, be a useful weapon. Not only should it have its place in the Army, but also it should be seriously considered by those physicians in charge of industrial ventures, such as mines, steel mills, ship yards and the like. Such a vaccine must come from a source that is unquestionable and one that is capable of massive production. Such a demand from civilian sources might be satisfied by the Army, if the necessary arrangements could be made, until the supply would be forthcoming from normal channels.

CONCLUSIONS

1. Prophylactic pneumococcus vaccination is successful over an extended period of time for those groups represented in the vaccine.

2. A pneumococcus lipovaccine, of slight toxicity, to be given at one injection, has been elaborated, and has had widespread use. Early reports indicate its usefulness.

²⁷ Epidemic Influenza, Therapeutics, THE JOURNAL A. M. A., Oct. 5, 1918, p. 1136.

Maternal Nursing and the Sculptor's Model.—Rickets, a disease of nutrition, still too common with us, is but rarely seen in Italy, where it is the universal custom for mothers to suckle their infants, and whence accordingly come those shapely human forms that are chosen by our sculptors and artists for their models. Mothers unquestionably suffer in health and happiness from the suppression of a function which should form a pleasurable and wholesome episode in their existence, and it has been suggested that the prematurely aged and withered appearance of the married women in the manufacturing districts is in some degree attributable to the check imposed on the lacteal process in them by their employment, when that process has been once fully established.—Sir James Crichton-Browne, *Journal of State Medicine*, May, 1918.

AN EXPERIMENTAL STUDY OF THE SURGERY OF LARGE ARTERIES: ANEURYSM

THE PLACING OF MUSCULOFASCIAL INSERTS WITHIN
AND THEIR USE IN PATCHING ARTERIES

FREDERICK C. HERRICK, M.D. (CLEVELAND)

Major, M. R. C., U. S. Army

CAMP CRANE, ALLENTOWN, PA.

It is well known that exposure of blood to extravascular tissue favors clotting. This fact is often used, especially in surgery of the brain, for the control of small bleeding points. However, the ability of normally circulating blood within the arteries to withstand the coagulum-producing influence of foreign tissue has not, to my knowledge, been given special study.

The object of this research was, therefore, to investigate the occurrence of clotting about an intravascularly placed piece of foreign tissue (muscle and fascia). The first conception was that such a condition would rapidly produce clotting, and if the tissue placed within the vessel were of appreciable size, thrombosis would likely occur.

The results of this research, however, have not upheld this first conception, and it has been found that relatively large musculofascial inserts may be placed within arteries (as the aorta of a dog) without producing serious obstruction to the blood current.

The breadth of application of this fact to the surgery of aneurysm or the repair of large blood vessels is evident:

1. The wiring of large aneurysms is inaccurate, and even when, by chance and experience, the wire coils properly, the results have been encouraging in only a few cases. Both the wiring operation and Halsted's rings placed proximally to the aneurysm are foreign bodies in the tissues, and comprise the disadvantages of such measures. The use of musculofascial inserts at the opening of aneurysmal sacs for closing the openings, or so placed as to limit the size of a sac or fusiform aneurysm, is a possibility and led to this research. Furthermore, instead of measures such as Halsted's rings about a large vessel proximal to the aneurysm, it was found that tissue inserts may be used to control the volume of blood passing through the vessel and hence to the aneurysm. The great variety of aneurysms was well appreciated, and the fact was well apparent that much work would be necessary for the application of the method to the different forms of sacs.

2. In the repair of injured vessels, direct intimal apposition has been thought necessary. In the light of this research a patch of fascia, muscle or both may be placed over an injured artery, covering a defect without producing thrombosis of the vessel.

3. In the replacement of segments of vessels, pieces of other vessels have always been used. In dogs, by maintaining a certain part of the circumference of a vessel the balance may be built up with fascia and functionates perfectly, and thus an intimal lining is formed. Its source is open to question and is a problem for further research.

4. In some cases a definite plug of muscle and fascia may be placed against a circumscribed opening in an artery.

The subjoined experimental protocols form a preliminary report:

PROTOCOLS OF EXPERIMENTS

The first series was begun, Nov. 10, 1917, at the Cleveland City Hospital.

EXPERIMENT 1.—A small fox terrier was anesthetized with ether, a midline abdominal incision was made, the intestine was pushed to the right, and the aorta exposed. A No. 2 chromic ligature was passed around it in two places, 1 inch apart between the origin of the renal arteries and the bifurcation, and its pulsations were controlled by traction. A fine dulox skin needle, with silk attached, was passed through the aorta, including the anterior third as a sector. Under traction on this suture, a fine pointed knife was entered beside it, making a slit 1 mm. long in the aorta. A strip of external oblique fascia attached to the thread was drawn through the aorta by means of these two openings. After the passage of the fascia, although the slits had been made, there was absolutely no bleeding. The fascia projected 0.5 cm. on each side. The abdomen was closed in three layers. The dog recovered rapidly from the anesthesia. There was a well marked femoral pulse of 200.

Necropsy.—Jan. 15, 1918, sixty-five days after operation, the dog was killed. When the aorta was slit open through the point of operation, there was no clot present. A piece of intima-colored tissue projected into the lumen 3 by 3 mm. thick.

EXPERIMENT 2.—A medium sized mongrel was anesthetized with ether, the aorta was exposed, and a piece of fascia and muscle 3 mm. wide was passed through it. A single suture was placed on each side of the vessel wall at the proximal end of the opening to control hemorrhage around the transplant. Closure was made in three layers. The femoral pulse after operation was 160.

Necropsy.—Feb. 10, 1918, sixty days after operation, when the aorta was slit open through the site of the insert, the same condition was found as in Experiment 1.

EXPERIMENT 3.—A medium sized mongrel was anesthetized with ether and the aorta exposed. The pulse was controlled by traction sutures. A fine bladed knife was passed through the aorta and a piece of tissue composed of external oblique fascia, muscle and peritoneum was passed through the aorta. The piece was three-fourths the size of the aorta. However, when passed through on tension it was probably not more than half the size of the aorta. Its ends were held together in front of the aorta by one stitch. It was noticed that very slight traction on this tissue in any direction except transversely readily produced hemorrhage around it, but immediately on ceasing to pull and allowing the tissue to contract, the hole in the aorta was plugged and bleeding stopped. Closure was made.

Necropsy.—Feb. 12, 1918, forty days after the operation, the condition was found to be the same as in the two preceding experiments. The amount of tissue present within the lumen was equal to one-fourth the lumen. No clot was present.

The foregoing series was interrupted by my receiving orders for military service. An opportunity did not present itself for continuance of the work until a change of station took me to Fort Des Moines Base Hospital as chief of the surgical service. During my six weeks at this post, the following experiments were completed:

EXPERIMENT 4.—July 30, 1918, a small fox terrier was anesthetized with ether, the aorta was exposed, and a piece of fascia and muscle two-thirds the size of the aorta was passed through it. Three stitches were necessary on the left side proximally to the insert, distally and at a midpoint. A good pulse was present with a thrill over and distal to the insert. July 31, a good femoral pulse was present. The dog was sick. August 1, it died.

Necropsy.—Two days after operation the cause of death was found to be general peritonitis, through some fault in technic. The aorta was slit open over the insert. A clot was present which might be called an icicle clot, since it suggested such a formation. Its base started from and surrounded the insert, from which it tapered slightly to its blunt tip 6 mm.

distally. Extending proximally was the same formation 7 mm. long. A pair of lumbar arteries 1 mm. in diameter opposite the clot was not thrombosed.

EXPERIMENT 5.—July 27, 1918, a large brindled bull was anesthetized with ether, the aorta was exposed, and a piece of muscle and fascia two-thirds the size of the aorta passed through its center. Bleeding occurred from the corners of the incision, but was entirely controlled by four stitches. A good aortic pulse with a thrill was present distal to the insert. July 28, the dog was in good condition; there was no weakness of the legs, and a good femoral pulse was present. July 31, a good femoral pulse was present. Under ether anesthesia the abdomen was opened and a good aortic pulse distal to and over the insert was verified.

This observation was made because it was thought possible that the femoral pulse might result from a collateral circulation more easily established in dogs than in man. The pulse, however, was present over and immediately distal to the insert. There was no collateral circulation present. In later experiments, when a thrombosis was intentionally caused, the dogs showed weakness of the hind legs for a variable time after operation.

Necropsy.—Four days after operation, the aorta was slit open through the site of the insert. An icicle-shaped clot was found extending 9 mm. from the insert distally. There was some irregular clot proximal to the insert, attached to it. A pair of small lumbar vessels branching opposite the middle of the distal clot was thrombosed.

EXPERIMENT 6.—Aug. 6, 1918, a large white mongrel was anesthetized with ether, the right carotid was exposed, and two pieces of tissue taken from the neck were passed through it transversely 2 cm. apart. The proximal insert consisted of muscle and cervical fascia 2 mm. in thickness. The distal insert consisted of cervical fascia with some fat attached, 2 mm. in diameter.

August 11, five days after the operation, the carotid was exposed under ether anesthesia; a full pulse was present over and distal to the inserts. The carotid was excised and slit open. The inserts were both present, 2 mm. wide, projecting into the lumen, reducing it by approximately one half. No clot was present.

EXPERIMENT 7.—Aug. 5, 1918, a female (the same animal as in Experiment 8) was anesthetized with ether, the aorta was exposed, and a piece of muscle fascia was passed through a slit 4 mm. long. No sutures were necessary. A good pulse was present below the insert with a marked thrill. From August 6 to 10 the animal was in good condition with a good femoral pulse.

August 11, six days after the operation, under ether the abdomen was opened, and a good pulse over and distal to the insert was verified. When the aorta was slit open, no clot was found. The large insert was present, of the same color as the intima. When it was placed through the aorta at operation, the sides of the vessel had apparently been drawn together and held there, so that only a small segment of insert presented itself to the blood stream, and the lumen of the vessel had been reduced by one third. Thus it is possible to reduce the caliber of an artery markedly by this method. If done proximally to an aneurysm it would greatly diminish the volume of blood passing into the sac as well as the speed of its passage through the sac. This would appear to be a good method for bringing about such a condition of circulation. Whether such a procedure is preferable to the direct attack on an aneurysm by transplants should be later worked out, for the same technic might be used in reducing the size of the sac or its opening. And here seems to be one of the lessons learned by this study: By passing musculofascial transplants, transversely, obliquely and longitudinally, one or all, through an aneurysmal sac, the latter's capacity can be lessened. This, together with the clot-producing power of such tissue when exposed to blood under other conditions favoring clotting, can be used to thrombose entirely an aneurysmal sac. From observations in some of these experiments it seems possible so to place these inserts in a sac that a proper current would be left for vessels branching from it.

EXPERIMENT 8.—Aug. 2, 1918, a small terrier was anesthetized with ether, the aorta was exposed, and a strip of

rectus muscle and fascia one-fourth the size of the aorta was passed through the midpoint transversely. No stitches were necessary. A good pulse with a thrill was present over and below the insert. Closure was done. August 3 to 10 there was a good femoral pulse.

August 11, nine days after operation, under ether, the abdomen was opened and a good pulse over and distal to the insert was verified. When the aorta was slit open, no clot was found. The insert measured 6 by 2 by 2 mm., and was the same color and appearance as the intima. It reduced the lumen of the aorta by fully two-thirds its volume.

EXPERIMENT 9.—July 17, 1918, a large female mongrel was anesthetized with ether, the aorta was exposed, a slit 0.5 cm. long was made longitudinally through both walls, and a piece of external rectus sheath and muscle equal to the diameter of the aorta was passed through. There was no bleeding around the insert. There was a pulse, distal to the insert, with a thrill. Closure was done. There was a good femoral pulse. July 18, the dog was active; a full femoral pulse was present. The condition continued the same till July 31 (fourteen days after operation). Under ether anesthesia the abdomen was opened. A good pulse was felt in the aorta immediately distal to the insert and at the site of the insert, where the vessel was felt thickened and a moderate mass of adhesions was present.

Necropsy.—The aorta was slit longitudinally through the insert, and the insert was accidentally cut. The insert was 6 mm. in diameter, the aorta, 1 cm. in diameter. No clot whatever was present.

EXPERIMENT 10.—July 16, 1918, a small fox terrier was anesthetized with ether, the aorta was exposed, the circulation was controlled as above, a slit 1 cm. long was made through both walls laterally, and a piece of anterior rectus muscle and fascia equal to the size of the aorta was passed through the aorta. Four stitches at the ends of the slits were necessary to control the bleeding. A faint pulse was felt distal to the insert. Closure was made. A very faint femoral pulse was present. From July 16 to July 24, no femoral pulse could be felt. July 25, a faint femoral pulse reappeared. July 25 to August 8, the femoral pulse increased to normal volume. August 8, the animal strangled herself on her tie rope; she had been very well and active.

Necropsy.—Twenty-three days after operation, a section of the aorta, including the iliacs, was excised. The aorta was slit open; no clot was present. The insert was found; it measured 3 by 3 mm.; it was firm, was closely adherent to the anterior wall of the aorta and had a gray, glistening appearance indistinguishable from the intima. It reduced the aortic lumen by two thirds.

EXPERIMENT 11.—July 7, 1918, the same animal as in experiment 4 was anesthetized with ether, the right carotid was exposed, and with a fine knife the anterior half of the vessel wall was excised for 1.5 cm. A piece of external rectus muscle and fascia 3 mm. thick was removed and sutured as a patch over the carotid defect with the muscle surface projecting into the lumen.

July 28, the wound was clean. August 11, twenty-four days after operation, under ether anesthesia, the carotid was reexposed and found to have a full pulse throughout its extent. A small sacculated aneurysm was present, with an opening 4 by 4 mm., a depth of 2 mm., and its cavity 5 mm. at the widest point, occupying the position of the musculofascial patch. The carotid was removed and slit open. There was no clot whatever present. The patch had held firmly but had bulged out to a depth of 2 mm. It contained no clot. The inference from this case is that such a patch, if applied in man, would give rise to an aneurysm. The fate of transplanted tissue is well known, and the resulting scar tissue in this case must be very firm and strong in order to withstand arterial pressure. It looks as though intra-arterial or intra-aneurysmal transplants would be of greater value in the treatment of aneurysm.

A complete report on the foregoing work, with photographs of the specimens and histologic examinations of the tissues will be made later. The exigencies of active military service render such studies difficult. The following conclusions seem fair, and I regret that

lack of time will not permit a discussion of the many points of value that have been observed.

SUMMARY AND CONCLUSIONS

1. Strips of rectus fascia with muscle attached of varying size up to three-fourths that of the aorta of dogs may be placed through a dog's aorta or carotid without causing permanent clot or thrombosis. In certain cases no clot at all is formed.
2. In over half the experiments, the contraction of the aortic walls about the inserts and of the inserts against the slits in the aorta entirely controlled hemorrhage. In the remaining cases, from one to four simple sutures controlled bleeding from the corners.
3. These inserts diminished the lumens of the aortas to approximately one-third to three-fourths their former volume.
4. Such inserts may be used to diminish the volume of a large artery, to diminish the orifice of a sacculated aneurysm, to favor thrombosis of the aneurysmal sac by being placed through it, or to limit the size of a fusiform aneurysm by being placed so as to exclude certain sectors from the current.
5. In no cases have symptoms of embolism been noted. The only pathologic observations to exclude such an occurrence were: (a) In two cases examined at necropsy within six days, no clot was formed at all. (b) In four cases examined at necropsy later than six days, no clot was present. (c) In all cases but one, when a clot was formed it took a uniform, blunt tipped icicle shape, was quite firm, and would not easily break off.
6. A patch of fascia or muscle may be sutured to an arterial defect with perfect functional results.
7. The sac of an aneurysm or the vessel proximal to it may be lessened in volume by such inserts.
8. An arterial patch of muscle and fascia in a dog is consistent with perfect function of the artery.

CHRONIC ARSENIC POISONING ON A FARM

REPORT OF A CASE

SAMUEL AYRES, JR., A.B.
BOSTON

History.—A woman, aged 22, seen by Dr. Samuel Ayres of Kansas City, Mo., to whom she was referred by her local physician in Summers, Ark., complained of sore mouth, indigestion, weakness and general tenderness. She had been married two and one-half years; she had had no children nor miscarriages. She had had mumps, measles, whooping cough and scarlet fever during childhood; there had been no operations. Previous to her present illness she had been entirely well. She had had a well-balanced diet. She lived on a farm and had no other occupation aside from her household duties. Prior to five years before she had been employed in a fruit drying factory for three years, where she said that she was exposed to sulphur vapor. She also spent a great deal of time spraying fruit orchards, and said that she ate fruit which had recently been sprayed. The spray, she thought, contained arsenic. This immediately preceded her present illness, which began five years before. On questioning, she was quite sure that she had not been exposed to arsenic during the past five years. She had moved away from the fruit orchard. There was no family history of tuberculosis. A year and a half before, the patient's brother, who was then 22 years old, was operated on for appendicitis, following several intermittent attacks of severe abdominal cramps. The operation gave no relief, and the attacks of cramps had per-

sisted up to the present time. The brother had a papular skin eruption on his face and back. A sister also had had trouble with her skin for some months.

Present Illness.—Skin: Five years before, in May, a papular eruption appeared on the forehead and chin, which spread to the body, chest, back and shoulders, scalp and face. This was diagnosed by a local physician as eczema, and treated by local applications which, instead of giving relief, only made matters worse. The eruption consisted of papules and pustules which bled when opened. Some were as large as the little finger nail, and often ruptured spontaneously, bleeding profusely and soiling the clothing. The condition of the skin had been variable, sometimes better, sometimes worse. For the past year or more there had been a more permanent brownish pigmentation of the face. Heat or wind caused the face to burn and sting.

Sensation: About a year later, or four years before being seen, a burning sensation of the mouth, tongue and lips was noticed. The patient said that her tongue was red, and that the lips were blistered and peeled. The burning sensation later spread to the chest and epigastrium, and at times a sense of burning and tenderness was general over the entire body so that merely touching her caused pain. The patient said that sometimes her hands felt as if they were three times their normal size. They often felt numb, or tingling, and she had frequently cut or burned herself without feeling any pain. About two years before, her eyes began to cause trouble. After looking at objects for even a short time, her eyes would become tired and the vision blurred. At times the patient had lost her sense of smell and taste. For the past three weeks water had tasted bitter.

Digestive Tract: The appetite had been variable; there was no vomiting; the patient was not often nauseated. During the past two years there had been discomfort after eating. From fifteen to thirty minutes after a meal, a heavy feeling was noticed in the stomach, which frequently caused the heart to beat rapidly. Often there was a bitter taste in the mouth soon after eating. Because of these symptoms, and on account of the sore mouth, the patient had eaten but little. For periods of a week or two at a time, the patient had been troubled with an excessive flow of saliva. The bowels were constipated, moving once in two or three days. There had never been any diarrhea. The rectum was sore and burned.

Cardiovascular: At times the heart beat so rapidly that it was quite uncomfortable. This was brought on usually by eating or by overexertion. There was no dyspnea.

General Condition: The patient felt weak. She had lost both strength and weight. Her best weight three years before was 123 pounds; the present weight, three weeks before, 99½ pounds.

Genito-Urinary: Menstruation had been irregular during the past three years, with considerably more pain. Often there had been intervals of from six to eight weeks between periods; one interval lasted five months. The last period was three weeks before. Sometimes there was burning after urination and burning in the vagina. There was no history of vaginal discharge. One and a half years before, after urinating, the patient was seized with a sharp, knifelike pain in the right loin when she attempted to stand up. The pain began in front and radiated to the back. It was so severe that she fell to the floor. Following this attack, she was in bed for eight or nine weeks, and during this time was unable to move on account of the pain, which no longer was related to urination. Ever since then the patient had felt in danger of pain, sometimes with very acute attacks. During the intervals of comparative freedom she was able to bend forward and to move her trunk in any direction. During the past ten days, the pain had been severe, especially if the right arm was raised above the head, or if the right side was pulled or twisted. The pain was in the right side and back, but did not cross to the left of the spine. Frequently there was a dull ache in the spine, back of the head and chest which was unrelated to the pain in the lower back. This ache was worse in damp weather.

Periodicity: The patient had not been entirely well during the past five years. She always felt better in the autumn.

Her symptoms all became most noticeable about December. During the past two years, she had been confined to bed during the late winter and spring, on account of the severe pain and general tenderness.

Physical Examination.—The patient was well developed and fairly nourished, conscious and rational, and lay quietly in bed with the eyes closed. The hair was abundant and of fair texture, but short, being only about 10 inches in length; the ends were broken off abruptly. The patient said that her hair used to be of finer texture and about 40 inches long. The skin was rather dry. On the face, most marked on the cheeks, there was a brownish-red pigmentation which was not sharply demarcated, but faded off gradually. There were many punctate papules; to the touch the cheeks felt like a nutmeg grater. On the back between the shoulders, there were small acneiform papules and pustules. There was a wart on the back of the left hand and on the palm of the right, which, the patient said, had been present for only a few weeks. The skin was otherwise negative. The conjunctivae were reddened and the patient kept her eyes closed most of the time because the light caused discomfort. The pupils were regular, equal, and reacted to light. The teeth were fair, the throat negative; the buccal mucous membrane was normal; the tongue was normal, except that the fungiform papillae at the back seemed unusually large and red. The lymph glands were not enlarged. The heart and lungs were normal. There was a slight general tenderness of the abdomen, most marked in the lower right quadrant. No masses were felt. There was no fluid. The patient had difficulty in turning over; the act seemed to be painful. There was no local tenderness in the back. There was no tremor of the hands. There was slight edema of the ankles on pressure. The knee jerks were very sluggish; the plantar reflexes also were sluggish. There was no Babinski reflex. The hand grasp was equal but weak. There was no Romberg sign. The finger-to-nose test was negative. The temperature was normal. The pulse was about 100. Pelvic examination was negative.

Summary.—A farmer's wife, aged 22, had been intermittently ill during the past five years, worse in the late winter and early spring. The outstanding symptoms were dermatitis with pigmentation of the face, muscular weakness, loss of weight, sore mouth, gastric discomfort, constipation, disturbances in taste, smell and cutaneous sensations, photophobia, menstrual irregularities, tachycardia, and many indefinite pains, aches and burning sensations. She had been unsuccessfully treated by many physicians and had tried all remedies that had been recommended by both physicians and friends.

Before the laboratory findings were considered, four conditions offered themselves as reasonable possibilities in the differential diagnosis. They all fairly adequately accounted for the symptoms as summarized.

1. Neurasthenia or psychoneurosis.
2. Pellagra.
3. Addison's disease.
4. Chronic arsenic poisoning.

Other conditions were thought of, such as renal stone and tuberculosis of the spine, but each accounted for only a part of the syndrome.

With a highly strung and unstable nervous system as a background, any chronic, unsuccessfully treated dermatitis may readily develop into an attack of neurasthenia with a varied host of symptoms similar to those described.¹

Pellagra must be seriously considered, for it also is characterized by periodicity, weakness, neuritis, gastroenteritis, stomatitis and dermatitis. In the case under discussion, the chief point against pellagra is the character of the dermatitis. In pellagra, the backs of the hands and wrists are usually involved, and whatever region is involved shows a sharply demar-

1. Osler: The Principles and Practice of Medicine, Ed. 8, pp. 1106-1116.

cated area of pigmentation. Here the pigmentation is limited to the face, is diffuse, and is rather more finely papular than one would expect with pellagra.

Addison's disease usually shows a more generalized pigmentation and frequently a pigmentation of the buccal mucosa.

According to the history as it was obtained after careful questioning on several occasions, the only known exposure to arsenic occurred five years before when the patient used arsenic sprays in fruit orchards. For the past three years, she had lived in a different place where there were no fruit trees, and she had not used any spraying mixtures. It is possible that some of her many remedies contained arsenic, but no single medicine had been used longer than a few weeks. Her brother's supposed appendicitis, which had been unrelieved by operation, and her sister's skin eruption suggest that the whole family had been exposed to arsenic.

Laboratory Examination.—Blood: 1. The systolic blood pressure was 120 and the diastolic, 85. This evidence points strongly against Addison's disease.

2. The Wassermann reaction was negative.

3. Microscopic examination revealed: white cells, 12,900; red cells, 4,500,000; hemoglobin, 95 per cent.; the red cells were normal: there were no malarial parasites.

Roentgen-Ray Studies: The teeth, spine, lungs and heart were all normal. There seemed to be some adhesions between the duodenum and gallbladder, but the stomach was otherwise negative; there was no filling defect, and the emptying time was normal.

Gastric Analysis: An Ewald test meal was given. After one hour, 100 c.c. of gastric contents were withdrawn. The odor was normal, there was no retained food, and microscopic examination was negative. Total acidity was 83; free hydrochloric acid, 51. There was no lactic acid nor blood.

Ophthalmoscopic Examination: This revealed dilated retinal veins and contracted arteries. These findings were regarded as unimportant and indicating merely vasomotor changes.

Stool: Macroscopically the stools were of a claylike consistency and rather gray. Microscopically there was bile-stained mucus, and no parasites or parasitic ova.

Urine: The urine was acid; the specific gravity was 1.017; there was slight trace of albumin; there were a few pus cells, red cells, occasional epithelial cells, hyaline casts and coarsely granular casts. A specimen submitted to the Kansas City Testing Laboratory for an analysis of metals was reported as containing: lead, 0; arsenic, 0.000329 per cent. Following this line of inquiry, a sample of wall paper and of well water from the patient's home were also tested for arsenic. The wall paper was found to contain arsenic (As_2O_3), 0.00307 per cent.; the well water was found to contain arsenic (As_2O_3), 0.00044 per cent.

DIAGNOSIS AND TREATMENT

The finding of arsenic in the urine, together with the typical symptoms of chronic arsenic poisoning make the diagnosis practically certain. The patient was once more questioned concerning a more recent exposure to arsenic. The husband then recalled that for the past two years he had used a Paris green mixture in spraying his potato plants. The patient remembered now that this mixture had been kept in a box in the kitchen, and to the best of her knowledge was still there. The fact that Paris green was kept in the house, and also the fact that the wall paper contained arsenic explains the winter exacerbations of all symptoms. At this time the patient spent more time indoors, and the windows were more likely to be closed; hence the greater opportunity to absorb arsenic vapors.

Undoubtedly the patient became thoroughly poisoned with arsenic five years before when she sprayed fruit orchards, and her illness had been prolonged by the subsequent absorption of small amounts of arsenic either from the box of Paris green or from the wall paper or from both. It is well known that in the presence of warmth and moisture, certain molds growing on arsenic wall paper liberate a poisonous volatile compound that is probably an organic derivative of arsenic pentoxid. According to Putnam,² "there is nothing more striking in the clinical history of this matter than the fact that a person who has once been poisoned, or who is naturally susceptible, is sometimes affected by exposures that seem absurdly insignificant." Putnam³ also calls attention to the diffuse brownish pigmentation of the face, painful micturition, and distinctly periodic symptoms (winter and early spring) in addition to the commonly observed gastrointestinal and nervous disorders.

The treatment consisted essentially in removing the source of poisoning and treating the gastro-intestinal disturbances symptomatically, with daily colonic irrigations of sterile water and a light diet of cooked food. According to latest reports a month later, the patient had improved markedly. The prognosis in this case is good because the peripheral neuritis has not progressed to an irreparable state.

CONCLUSIONS

This is a well marked case of chronic arsenic poisoning with an adequate etiology, and a definite finding of arsenic in the urine. The syndrome as developed here is remarkable for its multiformity. This patient showed loss of weight, muscular weakness, disturbances of the tactile and other special senses, digestive disorders, sore mouth and tongue with salivation, menstrual disorders, especially periods of amenorrhea, painful conjunctivitis, dry and defective hair, painful urination, tachycardia, loss of appetite, headache, diffuse pain and tenderness, and dermatitis which had been general, but at the time of examination was limited to the face and consisted of a roughening with diffuse brownish pigmentation. All of the symptoms were worse in the winter or early spring. When confronted with such a syndrome, one which is not typical of any well recognized disease, one should always think of chronic arsenic poisoning, and have the urine examined for arsenic by a competent laboratory, or by any one of several tests which are described in detail in textbooks on toxicology or industrial medicine.

2. Putnam, J. J.: Boston Med. and Surg. Jour., 1890, **122**, pp. 421-424.

3. Putnam, J. J.: Boston Med. and Surg. Jour., 1889, **120**, 255.

Increased Importance of Venereal Prophylaxis.—The end of actual fighting in the world war does not lessen the necessity for the campaign against venereal diseases. Rather, it becomes a greater emergency measure than ever. Cessation of hostilities centers attention on the return of the victorious American forces. On entering the service the men became subject to Army and Navy discipline, which, in the control of venereal diseases within the ranks, is rigid. Prior to demobilization the intense fighting morale of the forces is bound to relax. The men will be buoyant in spirit and eager to celebrate. When mustered out they will return to conditions in civilian life which have been responsible for venereal disease. Many of them will contract it as a result. Unless all cases of venereal disease have proper treatment during the period of reconstruction, the scourge will reach alarming proportions. The time from now on is the most critical of all.—*Public Health Reports.*

TREATMENT OF TETANUS

REPORT OF CASE

MANUEL D. ROJAS, PH.C., M.D.

Assistant Surgeon, Limón Hospital
LIMÓN, COSTA RICA

History.—N. B., a white man, aged 24, was admitted to the hospital, May 24, 1918, complaining of stiffness in his jaws, but still able to talk. He was a shoemaker, but for the past three months had been working as watchman at one of the railroad stations. The family history was negative. The patient had the usual diseases of childhood, had had gonorrhea twice, and a chancre about a year before. Recently he had been in perfectly good condition until about 3 o'clock on the morning of admission, when he awoke with stiffness of the neck, and had difficulty in opening his mouth. He said: "I have been in such good health that I expected to get married in a week." He did not recall any previous accident. There was no history of any cut or puncture for the past three months. On admission he was not aware of any fever, headache, languor or rigidity of the extremities. The bowel movements were regular, the appetite good, and there was no sore throat.

Physical Examination.—The patient was well developed. The head was negative; there was some rigidity of the neck, and there was slight spasms of the masseters. Although spasms of the jaws had already begun, I was able to remove the man's false teeth, and noticed an erosion in the upper gums, but no signs of local infection. The lungs were negative, but the patient complained of a heavy sensation in the lower part of the chest. The heart rhythm was regular. No enlargement and no murmurs were detected. The abdomen and the upper extremities were negative. In the lower extremities there was some rigidity and exaggeration of the reflexes, and Kernig's sign was present. I was unable to detect any erosion of the skin, except for that already mentioned, in the mouth. From the foregoing data it was clearly seen that no period of incubation could be appreciated in this case. On admission the temperature was 99 F., pulse 86, and respiration 22. The Laboratory reported that the urine was negative. The total white blood count was 8,463, the hemoglobin, 75 per cent.

Treatment and Course.—At the beginning I diagnosed tetanus. I ordered an intramuscular injection of 3,000 units of tetanus antitoxin, and gave 30 grains of potassium bromid every three hours.

I called Dr. A. A. Facio in consultation, and he agreed with me that the case was one of tetanus. He suggested that the tetanus antitoxin be given intravenously instead of intramuscularly, and also that potassium bromid and chloral hydrate, one-half ounce each, be given during the twenty-four hours by the rectal drip method.

In the evening of the day of admission the patient became worse, the rigidity of the neck and lower extremities more pronounced. Risus sardonicus was plainly shown, and the patient called attention especially to sharp lancinating pains at the base of the chest. I gave 5,000 units of the tetanus antitoxin intravenously. About 11:30 p. m., the patient became so distressed that it was necessary to give chloroform inhalations, and with this he rested somewhat. On the morning of the 25th, he presented a typical example of acute tetanus; orthotonus, opisthotonos and convulsive dysphagia were prominent symptoms. An enema was given, and good results were obtained. Intravenous injections of 5,000 units of tetanus antitoxin were repeated every six or eight hours, also the oral and rectal administration of potassium bromid and chloral hydrate.

This treatment was continued until the morning of the 29th, when the condition of the patient became so grave that some change in treatment was indicated. By this time the patient had received 68,000 units of serum antitoxin without having noticed any relief. Tetanus antitoxin, potassium bromid and chloral hydrate were discontinued. I was fearing some lung complication and for this reason also discontinued the chloroform inhalations.

Baccelli's treatment was instituted. This consists in the intradermal injection of a 3 per cent. solution of phenol (carbolic acid) in water, 2 c.c. every three hours. The injections were given on each side of the spinal column, approximating more or less the exit of the nerve trunks. I also gave injections following the course of each sciatic nerve.

During the first ten days of Baccelli's phenol treatment, the intradermal injections were repeated as often as every hour with an average of about fourteen injections a day, that is, seven injections on each side of the spinal column. Later, as improvement began, the injections were given every two or three hours, applied mostly on the lower lumbar regions and along the course of each sciatic nerve.

The convulsive dysphagia and other painful symptoms, due to muscle rigidity, were treated by half a grain of morphin day and night with very good results, to the extent that the patient could have some rest.

I calculated that during the forty-seven days of phenol treatment, the patient was injected with about 450 c.c. of a 3 per cent. phenol solution, which is equivalent to 13.5 c.c. of pure phenol, without detecting any renal complications.

From May 28 to June 14 the patient was fed by rectum, and through the nares by means of a soft rubber catheter.

Besides the milk and other liquid foods, brandy was also given (about 2 ounces in twenty-four hours).

By June 15 the rigidity of the masseter muscles became much less and the patient was able partially to open his mouth. By June 26 he was able to open his mouth well and swallow the liquid food. The convulsive dysphagia was not so severe, but the rigidity of the lower extremities was still quite prominent. I found that the injections of phenol along the course of the sciatic nerves minimized considerably the painful rigidity of the lower extremities.

June 30 I discontinued the morphin and gave instead potassium bromid and chloral hydrate, 15 grains of each every four hours. This dose was now apparently sufficient to counteract nervous irritability.

All signs of muscular rigidity had disappeared by July 9, on which day I discontinued Baccelli's treatment and also the administration of potassium bromid and chloral hydrate. By this date the patient was emaciated, pale, and in a state of stupor, but he did not complain of any pains. Hemoglobin was only 55 per cent. A dose of calomel and magnesium sulphate was given, full diet was resumed, and 1 dram of elixir of ferric pyrophosphate, quinin and strychnin was given three times a day before meals. The patient recovered very rapidly, and was discharged, July 19, apparently in good condition.

The temperature during this time was 98 from May 24 to May 27; between 98 and 101 from May 27 to July 10; on the latter day it reached 103, and from July 11 to July 19 it was normal.

The highest rapidity of pulse and respiration was observed between May 27 and June 12, when the pulse rate was 110 and the respiration 28. It is worth while to notice that improvement began to be more rapid after June 11, when I added to the other treatment 10 grains of hexamethylenamin three times a day, and advised the patient to drink plenty of water. This increased diuresis considerably, and undoubtedly had something to do with a greater dilution and elimination of the tetanus toxin.

COMMENT

From this case we can see once more that the administration of antitetanic serum, once that the toxin has been fixed in the nerve cells, is of doubtful value either in preventing the further development of the disease or in minimizing its severity and duration. During the acuteness of the attack I found morphin superior to potassium bromid and chloral hydrate in relieving the painful muscular rigidity. It makes respiration easy, the patient sleeps better, and the nervous irritability is much decreased.

Baccelli's phenol treatment undoubtedly has an effect in neutralizing some of the tetanus toxin, and possibly

inhibiting the growth of the bacillus. Diuresis, stimulated by the injection of fluids and the administration of hexamethylenamin, is useful because it diminishes the concentration of toxin products by a greater dilution and elimination of them from the body. Of course, the administration of large amounts of fluid to provoke diuresis depends on the condition of the patient's circulation.

METHOD FOR THE ISOLATION AND- RAPID IDENTIFICATION OF DYS- ENTERIC BACILLI*

I. J. KLIGLER, PH.D.

AND

PETER K. OLITSKY, M.D.

NEW YORK

Bacillary dysentery is endemic in the United States, and localized epidemics occur from time to time. Our Army and Navy particularly stand in danger from this disease. Of late, confusion has arisen regarding its etiology, as a result of the failure of the isolation of *B. dysenteriae* from the stools of patients. These fac-

has been realized by workers in this field, and various modifications have been suggested. Kendal, Rettger and Robinson, Kligler and Defendorf successively proposed modifications. The first and last named authors recognized the fact that dysentery bacilli, particularly the Shiga variety, are highly sensitive to alkaline reactions and dyes, and are either partially or wholly inhibited on the original Endo medium, which is distinctly alkaline and contains an excessive amount of the fuchsin indicator.

The Teague and Clurman eosin-methylene blue medium with meat infusion as a base proved entirely unsatisfactory because of its inhibitive effect on Shiga dysentery bacilli. Recently, however, Meyer and Stickel have published comparative data indicating that the eosin-blue medium with veal-agar or pepsin-digest agar as a base gives better results than the Endo as modified by Kendal. The eosin-blue plate cultures show striking colony differentiation and have the added advantage of being at or near the neutral point. Comparative tests were made with various mediums, the results of which are shown in the accompanying table. The strains of the Shiga bacillus used were all isolated last summer and are undoubtedly more sensitive indicators of the favorableness of a given medium than old

COMPARISON OF RATIO OF *B. COLI* TO *B. DYSENTERIAE* COLONIES ON DIFFERENT PLATING MEDIUMS INOCULATED FROM THE SAME MIXTURES*

Medium Used	Flexner Strains						Shiga Strains				Average Size of Colonies in Mm.
	23	24	26	28	31	J	100	109	2X	V. T.	
Veal infusion eosin-methylene blue...	3:1	2:1	2.5:1	5:1	Spread	3:1	3:1	2:1	50:0	Crowded	1.5
Veal infusion Endo (Kligler's modification).....	3:1	1:1	3:1	1.5:4	Spread	5:1	3:1	Spread	50:1	Crowded	1.75
Veal infusion Endo (old method).....	4:1	48:0	7:1	5:1	48:0	35:0	200:1	40:1	200:0	2:1	0.5
Phosphate, eosin-methylene blue (Levine).....	2:1	2:1	5:1	3.5:1	2:1	6:1	50:1	4:1	17:1	1:2	1.0
Peptic digest, eosin-methylene blue (Meyer and Stickel).....	2:1	1:1	4:1	6:1	2.5:1	5:1	5:1	5:1	30:1	1:5	1.0
Peptic digest, Endo (Kligler's modification).....	4:1	1:1.5	7:1	Spread	4:1	3.5:1	2.5:1	2.5:1	36:1	1:2.5	0.8
Peptic digest, Endo (old method).....	Spread	1.5:1	7:1	Spread	4:1	....	3:1	6:1	33:1	Spread	1.0

* The figures indicate the ratio of the number of colonies of *B. coli* to those of *B. dysenteriae*. The marked inhibitive effect of the Endo medium prepared in the old way, titrating to +0.2 to phenolphthalein, on the Shiga types and the advantage of veal infusion medium are strikingly brought out in this table. "Spread" indicates that count was impossible as a result of confluence of colonies.

tors have led us to devise an improved method of isolation and rapid identification of these organisms.

The failure on the part of some workers to isolate the true dysentery bacilli from cases of clinical dysentery is attributable largely to two factors: (1) the improper selection of stool specimens for cultures, and (2) the use of unfavorable culture mediums.

1. *Selection of Stool Specimens for Plating.*—Too much emphasis cannot be laid on the importance of choosing a satisfactory sample of stool. If possible, one containing blood and mucus with little or no fecal matter should be used. It is essential to plate the stool directly or very shortly after it is collected. Experiments with artificial mixtures of the Shiga bacillus with feces showed a 50 per cent. reduction in four hours and from 85 to 90 per cent. in twenty-four hours, when kept at room temperature.

2. *Mediums Used for Plate Cultures.*—Because of the extreme toxicity of dyes for dysentery bacilli, the selective inhibitive mediums used in the isolation of typhoid and paratyphoid bacilli are not applicable here. Consequently the medium most widely used in this country is Endo's, and in England, MacConkey's. The shortcoming of the Endo plate as originally proposed

stock strains. The results indicate clearly that the veal infusion eosin-blue and modified Endo mediums are superior to the phosphate-peptone, the pepsin digest and the old unmodified Endo mediums. This superiority is also demonstrated when one compares the sizes of the colonies on the different plates.

Practically, the slight inhibitory effect of the veal infusion eosin-blue medium on Shiga bacilli is overcome by inoculating this type of medium as well as the modified Endo medium¹ with the same specimen.

PROCEDURE

As a result of these tests, and experience in practical work and class work, we recommend the following procedure in the isolation and rapid identification of dysentery bacilli from stools:

A fresh specimen of stool, preferably with blood and mucus, is collected and promptly cultured. A shred of bloody mucus, if present, is selected, washed three or four times

1. The modified Endo's medium is prepared as follows: To veal or beef infusion 1.5 per cent. agar, titrated, and this is important, to pH 7.6 to 7.8, is added 1 per cent. lactose and 1 per cent. by volume of decolorized basic fuchsin indicator. The latter is prepared by adding 1 c.c. of 10 per cent. basic fuchsin to 10 c.c. of 10 per cent. sodium bisulphite solution. Of course, the lactose and the indicator are added separately before plates are poured.

The eosin-blue medium is prepared by adding to the veal infusing agar titrated to pH 7.2 to 7.4, 1 per cent. lactose and 2 c.c. of a 2 per cent. solution of yellow eosin and 2 c.c. of 0.5 per cent. solution of water-soluble methylene blue.

* From the Laboratories of the Rockefeller Institute for Medical Research.

with sterile saline, to remove all fecal matter, and spread successively on a veal infusion eosin-methylene blue and a modified Endo plate. The plates are then incubated from eighteen to twenty-four hours at 37 C.

The plates are now examined and the suspicious, colorless colonies inoculated into each of two differential tubes:

(a) A small tube containing 1 c.c. of a 0.5 per cent. glucose broth.

(b) A double sugar tube on the principle of the Russell double sugar medium containing 0.1 per cent. glucose, 0.5 per cent. mannite, and 1 per cent. Andrade indicator.

The colony is picked off with a small loop and inoculated first into the broth and then stabbed in and streaked on the double sugar tube.

After from two to four hours the broth tubes are usually sufficiently turbid for an agglutination test with a polyvalent antidyenteric serum. A faint visible turbidity is sufficient, and when it appears, 0.1 c.c. of a 1:50 dilution of a potent polyvalent antidyenteric serum is added and the tubes reincubated for one hour. A definite clumping is a good presumptive test for the presence of dysentery bacilli.

The double sugar tube is incubated over night. A red butt without gas and colorless slant indicates a Shiga bacillus. If the entire tube is red and gas absent, it corresponds to a Flexner type. The surface growth is now washed off with saline and a confirmatory agglutination test is made with specific type and polyvalent serum. If desired, an agar slant and various sugar mediums may be inoculated for further study, or animal inoculation made.

By the use of the two tubes, one can obtain a presumptive diagnosis about a day after the collection of the stool—a matter of great importance for epidemiologic and therapeutic purposes.

CONCLUSIONS

1. Fresh specimens preferably containing blood and mucus should be cultivated promptly.

2. Mediums for the isolation of dysenteric bacilli should not have a marked alkaline reaction or an excessive amount of inhibitive dyes. Mediums neutral or only slightly alkaline are most suitable. Veal infusion agar is a much more satisfactory base for differential plate cultures for the isolation of dysenteric bacilli than is beef infusion or peptic digest agar. Eosin-methylene blue and modified Endo plates (pH 7.6 to 7.8) made with veal agar exert little or no inhibitive effects and permit the colonies to grow to almost twice their size on other mediums. Since the dye medium is apt to be somewhat inhibitive for the Shiga type of dysentery bacillus, it should always be used together with a modified Endo plate.

3. The method given permits a presumptive and confirmatory diagnosis of bacillary dysentery in a very short time.

Regulating the Distribution of Quinin.—The Brazilian government has promulgated regulations for the purchase and sale of quinin for use in overcoming destructive endemias in the rural sections. The drug will be purchased either in foreign or domestic markets in the shape of salts of quinin, and cinchona bark will also be imported and extracted in the Oswaldo Cruz Institute. When prepared the quinin will be sold in tubes officially sealed with a government stamp and marked with a label indicating the quantity, quality and official price. The tubes will be furnished to pharmacies and to other distributors, especially throughout the malarial sections of the country, with the requirement that they shall not be sold at a profit exceeding 10 per cent., under penalty of fine for violation of the price regulation. According to *Commerce Reports*, from which this information is obtained, the federal railways will be furnished the official quinin and will distribute it without cost to employees. Other industries may purchase it for free distribution at a rebate of 10 or 20 per cent.

THE EFFECT OF "GROUND GLASS" ON THE GASTRO-INTESTINAL TRACT OF DOGS

JAMES S. SIMMONS, M.D. (PHILADELPHIA)

Major, M. C., U. S. Army

AND

WILLIAM C. VON GLAHN, M.D. (BALTIMORE)

First Lieutenant, M. R. C., U. S. Army

FORT SAM HOUSTON, TEXAS

During the past few months quite a number of food specimens have been received at the Southern Department Laboratory, Fort Sam Houston, Texas, with requests for examination to determine the presence of "ground glass."

Of 120 specimens of different kinds, glass was found in the following samples: cakes, 2; cottonseed hulls, 5; jelly, 1; milk, 1; prepared mustard, 1; peanut butter, 1; sliced beef, 1, and sugar, 1.

The glass found in many of these specimens was small in size and amount, and could have been accidental. Some few samples of food in closed non-sealed containers, however, showed many large pieces of broken glass, which, apparently, had been placed there purposely by those sending in the specimens.

Many reports of so-called "glass poisoning" were made by newspapers and individuals, and the subject was discussed in a number of medical journals throughout the country, but we have not been able to obtain positive data concerning a single authentic case of illness due to the ingestion of glass in any form or size. A partial review of the literature gave no definite information.

FEEDING EXPERIMENTS

In an attempt to determine what lesions, if any, are produced by glass in the gastro-intestinal tract, feeding experiments were carried out on dogs.

Dogs.—Ten young dogs obtained from the city pound of San Antonio, Texas, were placed in separate cages, numbered, and fed on scraps from the hospital mess. Records were made of the general appearance, weight, temperature (by rectum), blood count and feces examination (both gross and microscopic) for blood, pus, epithelium, etc. All these records, with the exception of blood counts, were made daily, until the completion of the experiments, when the animals were chloroformed and examined postmortem.

Glass.—Broken Petri dishes and test tubes were ground in a large stone mortar, after which the glass was divided into five sizes by passing through sieves of different mesh. The different grades of glass used ranged from Grade 1, which was designated "large broken," to Grade 5, called "fine powdered." A large amount of each grade was prepared and bottled.

Dosage.—The ten animals were divided into two series of five each. Dogs of Series 1 received 1 gm. of the grade of glass corresponding to the cage number, while Series 2 (Dogs 6 to 10) received 5 gm. doses in the same order. Thus, Dogs 1 and 6 received Grade 1 glass, but Dog 6 received 5 gm., while Dog 1 was only given 1 gm. doses.

Each dose of glass was mixed in a mortar with about 200 gm. of lean meat and immediately fed to the dog. All grades, except Grade 5, were easily detected in the food with the naked eye. The first two doses were given at four-day intervals, but after

that they were repeated daily until the animals were chloroformed. (The second dose in each case, owing to a mistake, was of different grade glass.)

Weights.—The original weight was accepted in each case as normal, and the fluctuations that were recorded represent merely loss or gain in pounds.

The weight curve in each case showed fluctuations, and in five of the dogs there was a slight loss of weight as shown on the day of necropsy, averaging about one-half pound. Two of the dogs showed marked gain in weight, and in three the initial and final weights were identical.

Temperature.—These records by rectum showed nothing remarkable except in Dog 5, which had a temperature of 104 F. on two occasions: May 21, twenty-four hours after receiving the first dose of glass, and May 24, when the second dose of glass was given. The rise in temperature was probably due to some other cause, as it was only temporary and as Dog 10, which received five times as much of the same grade of glass, was not similarly affected.

FLUCTUATIONS IN WEIGHT

Number of Animal	Weight Gained	Weight Lost
1	.....	½ pound
2	.....	½ pound
3	None	None
4	3 pounds	
5	None	None
6	.....	½ pound
7	.....	1 pound
8	.....	½ pound
9	1 pound	
10	None	None

Number of animals that gained weight	2
Number of animals that lost weight	5
	Pounds
Average weight gained	6
Average weight lost	6

Feces.—All daily examinations were negative for blood and pus. Dog 5 showed a slight temporary diarrhea with some mucus at the time of the rise in temperature, after which the stools were negative. Practically all the dogs were infected with *Uncinaria* and *Taenia*.

Necropsy Findings.—The dogs were killed with chloroform and immediately examined. The post-mortem findings were remarkably uniform in the absence of any visible lesions. As the findings were so similar, detailed account of each will be omitted and one protocol given:

The peritoneal surfaces are smooth and glistening and there is not any excess of fluid in the peritoneal cavity. The omentum contains much fat. The intestines are not distended. The lymphatics are engorged and beautifully marked out so that they are easily traced from the intestine through the mesentery to the glands. The stomach contains a large amount of undigested food in which particles of glass are readily discernible. The gastric mucosa is gray and translucent. There is no ulceration nor any evidence of hemorrhage. The intestine contains a moderate amount of digested food in the upper half. The intestinal mucosa is gray and translucent, and there is no ulceration, hemorrhage or exudate present. There are several taeniae and many uncinariae present in the lower portion of the bowel. The lungs, heart, spleen, pancreas and liver are negative.

The postmortem findings in the control dogs were identical, except for the absence of glass.

For the microscopic preparations from six to twelve segments of the intestine from different portions were

removed before the bowel was opened. This was done to avoid the possibility of any trauma to the mucosa while opening the bowel. These segments measured from 5 to 10 mm. in length. The stomachs were opened before the specimens for microscopic examination were removed. The tissue for examination was immediately placed in 10 per cent. solution of formaldehyd. The paraffin method was used in the preparation of the material for sectioning.

The findings microscopically were equally negative. The sections from the stomach of each of the dogs and from the control dogs did not show any abnormal changes. The epithelium was intact and there was not seen any infiltration with leukocytes or small round cells of the mucosa, submucosa or muscular layers in some of the sections. From the intestines of four of the dogs (3, 4, 6 and 7) there was seen some denudation of the tips of some of the villi of their epithelium. There was not, however, any exudate on the surface of the villi, or any inflammatory reaction within them. No other abnormal changes could be found in any of the sections. The central lacteals and lymphatics were engorged in those dogs that were examined during the period of active digestion. The gross and microscopic findings were identical on the dog that was given one large dose of glass (50 gm.) and examined postmortem forty-eight hours later.

In both of the control dogs, denudation of the tips of some of the villi of their epithelial cells was observed.

CONCLUSION

The ingestion of ground or powdered glass has no toxic effect and produces no lesion, either gross or microscopic, on the gastro-intestinal tract of dogs.

OBSERVATIONS ON AN EPIDEMIC OF
BRONCHOPNEUMONIA IN OMAHA *

A. D. DUNN, M.D.

OMAHA

Late in September and in the early days of October, a respiratory affection corresponding somewhat closely to the descriptions given of "Spanish influenza" appeared in Omaha. October 3 and 4, a large number of people congregated in the theaters, stores and streets, incident to the civic parades and other functions of the Aksarben festival, which yearly brings huge crowds to Omaha. October 5 and 6, the disease attained the proportions of an epidemic. We also have information that a considerable number of cases appeared among the troops in Fort Omaha on the second day following the Aksarben. The morbidity curve showing the influence of "crowds" on the outbreak of the epidemic is significant (Chart 1).

THE NATURE OF THE EPIDEMIC

Clinically, the disease was characterized by a more or less sudden onset, usually without definite prodromes. Headache, generally severe, was almost constant and commonly associated with backache, boneache and general malaise. Cough, which was slightly productive or nonproductive in the beginning, was always present. The sputum was not tenacious but mucoid. Its color varied from a slight, diffuse, bloody

* This investigation was made by the University of Nebraska and Creighton Medical colleges at the instigation of the Omaha Department of Public Health.

discoloration to a deep bloody red. The sputum never took on a typical rusty appearance. Toward the end of the disease a suggestion of rustiness was occasionally present. Cyanosis was uniformly present and was disproportionate in degree to the severity of the disease except in the moribund. The temperature curve was either of the remittent or the continuous type. Reverse types were common. Drops of lysis predominated (83 per cent). Considering the severity of the symptoms, the pulse was slow except in the moribund. Death seemed rather of a respiratory than

catarrh. nasal disease, diphtheria, pneumonia or pleurisy. This is suggestive of a degree of active immunity in individuals who have previously suffered from respiratory disease. Fatalities were most common among the robust. The average age of our patients was 23.5 years.

ETIOLOGY

Bacteriologic studies were carried out on material derived from sputum, blood cultures, necropsies and pleuritic exudates. Smears and cultures constantly revealed a diplococcus resembling in many ways the pneumococcus, but giving atypical cultural reactions. The organism was gram-positive, with a tendency to short chain formation. Capsules could not be definitely demonstrated with the usual capsule stains, but a suggestive halo was frequently encountered. The growth of the organism on ordinary culture mediums was exceedingly difficult, and even on special mediums the growth was decidedly delicate. Litmus milk containing blood and blood agar proved most satisfactory. Many strains refused to grow beyond several transfers. The original cultures coagulated milk in forty-eight hours, which reaction often failed to occur after several transfers, the organism frequently dying out even when transferred every three to four days on blood mediums. Bile solubility was variable (positive in 40 per cent). Inulin and litmus milk were usually acidified and coagulated. Mice were decidedly susceptible, and died in from twelve to eighteen hours after intraperitoneal inoculation, and the organism was constantly recovered from the heart's blood. The virulence of the organism diminished rapidly when grown on artificial mediums, and several transfers usually sufficed to render it avirulent. Only a limited number of strains have been typed, but the majority of these have failed to agglutinate.

Every effort was made to recover other types of organisms, especially the Pfeiffer bacillus, but without success. Anaerobic and varying oxygen tension cultures after Rose-now's method were made as a routine. It is of interest to note that positive blood cultures were obtained as a rule only at the height of the disease, and then only in the moderately severe or in the severe cases. This is suggestive of a descending respiratory rather than a hematogenic mode of infection.

All the necropsies thus far made have shown a bronchopneumonia of a hemorrhagic type except in one instance in which the pneumonia was of the typical lobar form, and the organism isolated from the blood culture and at the necropsy proved to belong to the Type II pneumococcus. It was noted clinically that this case was probably an ordinary pneumonia and was not of the prevailing epidemic.

CONCLUSIONS

1. The clinical and laboratory observations made to date go far to support the assumption that we are dealing in Omaha with an epidemic of atypical bronchopneumonia. It would be reasonable to assume that in mild cases which do not develop demonstrable lung disease (and from our experience they must be rela-

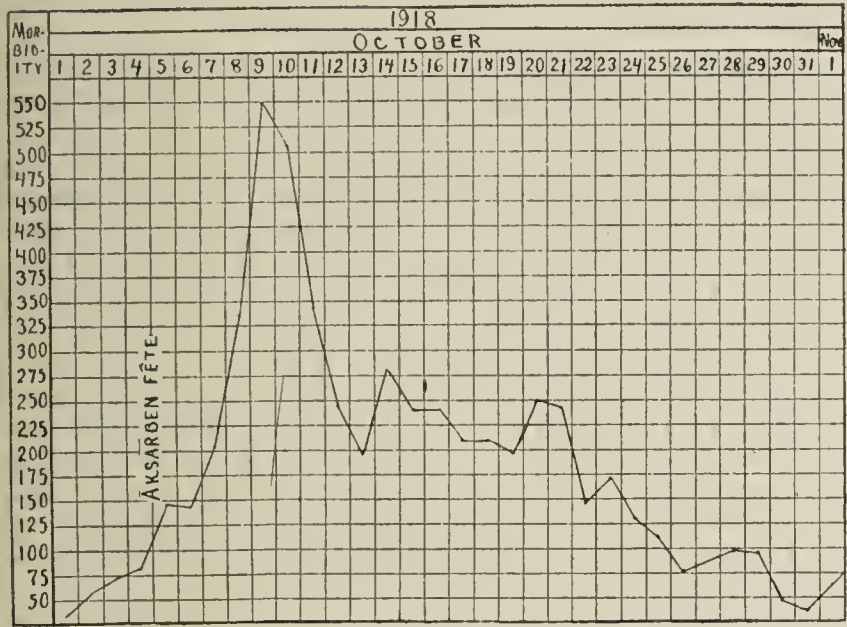


Chart 1.—Morbidity curve showing the influence of "crowds" on the outbreak of influenza.

of a cardiac type. Delirium was usually absent. Gastro-intestinal symptoms were common (50 per cent). Herpes was rare. The most constant feature was the presence of findings pointing definitely to pulmonary involvement. The lungs of all the patients under observation were examined at least once a day, and whenever any change in the pulse-temperature curve or in the clinical course occurred. In no instance was a typical "flu" case of any considerable duration observed that did not at some stage of the disease reveal lung findings, such as signs of increased density to palpation and percussion, altered breath sounds, or localized moisture evidenced by fine or small moist râles. Lung findings diagnostic of bronchopneumonia were absent in only 18 per cent. of the hospital admissions. The latter cases were in all instances mild, being of from one to three days' duration. Pleurisy was exceptional, although pains in the chest were common. Although the observations were made largely in hospital cases, and although it might be argued that only the severe cases would gravitate to the hospitals, yet whenever accurate clinical observations were made, they supported the assumption that we were dealing with an epidemic of bronchopneumonia.

Two hundred consecutive leukocyte counts averaged 11,950 cells with 72 per cent. polymorphonuclears. The leukocyte count seemed at times to have prognostic worth. Low leukocyte counts occurred most commonly in the severer cases. Rises in the leukocyte count often presaged improvement, and sharp drops in the count were ominous. Chart 2 illustrates a typical leukocyte curve in a fatal case.

An interesting fact was the relative infrequency in the disease history of the patients of antecedent respiratory infections, as bronchitis, tuberculosis,

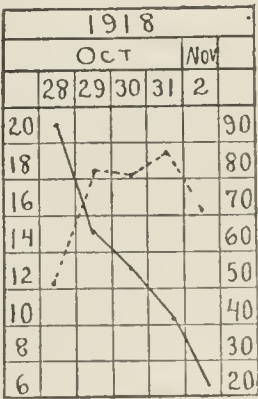


Chart 2. — Typical leukocyte curve in a fatal case of bronchopneumonia. The column at the left gives the number of leukocytes in thousands, and is represented by the solid line; the column at the right, the percentage of polymorphonuclears, and is represented by the broken line.

tively few) there is a partial active immunity which accomplishes an early abortion of the disease, or that the infecting organism was avirulent. We consider bronchopneumonia the one characteristic clinical and pathologic finding in our epidemic (82 per cent.) In other words, *the so-called complication is the disease.*

2. Bacteriologic examinations thus far made reveal an organism which seems best classified as an atypical pneumococcus and which we consider to be the probable cause of the epidemic.

Further clinical, bacteriologic and immunologic studies are under way.

808 Brandeis Theater Building.

PHLEGMONOUS GASTRITIS

REPORT OF CASE

F. I. SHATARA, M.D.

BROOKLYN

Phlegmonous or submucous gastritis is a rare condition. It was first described by Benel in 1656. In 1904, Robson and Moynihan collected eighty-five instances, and up to the present about 100 cases in all have been reported.

The condition is an acute suppurative inflammation affecting oftenest the submucous coat of the stomach, and extending to the muscular and serous coats more frequently than to the mucous. It is sometimes primary, but usually secondary, occurring in the course of such diseases as typhoid, scarlet fever, smallpox or puerperal septicemia. Two forms have been described, a diffuse and a circumscribed.

The etiology is not definitely known. Of the several theories that have been advanced, the bacterial seems to be the most plausible. Streptococci are the commonest micro-organisms present; colon bacilli have been occasionally demonstrated. In the case here reported, streptococci were demonstrated in the stomach wall by the Gram-Weigert stain. In secondary cases it is probable that the infection is carried by the blood stream. It is held by some that the invading organisms enter through traumatic or other lesions in the epithelium. Symmers, at Bellevue Hospital, however, failed to produce the lesion in animals by feeding them ground glass and inoculating streptococci and pneumococci by way of the blood stream or stomach tube, and the association of phlegmonous gastritis with such lesions as ulcer and cancer is almost unknown. The pyloric region of the stomach seems to be the site of predilection, although the process may involve the entire stomach.

The onset is sudden with symptoms of intense gastric irritability and profound general disturbances. The issue is rapidly fatal. Sometimes the symptoms of general peritonitis, as in the case here reported, are superimposed, and it is probable that many cases are similarly obscured and thus wrongly diagnosed.

Pain, epigastric tenderness, nausea, vomiting, chills, fever and hiccup are the outstanding symptoms. Hiccup was marked in the present case.

The course is usually from one to seven days.

The diagnosis during life is at best a guess. Chvostek is said to have succeeded in making one such diagnosis.

REPORT OF CASE

History.—C. W., man, aged 29, married, colored, laborer, American, applied for treatment at the dispensary, Dec. 19,

1917, complaining of a vague abdominal pain, general in character, intermittent in type, increasing usually after meals, but never severe enough to confine him to bed or to interfere with his appetite. The patient was constipated. There was no history of vomiting, gaseous or sour eructations, or jaundice. Physical examination revealed a slight abdominal tenderness, more marked on the right side, but no masses and no rigidity. Over the aortic area there was a faint systolic murmur transmitted to the carotids, but no other signs of cardiac trouble. The patient was advised to enter the ward for observation, but refused.

December 26, he returned to the dispensary, complaining of the same vague abdominal pain. He was again advised to enter the ward, and the withdrawal of blood for a Wassermann test was suggested, but he refused both.

Present Illness.—On the morning of Jan. 19, 1917, the patient awoke with a headache, and was unable to take his breakfast; this he interpreted as a sign of severe illness. He applied to the dispensary at 9 a. m., and was given half a grain of codein and ordered to bed. At 10 a. m. he vomited and complained of pain in the epigastrium. At 4 p. m. his condition grew worse, the abdominal pain increased, nausea became distressing, and he vomited again. The vomitus was brownish in character, mixed with mucus, but free from blood or pus. Physical examination revealed general abdominal tenderness and rigidity, more pronounced on the right side. There were no signs of free fluid and no obliteration of liver dullness. The facial expression was anxious. The patient had a leukocyte count of 15,000, temperature of 101.6, pulse 100, and respirations 22. A ruptured gastric ulcer was suspected and he was admitted to the male surgical ward of the Englewood Hospital under the writer's care.

The patient slept about seven hours during the night. Next morning he repeatedly vomited green fluid. At 8 a. m. he had a leukocyte count of 27,400; polymorphonuclear neutrophils, 92 per cent.; lymphocytes, 8 per cent.; temperature, 103.2; pulse, 108, and respirations, 24.

He was operated on at 11:30 a. m., by Drs. Bradner and Pitkin. About 2 ounces of serosanguineous fluid were found in the peritoneal cavity. No definite perforation was located. A posterior gastro-enterostomy was impossible on account of excessive thickening of the stomach wall. A gastrostomy was performed, and it was noted that the stomach wall had lost its elasticity and had become so indurated that it was difficult to suture it to the gastrostomy tube. Two cigaret drains were inserted into the peritoneal cavity, and the patient was returned to bed. His general condition was fair, pulse 116, respiration 24. The rectal drip was employed and pituitary solution given.

About 11 p. m. the patient became very restless and thirsty, and complained of pain in the operative area. He also had a hiccup and there was a bloody discharge on his dressing. An irrigation with warm saline through the gastrostomy tube was performed; the return was at first bloody but later became clear. The temperature was up to 104.4, pulse 128, respirations 26. He slept about four hours subsequently.

Next morning, nutritive enemas were started.

In the drainage bottle to which the gastrostomy tube was connected there were 16 ounces of wine colored fluid.

About 8 a. m. the patient's temperature went down to 102, and his pulse to 118, but his respirations were accelerated to 32. At 3 p. m. the abdomen was distended and tympanitic, but there was no evidence of free fluid. He was given an alum enema with good result.

His general condition grew worse, his pulse rose to 138, and became thready, he was given stimulation but did not respond, and he died at 7:50 p. m.

Necropsy.—This was limited to the abdomen. There was about 1 quart of bloody fluid in the general peritoneal cavity. The fluid had apparently oozed through numerous minute perforations in the stomach.

The stomach wall was greatly thickened, measuring from a third to half an inch, and on compression, gastric contents oozed through several pin-point perforations. These perforations were clearly demonstrated by opening the stomach and holding it up against the light. The gastric mucosa looked and

felt leathery and smooth, the rugae having been obliterated. The process was diffuse.

The intestine was distended, and the intestinal wall was slightly congested. The mucous membrane was normal. The mesenteric nodes were enlarged.

The liver was pale and opaque; its substance was soft and mushy, reminding one of the liver in cases of acute yellow atrophy. The splenic tissue appeared normal except for a slight congestion.

The remaining organs were negative.

Numerous microscopic sections of the stomach were prepared in the pathologic laboratories at Bellevue Hospital. They were examined by Dr. Symmers, who found that the mucosa of the stomach was normal except for a superficial necrotic layer. The entire stomach wall beneath the muscularis mucosae was richly infiltrated by polymorphonuclear leukocytes, and was markedly edematous. The blood vessels of this portion of the stomach were deeply injected. Gram-Weigert preparations revealed the presence of innumerable streptococci lying chiefly in the stomach wall immediately under the muscularis mucosae. Microscopic sections from the intestinal tract revealed no pathologic changes.

27 Schermerhorn Street.

THE INCIDENCE OF TYPHOID CARRIERS IN A STATE INSANE ASYLUM*

CHARLES KRUMWIEDE, JR., M.D.

BRONXVILLE, N. Y.

AND

ELBERT M. SOMERS, M.D.

BROOKLYN

In September and October, 1907, the Brooklyn State Hospital had some cases of typhoid fever. At this time, Drs. Smith and Agnew of this institution sent to Miss W. Carey Noble, of the Bureau of Laboratories, the stools of all the convalescent patients; continued examinations showed that two women (E. O. and A. M.) had become chronic bacillus carriers. In 1912, there were a few cases of typhoid fever, and from these developed another chronic carrier (M. R.). Again, in 1915, a few inmates contracted the disease.

As previous reports have shown the tendency to a high carrier rate in asylums, we thought it worth while because of this history of institutional fever, to cooperate in a survey to determine the incidence of typhoid carriers. Under the direction of one of us, the institution was listed by wards, and ward residence since 1907 indicated for each inmate. Our intention was to include only the resident population at the time these lists were compiled. Specimens of feces were collected and brought to the laboratory as soon as possible after evacuation, and were there examined for the *Bacillus typhosus*. All the inmates in the female wards have been examined, yielding the following results:

Wards 1 and 2, population (February, 1916), 91: No cases of typhoid developed in this ward. One resident had typhoid in Ward 9 in 1907. No carriers were found.

Wards 3 and 4, population (March, 1916), 65: There were two cases of typhoid in this ward in 1907, and both the patients became carriers (E. O. and A. M.). Two additional carriers (M. C. and H. G.) were found, both without a history of typhoid. M. R., a chronic carrier, who developed typhoid in Ward 9 in 1912, was transferred to this ward later in the same year, and died here in September, 1915.

Ward 5, population (April, 1916), 80: One case of typhoid developed in 1907. Another patient had typhoid in Ward 9 in 1912. No carriers were found.

Ward 6, population (April, 1916), 132: No cases of typhoid developed in this ward. No carriers were found.

Ward 8, population (April, 1916), 72: No cases of typhoid developed in this ward. Three residents gave histories of typhoid, two before admission to the hospital, one in 1907 in Ward 9. Examinations were negative. Two carriers (J. M. and M. W.) were found, both without a history of typhoid. M. W. died in February, 1916. The changes in ward residence of these carriers and of other carriers, then unrecognized, may have led to contact infection and the development of the carrier state, without recognizable symptoms of typhoid infection.

Ward 9, population (May, 1916), 76: Eight cases of typhoid have developed in this ward: two in 1907, four in 1912, and two in 1915. (Three of these persons are now residents in other wards, and noted there.) One 1912 patient (M. R.) became a chronic carrier and was transferred to Ward 3 (which see). Examinations of the four residents were negative. One typhoid carrier was found (M. B.) who denies a history of typhoid fever.

It will be seen from this summary that, in a total population of 516 female patients, the survey yielded five chronic carriers, in addition to three previously known. Of the last, all continued to excrete bacilli after having had typhoid fever, two in 1907 and one in 1912. Of the other five, none gives a history of typhoid fever. Too much reliance cannot be placed on negative histories of typhoid fever, especially from patients of this type, as the symptoms of a mild infection may have been overlooked.

In spite of this, however, we believe that it is not an unreasonable assumption that some of these patients coming in contact with cases or carriers ingested the bacilli, became normal or contact carriers, and later developed into chronic carriers. That is, their natural immunity prevented the development of a generalized disease; but in spite of this resistance, the bacilli multiplying in the intestine, small numbers may have invaded the body proper and through the lymphatic and vascular systems may have reached the liver and gallbladder, where they localized and gave rise to chronic inflammation. After their localization in the biliary passages, a chronic carrier state would be likely to result.

The striking thing in this investigation is the large number of carriers, eight among 516 persons, or 15.5 per thousand. This rate is higher than usually encountered in institutions and much higher than among the general population. The unusually high incidence is shown by applying the rate to the female population of New York State over 25 years of age. This would give the extraordinary result of 45,000 carriers.

In view of these results as well as because of the frequency of institutional typhoid fever, we do not believe that any one would question the advisability of vaccination of all inmates of insane asylums. Unfortunately, however, this procedure is left to the discretion of the institutional authorities and is not carried out as generally as it should be.

A considerable amount of institutional typhoid fever due to the failure to vaccinate has come to our notice during the last few years. Because of this, we feel that vaccination should be mandatory not only in asylums but also in all custodial institutions, and a regulation to this effect should be added to the sanitary codes of all health departments.

*From the Bureau of Laboratories, Department of Health, New York City, and the Brooklyn State Hospital.

Military Medicine and Surgery

THE EFFORT SYNDROME

TOGETHER WITH A CONSIDERATION OF THE
SIGNIFICANCE OF CERTAIN MURMURS *

ALFRED E. COHN, M.D. (NEW YORK)

Major, M. R. C., U. S. Army; Senior Consultant in General
Medicine, A. E. F.

FRANCE

The war has altered opinion of the value of many signs formerly accepted as important indications of the presence of organic heart disease. The chief sign involved in the changed point of view is the systolic murmur. The significance attached to diastolic murmurs, both the diastolic murmur of aortic insufficiency and the presystolic murmur (auriculo-systolic) of mitral stenosis, has remained unaltered. Persons affected with these two diseases have been found not to bear the strain of war satisfactorily, even if at the time of enlistment they were free of any indication of heart failure. They are now, accordingly, rejected for service.

The significance of systolic murmurs, especially their relation to mitral insufficiency, however, has occasioned much discussion. Systolic murmurs occur in so large a number of persons that it has become necessary to decide when they are important and denote mitral insufficiency. The need for making the distinction between important and unimportant systolic murmurs occurred infrequently in civil life. Young men rarely sought medical advice on account of such murmurs. When they did, as the result of life insurance or other accidental examination, the difficulty in diagnosis was appreciated, but reliable guides for making a decision were wanting. Early in the war, men with such murmurs were accepted, and many were found after severe service to bear satisfactorily the fatigue incident to campaigning. The conclusion was therefore drawn that the murmur in itself must in these instances be considered unimportant. New criteria were accordingly required to decide which systolic murmurs were important and which types were not.

CLASSIFICATION OF SYSTOLIC MURMURS

Until now, it has been customary to divide murmurs into two groups, functional and organic. To decide in which group a murmur belonged, it was studied from the point of view of the bearing on it of the posture of the body, of the position in the precordial area at which the murmur was best heard, of its character on auscultation, according to its intensity in different respiratory phases, according to the direction of its transmission, and according to its time incidence in the cardiac cycle.

A word should first be said on the use of the words "functional" and "organic" in relation to murmurs. A murmur is, of course, a physical phenomenon and is dependent on the structure of the containing vessels and the arrangement of the surrounding tissues for its production and character. This is true of the so-called functional murmur as well as of the organic variety. All murmurs are in this sense organic. The distinction that the words "functional" and "organic"

were intended to convey relates to their importance or unimportance, or perhaps better to their significance or insignificance. The point is in itself not important except in the interest of clear understanding.

Close study has failed to show that systolic murmurs may be classified as significant or insignificant according to the criteria just enumerated, that is to say, posture, position, character, respiratory emphasis, transmission, and position in the cardiac cycle. It is, of course, true that aid may be obtained from certain of these criteria; but the aid is not definitive. Other criteria have therefore been proposed. These relate (1) to the size of the heart; (2) to the history of infection, especially of rheumatism; (3) to the intensity of the second sound in the second left interspace or third left costochondral junction, and (4) to the reaction to exertion. A candidate may be accepted for service in the Army if his heart is normal in size, if there has been no history of rheumatism, if the second cardiac sound is not accentuated, and if the response to a standard exercise test is normal, even though a systolic murmur is present. The terms used require explanation.

The heart is normal in size in adult males in civil life in the third decade, when in the oblique position it measures from 9 to 11 cm. In active military service the size often increases to from 11 to 13 cm., and these dimensions are considered normal. The measurements given are based on roentgenograms placed when exposed 2 meters from the target of the roentgen-ray tube. Attention must be called in this connection to the fact that not all normal hearts lie in this oblique position in the chest. Frequently their outline shows them to have a more vertical position in the mid-thoracic region. Sometimes they have a more nearly transverse position. These variations naturally make the diagnosis of hypertrophy difficult and must be taken into consideration in deciding on its presence. A hypertrophied vertical heart may in profile be smaller than a normal transverse organ. In every instance, therefore, a correct estimate of size may not be possible.

The second criterion mentioned is the history of infection, and especially rheumatism. Under rheumatism are included acute rheumatic fever, chorea, torticollis, tonsillitis and growing pains. It is obvious that a single attack of acute rheumatic fever occurring in childhood, and being followed by no obvious cardiac disability, is not as important as repeated attacks, the last of which has occurred within the year.

The third criterion relates to the intensity of the second sound. It is not possible to state that the second sound is invariably accentuated when chronic mitral endocarditis has persisted for a prolonged period, but it is believed to be the rule that after long-standing disease an accentuation takes place. Its presence is therefore of significance in deciding that disqualifying disease has occurred.

The nature of the response to a standard exercise test is the fourth criterion. The introduction of the test is important, for it gives information of what one desires to know as the result of examination, that is to say, the ability to undergo exertion. The test recommended in Circular 21, of the Surgeon-General's Office, consists in hopping 100 times on the left foot so that the shoulder is elevated from 4 to 6 inches. Two minutes after the end of this exercise, the ventricular rate should return to approximately within ten beats of normal and the blood pressure to normal. The

* Lecture delivered at the Army Sanitary School, A. E. F., April 29, 1918.

measurements are made with the patient in a recumbent position. The test is recommended because it is simple and can be carried out in a uniform manner.

It is not pretended that one can rely on these criteria always to solve a difficulty in diagnosis when a systolic murmur is present. But they are useful when, in addition to the murmur, the heart is barely enlarged and a history of repeated and recent attacks of rheumatic fever is reported.

A word should be said about the character of the apex impulse. It has been the habit to lay stress on its extent and position and on the force or other slight abnormalities presented by it on palpitation. Recently abundant experience has tended to confirm the impression that too much stress is laid on these phenomena. But as an indication of the position of the left border of the area of cardiac dullness, in estimating hypertrophy, the location of the apex, especially its farthestmost extension to the left, is valuable.

EFFORT SYNDROME

These views as to the systolic murmur represent the chief alteration that has been made in the point of view of organic heart disease. Of far greater importance is a syndrome, functional in nature and, although not confined to soldiers, especially common in war. It is a group of symptoms, referred by soldiers to the cardiovascular system, and forming a frequent cause of more or less serious disability. This group of symptoms was first described as a clinical entity during the Civil War in the United States by Hartshorne, and the description was later elaborated in greater detail by DaCosta. By the latter it was called the "irritable heart of soldiers," and the disorder was known by this name until the present war.

The reason for its occurrence was sought in our own and other armies. Its cause was laid first to one and then to another circumstance. It was found everywhere and under all conditions. During the present war, attention was forcibly directed to the affection because of the large numbers of soldiers whom it involved. With the new work on the subject, the name of Thomas Lewis is closely connected. His recommendation that the affection be known by the term "effort syndrome" has fortunately been accepted in the American Expeditionary Forces. It is classed in the British service as disordered action of the heart (D. A. H.).

The affection is characterized principally by the occurrence of breathlessness, giddiness, a sense of fatigue, pain in the chest, often in the region of the precordium, and palpitation. On examination are found, in addition, an anxious facies, tremor or shakiness of the fingers alone or of the extremities or even of the whole trunk, cyanosis, sweating, skin hypersensitiveness, both hyperesthesia and hypesthesia (Head zones), and tachycardia; and on questioning, one learns besides of headache and of unpleasant dreams at night. Many of the symptoms suggest the presence of the heart failure of chronic valvular disease. It will be seen, however, that this affection is strikingly different. It need scarcely be pointed out that the two conditions may coexist.

Naturally, not all these symptoms are necessarily present in the same patients, and besides the individual symptoms vary in the degree of severity. Indeed, the clinical picture varies within wide limits. In consequence, experience is required in order to recognize

the cases, especially in the milder forms. Patients may, in fact, complain of a single symptom only. The most frequent of them, according to Hume, is pain in the chest, occurring in 768 out of 1,000 cases. Breathlessness comes next (675), then giddiness (403), palpitation (354), precordial tenderness (268), fainting with loss of consciousness (98), and fainting without loss of consciousness (25). As a matter of fact, it happens frequently that a single one of these complaints causes the soldier to report at sick call. But in addition to his complaint, if we suppose it to be precordial pain, he is likely to look worried, his face to look drawn, his brow contracted, his eyes unduly anxious, his hands and fingers ashake. Questioning may elicit the fact that he suffers from headache, bad dreams at night, pain of a fugitive nature elsewhere in the body, and an increasing disability to work. Examination discloses the presence of certain physical signs, to be discussed later. While the clinical picture that has just been drawn is common, the especial cause for sick report may be one of the other chief symptoms.

Indeed, any one of the chief complaints enumerated may appear alone and dominate the clinical picture. Experience must teach the large variety of combinations in which the chief symptoms occur. The peculiarities they present deserve detailed consideration.

The pain is usually located in the precordium or just above and to the left of it. Its position is not necessarily fixed; it may change from day to day. It may be felt on the right side of the chest, in the flanks or elsewhere. Sometimes, though, it is referred to the shoulders and arms. When the pain is in the chest, its character is usually sharp, sticking and fleeting, rarely constricting. It is probably not experienced at night and it does not keep the patient awake. Effort tends to bring it on, just as it tends to bring on the other symptoms. Associated with the pain, areas of skin hyperesthesia (Head zones) are found in from a quarter to one half of the cases. The intensity of this symptom varies. Patients may complain of it as due to the pressure of clothing. In other instances, its presence is elicited on examination. Pressure between the fingers of the pectoral, deltoid and sternomastoid muscles may elicit unilateral or bilateral tenderness. Boas¹ has in a similar manner found areas of hyperesthesia. The frequency with which this occurs is not known.

Breathlessness is likewise a common complaint and often the sole one. It interferes altogether with the normal performance of duty, such as a route march. It may be impossible objectively to detect the symptom, but not infrequently the distress is obvious. The rate of the respiration may be much elevated, especially as the result of effort. Frequencies of 60 and 80 per minute have been described. The relief from effort and the recumbent position are usually followed by the return of breathing to normal. But dyspnea, even when the degree is very striking, does not require the patient to be propped up in the way that heart disease does. Patients sleep quite flat or on one pillow, and the rate of breathing is normal. Cough and expectoration are not prominent.

There is, however, one type of case in which difficult breathing comes on, especially at night, in the form of attacks of nocturnal asthma. Such attacks are probably limited to those cases of the effort syn-

1. Boas: Personal communication to the author.

drome in which the patients have in addition been gassed. They are manifestations of gas poisoning rather than of the effort syndrome. They come on rather late (in from four to six weeks) after the gas attack. It is a form of respiratory distress that requires special mention under treatment.

In connection with breathlessness are often combined the sensations of extreme fatigue or lassitude and giddiness. The sense of fatigue alone may be so great as to be incapacitating. Walking on a level for 100 yards may suffice to engage all the patient's effort. Carrying light equipment, or using a shovel or rake may be quite beyond his strength. Muscular tone may be low. The patient is then unable to resist the examiner's effort to extend the arm when he has previously been directed to hold it flexed. The muscular weakness may, indeed, be general.

Giddiness is a very common complaint. It is a type in which objects external to the patient apparently do not tend to circulate about him. It is expressed rather as a desire on his part to steady himself against the impulse to fall. Black spots and other abnormal visual phenomena, common in the vertigo of hypersensitive circulatory diseases or in chronic nephritis, are not prominent complaints.

Attacks of fainting occur in a moderate number of men. Sometimes consciousness is retained, but more often it is lost. Care must be taken in distinguishing this condition from true epilepsy.

Cardiac palpitation is a common symptom. It may accompany elevation of the pulse rate, but it need not do so. It may persist during rest.

Examination of the patient brings out a number of signs in addition to those to which the patient has attracted attention. Prominent among these are tremor, sweating and tachycardia. The tremor is coarse and is a shake rather than a tremor. It involves not only the fingers and hands but occasionally all the extremities and the head and the entire trunk as well. Patients who have it in a marked degree, and have the anxious facies as well, present a distressing picture. But the importance of the tremor, striking sign that it is, is easily exaggerated. Examples of it are widely distributed. It may occur in men who give no evidence of suffering from the effort syndrome. It is found, in fact, in great numbers of men who have never been away from a base port. On the other hand, it is entirely absent in equally large numbers of men who have served fairly long periods in the trenches and have sustained wounds. When it is associated with the effort syndrome, its prominence overshadows the picture; but in spite of that, it has not for the reasons given been found valuable as a guide in diagnosis or as an index of progress in treatment.

Profuse sweating is common, even when the weather forms no adequate reason for it. Sweat may stand on the face and drop from the axillae. There are other evidence of hyperactivity of the skin, such as the occurrence of wheals on stroking. The occurrence of Head zones, both of hyperesthesia and hypesthesia, has already been mentioned.

Of especial interest is the examination of the heart, to which most of the symptoms, such as pain, breathlessness, tachycardia, and fatigue, are naturally referred. The pulsation of the precordium is often striking, and may extend as a wavelike motion over two or three intercostal spaces. The thrust forward of the apex impulse may be especially forcible; in fact,

it is often felt to be so. A thrill is not felt, but very frequently the impulse is not the simple, single thrust normally experienced, but rather is split, giving the impression of a major thrust split into a succession of ill defined minor parts. One is reminded of the thrill in presystole of mitral stenosis. But the thrill in mitral stenosis differs distinctly from this, especially in the matter of its timing. This thrill, due no doubt to overaction, occurs distinctly in systole, at the time of the first sound. A single sharp shock, synchronous with the second sound, is also often felt both at the apex and at the base. In size the heart is not enlarged. Indeed, measurement² made from teleroentgenograms shows that it tends to be smaller than normal rather than larger. An exact statement of size is, however, difficult to give. Normal size depends on the nature of the patient's activity. It is generally admitted that in the soldier on active field duty, the average size is usually greater by 2 cm. than was his heart before enlistment. Estimates of size should take this fact into consideration. The expected total transverse measurement may be given as between 11 and 13 cm. It is doubtful whether in the effort syndrome cases, when these facts are taken into account, enlargement occurs. The precautions already urged in estimating the size of the heart apply, of course, equally here. On auscultation, much difficulty has been experienced in distinguishing what one hears from the signs of mitral stenosis. The first sound is often unclear. As one might have expected on palpation, it has a serrated quality, the serrations being equal, confined within the limits of the first sound and replacing it. But it is precisely these serrations that cause confusion with the presystolic murmur of mitral stenosis. It need not be pointed out that serrations in the first sound are not the same as the crescendo murmur before that sound.³ When the rate of the heart is elevated, as is often the case, the difficulty of accurate auscultation is naturally increased. Usually the second sound is not accentuated either at the apex or in the base areas. The absence of accentuation is a sign of value; for although it cannot be said always to be true that when the mitral stenosis is actually present, the second sound is accentuated, this, nevertheless, is generally the fact. The liability to confusion is emphasized because the error in diagnosis has frequently been made and has wrought harm not only to the service but also to diagnostic standards. Occasionally the diagnosis of mitral stenosis is made because in recent years students and physicians have been urged not to fail to make this diagnosis, even if the rumbling presystolic murmur is absent. They have been told that a snapping first sound suffices to establish the presence of the disease. The warning is proper, but insistence ought also to be laid on the fact that later an accentuated second sound should be looked for and found present. It is not contended that the diagnosis of mitral stenosis cannot or should not be made unless the characteristic murmur is present. In fact, the murmur is not always present. But insistence should also be laid on the fact that the diagnosis should be made after due attention has been given to the history of the patient and to exact auscultation. Anxiety to avoid one error has led many into making the other.

2. Medical Research Committee, Special Report Series, No. 8.

3. It is appreciated that insistence on the crescendo character is not quite proper, for, as Gerhardt has pointed out, the crescendo character of the murmur is not a property of its own, but is lent to it, because it terminates, when the P R time is normal, in a sharp first sound.

On occasion it is a difficult matter, even after all precautions have been taken, to be certain that a presystolic murmur is present. Various maneuvers have before now been recommended to make it evident, such as altering the posture of the patient, holding the breath, and undertaking exercise. Morison and Lewis⁴ have recently hit on another method, which they say is effective in certain instances. They lay the patient in the recumbent posture and place the bell of the stethoscope at the site at which it is anticipated a presystolic murmur may be heard. The patient then inhales 3 minims of amyl nitrite. During the first ten or twenty beats, the only change is an acceleration in rate; during the second ten or twenty beats, the anticipated murmur may appear; during the third ten or twenty beats, the murmur usually disappears. The duration of the test is short. Auscultation must be practiced continuously throughout its performance.

The effort syndrome is not associated with a disturbance in the rhythm of the heart. Regularity, except for sinus arrhythmia, which is a normal phenomenon, is maintained. Although the affection does not involve a disordered action of the heart (D. A. H.), irregularities may naturally be found, as they are found accidentally in any large group in the community; but they are not a factor in the syndrome.

RANGE OF HEART BEAT

Pulse Rates	Per Cent.
From 40 to 50	0.1
From 50 to 60	0.5
From 60 to 70	1.8
From 70 to 80	8.5
From 80 to 90	13.5
From 90 to 100	22.4
From 100 to 110	23.8
From 110 to 120	14.7
From 120 to 130	11.3
From 130 to 140	1.4
From 140 to 150	0.9
From 150 to 160	0.1

The rate of the heart beat is usually accelerated. The range, as shown by the accompanying table, is between 90 and 110 in 46.2 per cent., and between 110 and 130 in 26.0 per cent. of the cases, or between 90 and 130 in 72.2 per cent. of the cases. These figures are taken from Hume. There need be no elevation, as the table shows. It is, perhaps, important to point out that the rate tends to become unstable. In the same patient, it may on the same or on successive days fluctuate between wide limits. Sometimes, of course, stability at one or another level may be maintained. The fact of instability is mentioned especially because of the tendency to use cardiac rate in estimating prognosis.

ETIOLOGY

The significance of the affection we are considering has been the subject of a great deal of speculation. Certain suppositions in regard to its cause may be dismissed immediately; the importance of others must be weighed. First may be dismissed the thought that there are racial predispositions toward its occurrence. During the war, cases have been found in all the armies, Central as well as Allies. And among the Allies it is found among Hindustani, Scotch, Irish, Welsh, Canadians, Australians and New Zealanders. No race domiciled in the United States is free. It is found in nonsmoking peoples, like East Indians, as well as in smokers. It cannot, however, be said that smoking is harmless, so far as aggravating the condition is concerned. Investigation has not shown that it

is dependent on a specific infecting organism, nor is it always associated with the occurrence of trench fever or rheumatism. Many who have had both diseases have not become subject to the effort syndrome. The liability, however, of men who have suffered from infectious diseases and especially from trench fever to suffer from the effort syndrome should not be overlooked. A point of especial importance relates to the tendency of trench fever to recur. Attacks are known to come on after afebrile intervals. These recurrences must be taken to indicate the possibility of residual infection. In view of the fact that on occasion tachycardia and its attendant symptoms are alone manifest, the infection itself may be regarded as involving the heart. It will be recalled that the occurrences exactly similar are encountered in convalescence from typhoid fever, dysentery and influenza. The relation of the effort syndrome to acidosis is too vague for us to attach importance to the few uncertain experiments that have been reported. By the method of respiratory analysis, Wilson and Levine⁵ failed to find that a deviation from the normal exists.

Of more importance is the possibility of the disturbance of thyroid secretion. Symptoms associated with exophthalmic goiter are in some respects like those found in the effort syndrome. The symptoms in common are nervousness, tremor and tachycardia. In the effort syndrome, exophthalmos or thyroid enlargement is usually absent. There need be no diarrhea. Tachycardia may be absent. The tremor is really no tremor, but a shake, and it attains degrees of severity never seen in the most advanced cases of exophthalmic goiter. On the other hand, when tachycardia in exophthalmic goiter develops to as high a rate as is attained in the effort syndrome, there is usually a certain degree of dyspnea as well, and the size of the heart is definitely increased, whereas there is no reason for believing that this occurs in the effort syndrome. Between the conditions, a striking difference is observed at night. When tachycardia and dyspnea in exophthalmic goiter are sufficiently severe to attract attention, they persist, as a rule. In the effort syndrome, on the other hand, both disappear. The presence of small thyroid tumors or slight symmetrical enlargement of the gland can scarcely be taken as evidence in favor of hyperthyroidism. Such enlargements occur in large numbers of persons in certain sections of the United States, as elsewhere. They are not necessarily accompanied by symptoms either of developing exophthalmic goiter or of the effort syndrome.

The fact is appreciated that in the minor grades of both conditions the symptoms may be vaguely defined and might easily be confused. Investigations should be instituted with the view of developing specific methods of diagnosis in the early stages. Such studies should yield important results for diagnosis and consequently for treatment. In the later stages, when the cardinal symptoms of both are well established, no difficulty exists. For the present, reliance in diagnosis must be placed on the symptoms and signs already described.

A word should be said about those cases of the effort syndrome that occur after gassing. Confusion has occurred in relation to them. Many gassed patients have the symptoms of the effort syndrome; many, how-

4. Morison and Lewis: Personal communication to the author.

5. Wilson and Levine: Personal communication to the author.

ever, have not. But both groups develop the symptoms of nocturnal asthma, to which reference has already been made. They have been found to have polycythemia as well. Barcroft and Haldane and Meakins deserve credit for having called attention to this group of patients. Both symptoms, asthma and polycythemia, are properly ascribed to a late stage of gassing. They may, of course, occur in individuals who have also the symptoms of the effort syndrome. But it must be clearly understood that such patients are sufferers from two complaints, late gassing and the effort syndrome. The two are not necessarily associated.

RELATION TO WAR PSYCHONEUROSES

The most difficult part of the subject to discuss is its relation to the war psychoneuroses. In their pronounced forms, these naturally present no difficulty in diagnosis. Neither do the effort syndrome cases without psychoneurotic symptoms cause difficulty. But there are cases in large numbers that exhibit symptoms belonging to both groups. These cases present a two-fold problem, one in classification or diagnosis, the other in therapy. The difficulty in diagnosis lies at the very root of the problem. There is no disposition to add new elements of confusion to the subject, but another attitude toward the subject must be suggested. It is a fact that many effort syndrome cases have not arisen *de novo* as the result of the war. The taking of proper histories brings out the fact that the beginning of the affection is of long standing. The complaints were initially too insignificant and too little insistent to require serious attention. During military service; however, the civil factors of safety fail to suffice for the individual's protection, the defect becomes prominent and the patient suffers. The important point is that the affection is of long standing but latent. It requires a stimulus, like the stress of war, to make the trouble patent. The stimulus becomes operative in a manner already habitual to the individual. The reaction is cardiovascular.

Those classed as psychoneurotics have a similar history. The stimulus that drives their latent defects into consciousness is the same. They differ in that their previous histories and their personal psychology predispose them to a different reaction. The manifestations of their affection lie in the domain of neuropsychiatry and require no detailed description here.

There is another group of more complex nature, the individuals in which react to the stimuli of war by more manifestations, and more varied ones, partly psychoneurotic, partly cardiovascular. In the same way, reactions may be found which are, for instance, gastro-intestinal or muscular. In all these varieties the stimuli furnished by the war may be similar. The reaction is a matter partly of chance, partly of predisposition.

TREATMENT

Lewis has offered a most important contribution to the methods for managing the malady, especially from the military point of view. For this purpose there was required a technic for sorting men in grades for service. He concluded that the proper way of sorting men for physical exertion was to try out the men by physical tests. It was an obvious conclusion. Lewis succeeded in doing this by a system of graded exercises. The system works admirably, as is seen by the fact that in a certain group after eleven months of service, the classification then made proved to be sub-

stantially correct. But the limitations under which work was done at the British Military Heart Hospital no doubt prevented the introduction of additions in treatment, which a consideration of the affection indicates are obviously desirable.

The variety of origin of the cases must be remembered, in arranging for their management. Some of the patients are convalescents from acute infections, especially trench fever, bronchitis and pneumonia. The management of convalescence after these infections must be designed to safeguard patients from damage dependent on the relighting of their infection. Relapse after trench fever is known to occur with moderate frequency and should be promptly recognized. When it occurs, it is thought to depend on an involvement of the heart muscle. In such circumstances, physical exertion is naturally not indicated. Other cases are of men who have been gassed. Others have been of long standing and existed before the war. Still others have obviously shown no predisposition to the affection before the war. In any case, the principles of treatment are the same. The general rules of hygiene must, of course, be observed. The men should be made to understand that they are not ill. They should not, therefore, be collected in hospitals. In hospitals, moreover, the constant contact with disease and the suggestions arising from this contact are undesirable but unavoidable. The proper environment for them is supplied by camps under suitable medicomilitary discipline. It is necessary to insist on the medical rather than the military side of the management, although there should be no underestimation of the importance of military discipline. The discipline must be rigid, but appropriate to the degree of disability of the men. Occupation must be found for them, and especially occupation for their minds. It is an error to permit them to rely on their own resources alone. When this side of their treatment is neglected, they speedily become bored, listless and undisciplined. They begin to brood on their disability until their mental background, deranged in the first instance, is worse in the last state than in the first.

In practice, attention should be given to the minor sources of infection, such as infection of the accessory nasal sinuses, the teeth, tonsils and ears. These infections should be removed.

Physical exercises should be arranged for the patients. Three methods are suggested: drill, farm or garden work, and games. The drill should be graded according to the ability of the patient to perform it. It may be varied both as to severity and as to duration. At best, however, drill may occupy only a small portion of the day and may be supplemented by route marches. Farm and garden work may, of course, also be adapted to the capacity for endurance of the individual for work of this kind. It has the advantage of variety and may be performed without that nervous strain which the sharp orders given at drill by the drill sergeant necessarily entails. The introduction of games invites men unconsciously to undertake a great deal of physical exercise without that feeling of compulsion which attaches to the other forms of exercise. Their number may be added to and varied by the imagination of the medical officers. To the forms of exercise may be added, if the facilities are presented, training in occupations of use in the Army. Advice as to these must be sought from time to time. Men are constantly wanted as stenographers, typists, telegraphers, mechanics in gun, automobile or

wagon repairing, railway attendants, and hospital orderlies.

The mention of disturbance in mental background leads naturally to a consideration of the share neuropsychiatrists must have in the treatment of certain of the cases. In point of fact, even when the symptoms are predominantly cardiovascular, the neuropathic side of the picture is frequently prominently developed. The importance of this side of the therapeutic problem, if neglected, may actually increase during the period of treatment. The requirements for aid in this direction vary. The difficulties may be mimetic or inherent in the individuals. And again some men, reticent by nature, in the attempt to suppress interest in their symptoms are troubled by dreams of an uncomfortable kind.

CONCLUSION

It has been my purpose to indicate the general features of this affection of soldiers. The attempt has been made to show how involved the syndrome is, and how it touches intimately other domains in medicine aside from the cardiovascular. Its etiology cannot now be conscientiously indicated, nor its exact relation to the numerous processes involved, which are familiar and the connections of which with this entity immediately suggest themselves. It is impossible to lay down rigid laws for treatment; that may be done only when the exact pathologic physiology is established. But suggestions are made for dealing with the problem not only for the purpose of sorting, which is purely military, but also for the purpose of therapeutic improvement, which is the aim of clinical medicine.

ISOLATION OF INFLUENZA BACILLUS FROM THE BLOOD

REPORT OF TWO CASES

J. S. FLEMING, M.D. (MEMPHIS, TENN.)

First Lieutenant, M. C., U. S. Army; Chief of the Laboratory
Service, Base Hospital No. 106, A. E. F.

FRANCE

CASE 1.—Clinical History.—The patient was admitted to the hospital, Sept. 27, 1918, two days after the onset of influenza with headache and aching all over. The patient had a cough, but no bloody sputum. The bowels had not moved for two days. The throat was very red. There were a few sibilant râles in the right axilla and anteriorly.

September 29, the temperature was elevated, the pulse rapid, and the entire chest full of large, moist râles. The condition was diagnosed as bronchopneumonia.

September 30, the patient was very much prostrated, the skin dry and harsh. Respiration was markedly increased with almost complete absence of breath sounds over the right middle and lower lobes. There was increased voice fremitus. There was flatness on percussion. There were no râles. The diagnosis was lobar pneumonia.

October 1, the pulse was 124 and rather weak; there was marked elevation of temperature. The right base posteriorly seemed slightly dull and changed in voice sounds. There was no bronchial breathing. The neck was not stiff. The diagnosis was changed to bronchopneumonia, and the subsequent trend of events proved this to be correct.

October 2, the face was flushed, the ears cyanotic, the tongue coated, the pharynx inflamed, and there was dulness at the left base. There were areas of bronchial breathing and also left axillary râles. There were areas of dulness over the right base posteriorly.

October 3, the patient was somewhat cyanotic. Breathing was rapid, and there was impaired resonance over the entire right side, especially the base. There were many râles over

both bases, especially the left. The patient's condition was very serious.

October 4, the patient was very cyanotic, the pulse weak and rapid, and the condition serious. The right base posteriorly was dull on percussion, with crepitant râles and distressed breathing.

October 5, there were dulness and râles over both bases. The patient was cyanotic. The pulse was weak.

October 7, both lower lobes showed scattered areas of bronchovesicular breathing.

October 8, the patient appeared slightly improved. There were still many râles throughout the chest. Voice, especially at the base, was very weak. The heart was of fair quality. There was no rigidity of the neck. The pupils were equal. Later the pulse was rapid, the respiration labored, and the patient very weak and cyanotic. Still later, the patient was comatose, very weak and cyanotic. Breathing was rapid and shallow. The pulse was weak. Finally, the patient was profoundly toxic, and too ill to examine.

October 9, the patient died at 2:05 a. m.

Laboratory Diagnosis.—A blood culture was taken, October 9. Ten c.c. of blood were introduced into a bottle containing 150 c.c. of a 1 per cent. glucose broth. The reaction was 0.3 plus. This was incubated at 37 C. Transfers from a twenty-four hour culture were negative. Transfers from a forty-eight hour culture showed a very fine, sparse growth practically unnoticeable unless examined with a hand lens. Morphologically these colonies resembled the influenza bacillus. Smear showed minute gram-negative diplobacilli with all the general appearances of influenza bacilli. Five-tenths c.c. of broth from the seventy-two hour culture was then injected into the peritoneal cavity of a white mouse. The following morning the peritoneal exudate showed large numbers of characteristic gram-negative bacilli, which on transfer gave a typical growth on blood agar plates but failed to grow on blood-free mediums. A mouse died in forty-eight hours. The same organisms were still present in the peritoneal cavity. The heart's blood failed to show growth.

CASE 2.—Clinical History.—The patient, admitted to the hospital, Sept. 26, 1918, had been taken ill the day before with cough, headache, backache and pains all over the body, and fever. He had fainted twice.

September 30, there was dulness in the right lower lobe anteriorly on percussion. There were many small, moist râles. No change in voice or respiration was noted. Fremitus was present. The condition was diagnosed as possibly bronchopneumonia.

October 1, there was dulness over the entire right lower lobe. There were many small, moist râles on coughing, and musical, moist râles over the entire right lower lobe. There was fremitus in both lower lobes. The condition was slightly worse than on the preceding day.

October 5, the patient was in a profuse perspiration. There was dulness in the left upper lobe and in the right lower lobe, with signs of consolidation. There were a few moist râles in the other lobes.

October 8, the patient's general condition was somewhat improved. In the afternoon there were some signs of pleurisy.

October 9, the temperature was elevated. The patient still complained of pain in both lower parts of the chest. There was no change in percussion. Friction rub and dry râles were noted especially in the left upper lobe. There was no cyanosis. Cerebrospinal symptoms were absent. The reflexes were normal.

October 10, in the morning, there was no dulness nor change in voice or breathing. There were dry, musical, and large, moist râles throughout both sides of the chest. There were no signs of fluid. In the afternoon the temperature, pulse and respiration were higher. There was no endocardial trouble.

October 11, the patient's condition was not so good. There were general mixed râles throughout the chest.

October 12, there were dry, moist and musical râles of all sizes throughout both sides of the chest, especially in the lower lobes. There were no areas of consolidation. The general condition was very good.

I was unable to complete this history.

Laboratory Diagnostics.—Blood culture was taken, October 10. The same procedure was followed as in the previous case, with practically identical results except that the mouse had not died up to the date of my departure.

COMMENT

These two blood cultures were not taken with any hope of finding the influenza bacillus, but were secured from severely ill patients with the probability of finding the more ordinary bacteria usually associated with respiratory infections. Reasoning on that basis, the logical assumption would be that it is possible to isolate the influenza bacillus from the blood in a sufficient number of clinically influenza cases to prove undoubtedly the etiology of the prevailing epidemic of so-called "Spanish influenza."

Owing to my transfer from Camp Jackson, I am unable to undertake this, but the foregoing short and incomplete report may be interesting to others.

On approximately 100 throat cultures taken for meningitis, the number of plates showing the presence (macroscopically) of influenza colonies has been striking, especially to me after having examined thousands of plates last winter, when its presence did not seem common.

PANDEMIC "INFLUENZA" AND SECONDARY PNEUMONIA AT CAMP FREMONT, CALIF.

WALTER V. BREM, M.D. (LOS ANGELES)
Major, M. C., U. S. Army; Chief of the Medical Service

GEORGE E. BOLLING (BROCKTON, MASS.)
Captain, S. C., U. S. Army; Chief of the Laboratory

AND

ERVIN J. CASPER, M.D. (SAN FRANCISCO)
First Lieutenant, M. C., U. S. Army
CAMP FREMONT, PALO ALTO, CALIF.

The expected storm of the prevailing pandemic infection broke suddenly on the Eighth Division, U. S. Army, Camp Fremont, Calif., Oct. 8, 1918, and during the next six weeks, 2,418 patients suffering from respiratory diseases were admitted to the base hospital. In addition, many soldiers having more or less mild infections were cared for in the various camp infirmaries in order to avoid overcrowding in the base hospital. Altogether there were, at a conservative estimate, 3,000 cases.

Pneumonia was diagnosed in 408 cases, an incidence of nearly 14 per cent. We know now, however, that there were many cases of pneumonia that were diagnosed as bronchitis, and that the true incidence of pneumonia was greater than that indicated.

Of the 408 patients with pneumonia diagnosed, 147 died, a mortality of 36 per cent. for the pneumonia series and about 5 per cent. for the epidemic. No deaths occurred without a complication of either lobar pneumonia or bronchopneumonia, an observation in accord with that of Christian.¹

CLINICAL FEATURES

As one reflects on the clinical features of the epidemic, one finds oneself impressed by certain striking and characteristic phenomena:

1. *Hemorrhage.*—Epistaxis was a common feature throughout. At first we looked on it as merely an inci-

dental occurrence, as in typhoid fever, and not as possessing special significance. Instances of epistaxis multiplied, however, and often blood was seen to gush from a patient's nose and mouth. When pneumonia appeared, the patients often spat quantities of almost pure blood. Female patients, of whom there were altogether about 100, had a hemorrhagic vaginal discharge, which at first was thought to be coincident menstruation, but later was interpreted as hemorrhage from the uterine mucosa. Finally, the extraordinary hemorrhagic picture seen at necropsy, together with the constant leukopenia in the initial stages, completed the evidence that led us to believe that an important feature of the disease is some kind of blood dyscrasia, which is of grave significance and suggestive of purpura hemorrhagica. In a few patients, large purpuric areas developed in the skin.

We feel that this condition is due to a depressant influence exerted by the initial infection on the bone marrow, and that it is closely related to the next extraordinary feature of the disease.

2. *Leukopenia.*—In the influenzal stage, leukopenia was practically always found, and at first it appeared to be a feature also of the pneumonic stage. Indeed, one saw many full blown cases of apparently lobar pneumonia with a leukocyte count of less than 5,000; there were five cases with a count of 3,000 or less. Smears from the lungs of some of the fatal cases showed innumerable diplococci with the large pneumococcus type of capsule, and the cultures were positive for pneumococci.

But other pneumonia patients with early leukopenia recovered, and when subsequent counts were made, it was found that in each case there was a gradual rise to from 10,000 to 24,000 leukocytes.

The conviction gradually developed, therefore, that the influence of the initial infection was a depressant one on the bone marrow resulting in leukopenia, while, on the contrary, the pneumonic infection tended to stimulate, as usual, the production of leukocytes, which gradually increased in number in the blood stream as the depressant influence waned. The leukocyte counts, from which the foregoing conclusion was drawn, are given in Table 1.

TABLE 1.—LEUKOCYTE COUNTS IN ONE HUNDRED AND FORTY-EIGHT CASES OF PNEUMONIA

Leukocyte Counts	2,000-3,000	3,000-5,000	5,000-7,000	7,000-10,000	10,000	Average Count
Fifty-Six Fatal Pneumonia Cases:						
First counts 56	3	26	8	12	7	6,320
Second counts 13	..	6	1	5	1	6,730
Third counts 1	..	..	1	..	..	5,800
Ninety-Two Non-fatal Pneumonia Cases:						
First counts 92	2	18	34	14	24	8,300
Second counts 30	..	7	8	5	10	9,080
Third counts 11	..	..	1	2	8	12,500
Fourth counts 8	..	..	..	1	7	15,000
Total counts 211	5	57	52	38	48	

Average leukocyte count in 86 influenza cases, 6,000.
Average first count in 148 pneumonia cases, 6,300.

3. *Types of Pneumonia.*—Two characteristic types of pneumonia were differentiated.

(a) *Lobar Pneumonia Type:* The first, and most common type, was that which when well developed gave the physical signs of lobar pneumonia. The onset usually occurred when defervescence of the symptoms of the initial infection was almost or quite

1. Christian, H. A.: Incorrectness of the Diagnosis of Death from Influenza, THE JOURNAL A. M. A., Nov. 9, 1918, p. 1565.

complete, about the third or fourth day. It was ushered in frequently by a chill, a sharp rise of temperature, a localized explosive shower of fine râles usually about the angle of the scapula and more frequently on the left side, and bloody sputum, amounting often to marked hemoptysis. A few roentgenographic examinations at this stage showed shadows indicating that already consolidation was beginning. Occasionally the milder of these cases cleared up quickly without further signs of pneumonia developing, but most of them proceeded to a stage of definite signs of consolidation of one or more lobes.

The temperature curve was irregular, frequently not rising as high as from the initial infection, and usually ending by lysis, the mean duration of the pneumonia fever being about seven days. The pulse rate was slow in proportion to the fever, and the blood pressure was low, the systolic pressure frequently being 100, and the diastolic pressure from 40 to 50. The pulse pressure was good, and there were no signs of cardiac insufficiency except in the fatal cases after the onset of respiratory insufficiency and shortly before the end. The danger never appeared to arise from the effect of the infection on the cardiovascular mechanism.

The respiratory rate, likewise, was slow in proportion to the fever until the toxemia became marked, when the respirations became accelerated and the respiratory abdominal excursions limited. The chief toxic effect of the infection seemed to be exerted on the respiratory mechanism, failure of which, due to excessive toxemia and to the mechanical effect of extensive consolidations and hemorrhagic edema of the lungs, caused the death of patients.

We do not know whether this type is a true lobar pneumonia or a massive bronchopneumonia due to the fusion of small areas, but we believe that it is a lobar pneumonia with the pathologic picture modified by the hemorrhagic exudate and the paucity of leukocytes.

Our reasons for this opinion are:

(1) The onset of the pneumonia was sudden, usually with a chill, frequently after the temperature of the initial infection had fallen almost or quite to normal, and there was no intermediate stage of the physical signs of bronchitis.

(2) The mean duration of the pneumonia fever was about seven days.

(3) The lungs at necropsy showed massive, air-free consolidations without any definite lobular pattern; no pus could be expressed from the bronchi; the bronchial mucosa did not show a purulent exudate or any special inflammatory thickening or change other than marked congestion, and there was practically no fibrin in the exudate. These findings were in marked contrast to the true bronchopneumonia type to be described presently.

(4) The avenue of infection of the lungs did not appear, therefore, to be by extension along the bronchial mucosa, but by way of the blood stream, as is probably the case in ordinary lobar pneumonia.

(5) The bacteriologic findings were different from those of the bronchopneumonia type.

(b) *Bronchopneumonic Type*: The second type was that of true bronchopneumonia. The onset was not clearly defined, the course being continuous with that of the initial infection; the temperature curve was irregular; the sputum was not bloody, but puru-

lent ("nummular"); physical signs of diffuse bronchitis were usually present. Fatal cases sometimes showed a low or even normal temperature with cyanosis and marked "air hunger." The patient belonging to this group had a normal temperature, good pulse, no sputum, and no râles in his chest. The percussion note over the lungs was hyperresonant, the breath sounds distant and scarcely audible; there was marked dyspnea and cyanosis. The diagnosis was not suspected until necropsy disclosed the real condition. The bronchi were full of pus; and little nodules, bronchopneumonic consolidations, were scattered uniformly throughout the lungs. Death appeared to be due to actual asphyxiation.

Five patients with this type of pneumonia developed a puzzling subcutaneous emphysema, which, in the most marked case, extended from the forehead to Poupart's ligament in front and the buttocks behind. The postmortem examination demonstrated in two cases that emphysematous air cells at the root of the right lung had ruptured into the loose mediastinal tissues, and that the air had progressed upward to the neck, and infiltrated the subcutaneous tissues. Cultures from the subcutaneous tissue for anaerobic organisms were negative.

The clinical features of this type, and also the pathologic features, to be described, indicated that it was due to a direct extension of the inflammation down the bronchial mucosa. *B. influenzae* was found in cultures from the pus droplets of the small consolidated areas in the three cases carefully studied bacteriologically at necropsy—twice in pure culture, one with *M. catarrhalis*.

The leukocyte counts in this group are few. In two fatal cases there were 7,600 and 6,000 leukocytes, respectively. In the second case the count rose to 16,400 before death. *B. influenzae* was present in pure culture in the lungs in both cases.

We cannot estimate the relative percentages of the two types of pneumonia, for they were differentiated but late in the epidemic, and the clinical records do not enable one to separate them. It is certain, however, that the first type is far the more common, but the second type is by no means infrequent.

4. *Other Clinical Features of Interest*.—These may be thus grouped together:

(a) Frequency of pneumonic involvement of the left lower lobe.

(b) Irregularity of the pneumonia temperature and infrequency of termination by crisis.

(c) Frequency and grave significance of cyanosis, which often seemed to appear before the onset of respiratory insufficiency.

(d) Relatively slow pulse and respiratory rates associated with high temperatures.

(e) Low systolic and diastolic blood pressure and good pulse pressure.

(f) Relative infrequency of otitis media.

(g) Infrequency of empyema and other complications of pneumonia (in only one pneumonia case did empyema develop).

(h) High pneumonia mortality rate.

PATHOLOGIC FEATURES

Deaths were always due to pneumonia. In thirty postmortem examinations, lobar pneumonia was diagnosed twenty-five times, bronchopneumonia, five times.

The two types presented striking differences at the postmortem examination:

1. *Lobar Pneumonia Type*.—Frothy, bloody serum poured from the nose and mouth when the body was moved or the head lowered. On section of the skin, dark blood oozed from the cut vessels. The pleural cavities always contained a quantity of serosanguineous fluid, but the pleurae did not show the fibrinopurulent exudate commonly found in lobar pneumonia.

The lungs were extensively involved, there being practically always large areas of consolidation in several lobes; hemorrhages under the pleurae were frequently seen; the lungs were dark red and irregularly mottled, very moist and bloody, the cut surface smooth and velvety; the consolidated areas contained no air, and no pus could be expressed from the bronchi. The early condition was that of acute hemorrhagic edema.

The peribronchial lymphatic glands were very large, dark red, congested, soft and friable.

The heart muscle was dark red, relaxed and flabby, offering a strong contrast to the firm, contracted left ventricle nearly always present postmortem in bodies of patients dying from lobar pneumonia; the heart's blood was fluid and dark, there being only small, flimsy, postmortem clots and no "chicken fat" clots. The abdominal viscera showed marked congestion, the glomeruli of the kidneys standing out distinctly.

Microscopically, the alveoli of the lungs were full of red blood cells in the portions recently involved; in the older portions polymorphonuclear leukocytes became more or less prominent in the exudate; no fibrin was seen; the bronchi were not plugged with pus; the blood vessels were engorged.

2. *Bronchopneumonia Type*.—The tissues of the bodies were dry; there was no "frothing at the mouth"; no blood oozed from small cut vessels; the pleural cavities contained no fluid, but there were patchy areas of fibrinopurulent exudate with recent, easily separated pleural adhesions.

The lungs were very pale and extremely voluminous, and did not collapse when the chest was opened. Emphysematous bullous-like areas beneath and elevating the pleurae were common; these had transparent bubble-thin walls and were divided into numerous compartments by the walls of the dilated air cells. Pus streamed from the trachea when the lungs were removed. Small areas, from 2 to 5 mm. in diameter, of consolidated tissue were scattered uniformly throughout the lungs, and these little areas felt like disseminated conglomerate tubercles. On section, the lungs were dry, the solid areas were gray and granular in appearance, and a drop of pus could be expressed from the center of each. In one case, about half of the right upper lobe was consolidated; it had a mottled gray, granular appearance, and there were numerous points where droplets of pus could be expressed, the large area of consolidation being evidently formed by the confluence of smaller areas of bronchopneumonia.

The peribronchial lymphatic glands were very large, the cut surface gray and granulated. They were soft and friable.

The heart showed nothing remarkable, nor did the abdominal viscera. In one case the spleen was quite large and the malpighian bodies stood out distinctly, and the liver and kidneys showed cloudy swelling. In two necropsies the mediastinal and subcutaneous tissues

showed marked emphysema due to the rupture of dilated thin walled air cells on the anterior surface of the root of the right lung into the loose mediastinal tissue.

Microscopically, the consolidated areas of the lungs showed a bronchiole full of pus cells and the surrounding alveoli packed with pus cells and desquamated epithelium, and there was considerable fibrin formation. The air cells of the adjacent uninvolved lung were dilated and the walls were thin; the vessels were not engorged.

BACTERIOLOGIC FEATURES

Cultures from the nasopharynx were made from every patient admitted to two of the wards; 148 patients were examined, and *B. influenzae* was isolated from thirty-seven patients, or 25 per cent. Ten of these patients, or 27 per cent., developed pneumonia. The findings in this series are given in Table 2, which shows also the number of patients that developed pneumonia.

TABLE 2.—BACTERIOLOGIC FINDINGS IN CULTURES FROM THE NASOPHARYNX OF ONE HUNDRED AND FORTY-EIGHT SUCCESSIVE EPIDEMIC CASES

	Number	Per Cent.	Developed Pneumonia	Per Cent.
<i>B. influenzae</i> with other organisms	37	25	10	28
<i>Pneumococcus</i> alone	67	45	15	22
<i>Pneumococcus</i> and streptococcus	22	15	4	18
<i>Pneumococcus</i> , streptococcus and <i>M. catarrhalis</i>	5	3	2	40
Total <i>pneumococci</i>	94	63	21	22
Total streptococci	27	18	6	22
<i>M. catarrhalis</i> alone	16	11	2	12.5
Total <i>M. catarrhalis</i>	21	14	4	19

Similar cultures from the nasopharynx were made in 537 cases. These were usually selected severe cases of respiratory infections. The results are given in Table 3, and other bacteriologic findings in tables that follow.

TABLE 3.—BACTERIOLOGIC FINDINGS IN CULTURES FROM THE NASOPHARYNX OF FIVE HUNDRED AND THIRTY-SEVEN SELECTED SEVERE EPIDEMIC CASES

	Number	Per Cent.
<i>B. influenzae</i>	259*	46
<i>Pneumococci</i>	149	28
Streptococci, all kinds	160	30
Staphylococci, all kinds	64	12
<i>M. catarrhalis</i>	62	11.5

* *B. influenzae* was usually associated with other organisms. There were a few pure cultures.

TABLE 4.—BACTERIOLOGIC FINDINGS IN CULTURES FROM THE NASOPHARYNX OR SPUTUM OF ONE HUNDRED AND FIFTY-EIGHT PNEUMONIA CASES

	Number	Per Cent.
<i>B. influenzae</i>	58*	38
<i>Pneumococci</i>	64	40.5
Streptococci, all kinds	46	29
Staphylococci, all kinds	21	13
<i>M. catarrhalis</i>	11	7

* *B. influenzae* was practically always associated with other organisms.

In three cases of the bronchopneumonia type, smears from the pus droplets expressed from the small consolidated areas in the lungs showed innumerable small gram-negative bacilli, and *B. influenzae* was cultivated, twice in pure culture and once with *Micro-*

coccus catarrhalis. Cultures from the heart's blood were negative in all three cases.

Pneumococci from all cultures were typed thirty-eight times.

For cultures of *B. influenzae* during the first part of the epidemic, the surface of ordinary blood agar plates was inoculated. Later the blood agar was heated to

TABLE 5.—BACTERIOLOGIC FINDINGS IN POSTMORTEM CULTURES FROM THE LUNGS IN TWENTY LOBAR PNEUMONIA CASES

	Number	Per Cent.
<i>B. influenzae</i> and <i>S. viridans</i>	1	5
<i>B. influenzae</i> and pneumococci.....	2	10
Pneumococci alone.....	9	45
Pneumococci and <i>S. hemolyticus</i>	1	5
<i>S. viridans</i> alone.....	1	5
Staphylococci.....	1	20
<i>M. catarrhalis</i>	0	0
Sterile cultures.....	2	10

TABLE 6.—BACTERIOLOGIC FINDINGS IN POSTMORTEM CULTURES FROM HEART'S BLOOD IN TWENTY LOBAR PNEUMONIA CASES

	Number	Per Cent.
<i>B. influenzae</i> and <i>S. viridans</i>	1	5
<i>B. influenzae</i> and pneumococci.....	2	10
Pneumococci alone.....	7	35
Pneumococci and <i>S. hemolyticus</i>	1	5
<i>S. hemolyticus</i> alone.....	1	5
<i>S. viridans</i> alone.....	1	5
Staphylococci.....	4	20
Sterile cultures.....	3	15

TABLE 7.—TYPES OF PNEUMOCOCCI IN THIRTY-EIGHT CULTURES

Types	Number	Per Cent.
1.....	0	0
2.....	3	8
2 a.....	1	3
3.....	0	0
4.....	34	89

70 C. for fifteen minutes, poured in plates, and the surface inoculated. The latter method proved much more effectual for the isolation of *B. influenzae*.

ETIOLOGY

The results of the bacteriologic examinations are disappointing and their value small in proportion to the amount of work entailed.

B. influenzae was a common organism during the epidemic, and was the one encountered most frequently in the group of selected severe respiratory infections. It was less frequently found than the pneumococcus in the series of 148 consecutive cases, and it was isolated only three times in the postmortem cultures from the lungs and three times from the heart's blood in twenty lobar pneumonia cases, twice with the pneumococcus and once with *Streptococcus viridans*. It was present, however, in cultures from the lungs in all of three fatal cases of bronchopneumonia, twice in pure culture and once with *Micrococcus catarrhalis*.

In view of the fact that *B. influenzae* is rather an uncommon organism in most epidemics of infections of the upper respiratory tract, its relative frequency in this epidemic may be of some etiologic significance. Otherwise there is no evidence that it is more than an incidental or secondary invader. Certain clinical phenomena point to the latter view, and to the fact that the organism initiating the epidemic is unknown.

The argument based on the clinical phenomena referred to is:

1. The initial infection, that is, the epidemic disease, apparently caused the hemorrhagic phenomena and the leukopenia.

2. In the purest and most intense *B. influenzae* infections (that is, in the three bronchopneumonia cases in which *B. influenzae* in great numbers was found in the pus filling the bronchial tree), there were no hemorrhagic manifestations, and two leukocyte counts in one of the cases showed a rise from 6,800 to 16,400.

3. Therefore, it seems improbable that *B. influenzae* was the organism initiating the epidemic.

It may be objected that there is no proof that the initial infection caused the hemorrhagic phenomena, which might have been caused by a secondary invader with special characteristics, for example, pneumococcus Type IV. This objection is difficult to meet, especially in view of the fact that fatal cases of the lobar pneumonia type showed hemorrhagic phenomena of extreme degree and a persistent leukopenia. However, many uncomplicated cases of the epidemic disease manifested hemorrhagic phenomena and usually leukopenia, while in nonfatal secondary pneumonia cases both the hemorrhagic phenomena and the leukopenia disappeared during the course of the pneumonia. As we have stated elsewhere, we believe that the hemorrhages and the leukopenia were both due to a depressant action of the initial infection on the bone marrow, and that the secondary pneumonia infection tends to reactivate the bone marrow, which responds as the primary influence wanes. We believe, further, that in fatal cases the depressed bone marrow cannot react to the secondary stimulus, and hemorrhages and leukopenia persist.

From the evidence at hand, we feel justified, therefore, in adopting the following working hypothesis:

(a) The organism of the initial infection of the epidemic is unknown. It seems probable that it is an ultramicroscopic filtrable virus.

(b) Important features of the initial infection are hemorrhagic phenomena and leukopenia, indicating depressed activity of the bone marrow. Microscopic studies of the bone marrow and studies of the blood with reference to the platelets and the elements of coagulation are indicated.

(c) The primary infection causes lowered resistance to certain secondary organisms.

(d) The lobar pneumonia type of the secondary pneumonias is caused by a number of organisms, chief of which are pneumococci, *Streptococcus hemolyticus* and *Streptococcus viridans*. Pneumococci, Type IV, predominate.

(e) The bronchopneumonia type of the secondary pneumonia is caused by *B. influenzae*.

SPECIAL BLOOD EXAMINATIONS

Coagulation Tests.—An attempt was made to determine whether or not some element of coagulation was lacking in the blood. Two methods were used.

1. The coagulation time of the blood of fifteen patients was determined by the following technic: A syringe was thoroughly cleaned and sterilized, and the walls were moistened with physiologic sodium chlorid solution, enough being left to fill the needle so as to prevent the introduction of tissue juices. The needle was then introduced into a vein, an attempt being made to plunge it immediately into the vein so as to avoid

injuring tissues. Four c.c. of blood were aspirated and expelled into a thoroughly cleaned and dried test tube, 20 mm. in diameter. The blood was allowed to coagulate until the clot held intact to the bottom, when the tube was inverted. The time required for this was taken as the criterion of the coagulation time. The results are given in Table 8.

TABLE 8.—COAGULATION TIME WITH FRESH BLOOD AND 20 MM. TEST TUBES

	Number of Cases	Coagulation Time, Minutes
Normal controls.....	4	From 12 to 18
Hemorrhagic cases.....	3	6½ to 10
Hemorrhagic cases.....	11	11 to 15½
Hemorrhagic cases.....	1	22

The variations of the coagulation time were within the limits of accuracy of the test, and showed no definite deviations from normal.

2. A second series of eleven tests was made by oxalating the blood, making a total strength of 0.1 per cent. sodium oxalate, separating the plasma and adding increasing quantities of calcium chlorid, 0.5 per cent. Five drops of plasma were placed in each of three small tubes, and 1, 2 and 3 drops, respectively, of the calcium chlorid solution were added. The tube in which coagulation occurred first was taken as the one indicating the coagulation time.

TABLE 9.—COAGULATION TIME WITH OXALATED PLASMA AND CALCIUM CHLORID *

	Number of Cases	Coagulation Time, Minutes
Normal controls.....	3	From 7 to 12
Hemorrhagic cases.....	2	Under 7
Hemorrhagic cases.....	4	7 to 12
Hemorrhagic cases.....	3	12½ to 16
Hemorrhagic cases.....	1	17
Hemorrhagic cases.....	1	5½ hours

* Simon, C. E.: A Manual of Clinical Diagnosis, Philadelphia, Lea & Febiger, 1918, p. 105.

Four of the foregoing tests showed apparently a slight increase of coagulation time, and one a marked increase, the plasma requiring five and one-half hours to coagulate. A second test of this blood, made six hours after the administration intravenously of coagulen (to be discussed later) showed a coagulation time of only sixteen minutes.

The first method of testing coagulation time requires extreme care, for there are many influences tending to error that must be controlled. These influences all tend to shorten the coagulation time. Therefore, the absence of delayed coagulation in the series is not conclusive proof that some element of coagulation is not deficient.

The second method is less subject to technical errors, and the results are more dependable. The results of the tests in this series, however, are not sufficiently definite for conclusions to be drawn. The single test showing a markedly prolonged coagulation time, in the absence of other corroborative tests, must be looked on with the suspicion that the delay was due to some error in technic.

Bleeding Time.—A clean puncture of the ear was made, and the drop of blood was blotted up every fifteen seconds with filter paper until the paper was no longer stained. The time required is the "bleeding time" (Duke). The few tests that we made showed

bleeding times within normal limits—from one and one-half to three minutes. A prolongation of bleeding time, according to Duke, is due to platelet deficiency, the number being insufficient to block the ends of the bleeding vessels. There was no evidence, therefore, from these tests that a deficiency of blood platelets existed. No platelet counts were made, but examination of carefully prepared cover-glass preparations of blood showed no apparent decrease of platelets.

Summary.—Clinical phenomena indicate that an important and grave feature of the epidemic disease is a blood dyscrasia manifested by hemorrhages and leucopenia. It is thought to be due to a depressant influence exerted by the initial infection on the bone marrow. Our incomplete laboratory examinations have not indicated clearly the nature of the blood dyscrasia, if there be one.

TREATMENT

Nonspecific.—Patients suffering from the upper respiratory infections received only the usual care of rest in bed, abundant food, cathartics and palliatives, such as acetylsalicylic acid. Great care was taken during convalescence to avoid exposure and overexertion, which, we believed, might be predisposing, etiologic factors of pneumonia.

The pneumonia patients were treated from the point of view of husbanding the defensive resources of the patient in order to gain time for the development of the offensive forces of immunity. Therefore, considering the fact that the work of the heart and respiratory mechanism is already increased above normal in pneumonia, stimulants were avoided, and an effort was made to keep the patients as nearly as possible at rest. Morphine was used freely to allay restlessness, pain and coughing and in an effort to reduce the respiratory rate and to increase the abdominal respiratory excursions, thereby to prevent fatigue of the respiratory center and to increase the efficiency of each respiratory effort. We felt safe in any given case as long as the abdominal respiratory movements remained good. The heart appeared to be affected relatively little by the infection, and the pulse usually continued good after respiratory insufficiency had set in. Oxygen was given for periods of five minutes with twenty-minute intervals to patients with respiratory insufficiency and cyanosis. It seemed to give temporary relief to some patients, but there was no evidence that it affected the final outcome. As a last resort, camphorated oil and caffeine were given hypodermically as stimulants in a vain effort to "tide over" a critical period. Digitalis was not used. During the first half of the epidemic, whisky, one-half ounce, and strychnin, one-fortieth grain by mouth, were given alternately every two hours. These doses did not appear to have any effect on the patients, and it is our impression that the patients in this series did no better or worse than those of the later series, nor was there any significant difference in the mortality of the two series. Hydrotherapy was used externally and internally to combat the fever and toxemia.

In our plan of symptomatic treatment we find that we are in complete accordance with Strouse and Bloch.²

In regard to the use of opiates, one of us (Brem) has studied the effect on the respirations in pneumonia of a combination of heroin, one-twelfth grain, and codein, one-fourth grain, given hypdermically, and he has

2. Strouse, Solomon, and Bloch, Leon: Notes on the Present Epidemic of Respiratory Disease, THE JOURNAL A. M. A., Nov. 9, 1918, p. 1568.

found it preferable to morphin for the prevention of respiratory fatigue. Heroin and codein seem to have a synergistic action, and they often lessen markedly the respiratory rate while definitely increasing the respiratory excursions. They should be given every four hours for a respiratory rate of 36 or greater, a rate of 40 per minute having been found to be approximately the danger line.

Their effect is slight when the respiratory rate approaches 50 per minute. Pneumonia patients tolerate well large amounts of opiates, and the only contraindications are tympanites and a failure of the respirations to increase in depth while lessening in rate. The latter contingency should be judged by the excursion of the abdominal respiratory movements.

In two cases of the bronchopneumonia type, epinephrin and atropin were given to dilate the bronchi, and the head was lowered to promote drainage. The treatment was ineffectual, and both patients died.

Specific Treatment.—Polyvalent antipneumococcus serum was given in four unselected cases early in the course of pneumonia. Two of these patients made rather rapid recoveries, one ran a moderately severe course but recovered, and one died. This did not seem to be a deviation from the natural course of the disease uninfluenced by treatment, and since we did not consider the treatment immunologically hopeful we did not continue it.

Serum from five convalescent patients was pooled and 35 c.c. were given to each of five selected dangerously ill patients, all of whom were spitting blood. Though the blood spitting practically ceased in four cases and decreased in the fifth, all five patients died. This series does not furnish evidence against the value of convalescent serum, for only one comparatively small dose was administered to each patient, and at that time all of the five patients were extremely ill. We should have pursued investigations along this line but for other considerations, which will be discussed presently.

Antipneumococcus serum, Type I, was not used, as no Type I pneumococci were isolated.

Vaccines have not been used either prophylactically or in the treatment of the epidemic cases, as it seemed to us that there was no reasonable hope of benefit to be derived from their administration.

Coagulen Treatment.—In view of the frequent bleeding, it was thought that some coagulant might be effectual in combating the hemorrhagic diathesis. One of us (Casper) suggested a trial of coagulen-Ciba. As the first few intravenous injections seemed to check epistaxis and blood spitting within twelve hours, its use was continued and the results proved gratifying. At one time, we were unable to obtain coagulen, and thromboplastin-Squibb was substituted. This preparation did not prove as effectual as coagulen, and its use was abandoned. The apparent result of coagulen treatment on the mortality rate is shown in Table 10.

It is evident that coagulen is ineffectual when administered to seriously ill patients in the late stage of the disease. This result was anticipated. But the low mortality, 6.5 per cent., in the unselected early group against the 36 per cent. general mortality for pneumonia in the epidemic, seems very significant, especially when considered together with the clinical observation that visible hemorrhage (epistaxis, blood spitting and metrorrhagia) appeared to be checked by the administration of coagulen.

By "unselected" in the unselected group, it is meant that the patients were not selected with reference to the mildness of the symptoms. They were selected in the sense that they manifested some evidence of hemorrhage.

We feel that the beneficial result was due to the prevention of further hemorrhage into the alveoli of the lungs. The pathologic evidence favors the view that the initial pulmonary pathology of the lobar pneumonia type is a hemorrhagic edema. Several of the patients to whom coagulen was given had had a sharp rise of temperature during defervescence of the initial attack, they had begun to expectorate bloody sputum, and the characteristic explosive shower of fine râles could be heard over a large localized area about the angle of the scapula. After the coagulen injection, the blood spitting ceased, no physical signs of consolidation of the involved area developed, and the patients made a rapid recovery. However, roentgenographic examination made early in convalescence

TABLE 10.—RESULTS OF COAGULEN TREATMENT

	Cases	Deaths	
		Number	Per Cent.
Total patients treated.....	70		
Unselected cases, early lobar pneumonia type	46	3	6.5
Selected cases, late, seriously ill, lobar pneumonia type.....	7	7	100.0
Total deaths from coagulen-treated pneumonia patients.....	..	10	18.9

showed that there had been considerable central consolidation of the lung in the area where the râles were heard.

Comment.—The *modus operandi* of coagulen action is not clear. Our laboratory tests, which are incomplete, do not show, with one exception, a delayed coagulation time, though postmortem findings indicate that such is the case. Further tests may correct those we have made. If the blood dyscrasia were due to platelet deficiency, the action would be more difficult to explain, for platelet deficiency can be effectually combated, so far as is known, only by the transfusion of fresh whole blood. Counts of the platelets were not made. However, the "bleeding time" was not prolonged in the tests made, and therefore platelet deficiency seems unlikely. Blood smears did not show any apparent decrease of platelets.

We are aware that Hanzlik,³ in testing coagulen, administered intravenously to bleeding dogs, found its influence on the hemorrhage variable, and that the results ran parallel with the effect on the blood pressure. But his experiments were made with presumably healthy dogs in whose blood no element of coagulation was lacking. It is probable that these experimental data do not indicate what might happen in a blood dyscrasia due, for example, to prothrombin deficiency, which coagulen might remedy.

We wish to emphasize that we hold no brief for coagulen to the exclusion of other coagulants. It has been found to be a convenient and apparently efficient remedy. But it is quite possible, and indeed probable, that some other antihemorrhagic agent may be more efficient. We attribute the results obtained solely to its influence on the hemorrhagic diathesis, and we would suggest that other remedies that have given

3. Hanzlik, P. J.: *Journal Pharmacol. and Exper. Therap.*, 1918, 12, 119.

apparently good results (convalescent serum, horse serum and polyvalent antipneumococcus serum) act in the same manner.

We have prepared coagulen for intravenous injection by dissolving 1.5 gm. in 30 c.c. of distilled water or salt solution, making a 5 per cent. solution. This is sterilized by boiling two minutes and the cloudy preparation is not filtered.

With the first lot used, no reactions were observed following the injections, but with the second lot a chill and increased fever frequently followed. On the following day the fever usually dropped to or nearly to normal. In other words, there seemed to be a reaction similar to the reactions following intravenous typhoid vaccination, proteose injections, etc. The result appeared to be beneficial, but we do not advocate using coagulen from this point of view, and we would prefer, at present, not to induce the "chill and fever shock," for the mechanism of its beneficial action and the conditions of safety are not understood. However, in our cases it has done no harm.

SUMMARY

1. The epidemic of acute respiratory infections numbered about 3,000 cases. A secondary pneumonia developed in 408 of the cases, an incidence of about 14 per cent. There were 147 deaths from pneumonia, a mortality of 36 per cent. for the pneumonia series, and of about 5 per cent. for the epidemic.

2. Hemorrhage was a prominent feature of the epidemic cases. Epistaxis was common, blood spitting and even hemoptysis occurred in the pneumonia cases, metrorrhagia was the rule in female patients, purpura of the skin occurred several times, and necropsies showed a fluid condition of the blood and hemorrhagic edema of the lungs. There was, therefore, clinical evidence of a hemorrhagic blood dyscrasia. Laboratory tests to determine the nature of the dyscrasia did not furnish conclusive evidence.

3. Leukopenia was constant during the initial infection and during the early stage of pneumonia. It persisted throughout the course of most of the fatal cases of pneumonia, but during the course of the nonfatal cases the leukocytes gradually rose to from 10,000 to 24,000. The conclusion was reached that the initial infection exerted a depressant influence on the bone marrow, while the secondary pneumonic infection tended as usual to stimulate the production of leukocytes, which increased in number as the primary influence waned.

4. The secondary pneumonias divided themselves into two types: (1) the lobar pneumonia type, and (2) the bronchopneumonia type.

5. Bacteriologic studies threw no light on the etiology of the initial infection. *B. influenzae*, pneumococci (nearly all of Type IV), and streptococci were the predominating organisms found. It is believed that the virus of the initial infection of the epidemic is still unknown; that the secondary lobar pneumonias were due to pneumococci and streptococci, pneumococci predominating, and that the bronchopneumonias were due to *B. influenzae*.

6. Treatment of the hemorrhagic diathesis by the intravenous injection of coagulen appeared to be effectual. This treatment was effectual only in the stage of the initial infection and in the early stage of the lobar pneumonia type of the secondary pneumonias. It is of no value in the late pneumonias.

ACUTE MENINGOCOCCIC ENDOCARDITIS AND SEPTICEMIA*

E. B. KRUMBHAAR, M.D. (PHILADELPHIA)
Captain, M. R. C., U. S. Army

AND

J. H. CLOUD, M.D. (ARDMORE, PA.)
First Lieutenant, M. R. C., U. S. Army

FRANCE

Although the portal of entry of the meningococcus has never been demonstrated, the evidence in favor of the nasopharyngeal route to the cerebrospinal meninges has been so strong that it has been more or less generally accepted. Whether, however, it reaches the meninges by way of the blood stream or more directly by the olfactory nerves or ethmoid sinuses is still a much discussed detail. A growing list of cases of meningococcic septicemia (Baeslack and collaborators,¹ Raffaelli² and others) and a few acute meningococcic endocarditis (Worster-Drought and Kennedy,³ Cecil and Soper⁴) have now been reported.⁵ Furthermore, the type of initial fever and the finding of meningococci in the petechiae and elsewhere indicate that in many cases at least the infection is temporarily generalized (Netter⁶) and the occasional isolation of meningococci from the blood prior to their detection in the spinal fluid is added proof that the route of entry from the nasopharynx is probably the blood stream. It would seem probable that, just as typhoid and pneumonia (which start as local diseases of the intestine and lung) are for a short period true septicemias with occasional lesions of distant parts, so also the meningococcus invades the whole system, but in the majority of cases eventually exerts a selective affinity for the meninges. In a few the septicemic features may persist and overshadow the meningitic element (Nankivell⁷) or even cause death without either clinical or postmortem signs of meningitis (Herrick,⁸ Pybus,⁹ Andrewes,¹⁰ and Cecil and Soper⁴).

Such facts as the foregoing have led Herrick to believe that the disease is not primarily a meningitis, and that "meningococcic sepsis," or "spotted fever," are better terms than "epidemic cerebrospinal meningitis." Similarly he believes that intravenous serum treatment should precede and is more important than intraspinal injections. Whether or not further investigations will support this extreme view, the following three cases, occurring within a year among sixteen

* From No. 16 General Hospital, B. E. F.

1. Baeslack, F. W.; Bunce, A. H.; Brunelle, G. C.; Fleming, J. S.; Klugh, G. F.; McLean, E. H., and Salomon, A. V.: Cultivation of the Meningococcus Intracellularis (Weichselbaum) from the Blood, *THE JOURNAL A. M. A.*, March 9, 1918, p. 684.

2. Raffaelli, G.: Sulla Presenza del Meningococci nel Sangue, *Gaz. d. Osp.*, 1917, **38**, 685.

3. Worster-Drought, C. W., and Kennedy, A. M.: Cerebrospinal Fever: Mode of Infection by the Meningococcus, *Lancet*, London, 1917, **2**, 711.

4. Cecil, R. L., and Soper, W. B.: Meningococcus Endocarditis with Septicemia: Its Bearing on the Mode of Infection in Epidemic Cerebrospinal Meningitis, *Arch. Int. Med.*, July, 1911, 1.

5. The rarity of meningococcic endocarditis is shown by the statement of MacCallum (*Textbook of Pathology*, Ed. 1, p. 528) that only one such case occurred in his long service and none in Councilman's.

6. Netter, A.: The Presence of the Meningococci in the Purpuric Elements of Meningococcic Infections, *Brit. Jour. Child. Dis.*, 1917, **14**, 101, 104; *Rev. de med.*, 1917, **35**, 133.

7. Nankivell, A. T.: Personal communication to the authors.

8. Herrick, W. W.: The Epidemic of Meningitis at Camp Jackson, *THE JOURNAL A. M. A.*, Jan. 26, 1918, p. 227.

9. Pybus, F. C.: Case of Fulminating Meningococcus Septicemia, *Lancet*, London, 1917, **1**, 803.

10. Andrewes, F. W.: Case of Acute Meningococcal Septicemia, *Lancet*, London, 1906, **1**, 1172.

cases of cerebrospinal meningitis, may add weight to the already imposing list of this type of case:

REPORT OF CASES

CASE 1.—Clinical History.—Private S. M., aged 28, had been in the service eleven months and in France four months. His past history was negative, except for occasional attacks of bilious vomiting and furunculosis. His present illness began suddenly with rigor followed by pyrexia and vomiting. The patient stated that he had very severe pains in the back of the head and neck and pain in the back. The pain in the neck was greatly aggravated by motion and radiated down the spine. Pain was also felt in the shins. The heart and lungs were normal. The vomiting continued for several days, jaundice appearing on the fifth day. Pyrexia continued between 101 and 102 F. and the pulse from 80 to 90 per minute. On the seventh day of the disease, a generalized purpuric eruption appeared all over the body, most marked on the limbs (that is, five days later than in Case 2). The leukocyte count at this time was 35,000, and a lumbar puncture gave a turbid fluid, under pressure, with numerous polymorphonuclear leukocytes but no organisms. The next day the patient complained of intense headache and pain in the back of the neck. There was distinct muscular rigidity. The abdominal reflexes were normal, and a slight Kernig's sign was obtained. The Babinski reflex was negative. The purpuric eruption remained unchanged. The eye grounds were normal and the patient was conscious. For the next few days the temperature remained about 103. The patient was drowsy and swallowed with difficulty. The petechial hemorrhages became larger and more extensive. A blood examination at this time (fourteenth day of the disease) showed 48,000 leukocytes (polymorphonuclears, 94 per cent.; small lymphocytes, 4 per cent.; large and transitional cells, 2 per cent.). On the following day there was paralysis of the muscles of the left arm, and by the eighteenth day of the disease the patient was unable to swallow. With the exception of the paralyzed muscles, there was general spasticity of the body, the petechial eruption remained the same, and subconjunctival hemorrhages appeared in both eyes. Respiration became more labored; and though the meningeal symptoms seemed lessened during the week, fever continued and the patient gradually failed, till death occurred on the nineteenth day of the disease.

Nine lumbar punctures were made, and each withdrawal of spinal fluid was followed by intrathecal injection of 30 c.c. of curative serums (two of Pasteur's, four of Lister's polyvalent, and three of Gordon's Type II serum). Type II meningococcus had been isolated from the spinal fluid both at the casualty clearing station and the base hospital independently. In addition as the patient's condition at one time seemed more septicemic than meningitic, one intravenous injection of 30 c.c. of Gordon's Type II serum in 1½ pints in physiologic sodium chlorid solution was given.

Laboratory Examinations.—Daily lumbar punctures gave in the beginning an excess of pearly, turbid fluid, with 96 per cent. of polymorphonuclears, and on standing a heavy, yellowish, purulent sediment. Gram-negative, intracellular diplococci were found without difficulty in the first two smears. On tryptic agar plates there were a few viscid, white colonies, which grew on agar only at incubator temperature, gave acid on glucose and not on saccharose, and agglutinated up to 1:400 with Type II (Gordon) antiserums and slightly with Type IV antiserums. From the third puncture on, the spinal fluid was clear and colorless, and no organisms were obtained in either smear or culture. (On the last smear examined, from fluid taken shortly before death, two large clumps of apparent meningococci were observed.)

Necropsy.—There were numerous petechiae, not only of the skin, but also of the pleura-pericardium, and peritoneal covering of the stomach and liver, and of the mucosa of the stomach, intestine, the pelvis of kidney and the ureters. The heart was of normal size and color. On the posterior aortic valve was a rather soft, flat, grayish vegetation, 3 mm. in diameter, and on the anterior aortic and both mitral valves, several soft, glistening, yellowish, minute spots, that were

easily wiped off. Smears from these valves showed numerous polymorphonuclears and many large, round, gram-negative cocci, mostly in pairs, both intracellularly and extracellularly. Smears from the heart's blood and pericardial fluid gave similar results. Examination of the brain and cord showed a slight excess of clear, serous fluid, but no gross microscopic signs of meningeal inflammation or exudate. A smear of subpial scrapings showed a few polymorphonuclear and intracellular meningococci. The other organs showed nothing noteworthy except areas of intense congestion of the kidney, liver and spleen, and localized infiltration of leukocytes and beginning hyaline change in these organs.

CASE 2.—Clinical History.—Lance Corporal L. D. D., aged 23, three years in the service and two years in France, with negative history, was taken suddenly ill, on April 4, 1918, and soon developed a temperature of 104 F. with rapid pulse and muttering delirium, alternating with periods of irritability. He did not vomit, the pupils were equal, and there was no squint. The patient's condition was generally spastic, and he quickly sank into what was termed a "typhoid state." There was incontinence of urine. On admission two days later the temperature was 102, pulse 140. The patient was comatose, breathing heavily, the pupils were sluggish, slightly dilated and equal, and at no time could he be aroused. The tongue was coated and moist. There was no vomiting. There was general muscular spasticity. The head was retracted and the neck rigid, while in the muscles of the face were numerous fibrillary contractions, although there was no general convulsion of the body. Incontinence of the urine continued. The bowels were constipated. A petechial rash was profusely distributed over the chest and abdomen, but especially the limbs. The following day the temperature was 102, respiration 66 and pulse 140, death taking place on the afternoon of the 7th, after an illness of about seventy-two hours.

Laboratory Examinations.—The first lumbar puncture was made at No. 2 Stationary Hospital on the second day of illness. The spinal fluid was found to be under pressure, having a slight opalescence. The centrifuged deposit of pus contained a few gram-negative diplococci. During the evening of the same day 30 c.c. of Lister Institute polyvalent automeningococcic serum were given intravenously. The following morning 50 c.c. of clear spinal fluid were removed at this hospital and 30 c.c. of the same polyvalent serum injected intrathecally. The centrifuged specimen of the clear fluid showed a moderate number of gram-negative diplococci, chiefly intracellular, and gave a few characteristic colonies on trypsin agar. These fulfilled the various cultural requirements, but agglutinated with all four of Gordon's type antiserums up to 1:400.

Necropsy.—Twelve hours later, no gross evidence of a lesion of the brain or cord or meningeal exudate could be detected. Histologically, the only sign of meningitis present was an occasional leukocyte beneath the pia mater. Near the bases of the mitral leaflets there were numerous minute, glistening vegetations, which could easily be wiped off. Smears from these gave numerous polymorphonuclears and endothelial cells and many gram-negative diplococci. Smears from the heart's blood also showed gram-negative cocci, arranged in pairs and short chains of pairs, and gram-positive rods. Rather marked areas of round cell infiltration were present in the liver and kidney parenchyma, with bile staining of central cells of the liver lobules and fibrous obliteration of some of the kidney tubules and glomeruli.

CASE 3.—Clinical History.—Private P. W. K., aged 23, was admitted to the hospital after an illness of twenty-four hours with a history of stupor and rigidity of the neck. The temperature was 102.2 F., pulse 78, respiration 38. The past history was negative. On admission the patient was semiconscious, with rigidity of the neck and back and pain in the head and back, and the temperature was 97. The patellar reflexes were normal. Babinski's and Kernig's signs were absent, although the latter had before been well marked. A pronounced petechial rash was present over the shoulders and chest. The lungs were clear and no cardiac murmurs were detected. The following day the temperature was normal, respirations were labored and cyanosis was present. The

patient at times was delirious, but for the most part remained quiet in a state of semiconsciousness, responding to questions, when addressed. During the night the pulse became much more rapid and weaker. Tracheal râles were marked and the patient died next morning after an illness of four days. The petechial eruption remained the same throughout.

Laboratory Examinations.—Three lumbar punctures were performed. On the first two occasions more than 75 c.c. of turbid fluid were withdrawn, and from each sample a few intracellular diplococci were found by smear. On trypsin agar on the first occasion a rich growth of pale, viscid, characteristic colonies was obtained, but while these behaved normally on agar, they failed to produce acid on glucose as well as on saccharose. Agglutination tests were not tried. The third lumbar puncture gave 20 c.c. of clear, dark, brownish fluid. Like others it contained a few intracellular organisms, but failed to grow on trypsin agar cultures.

Necropsy.—The spinal pia mater was considerably thickened (2 mm.) and its inner surface bathed in pus. The cerebral and cerebellar pia was thin and transparent, but in the spaces over the large fissures there were distinct collections of pus. Smears from both brain and cord meninges gave numerous polymorphonuclears and numerous large gram-negative diplococci, chiefly intracellular. The cut surface of the cerebrum presented a typical "shaven beard" appearance of minute hemorrhages. The heart was pale and flabby, with some dilatation of the right chambers. A few pin point glistening spots on the mitral valve were shown by smear to contain leukocytes and a moderate number of gram-negative diplococci. There was also an acute staphylococcic pleurisy and confluent bronchopneumonia of the right side. There was a cloudy swelling and congestion of the viscera.

COMMENT

Besides the occurrence of acute vegetative endocarditis in all three cases, and the natural accompaniment of meningococci in the blood stream, there are a few details of the cases to be emphasized. The early appearance of the petechial rash in all, and the isolation of the gram-negative diplococci from the petechiae in the only instance tried, may be taken as evidence of the early generalization of the infection through the body. In such cases, therefore, the early appearance of the petechial rash should be taken as an indication for early intravenous injection of specific antiserum. The earlier form of macular rash that has occasionally been described was not mentioned in the case histories, and the opportunity for determining its presence had passed when the patients had reached this hospital. The lessening of meningeal symptoms in Case 1, and the absence of signs of meningitis at necropsy show the local success of the specific intrathecal treatment. The necessity for intravenous treatment in this case was also realized, but its futility in the presence of acute valvular vegetations needs no further comment.

The presence of intracellular meningococci in the spinal fluid in Case 3 after they failed to grow on trypsin agar is a not uncommon occurrence in this and other laboratories. Whether or not such organisms are to be considered dead or merely influenced in such a way that they will not grow under the artificial methods employed, is a point that cannot now be decided.

SUMMARY AND CONCLUSIONS

1. Three cases of fatal cerebrospinal meningitis, in which acute meningococcic vegetations on the aortic and mitral valves were found at necropsy, emphasize the importance of the possible septicemic factor in this infection.

2. The early occurrence of the petechiae in all three cases may be a useful indication that in similar cases

a septicemia has been established, and intravenous as well as intrathecal medication thereby indicated.

3. In the ordinary nonfulminating, nonpetechial type of meningococcus infection (whether or not meningococci have temporarily entered the blood stream), the chief pathologic lesion being undoubtedly in the meninges, the chief route of specific treatment should be intrathecal.

4. The disappearance of meningitic symptoms, with persistence of signs of septicemia, should be an indication to substitute intravenous for intrathecal treatment, although if actual vegetations are present on the valves, it will rarely, if ever, be successful.

5. If, as in cases quoted in the literature, the presence of meningococci can be determined in the blood stream before the onset of meningitis, intravenous treatment may abort an otherwise fulminating case, and should certainly be used.

6. Meningococci may persist in smears from the spinal fluid after they have failed to grow on suitable mediums; but even if they are absent in both tests, specific therapy should be continued until meningitic symptoms have disappeared.

EFFECT OF TYPHOID LIPOVACCINE IN INCREASING SUSCEPTIBILITY TO OTHER DISEASES

ANIMAL EXPERIMENTAL EVIDENCE *

EDGAR M. MEDLAR, M.D., (BOSTON)

First Lieutenant, Medical Corps, U. S. Army

WASHINGTON, D. C.

From time to time since the use of typhoid vaccine as a prophylactic in the control of typhoid fever, there have been objections on the part of medical officers

TABLE 1.—RESULTS OF SIX DAILY INOCULATIONS

Date 1918	Amt. Inoc. 24 Hr. Bouillon Culture C.c.	No. Inoc.	24 Hours		48 Hours		72 Hours		96 Hours		Per Cent. Dead	Per Cent. Lived
			D	L	D	L	D	L	D	L		
9/9	1/25	2	2	0	2	0	2	0	2	0	100	0
	1/50	2	1	1	2	0	2	0	2	0	100	0
	1/100	2	0	2	0	2	0	2	0	2	0	100
9/10	1/25	2	2	0	2	0	2	0	2	0	100	0
	1/50	2	1	1	1	1	2	0	2	0	100	0
	1/100	2	0	2	0	2	0	2	0	2	0	100
9/11	1/25	2	2	0	2	0	2	0	2	0	100	0
	1/50	2	1	1	1	1	1	1	1	1	50	50
	1/100	2	0	2	0	2	0	2	0	2	0	100
9/12	1/25	2	2	0	2	0	2	0	2	0	100	0
	1/50	2	1	1	1	1	1	1	1	1	50	50
	1/100	2	0	2	0	2	0	2	0	2	0	100
9/13	1/25	2	2	0	2	0	2	0	2	0	100	0
	1/50	2	1	1	1	1	1	1	2	0	100	0
	1/100	2	0	2	0	2	0	2	0	2	0	100
9/14	1/25	2	2	0	2	0	2	0	2	0	100	0
	1/50	2	1	1	2	0	2	0	2	0	100	0
	1/100	2	0	2	0	2	0	2	0	2	0	100

to its use, the main one being that it predisposes the individual to infection with other diseases. The practical importance of such objections can readily be understood now that our army has reached its present proportions. This series of animal experiments was undertaken in an attempt to increase our knowledge

* From the Department of Pathology, Army Medical School.

from the experimental side of the effect of typhoid vaccine in lowering the resistance to infection.

Because of the importance that *Streptococcus hemolyticus* infection assumed in the cantonments in 1917-1918, it was thought advisable to take the hemolytic streptococcus as the infecting agent. The strain (No. 23) used was one obtained from a case of empyema at Camp Merritt, N. J.

more practical to raise the virulence and then through subcultures over a considerable period of time establish a dosage of low virulence which would be fairly constant. This is what was done, and Table 1 gives the results obtained for a period of six daily inoculations.

The technic used in order to get a fairly constant growth was as follows: Plain bouillon, reaction + 0.3

TABLE 2.—RESULTS OF INOCULATIONS WITH STREPTOCOCCUS 23, OF LOW VIRULENCE

Lot No.	Amt. Typhoid Vaccine	Date	Lived	Died	Amt. Strep. Inoculated 24 Hr. Bouillon	No. Inoculated	Date	24 Hours		48 Hours		72 Hours		96 Hours		Per Cent. Died	Per Cent. Lived
								D	L	D	L	D	L	D	L		
1	½ c.c.	8/ 3	5	1	1/100 c.c.	5	8/23	0	5	3	2	3	2	3	2	60	40
2	½ c.c.	8/12	4	2	1/100 c.c.	4	8/23	0	4	1	3	1	3	1	3	25	75
3	½ c.c.	8/22	5	1	1/100 c.c.	5*	8/23	1	4	1	4	1	4	1	4	20	80
Controls.....	.....	....	...	...	1/100 c.c.	4	8/23	0	4	1	3	2	2	2	2	50	50

* One sick.

TABLE 3.—RESULTS OF INOCULATIONS WITH STREPTOCOCCUS 23, OF LOW VIRULENCE

Lot No.	Amt. Typhoid Vaccine	Date	Lived	Died	Amt. Strep. Inoculated 24 Hr. Bouillon	No. Inoculated	Date	24 Hours		48 Hours		72 Hours		96 Hours		Per Cent. Died	Per Cent. Lived
								D	L	D	L	D	L	D	L		
1*	¼ c.c.	8/23	15	15	1/100 c.c.	12	8/31	0	12	6	6	7	5	7	5	58.3	41.7
2	½ c.c.	8/26	17	7	1/100 c.c.	12	8/31	1	11	2	10	2	10	2	10	16.6	83.4
3	½ c.c.	8/30	15	9	1/100 c.c.	12	8/31	3	9	4	8	4	8	4	8	33.3	66.6
Controls.....	.....	....	...	...	1/100 c.c.	12	8/31	3	9	4	8	4	8	4	8	33.3	66.6

* Small mice.

TABLE 4.—RESULTS OF INOCULATIONS WITH STREPTOCOCCUS 23, OF LOW VIRULENCE

Lot No.	Amt. Typhoid Vaccine	Date	Lived	Died	Amt. Strep. Inoculated 24 Hr. Bouillon	No. Inoculated	Date	24 Hours		48 Hours		72 Hours		Per Cent. Died	Per Cent. Lived
								D	L	D	L	D	L		
1	½ c.c.	9/ 9	20	16	1/100 c.c.	20	9/15	0	20	0	20	0	20	0	100
2	¼ c.c.	9/12	31	5	1/100 c.c.	21*	9/15	0	21	1	20	2	19	8.5	91.5
3	¼ c.c.	9/14	32	4	1/100 c.c.	20	9/15	0	20	0	20	0	20	0	100
Controls.....	.....	....	...	...	1/100 c.c.	20	9/15	1	19	3	17	4	16	20	80
					1/50 c.c.	6	9/15	2	4	3	3	3	3	50	50

* One sick.

TABLE 5.—RESULTS OF INOCULATIONS WITH STREPTOCOCCUS 23, OF HIGH VIRULENCE

Lot No.	Date Typhoid Inoc.	Amt. Strep. Inoc. 24 Hr. Bouillon Culture	Date	No. Inoculated	24 Hours		48 Hours		72 Hours		96 Hours		Per Cent. Died	Per Cent. Lived
					D	L	D	L	D	L	D	L		
1	8/23	1/500,000 c.c.	8/31	3	1	2	2	1	2	1	2	1	66.6	33.3
2	8/26	1/500,000 c.c.	8/31	5	2	3	4	1	5	0	5	0	100	0
3	8/30	1/500,000 c.c.	8/31	3	1	2	3	0	3	0	3	0	100	0
Control	....	1/500,000 c.c.	8/31	3	2	1	3	0	3	0	3	0	100	0

TABLE 6.—RESULTS OF INOCULATION WITH STREPTOCOCCUS 23, OF HIGH VIRULENCE

Lot No.	Date Typhoid Inoc.	Amt. Strep. Inoc. 24 Hr. Bouillon Culture	Date	No. Inoculated	24 Hours		48 Hours		72 Hours		Per Cent. Died	Per Cent. Lived
					D	L	D	L	D	L		
1	9/ 9											
2	9/12	1/1,000,000 c.c.	9/15	5	1	4	3	2	3	2	60	40
		1/2,000,000 c.c.	9/15	5	0	5	1	4	1	4	20	80
3	9/14	1/1,000,000 c.c.	9/15	6	1	5	4	2	5	1	83.3	16.6
		1/2,000,000 c.c.	9/15	6	0	6	2	4	3	3	50	50
Control	....	1/1,000,000 c.c.	9/15	5	2	3	4	1	5	0	100	0
		1/2,000,000 c.c.	9/15	5	1	4	1	4	1	4	20	80

The animal chosen as the test animal was the mouse, because of its susceptibility to the streptococcus, as well as its availability in the numbers needed.

The first problem to be solved was to get a constant dosage of streptococcus that would kill the minority of the control animals inoculated. It is well known that streptococci can be made highly virulent for mice, i. e., 0.000001 c.c. of an eighteen hour broth culture will kill constantly, and that on subcultures this virulence is rapidly lost. Because of this fact it seemed

to 0.5, was the medium used. A large number of tubes, each with 10 c.c. of bouillon, were prepared from a single lot of beef infusion, and this lot was used throughout the experiment. Subcultures were made daily by transferring one loopful of a twenty-four hour growth. Mice inoculations were made intraperitoneally with a bouillon dilution of a twenty-four hour bouillon growth.

From Table 1 it will be seen that the dosage which would show increased susceptibility best would be

0.01 c.c., and this was the dosage of low virulence adopted for the series of inoculations.

In order to get a broader view of the effect of typhoid vaccine on lowering the resistance, it was decided to have three series of mice, inoculated at intervals of several days, in each experiment.

Mice were inoculated subcutaneously with the standard triple typhoid lipovaccine used in all the camps. The dosage was sufficiently large to cause all the animals to be sick and quite a high proportion of them to die, the idea being to lower their resistance as much as possible. If proportionate dosage were given man it would amount to several hundred c.c., while the dosage actually given is only 1 c.c. Tables 2, 3 and 4 give the data and results of the experiments.

It is probable that under ordinary conditions it is the hemolytic streptococcus of relatively low virulence that is encountered in the camps. In those camps, however, in which more or less of an epidemic of streptococcus infection prevailed, the virulence of the streptococci probably was much increased.

With this in view, a part of the series of mice shown inoculated with typhoid vaccine in Tables 3 and 4 were inoculated with the same strain of streptococcus used for low virulence, which had been raised in virulence through mouse inoculation. Tables 5 and 6 give the data and results of these experiments.

COMMENT

In animal experiments, in which there are always uncontrollable factors to deal with, the only way any reliable results can be obtained is to repeat the experiment. If the same results are obtained consecutively, conclusions may then be fairly drawn. Results of the experiments as a whole should be considered rather than any individual portion, as there would be less chance of wrong deductions when the mass is considered. For example, in Table 3, comparing Series 1 with the controls, one could argue that there is increased susceptibility; comparing Series 2 and the controls, arguments for increased resistance could be brought forth; but taking the experiment as a whole, it will be found that there is practically no difference when Series 1, 2 and 3 are averaged against the controls; and this is without doubt more nearly the truth.

The number of typhoid vaccinated mice inoculated with low virulent streptococci were 111, of which twenty, or 18 per cent., died. Thirty-six control mice were inoculated with low virulent streptococci, of which ten, or 27.8 per cent, died. There is a difference here of 9.8 per cent. in favor of increased resistance to the streptococcus in the mice inoculated with typhoid vaccine. It may be possible, however, that the typhoid vaccine killed some of the mice most susceptible to the streptococcus and that this difference is more apparent than real.

Thirty-three typhoid vaccinated mice received inoculation of highly virulent streptococci, and of these twenty-two, or 66⅔ per cent., died. Thirteen control mice were inoculated, and nine, or 72 per cent., died. Here again there is a percentage in favor of increased resistance to the streptococcus, but it is possible that this difference may be more apparent than real.

There is one point, however, that may account for this apparent slight increase in resistance to the streptococcus. Following typhoid lipovaccination in man there is a moderate mobilization of leukocytes lasting for a few days. This undoubtedly occurs in animals, and it is generally thought that the leukocyte is the

chief factor of defense against the streptococcus. Another point that would favor the view that an increased resistance to the streptococcus follows inoculation with typhoid vaccine (one form of foreign protein) is Jobling's contention that there is a general immune reaction following the introduction of foreign protein.

CONCLUSIONS

There is no evidence that there is increased susceptibility to streptococcus inoculation in mice following typhoid vaccination. There is a slight amount of evidence in favor of increased resistance to the streptococcus possibly due to the mobilization of the leukocytes. It is probable that these facts will be applicable to other vaccines and other diseases, for in a series of thirty-two mice vaccinated against pneumococcus, similar results have been obtained.

WAR NEUROSES, SHELL SHOCK AND NERVOUSNESS IN SOLDIERS *

PEARCE BAILEY, M.D. (NEW YORK)

Colonel, M. C., U. S. Army; Chief, Division of Neurology and Psychiatry, Surgeon-General's Office.

WASHINGTON, D. C.

A recent visit to France and England furnished me with opportunities for observing the various phases of war neuroses, shell shock and nervousness in soldiers. In France the patients were seen at *triages*, or sorting stations, field and army, and base hospitals. Those seen in England gave as a rule longer histories and were satisfactorily separated from the front by a stretch of salt water. In both countries, facilities for studying the different methods of treatment and management were made freely available to me, and I also was able to profit by the views of medical officers of long experience in these matters. The present article is a summary of the impressions gained from this visit

IMPORTANCE OF NEUROLOGIC SUPERVISION

The neurologic problems of war have assumed an importance quite undreamed of, and the necessity of neurologists for a modern army is receiving general recognition. In battle areas the need of neuropsychiatry exceeds that of general medicine, as the nervous and mental casualties may exceed 10 per cent. of the total casualties. France maintains 20,000 neurologic beds in the rear, most of which are occupied by functional cases, and at the front tries to maintain one and one-half neurologic beds for each thousand troops. Major Arthur Hurst, R. A. M. C., estimates that 26,000 beds are occupied each year in Great Britain by purely hysterical patients. The previously held neurologic conception that hysterical paralysis and contractures did not occur in conjunction with physical wounds has been completely overthrown, as the war has demonstrated that functional disturbances of this character complicate surgical injuries with frequency. The longer the war goes on, the more it becomes evident how widespread are the effects of functional nervous disease both in combatant troops and in patients hospitalized for any cause.

* The cessation of hostilities and the proposed rapid demobilization of the Army have rendered many of the war time methods of the treatment of "shell shock" impracticable. This article should be read as of the time when it was written, that is, as of a time when no end of the war was in sight.

The web of mystery and vagueness that enveloped the entire shell shock group in the initial phases of the war has been swept away, and now there is an essential agreement of opinion that the great bulk of the cases are functional, that it is possible to prevent the occurrence of many of them, and that, even when of long standing and fully developed, they are curable. Actual experience has now shown that a substantial proportion of the nervous cases which appear at the front can be so managed that they do not run on into neurosis. The preventive measures are most sure of success in the battle areas, where they can be instituted almost immediately after the occurrence of the casualty. It is believed that from 80 to 90 per cent. of the patients of this class can be returned to the lines if they are promptly cared for in small neurologic units directly connected with the armies. The prevention of the cases that originate in the base hospitals is more difficult, but can be greatly furthered by a diagnostic alertness of medical officers on the lookout for the first manifestations of hysterical symptoms. It has also been proved that chronic, long standing cases, whether developed at the front or in base hospitals, can also be effectively cured, although the therapeutic arrangements for cases of this character are more elaborate.

It is thus seen that the outlook for the war neuroses is much brighter than it was. At one time it seemed impossible to stem the flood of these cases or to devise means of rehabilitating the patients. But in spite of this favorable change in the situation, shell shock still remains an actual as well as a potential problem for the medical department. Its potentiality can be held in check by efficient medical officers acting at the right time and place; but it will always be actual. There will always be many soldiers whose nervousness cannot be controlled at advanced points, either on account of the essential character of the nervousness itself or because, in the rush of warfare, it is impossible to carry out medical policies, desirable in themselves, but incompatible with the main object in hand.

In our army the task of the cure of the patients is difficult by reason of the sweeping application of the principle of compensation for disability. Article III, Section 300, W. R. I., Act of Oct. 6, 1917, as amended June 25, 1918, provides that officers and enlisted men or other members shall be taken to have been in sound condition when examined, accepted and enrolled for service, and thereafter entitled to compensation under the act for disability. Thus, as far as compensation is concerned, line of duty may be held to include all insanities, feeble-mindedness, epilepsy, etc., irrespective of their having preexisted or not. Legally, no disorder can have preexisted in a person accepted for military service. As far as the neuroses are concerned, this law puts it beyond the power of medical officers to throw any doubts into the mind of the patient that he will surely be compensated if he persists in his neurosis long enough.

It is believed that the great success of the French with their neuroses is due to the fact that the neuroses are not pensionable and that no soldiers are discharged for such cause. The first factor is not available to us, but the second is; and for economic reasons alone every effort should be made to effect cures in neurotics, so that, even if they discontinue the service, they cannot claim disability on their return to civil life.

It was at one time thought that the doing away with the term "shell shock," with its implication of organic injury, which impresses the mind of the patient and the public alike, would help in the treatment. But it seems now as though the term had entered too deep into the language to be done away with. Efforts to offset the bad effects which the introduction of the expression brought with it will probably have to be expended in making it generally known that shell shock is an essentially curable condition.

CAUSATION

No entirely satisfactory explanation has been offered for the unprecedented frequency of these neuroses in this war. The great increase in the number and intensity of explosives does not altogether explain it, as they develop after gassing, after machine gun firing, and perhaps oftenest when there has been no direct exposure to firing at all. They develop in the base hospitals in France, and practically all of the symptoms quoted as war symptoms have been observed in the home cantonments during the training period. Neither does it seem probable that it is an entirely new development of this war, but rather that it existed in earlier wars in smaller numbers surely, and probably under a variety of names—in our Army, nostalgia, perhaps. Also in view of the fact that absenteeism as an idea has a foreplace in the minds of both officers and men whose sole reason for discharge is a war neurosis, it seems probable that among the 600,000 cases of absenteeism reported from the Union Army during the Civil War, an absenteeism which took the form of desertion or removal of patients from the medical services by friends or committees, there might have been found a numerous representation of modern shell shock.

The factor of predisposition is not to be denied in considering the causation of these conditions, but it is generally believed that it is sufficiently marked in most cases to have justified the rejection of the recruit.

With the exception of epilepsy, no single disease has been demonstrated as being an essential factor in causation. However, a diminished resistance may be inferred from the fact that the larger number of cases are observed during the first few months of service, although it must not be forgotten that there are a great many cases in which the soldier has not only given long service, but has also been distinguished for his morale and his bravery. It is not uncommon in French hospitals to see hysterical patients personally decorated and also wearing the *fourragère*.

Neuroses are credited with being more frequent in the infantry in common with other casualties, and also more common in trench warfare, although the latter has not been the case with our troops. The early impression that they were more common among officers has not been borne out by later experience. In a small proportion of the total number of cases the individual has been exposed to a traumatism severe enough to have caused lesions of the central nervous system without external wound. It is needless to state the uncertainty often surrounding the actual occurrence of injuries; but the injuries of the nervous system may be verified by definite signs. It is unfortunate that these relatively infrequent organic cases came to notice so early, as largely in consequence of them the idea became fixed that shell shock was an

organic condition and so to be regarded quite differently from those functional conditions that are the result of suggestion and are curable by psychotherapy. There has been reproduced what happened when the nervous effects of railway accidents first came into prominence. The new name, the new circumstances, the malassortment of diverse clinical conditions into one group, and the permitting of the group to carry the stigma of the most serious cases, which were the least frequent, the failure to recognize the material motive as a powerful provoking and sustaining motive—all these circumstances combine to make the history of shell shock a repetition of the history of railway spine.

On the factor of exhaustion too much emphasis can hardly be laid. The break is often preceded by weeks of disturbed sleep, due to bombing and artillery fire, and during an advance the story is common of several days of excessive exertion, nervous strain, no sleep at all, exposure to cold, only cold food and but little of that. The wish to be out of the war, which all along may have been latent, comes more to the surface when the shaken soldier staggers to or is brought to the first aid station or when he emerges from a period of unconsciousness. Under the influence of food, rest and encouragement, this imperfectly formulated wish may sink back of itself or may require additional efforts on the part of the medical officer to make it recede. This period, this interval, is one of greatly exaggerated susceptibility, and during it the most trivial circumstance may petrify the idea of illness, and a way out by means of it. But it is also a period when the kind, firm and confident attitude of the medical officer may completely reassure the shocked man as to his ability to carry on again and inspire in him the firm intention to do so.

CLINICAL VARIETIES

After the elimination of all totally foreign conditions, such as mental disease, organic nervous disease, and endocrinopathies, the war neuroses may be roughly divided into three general classes, between which occurs the same overlapping as is seen in the neuroses in civil life. These classes are: A, concussions; B, neuroses of neurasthenic or psychasthenic type, and C, hysteria.

A. Concussions.—These justify the assumption of the existence of minute and more or less disseminated lesions of the central nervous system, and may be accompanied by such symptoms as unconsciousness lasting for several days, retention of urine, loss of knee jerk, blood in spinal fluid, paraplegia, etc. Some patients of this class recover perfectly within a few weeks; others do not recover satisfactorily, and still others develop the symptoms of neurosis, illustrating the relationship between organic and functional disease.

B. Neuroses of Neurasthenic or Psychasthenic Type.—These may develop as a result of concussions, but as a rule their origin cannot be connected directly with any physical injury. They differ in no essential particulars from the neuroses of civil life except that they carry a strong coloring of the war situation. Many of them are associated with symptoms suggestive of endocrine disturbance, and the thyroid picture, especially in gas cases, is much in evidence. Thus, in addition to the symptoms of fatigue, lack of confidence, phobias, compulsions and general hyperesthesia

are observed rapid pulse, cardiac irritability, pain over the heart, vomiting, and terrifying dreams with war content.

C. Hysteria.—Babinski's conception of hysteria as a condition produced by suggestion and curable by psychotherapy has been of inestimable practical value at this time, not only in showing the correct management of hysteria *en masse*, but also in bringing to the light the frequency with which hysteria lays its crippling hand on conditions not primarily neurologic. A brief historical retrospect may help to an understanding of this subject, which has gained so much in importance during this war.

The creation of hysteria as a clinical entity must be credited to Charcot. He assembled old observations and made new ones, and left the picture of a characteristic disease with a definite symptomatology. He recognized the essentially suggestible nature of hysterics, but he did not define the origin of the suggestions, nor did he indicate the means by which they might be avoided. His influence was enormous, extending to teachers and authors of all nationalities, so that at his death hysteria was accepted, practically all over the world, as he had fashioned it. But he showed no practical way out.

For the past twenty years Babinski has been destroying the disease which Charcot created, leaving more or less to one side the personality of hysterics. He has shown that the classic symptoms of hysteria are the results of suggestion originating in medical examinations, or from misapplied medical or surgical treatment. As a proof of the correctness of his view, it is stated that the "grande hystérie" of the Salpêtrière has now practically disappeared from the French clinics.

Babinski, like his illustrious predecessor, has exercised a great influence on the medical profession of France, and at the outbreak of the war it had practically adopted his view on hysteria. The advantage to France from this was that its medical officers were from the first in a position to realize how hysterical symptoms arise and how they can be cured.

Among the symptoms that may be mentioned as being produced by suggestion are deafness, blindness, mutism and deaf-mutism, tremors, contractures and paralyses. Some few of these, such as deafness and mutism, which are so closely connected in consciousness with states of terror and in which the original insult is in itself a powerful suggesting factor, come on immediately; but the development of the larger number is delayed for days or weeks during the period when the patients are particularly suggestible and are exposed to the suggestions of medical men who examine them, and to the suggesting example of other sick and wounded. It is at this period particularly that the wisdom and discretion of medical officers can accomplish so much in suppressing the tendencies to the development of disabling symptoms.

A particularly interesting condition, which has first received detailed attention during this war, is a peculiar form of contracture affecting arms and legs, especially the feet and hands, which develops in sequence to some minor surgical injury. In these cases, various trophic disturbances are added to the functional incapacity. The exact pathologic condition in these cases is still not clear, but most of the patients are curable under carefully prepared psychotherapy.

TREATMENT AND MANAGEMENT

General Considerations.—The importance of a definite understanding as to discharge and compensation has already been emphasized. If the contrary to what is known to be wise maintains, if it is accepted throughout the Army that functional nervous disease is a grave disability which, if persisted in long enough, will insure a separation from the service under favorable pension conditions, the task of medical officers will become exceedingly difficult; not only will they miss an effective argument in influencing the minds of their patients, but they themselves will be affected by the atmosphere which tends to foster invalidism and make it comfortable. Except at the very beginning, except during the period of suggestibility before symptoms of neurosis have shown themselves, the hospital atmosphere should not be made too attractive for these patients. The attitude of medical officers should be that they are there for the express purpose of ridding the patient of his neurosis and firmly intend to do it, and the hospital itself should be organized along lines of strict war discipline. A war neurosis is a personal reaction to a military situation, and it must be cured in terms of the situation. It is an infantile reaction, and the medical officer must call to his aid some of the resources of the schoolmaster. A hope of reward should spur on the patient who lends himself readily to treatment and does well, and there should be some suggestion of punishment for those who are refractory and who tend to relapse.

In the advanced French centers the patients, even those who have been subjected to violent concussions, are told that they will soon be well again, and that the furlough, to which every French patient discharged from hospital is entitled, will make their cure perfect. If, however, the patient does not respond to encouragement of this kind, a different tone is adopted, and he is told that patients who develop nervous symptoms get no furlough. It is difficult to be specific in these matters or to lay down general rules, but the general rule is that the longer the patient persists in keeping on the road that leads to neurosis the more uncomfortable he will find it. It would be well if every one could grasp this view of the matter and could realize that the more discipline is relaxed, the more the patients are permitted to believe that they are suffering from serious disorders, the more of them will be found in soldiers' homes after the war. Such public utterances as that of a member of parliament to the effect that no soldier who had suffered from this terrible affliction should ever be asked to bear arms in France again injures the morale of troops and tends to postpone recovery in patients who under proper conditions might soon be well.

The whole difficult subject of discipline receives a certain illumination from a consideration of a system of management employed at certain French centers and known under the name of *torpillage*. *Torpillage* consists in the brusque application of galvanic currents, strong enough to be extremely painful, in hysterical conditions, and the continuance of the procedure to the point at which the deaf hear, the dumb speak, or those who believe themselves incapable of moving certain groups of muscles are moving them freely. The method has proved highly effective, and requires but little time and practically no personnel except the

medical officer who applies the treatment and the non-commissioned officer who takes the patient at the end of the treatment and continues the exercise of the affected parts. One treatment suffices. The apparatus is of the simplest, the only accessory to the electric supply and the electrodes consisting of an overhead trolley which carries the long connecting wires the whole length of the room, thus making the patient unable to run away from the current which is destined to cure him.

This method is more cruel in appearance than in fact, as the contacts are brief and only a few are necessary. What it really consists in is giving authority to a medical officer to inflict pain on a patient up to the point at which the patient yields up his neurosis. Its unquestioned effectiveness carries a lesson which makes plain that under circumstances a military neurosis disappears under punishment. It substantiates what was previously said in reference to rewards and punishment. As far as punishment is concerned, it should never be presented to the patient as such. It should rather be explained to him as a certain form of treatment which is of necessity not agreeable. The most feasible means for the carrying out of this idea is isolation. All of the French centers have isolating rooms, locked on the outside, into which refractory patients are placed and shut off from companionship, reading and writing materials and tobacco, until such time as they show themselves amenable to treatment. Rooms of this kind are especially necessary and effective in the management of relapses. As a matter of practical fact, the knowledge that isolating rooms are on hand and available is usually all that is necessary. They are not often used, and in one center they were found given over to the lodgment of attendants. But the underlying idea should make plain that a stubborn war neurosis is cured by the physician's mastering the patient. In many, but not in all, patients, persuasive measures are sufficient; but when they fail, disciplinary measures should be made available; and the very knowledge that they are available will render it rarely necessary to make use of them. It seems probable that the reason so little of this variety of persuasion can be made use of with officers is that the treatment of neuroses in officers is generally difficult.

At the Front.—The general plan of the treatment of these cases at the front has already been given. Nothing further need be added here except to report that Lieut.-Col. T. W. Salmon, senior consultant in neuropsychiatry, American Expeditionary Forces, has perfected and made operative comprehensive plans for the early treatment, in direct connection with the armies, which have worked great good to our troops.

In Base Sections.—If rehabilitation of the nervous soldier fails at the front, cure is inevitably delayed. During the days or weeks of his being transferred from one hospital to another, he not only fails to receive appropriate treatment, but is exposed to the suggestions of illness which deepen the roots of a beginning neurosis. In all bases treatment is slower and less certain of effecting a return to the fighting line. It has been shown to be necessary to have hospitals specially organized as to personnel, general equipment and surroundings. If such hospitals are located in France, it is still possible in fairly recent cases to return patients to their original duty after a few weeks of treatment.

If, however, the patients are returned overseas, the chances of returning them to foreign service again are not good. With soldiers of this class returned home, England enters into a kind of agreement or understanding that they shall not be ordered to France again for a period of six months. Practically it amounts to an understanding that they shall not go to France again for the period of the war. But even if soldiers suffering from the neuroses are not expected to rejoin their expeditionary comrades, once they have reached home there nevertheless should be no relaxation of the principles of management in the home hospitals. The same principles hold good that the most humane thing for nervous soldiers is to hold them in the military service until they are cured. At home it may be expected at least to reestablish them sufficiently to enable them to do some work useful to the army during the war, so that the end of the war will find them able to resume their civil occupations.

It is to be the policy of the medical department of the American Expeditionary Forces to retain all the patients of this class in France as far as possible. But it cannot retain all of them in France, and sufficient numbers of them will be returned to necessitate the establishment of one or more special hospitals in this country, which should be organized with great care. They should be remote from large cities and situated in a locality of which the climate will permit outdoor occupation for the greater part of the year. One thousand beds is the limit of size, as the atmosphere of cure, which they must have, is difficult to maintain in larger units.

Whenever it is possible, the commissioned personnel should have had expeditionary experience, as an actual knowledge of conditions in France will strengthen the influence of medical officers over their patients. Men or women nurses may be employed, but should be selected with special reference to their attitude toward the patients which facilitates cure. The patients should be kept as constantly occupied as possible, and the occupations (indoors) should be of useful character, such as basket making, tailoring, shoemaking, typewriting and carpentry. Agriculture is the best outdoor occupation. Occupations are to be considered as an essential part of the treatment; in addition to their moral benefit, they aid in restoring facility to parts that have been paralyzed or the seat of contractures. Physiotherapy should be instituted with the same end in view. Setting up exercises are to be carried out by an experienced noncommissioned officer, and ladders, steps, bars, walking floors, etc., are to be arranged to overcome the effects of any local disabilities.

The principle behind all the procedures of physiotherapy should be that the patient is made to do them for himself as quickly as possible. He should be put on his own initiative, and overseen rather than watched. Massage, electricity and hydrotherapy have little part in the treatment. Massage has a place in case of atrophy, but as a general practice it is opposed to the main principle, which is that the patient is to prove to himself that he can do the things which he thought he could not do. Massage is opposed to that principle.

The classification of cases, to be made in the receiving ward, is extremely important. Neurasthenics and psychasthenics should be separated from the patients

with local hysterical symptoms, as the methods for these two classes is different. Also, at the time of reception, an effort should be made to ascertain the general morale of the patient. Many show evidences of ill nature and resentment and come to the hospital with their minds made up that they will not be cured. Such are usually easy of identification, most betraying their intentions by malicious glances of the eye. If allowed to associate freely with well intentioned patients they are apt to corrupt the general morale of the ward.

As far as the treatment of the cases of actual concussion which have developed into neurosis, and the neurasthenic and psychasthenic cases are concerned, there is little new to be said. The treatment is that of the psychoneuroses in general with special reference to the military situation. Among the symptoms common to this class are insomnia, war dreams, vomiting, pains in the head and precordial pains. Stammering is often found in this class, and is reported as difficult to deal with. Cases with hysterical manifestations, such as aphonia, coarse tremors, paralysis and contractures require quite a different management. Such patients are to be given to understand, on reaching the hospital, if possible before reaching the hospital, that they have come there to be *cured*, and that they certainly will be cured at one sitting. This is the great practical demonstration of the war in psychotherapy, that hysterical conditions can be cured almost instantaneously, when proper arrangements have been made, even if the condition has lasted for years. The idea of a cure, of a crisis, seems to be the crux of the matter. It does away with the hospital idea of "care and treatment," and fixes a definite moment when the crippling effects of illness will disappear as quickly as though they had been cut away with a knife. The more completely the preparations are carried out to make the idea forceful, the more certain will the effects be.

There must be some air of magic about the performance. Examinations at this point are better brief, and if the diagnosis has already been established, would better be omitted altogether. Often the patients have already been examined too much. Elaborate history taking is also superfluous, as an intimate knowledge of the patient's case is not necessary before the cure, and is better obtained during conversations while the cure is being effected. The cure itself is effected by means of suggestion and persuasion, various methods being employed with equal success by different operators.

In all, with the exception of *torpillage*, the patient is put at his ease, assured that he will suffer no pain, made to relax, and in some way or other made to move the part that is paralyzed or contracted, made to speak, to hear, to cease tremors. Most operators avail themselves of a mild faradic battery to emphasize their suggestions; others use no artificial means at all. The time required for the cure varies from a few minutes to a few hours to all day and night. The principle is that once the physician has shut himself up with the patient he shall not leave him until the object is achieved.

PREPARATORY SUPERVISION AND AFTER-TREATMENT

Quite as essential as the cure itself is the period that precedes it and the period that follows it.

The first, the period of preparation, should be utilized to prepare the patient's mind for a favorable reception of the suggestions that are to cure him. With this end in view he is not treated immediately on arrival at the hospital, but is made to wait several days during which nurses, attendants and patients who have been cured tell him of the certainty of cure and its painlessness. In the treatment room of the Salins hospital there is a large pile of canes, crutches and orthopedic apparatus that have been discarded by cured patients, a pile well calculated to strengthen the faith of the doubting.

The period after the cure is devoted to careful supervision of the patient to the end that he keeps doing the things which a short time before he thought himself unable to do. A sharp lookout should be kept for relapses, and relapses should be dealt with with promptness and firmness. Military drills should be begun as quickly as possible, but the most satisfactory arrangement for a postgraduate course is a special training camp under the command of a line officer. Under present regulations a patient discharged from a hospital goes to a replacement depot without having been tried out under service conditions. But neurotics are too uncertain equations to be passed on without having first proved themselves. Unless fortified by an actual trial of the capacities of the patient, the decisions of classifying boards are apt to be erroneous.

Some explanation must be given as to the significance of cures and relapses. Cure means the disappearance of the symptoms that were created by suggestion and made to disappear by psychotherapy. Cure removes what was produced by a situation without any particular attempt to determine the mechanism of the production. It is quick and pragmatic and adapted to be applied to large numbers, as opposed to being time-consuming and analytic and individualistic. Those who favor the analytic school of mental medicine will doubtless deny, and with some reason, that the disappearance of one or more hysterical symptoms is proof of the cure of the patient. But to this may be answered that the cure of the patient begins with the removal of the obstacle that immediately prevented him from performing his duties. If, on such a removal, he is able to resume duties that tend to build up character quite as much as the explanations furnished by psychoanalysis, he may be said to be practically cured.

The fact is that many patients treated in this way are able to carry on again. Roussy of Salins sends a goodly proportion of his patients back to the line in spite of the fact that most of them have been crippled for months or years. He is aided greatly by the training camp and also by the authority given him of recommending a change of service when he considers such a change necessary. For example, he often returns infantrymen to the artillery.

Relapses consist in a return of the symptoms in a patient once cured. The tendency to them is common, especially when the patient is removed from the care of the medical officer who effected the cure. Patients relapsing should be returned as soon as possible to the place of the original treatment, to the same medical officer, and as relapses are indicative of a bad morale on the part of the patient, of an unwillingness to profit by what he has learned, strict and if necessary disciplinary measures should be used.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, SECRETARY.

BENZYL BENZOATE.—Benzylis Benzoas.— $C_6H_5COO.C_6H_5CH_2$.—The benzyl alcohol ester of benzoic acid. It contains not less than 95 per cent. benzyl benzoate.

Actions and Uses.—Benzyl benzoate lowers the tone of unstriated muscle, and has been suggested as a remedy against renal, biliary, uterine, and intestinal colic and other spasms of smooth muscle, including angiospasm. Its clinical use is still in the experimental stage.

Dosage.—0.3 to 0.5 Cc. (5 to 7 minims).

Benzyl benzoate is a colorless oily liquid above about 20 C. It is odorless, or has a faint aromatic odor, and a sharp burning taste. It is insoluble in water or glycerin but miscible in all proportions with alcohol, chloroform and ether.

Benzyl benzoate boils at 340 to 350 C. with partial decomposition. When ignited it burns with a very smoky flame.

Specific gravity 1.09 to 1.13 at 15 C., 1.083 to 1.122 at 25 C.

Benzyl benzoate is neutral to litmus. It is readily saponified by alcoholic solution of potassium hydroxide. The solution obtained when neutralized yields a flesh-colored precipitate with ferric chloride solution, and upon acidulation a white crystalline precipitate of benzoic acid separates. This precipitate may be identified by extracting with ether and applying the usual tests for benzoic acid.

Ten Cc. benzyl benzoate should leave no weighable-residue upon evaporation and heating until all carbon is burned away. To about 2 Gm. benzyl benzoate, accurately weighed, add 25 Cc. half-normal alcoholic potassium hydroxide solution and heat the mixture to incipient boiling under a reflux condenser for one hour. To the cooled solution add phenolphthalein and titrate the excess potassium hydroxide with half-normal hydrochloric acid. The volume of half-normal potassium hydroxide used should indicate not less than 95 per cent. benzyl benzoate (each Gm. benzyl benzoate requires for saponification not less than 8.9 Cc. or more than 9.4 Cc. half-normal alcoholic potassium hydroxide solution).

Benzyl Benzoate-H. W. and D.—A non-proprietary brand of benzyl benzoate complying with the tests and standards for benzyl benzoate.

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Solution of Benzyl Benzoate, Miscible-H. W. and D.—A solution of 20 Gm. benzyl benzoate in 78 Gm. ethyl alcohol to which is added 2 Gm. of powdered castile soap as an emulsifying agent.

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BARBITAL.—Diethyl-barbituric Acid.—Acidum Diaethyl-Barbituricum.—Diethyl Malonyl Urea.—Malo-Urea.—2,4,6-trioxy-5-diethyl pyrimidin, $CO(NH-CO)_2C(C_2H_5)_2$. First introduced as veronal.

Actions, Uses, Dosage, Physical and Chemical Properties.—See New and Nonofficial Remedies, 1918, p. 95.

Diethylbarbituric Acid-Merck.—A brand of barbital complying with the N. N. R. standards.

Merck & Co., New York, distributors.

Diethylbarbituric Acid-Merck Tablets, 5 grains.—Each tablet contains diethylbarbituric acid-Merck, 5 grains.

BARBITAL SODIUM.—Sodium Diethyl-Barbiturate.—Sodii Diaethylbarbituras.— $Na(C_8H_{11}O_3N_2)$.—The monosodium salt of barbital (diethyl-barbituric acid).

Actions, Uses, Dosage, Physical and Chemical Properties.—See New and Nonofficial Remedies, 1918, p. 96.

Sodium Diethylbarbituric Acid-Merck.—A brand of barbital sodium complying with the N. N. R. standards.

Merck & Co., New York, distributors.

Sodium Diethylbarbituric Acid-Merck Tablets, 5 grains.—Each tablet contains sodium diethylbarbituric acid-Merck, 5 grains.

Fat Embolism as Factor in Traumatic Shock.—According to an abstract in the *Nederlandsch Tijdschrift*, H. Siegmund has reported that he found evidences of fat embolism in the lungs at necropsy after wounds with much shattering of bone or injury to soft parts. When there had been phenomena of shock, the fat embolism was the most pronounced and extensive, amply sufficient to explain the fatal outcome. In the prolonged cases the fat embolism involved the brain or was general.

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on the second advertising page following the reading matter*

SATURDAY, DECEMBER 28, 1918

The year 1918 has gone: a year momentous as the termination of the most cruel war in the annals of the human race; a year which marked the end, at least for a time, of man's destruction of man; unfortunately a year in which developed a most fatal infectious disease causing the death of hundreds of thousands of human beings. Medical science for four and one-half years devoted itself to putting men on the firing line and keeping them there. Now it must turn with its whole might to combating the greatest enemy of all—infectious diseases. In this battle there must be no armistice; no peace without victory. Here's wishing every member of THE JOURNAL family continuous courage in the glorious struggle, with victory succeeding victory, and to all a Happy and Prosperous New Year.

IS INFLUENZA DUE TO A FILTRABLE VIRUS?

The primary cause of influenza, in accordance with the facts as we now have them, is an unknown agent that prepares the way for secondary infections of the respiratory tract. Is this unknown agent a filtrable virus? The results of experiments just reported to the Academy of Sciences at Paris appear to indicate that it is. Nicolle and Le Bailly¹ inoculated monkeys (*M. cynomolgus*) with the bronchial secretions of patients in the early stages of typical influenza. One monkey, which received the unfiltered secretions under the conjunctiva near the papilla and into the nose, came down on the sixth day with a fever that lasted three days. The same secretion, diluted ten times with salt solution and filtered through a Chamberland candle (L 2) under a pressure of from 30 to 40 cm. of mercury, was injected subcutaneously into a healthy man, who fell sick on the sixth day with headache and general malaise, conjunctival injection and moderate fever, recovering after five or six days. The filtered material was also injected intravenously into a second person,

but he remained well. Cultures of the filtrate remained sterile, showing that it was free from ordinary bacteria. A healthy man was injected subcutaneously with 3 c.c. of the blood of the monkey taken on the first day of the fever, but without any results. In another experiment, 3 c.c. of blood drawn on the second day of the characteristic attack of influenza were injected into a vein of a healthy person without any apparent result. Again, bronchial secretion obtained on the third day of the attack from a man suffering with influenza was injected under the conjunctiva and placed on the nasal mucous membrane of a monkey, and on the fifth day the animal developed a fever that lasted three days; after filtration the material was injected under the skin of a healthy person, who became ill on the sixth day with the symptoms of a mild attack of influenza. Intravenous injection of the filtrate into a healthy man produced no result. That the persons who came down with symptoms of influenza after having been inoculated subcutaneously with these filtrates did not suffer from the natural disease is indicated by the fact that they occupied particular quarters with other persons, none of whom became sick, and also because none of these inoculated became sick subsequently. From their results, Nicolle and Le Bailly conclude that the bronchial secretion in the acute period of influenza is virulent; that the monkey is susceptible to the virus by way of the subconjunctival tissues and the nasal mucosa, and that the virus is filtrable because sterile filtrate injected subcutaneously seemed to produce the disease in two persons. They failed to produce the disease by intravenous inoculations, which might be interpreted to mean that the virus does not survive in the blood.

However, an experiment reported by Dugarric de la Rivière² seems to show that the virus may be present in the blood. He mixed the blood from four persons who were severely ill with influenza, passed it through a Chamberland candle (L 3), and besides injecting rabbits, injected himself under the skin with 4 c.c. of the filtered blood. Nothing further is said at this time concerning the injections of the rabbits. Concerning the experiment on himself, however, he reports that there was no local reaction, but that on the third and fourth days after the injection he had marked frontal headache, pain in the neck and back, chilly sensations and weakness, and a temperature running between 37.8 and 38.2 C. (100.04 and 100.76 F.); on the fifth day the symptoms subsided except for some weakness and also some intermittent precordial pain and irregularity of the pulse. On the tenth day he swabbed his throat and nose thoroughly with a filtrate of an emulsion of influenza sputum in salt solution, but this was not followed by the development of any symptoms.

1. Nicolle, Charles, and Le Bailly, Charles: Quelques notions expérimentales sur le virus de la grippe, *Compt. rend. Acad. d. sc.*, 1918, **167**, 607.

2. Dugarric de la Rivière, R.: La grippe, est-elle une maladie à virus filtrants? *Compt. rend. Acad. d. sc.*, 1918, **167**, 606.

The results of the work of these French investigators are, of course, most interesting and suggestive as indicating that this disease is caused by a filtrable virus. However, in view of the small number of experiments and the fact that the spontaneous development of influenza cannot be entirely excluded, they can hardly be accepted as demonstrating conclusively that influenza is caused by a filtrable virus. The reports of further investigations must be awaited.

GOITER PROPHYLAXIS IN SCHOOLGIRLS

The high incidence of simple goiter in various regions of the United States as well as in other parts of the world is beginning to be appreciated. Since goiter develops particularly during the adolescent period, the most valuable and accurate data as to its occurrence can probably be obtained from the examination of the public school population. Only beginnings have been undertaken in this direction; but the widespread employment of school physicians and the introduction of modern methods of school medical inspection and personal prophylaxis will make a vigorous attack on the goiter problem more promising in the near future. In a complete census of the condition of the thyroid gland in the girls from the fifth to the twelfth grades of the school population of a large community in the Great Lakes goiter district, it was found that 1,688, or 43.59 per cent., had normal thyroids; 2,184, or 56.41 per cent., had enlarged thyroids, and 594, or 13.4 per cent., had well-defined, persistent thyroglossal stalks. The community lies near the southern edge of the goiter district, and it is suggested that communities near the lakes would show a higher incidence. This demonstration of the extent of goiter occurrence, the outcome of a study made under the auspices of the Committee on Therapeutic Research of the Council on Pharmacy and Chemistry of the American Medical Association by Marine and Kimball¹ of Cleveland, ought to pave the way for successful therapy on a large scale.

If we accept the dictum of the Cleveland investigators that "simple goiter is probably the easiest of all known diseases to prevent," it follows that efforts to undertake prophylactic work should be initiated without delay. To offset the possible hesitation of the want-to-be-shown members of the profession, an actual therapeutic demonstration on a large scale has already been carried to a point at which the results achieved are both striking and convincing.² For the prophylactic treatment, sodium iodid was selected on the grounds of economy and ease of administration. The thyroid gland has an extraordinary affinity for iodine; and an exceedingly small amount of this ele-

ment suffices, as numerous experiments have clearly demonstrated, to protect a gland against hyperplasia even under conditions in which such a development would otherwise be a characteristic compensatory response to thyroidal deficiencies. In their large project at Akron, Ohio, where Marine and Kimball made the survey of the incidence and the types of thyroid enlargement in the schoolgirls from the fifth to the twelfth grades, inclusive, the dose of iodid selected was small in comparison with customary iodine therapy, but large in contrast with what animal experiments suggest as needful. The evidence indicates that from 25 to 30 mg. "saturate" the normal thyroid of from 20 to 25 gm. ($\frac{2}{3}$ to 1 ounce). Marine and Kimball arbitrarily selected the employment of 2 gm. of sodium iodid, given in 0.2 gm. doses each school day, for each pupil in the fifth, sixth, seventh and eighth grades; and 4 gm. in 0.4 gm. doses each school day for each pupil in the ninth, tenth, eleventh and twelfth grades. These amounts of the drug were given in May, 1917, at the schools by the teachers or nurses.

A complete reexamination of all girls from the fifth to the twelfth grades was made six months later. The summarized results² show that not a single pupil in whom the thyroid was normal at first and who took iodine showed any enlargement, while of those not taking iodine, 26 per cent. showed definitely enlarged thyroids, and some, moderately large goiters. Even more than a prophylactic action is shown in the results: Just one third of the goiters marked "small goiters" disappeared; and one third of those marked "moderate goiters" showed a decrease of 2 cm. or more. Accordingly, the investigators properly remark, a distinct therapeutic effect is clearly demonstrated.

These statistical findings are the more conclusive because they represent not dozens but hundreds of carefully examined cases. More than a thousand girls took the full treatment, the latter being restricted for the present to this sex because during the adolescent period simple goiter occurs about six times more frequently in girls than in boys. The iodine rash prophesied by some critics failed to materialize in any noticeable way in more than five girls, in whom it was transitory and uneventful, promptly clearing up when the treatment was stopped. The investigators also now give assurance that there is no danger of producing a toxic condition like exophthalmic goiter. Not a single symptom of this alleged danger from the use of iodides was encountered. Nor was anything different to be expected; for, as Marine and Kimball remind us, the risk of inducing manifestations of exophthalmic goiter from the use of iodine in physiologic doses is exceedingly small, even in those cases in which there were large hyperplastic thyroids, that is, the kind of thyroid enlargement that would permit of the most rapid formation and excretion of the iodine-

1. Marine, David, and Kimball, O. P.: The Prevention of Simple Goiter in Man, *Jour. Lab. and Clin. Med.*, 1917, **3**, 40.

2. Kimball, O. P., and Marine, David: The Prevention of Simple Goiter in Man, *Arch. Int. Med.*, July, 1918, p. 41.

containing hormone. The extent to which iodids are used in general medicine and surgery and the rarity of the development of signs of exophthalmic goiter is the best index of the danger. Iodin is usually employed in immensely large doses; from 0.2 to 0.4 gm. of sodium iodid daily for two weeks would offer a great excess over the amounts necessary to saturate even the largest thyroids, and probably much smaller amounts would suffice in man, as it has been proved to do in the lower animals. The Akron experiment is being continued on an even larger scale. It should serve both as a model and as a stimulus for comparable efforts elsewhere.

ANTISCORBUTICS

The justification for a careful consideration of the subject of antiscorbutic agents is presented by the recent studies of experimental scurvy.¹ McCollum² remarked recently in a symposium on diseases due to deficiencies in nutrition:

Recovery from scurvy following a change of diet, or an improvement of the bacteriologic condition of the food, or following the administration of substances having diuretic properties, may be more satisfactorily explained in other ways than by the assumption that such changes in the dietary regimen produce their effects because of the introduction of a hypothetical antiscorbutic substance. It is necessary, henceforth, that those who discuss the etiology of scurvy should take into consideration the results of recent researches in nutrition with simplified diets. Whoever would seek to establish the validity of the theory of the existence of a specific antiscorbutic substance should first furnish new explanations for the experimental results that are not in harmony with the antiscorbutic theory, rather than present new experiments that harmonize with this most attractive hypothesis.

Nevertheless, at the present moment—and who can foretell the future in these days of enormous progress in the knowledge of the science of nutrition—it seems clear from the available evidence¹ that certain species at least may show scorbutic symptoms despite the fact that they are on a regimen that seems to meet the requirements of present-day investigators. For example, both Cohen and Mendel³ at Yale, and Hess and Unger⁴ at the Department of Health in New York, have recently demonstrated the genesis of disease in guinea-pigs abundantly supplied with food that contained admittedly good protein, a liberal variety of inorganic salts, supplements of sources of the recognized “fat-soluble” and “water-soluble” vitamins, and the roughage to regulate the movement of the bowels.

Small additions of raw milk do not prevent the onset of scurvy. Larger quantities cause the symptoms to

disappear. But the long recognized source of antiscorbutics is found in the fresh fruits and vegetables. Precisely how their potency manifests itself need not concern us here. The fact that scurvy has not only a civil but also a military significance at this time is of itself enough occasion to search for dietary possibilities that will assist in averting or curing the disease. When we are told by competent observers that prunes and bananas are not antiscorbutic, whereas oranges, and cabbages are markedly effective, it becomes clear that no broad generalizations can be made, nor can haphazard choice be expected to lead to antiscorbutic dietary success. Assuredly there is need, as Hess remarks, not only of an exact inventory of antiscorbutic foodstuffs, such as has been recently undertaken by the Lister Institute in London,⁵ but also of efforts directed to enlarge their number.

Even this plan now seems inadequate to meet the current situation. The movement toward conservation of foods, particularly exemplified in the drying and preserving of fruits and vegetables, is likely to be an extensive one. Do these foods thus conserved retain their antiscorbutic potency? According to Hess and Unger,⁴ commercial dehydrated carrots retain practically no antiscorbutic virtues. This statement is in accord with the findings of various European experimenters. Cohen and Mendel have modified the general statement by indicating that cabbage, which is markedly antiscorbutic, apparently may be dried so as to retain some, at least, of its potency. Even orange juice, the antiscorbutic *par excellence*, has been found to lose some of its power when allowed to age for some months in a refrigerator; and the “artificial orange juice” of salts, sugar and citric acid, as proposed by McCollum, is said to fail to protect against scurvy.⁴ From a practical standpoint, in the face of high prices for foods, it seems worth while to reemphasize Hess’ discovery that orange peel possesses marked antiscorbutic potency and withstands desiccation remarkably well, retaining considerable of this power after being dried for three months.

Some day, we may confidently expect to discover some order in the apparent chaos of this subject. Meanwhile the safety of large groups of the human race demands accurate information on matters that seem to offer at best crudely empiric knowledge. To say that any food lacks antiscorbutic potency is not to condemn it or exclude it from the dietary. The foremost warning is, not to make our rations too exclusive in character, not to depend as yet solely on dried or preserved products, but rather to include some fresh foods as far as circumstances permit—until the experts either improve the methods of conservation so as to retain antiscorbutic potency in them or give us a guide to physiologic safety in our dietary choices.

1. The Nonidentity of Antineuritic and Antiscorbutic Factors in Nutrition, editorial, THE JOURNAL A. M. A., Nov. 30, 1918, p. 1826; Scurvy and Antiscorbutics, Dec. 14, 1918, p. 2000; Scurvy and Constipation, Dec. 21, 1918, p. 2075.

2. McCollum, E. V.: The “Vitamin” Hypothesis and the Diseases Referable to Faulty Diet, THE JOURNAL A. M. A., Sept. 21, 1918, p. 937.

3. Cohen, B., and Mendel, L. B.: Experimental Scurvy of the Guinea-Pig in Relation to the Diet, Jour. Biol. Chem., 1918, **35**, 425.

4. Hess, A. F., and Unger L. J.: The Scurvy of Guinea-Pigs, II, Experiments on the Effect of the Addition of Fruits and Vegetables to the Dietary, Jour. Biol. Chem., 1918, **35**, 487.

5. Chick, T., and Hume, M.: Tr. Soc. Trop. Med. and Hyg., 1917, **10**, 141.

Current Comment

LEST YOU FORGET

Last week opportunity was given to Fellows of the Association and to subscribers to remit annual dues and subscription, using a blue slip inserted in *THE JOURNAL*. Many, desirous to aid the Association in effecting a great saving in the sending of regular bills, have already responded. It is hoped that many more will require no further reminder to act. Lest you forget we say it yet: Use the Blue Slip.

THE NUTRITIVE VALUE OF THE BANANA

A prominent organization for conserving the health of the less well-to-do classes has adopted the dictum, "Spend not more for meat and eggs together than for vegetables and fruits."¹ The part that meat and eggs play in the dietary is well known. They offer proteins and fats in acceptable form, and the egg furnishes a quota of vitamins in addition. The grouping of vegetables and fruits in a promiscuous way may tend to obscure the great differences that exist between the different, highly unlike classes of such plant products. Roots, tubers, stalks, green leaves and fruits proper are too diverse in their botanic morphology as well as their chemical make-up to receive indiscriminate consideration in the eyes of the dietitian. All of the products mentioned may provide pleasant and varied flavors and may give desirable texture or bulk to the diet. Some of them undoubtedly furnish vitamins, though it must be admitted that our knowledge of the distribution of these factors is still most fragmentary. As a rule, however, they supply acceptable carbohydrates in the form of starch and sugars. Thanks to the more recent methods of physiologic investigation of dietary values, a new physiology of foods is being created. This has emancipated the student of nutrition from the generalities of former days and enabled him to form more useful conceptions of the specific values of individual products. Numerous instances of what this mode of examination may reveal have been detailed from time to time in *THE JOURNAL*. An added illustration is afforded by the recent studies of the nutritive value of the banana by Sugiura and Benedict.² They refute the assumption that a population can subsist exclusively on bananas as food.³ These fruits are now definitely demonstrated to be deficient in protein and the water-soluble accessory as a food for the growth and maintenance of experimental animals. The lacking factors must be supplied before a complete dietary results. These shortcomings need not detract, however, from the other nutrient virtue of this sterile fruit.⁴ It remains a delicious and digestible sugary food even if it lacks all the virtues of an ideal product like milk.

1. Food and the War, a textbook prepared under the direction of the Collegiate Section of the U. S. Food Administration, Boston, Houghton, Mifflin Company, 1918, p. 203.

2. Sugiura, K., and Benedict, S. R.: The Nutritive Value of the Banana, *Jour. Biol. Chem.*, 1918, **36**, 171.

3. Adams, F. V.: Conquest of the Tropics, 1914, p. 530.

4. The Undervalued Banana, editorial, *THE JOURNAL A. M. A.*, Jan. 27, 1912, p. 276. Prescott, S. C.: *Scient. Month.*, 1918, **6**, 65. Myers, V. C., and Rose, A. R.: The Nutritional Value of the Banana, *THE JOURNAL A. M. A.*, April 7, 1917, p. 1022.

THE AWE-INSPIRING UNKNOWN

In few places does familiarity breed greater contempt than in the field of therapeutics. None know this better than the exploiters of nostrums—whether for physicians' prescription or for direct consumption by the public. This thought is inspired by reading the label of a proprietary brand of clay poultice which informs the world that the base of this marvel is "composed of the finest anhydrous and levigated argillaceous mineral." It would be fatal, commercially speaking of course, to tell the public what it could, but probably will not, easily find out by looking in the dictionary, that this specimen of exuberant verbosity simply means that the base of the product is nothing more miraculous than dried and finely powdered clay. But how much more sonorous, how much more awe-inspiring, how much more suggestive of incantations and the witch-caldron: "anhydrous and levigated argillaceous mineral." One cannot help feeling that "Prof." Samuels, the shrewd and genial quack who dispensed a pinch each of salt and sugar in hydrant water (\$5.00 for 2 oz.), made a mistake in not taking the public into his confidence ("patent medicinally" speaking), by telling them the composition of his panacea. With perfect truth he might have said, for instance:

"My preparation is composed of minimal quantities of a member of the disaccharid carbohydrates, derived from the hexoses and capable of yielding two hexose molecules by hydrolysis, having as a general formula $C_{12}H_{22}O_{11}$, and crystallizing in monoclinic prisms, together with an interesting chemical combination of sodium and chlorine, which, in its natural state, forms anhydrous, cubical or octahedral white crystals. These are dissolved in a colorless, limpid fluid compounded of hydrogen and oxygen."

Thus might Samuels, taking a leaf out of the notebook of the clay-poultice exploiters, have avoided the charge that he was unwilling to let the public know what he was selling. He might, conceivably, have impressed physicians of a certain type! A seeming frankness is the order of the day in advertising "patent medicines"; does not the public know, full well, that the base of the wonder-working poultice is "anhydrous and levigated argillaceous mineral"? What more can it ask?

BRAIN ANALYSIS IN PATHOLOGY

The chemical pathology of the brain can lay claim to few facts that have been established by adequate data from suitable material. Even in the case of the normal brain, the number of analytic chemical studies conducted in recent years with approved methods has been woefully small. Hence the basis for comparisons of the conditions found in health and disease remains for the most part to be more firmly established. Through the untimely death of Waldemar Koch, at Chicago a few years ago, science lost one of its most promising workers in this domain. Recognizing the paucity of contributions to our knowledge of the chemical composition of the human brain, we need not hesitate to evaluate at some worth the contributions that the more lowly animals may offer. Koch and Riddle have made a chemical study of the brains of pigeons

having a functional abnormality recognized as a lack of control of the voluntary movements.¹ The derangement, which usually persists until death, first appeared in these birds under conditions known to lead to weakness in the offspring. The disorder is exhibited in all degrees and has been inherited undiminished to the fifth generation. Usually it is shown from the earliest age, and is probably present throughout the whole development of the bird. Without giving the minutiae of the elaborate analyses made, it has been found that the brains of the ataxic individuals differed clearly from those of normal pigeons. The results of the analyses of the affected brains are interpreted as suggesting a chemical underdifferentiation or immaturity of these brains. The brains of affected birds of approximately mature age are chemically more like the brain at earlier stages of development. Although few opportunities for comparison are as yet available, the chemical variations from the normal as observed in the ataxic pigeon brains and in human amaurotic dementia are apparently alike in kind.

Medical Mobilization and the War

Personnel of the Medical Corps

For the week ending December 20, there were in the Medical Corps 30,047 officers, a decrease of 998 since the previous week. This personnel includes four major-generals, five brigadier-generals, 221 colonels, 509 lieutenant-colonels, 2,454 majors, 9,771 captains and 17,083 lieutenants. There were in active service 29,232, a decrease of 990 since the previous week. Discharges to date include 4,240 officers.

The Association of the Medical Veterans of the World War

To Commissioned Officers in the Medical Corps of the United States Army, United States Navy, United States Public Health Service, and Medical Members of the Boards of the Selective Service System:

There has been incorporated and officered, the Association of Medical Veterans of the World War, with headquarters in Washington, D. C.

All physicians and surgeons commissioned in the Medical Reserve Corps, or Medical Corps of the United States Army, United States Navy, United States Public Health Service, medical members and medical examiners of Local, Medical Advisory and District Boards officially appointed by the President, or by the governors of states, may become active members by signing the proper application and paying the nominal sum of \$1.

The Association of Medical Veterans of the World War is for the purpose of perpetuating fellowships formed in the military service of the United States, 1914 to 1918; promoting reunions of medical veterans; providing a common point of contact for organizations of medical men already founded or to be later instituted, who took official part in winning the world war; for advancing medical science among its members, and for protecting those in need, through declining years.

It is expected that this organization may become the medium of association with foreign societies of medical war veterans, to the end that the medical profession of nations may continue to be allied, in harmony with the governments that made common cause and secured a common victory.

Special associations of medical war veterans, with membership restricted to states, to the selective service, specialists in medicine, overseas service, etc., are invited to elect delegates to represent them in the house of representatives, to

which the government of the Medical Veterans of the World War will be entrusted, through the board of directors, to be elected by this house of representatives.

The first convention of the Medical Veterans of the World War, to be held in Atlantic City, N. J., during the second week in June, 1919, will be the Victory Meeting, at which the affairs of the association will be placed in the hands of its officers, to be elected at that time.

Physicians who are qualified by service in either of the Medical Corps of United States government or because of having served by appointment as a member of one of the boards under the selective service system, are requested to submit applications for membership, stating the branch of service in which they have been engaged, together with their membership fee (\$1), to the secretary of the association, Col. Frederick F. Russell, care of the Office of the Surgeon-General of the Army, Washington, D. C.

FREDERICK F. RUSSELL, M.D., Washington, D. C.
Colonel, M. C., U. S. Army.

Weekly Bulletin A. E. F.

Nov. 25, 1918

This bulletin begins with a discussion of the current epidemic of respiratory diseases with extracts from newspapers showing recrudescences occurring in Germany, Hungary, Holland, Switzerland and Portugal. In Portugal the epidemic seemed particularly virulent, many patients dying within forty-eight hours. A statement by the Director-General of Sanitation indicates that some 25,000 people had already died, and that an average of 300 daily were dying in Lisbon. The height of the epidemic in the American Expeditionary Forces was reached in the week ending October 27. From June 15 to November 8 there had been 78,713 cases of influenza and 11,165 cases of pneumonia complicating influenza with 191 deaths attributed directly to influenza and 4,754 deaths from pneumonia. The mortality from influenza, it is stated, cannot be figured with any degree of accuracy on account of the large number of pneumonia cases reported as secondary to influenza. The final paragraph on this subject states:

Field Hospital No. 366, 92d Division, used sheet cubicle system about beds and masks for patients and attendants so consistently and thoroughly that none of the attendants, doctors, or orderlies acquired influenza or pneumonia although the wards were often full of both diseases.

Other paragraphs follow:

All the communicable diseases have shown a reduction in the past week except measles and meningitis. The increase in measles has been almost wholly confined to the camps and depots where replacement troops have been assembled from the Base Ports for distribution in the Armies.

The meningitis is widely scattered, only a few of the hospital groups in the Advance Section having reported more than one case in the same unit.

The weekly case rate for influenza has fallen from 601 per 100,000 in the week ending October 25th to 261 per 100,000 in the week ending November 15th.

The weekly case rate per 100,000 for pneumonia in the week ending October 25th has fallen from 109 to 42.5 in the week ending November 15.

DEC. 2, 1918

This bulletin first points out the inaccuracy of many reports as to the cause of death given by pathologists in connection with the Army. Paragraphs are devoted to a small outbreak of typhoid from untreated water at Autreville, to the management of diphtheria at a hospital center, to a memorandum on lipovaccines against pneumonia issued by the Surgeon-General's Office, to organization in the handling of venereal diseases, and to the final weekly review.

There has been an increase in diphtheria, scarlet fever and meningitis; diphtheria showing an increase in several hospital centers. The meningitis increase is almost wholly confined to the advanced zone. These increases do not show any evidence of local epidemics, the cases for the most part being widely scattered.

The monthly period, however, shows a marked reduction in dysentery and meningitis, a slight reduction in measles, and a marked increase in typhoid. Diphtheria slightly increased, with measles and scarlet fever showing little change.

The improvement in the influenza and pneumonia situation continues. For the week ending November 22, 1,552 cases of influenza reported against 4,862 the week previous, and 407 of pneumonia against 793 the week previous.

1. Koch, Mathilda L., and Riddle, O.: The Chemical Composition of the Brain of Normal and Ataxic (?) Pigeons, *Am. Jour. Physiol.*, 1918, 47, 124.

HONORABLE DISCHARGES, MEDICAL
CORPS, U. S. ARMY

ARKANSAS	MISSISSIPPI
Pine Bluff—Jenkins, J. S.	Lexington—Stephenson, R. M.
CALIFORNIA	MONTANA
Pomona—Edgerton, H. W.	Darby—Haywood, H.
COLORADO	NEBRASKA
Denver—Hicrley, I. C.	Hastings—Stewart, S. J.
Trinidad—Presnall, C. W.	Lincoln—Des Jardien, A. R.
DISTRICT OF COLUMBIA	NEW YORK
Washington—Custis, J. B. G.	Albany—Davis, C. E.
FLORIDA	Branchport—Costello, M. E.
Bushnell—Hubbard, R. C.	Brooklyn—Giancontieri, V.
GEORGIA	East Randolph—Crossman, J. E.
Gainesville—Rudolph, J. B.	New York—Bowlby, H. M.
Griffin—Anthony, E. H.	Brown, S. A.
ILLINOIS	Diamond, B.
Chicago—Green, F. R.	Haynes, H. W.
Oak Forest—Turner, J. W.	Labruier, F. J.
Peoria—Ernest, J. R.	PENNSYLVANIA
INDIANA	Chester—Grist, J. M.
Dunkirk—Garber, E. C.	McKees Rocks—Eicher, C. G.
Napoleon—Cox, L. T.	Monaca—Gormley, J. R.
KANSAS	RHODE ISLAND
Arkansas City—Young, R. C.	Providence—Cutts, W. B.
KENTUCKY	SOUTH CAROLINA
Fort Thomas—Robertson, J. A.	Clinton—Hays, L. St. C.
MARYLAND	SOUTH DAKOTA
Baltimore—Perry, W. B.	Scotland—Leighton, I. W.
MASSACHUSETTS	TENNESSEE
New Bedford—Matthewson, F. W.	Memphis—Stone, L. A.
Winthrop—Basch, W. E. R.	TEXAS
MICHIGAN	Galveston—Haden, H. C.
Houghton—Harkness, R. B. E.	WEST VIRGINIA
	Barrackville—Smith, E. P.
	Quinimont—Lewis, W. D.

ORDERS TO OFFICERS OF THE MEDICAL
CORPS, U. S. ARMY

Alabama

To Camp Sheridan, Ala., as tuberculosis examiner, from Camp Wheeler, Lieut. A. JOHNSON, Clanton.
To Fort Leavenworth, Kan., from Camp Grant, Lieut. M. L. MOORE, Mount Vernon.
To report to commanding general, Northeastern Department, from Boston, Lieut. J. R. MORGAN, Heflin.
 The following order has been revoked: *To Biltmore, N. C., for instruction, from Fort Oglethorpe, Capt. R. C. JONES, Mobile.*

Arizona

To Denver, Colo., from Fort Oglethorpe, Lieut. W. E. McWHIRT, Safford.
To Washington, D. C., from Camp A. A. Humphreys, Lieut. W. N. McDUFFIE, San Carlos.

Arkansas

The following order has been revoked: *To Camp MacArthur, Texas, from Fort Des Moines, Major W. A. SNODGRASS, Little Rock.*

California

To Azalea, N. C., from Camp Crane, Lieut. F. W. H. TAYLOR, San Diego.
To Camp Beauregard, La., base hospital, as commanding officer, from Camp Wheeler, Lieut.-Col. J. M. WHEATE, San Francisco.
To Camp Crane, Pa., from Hoboken, Capt. P. M. SAVAGE, San Bernardino.
To Camp Devens, Mass., base hospital, from Fort Oglethorpe, Lieut. E. C. BLACK, San Diego.
To Camp Hancock, Ga., from Camp Greene, Capt. J. L. LOISE, Oakland.
To Camp Kearney, Calif., from Fort Oglethorpe, Capt. B. G. PINKERTON, Los Angeles. Base hospital, from Fort Oglethorpe, Capt. G. L. MARION, San Francisco.
To Camp Lewis, Wash., from Fort Oglethorpe, Lieut. J. F. SLAVICH, San Francisco.
To Camp Sherman, Ohio, base hospital, from Fort Oglethorpe, Lieut. A. O. HOLMES, Redlands.
To Exerman, Texas, Barron Field, from Mincola, Capt. A. B. BAER, San Francisco.
To Fort Leavenworth, Kan., from Camp Fremont, Lieut. M. H. HIRSCHFELD, San Francisco.
To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Williamsbridge, N. Y., from Camp Lee, Capt. H. P. WILSON, Whittier.
To San Francisco, Calif., Letterman General Hospital, from Fort Douglas, Capt. A. L. BROWN, Riverside; from Fort Oglethorpe, Major H. R. OLIVER, San Francisco.
 The following orders have been revoked: *To Camp Wadsworth, S. C., base hospital, from Camp Crane, Capt. H. K. FABER, San Francisco.*
To Hollywood, Calif., from Fort McDowell, Capt. F. P. BRENDEN, San Francisco.
To New Haven, Conn., Yale Army Laboratory School, from Hoboken, Lieut. T. L. ROGERS, Long Beach.

Canal Zone

To Camp Upton, N. Y., base hospital, for instruction, from Fort Oglethorpe, Lieut. L. M. DRENNAN, Ancon.
To Camp Wheeler, Ga., base hospital, from Camp Crane, Lieut. D. J. MURPHY, Corozal.

Colorado

To Fort Douglas, Utah, from Fort Oglethorpe, Lieut. L. H. WADE, Denver.
To Newport News, Va., from Fort Oglethorpe, Lieut. E. K. SHELTON, Antonito.
To Whipple Barracks, Ariz., for instruction, from Fort Oglethorpe, Capt. H. R. McGRAW, Denver.

Connecticut

To Camp Jackson, S. C., base hospital, from Fort Oglethorpe, Lieut. W. J. H. FISCHER, Milford.
To Camp Wadsworth, S. C., base hospital, from Fort Oglethorpe, Capt. A. SCRIMGEOUR, Bridgeport.
To Dallas, Texas, Love Field, as flight surgeon, from Camp Dick, Capt. A. E. BRIDES, New Haven.
To Madison Barracks, N. Y., from Fort Oglethorpe, Lieut. C. H. AUDET, Waterbury.
To New Haven, Conn., from Camp Crane, Capt. R. E. BLACK, New London.
To Pittsburgh, Pa., from Plattsburg Barracks, Capt. L. A. NOTKINS, New Haven.
To report to the commanding general, Northeastern Department, from Boston, Lieut. H. S. REYNOLDS, Hartford.

District of Columbia

To Camp Upton, N. Y., base hospital, for instruction, from Fort Oglethorpe, Capt. F. W. ROMAINE, Washington.
To Long Beach, N. Y., from the Surgeon-General's Office, Major E. B. NEFF.
To Pittsburgh, Pa., from Washington, Lieut.-Col. E. D. KRAMERS.

Florida

To Lakewood, N. J., from Camp Crane, Lieut. W. W. FARNELL, Springfield.
To Lonoke, Ark., Eberts Field, from San Antonio, Lieut. R. E. GILBERT, Jacksonville.
To report to the commanding general, Southern Department, from Fort Bayard, Capt. W. J. LANCASTER, Tampa.
To Waco, Texas, Rich Field, from Mineola, Lieut. M. A. LISCHKOFF, Pensacola.

Georgia

To Camp Beauregard, La., base hospital, from Fort Oglethorpe, Lieut. D. M. BRADLEY, Waycross.
To Camp Bowie, Texas, base hospital, from Fort Oglethorpe, Capt. J. J. CLARK, Waycross.
To Camp Devens, Mass., base hospital, from Fort Oglethorpe, Lieut. H. L. BARER, Carrollton.
To Camp Grant, Ill., base hospital, from Fort Oglethorpe, Lieut. J. H. CAMPBELL, Jefferson.
To Camp Gordon, Ga., base hospital, from Camp Zachary Taylor, Lieut. F. P. NORMAN, Greenville.
To Camp Upton, N. Y., base hospital, for instruction, from New York, Lieut. L. W. WILLIAMS, Savannah.
To Fort Benjamin Harrison, Ind., from Camp Meade, Capt. J. A. WHITE, Albany.
To Fort Douglas, Utah, from Fort Oglethorpe, Lieut.-Col. A. D. PARCE.
To Fort McHenry, Md., from Carlisle, Capt. L. W. CHILDS, Atlanta.
To Fort Sam Houston, Texas, base hospital, from Camp Crane, Lieut. C. USHER, Savannah.
 The following order has been revoked: *To Rochester, Minn., Mayo Clinic, for instruction, from Fort McPherson, Major W. T. WEISSINGER.*

Idaho

To Camp Upton, N. Y., base hospital, for instruction, from Fort Oglethorpe, Lieut. J. L. McDONALD, Payette.
To Fort Des Moines, Iowa, from Fort Oglethorpe, Lieut. E. N. ROBERTS, Pocatello.

Illinois

To Camp Custer, Mich., from Ann Arbor, Capt. O. O. STANLEY, Champaign.
To Camp Grant, Ill., base hospital, from Fort Oglethorpe, Capt. G. L. ALT, Chicago.
To Camp Hancock, Ga., to examine the command for nervous and mental diseases, from Jackson Barracks, Capt. W. K. DYER, Kankakee.
To Camp Jackson, S. C., base hospital, from Fort Oglethorpe, Lieut. J. D. ELLIS, Chicago.
To Camp Logan, Texas, to examine the troops for cardiovascular diseases, from Fort Thomas, Lieut. G. H. ANDERSON, Chicago.
To Camp Sheridan, Ala., as tuberculosis examiner, from Camp Wheeler, Lieut. C. J. HYSLOP, Chicago.
To Camp Sherman, Ohio, base hospital, from Fort Oglethorpe, Capt. J. M. GRAYBEAL, Lieut. F. A. LAGORIC, Chicago.
To Camp Upton, N. Y., base hospital, from Fort Oglethorpe, Lieut. J. J. McCARTY, Jr., Chicago.
To Camp Wadsworth, S. C., base hospital, from Fort Oglethorpe, Capt. C. M. McKENNA, Chicago.
To Camp Zachary Taylor, Ky., as tuberculosis examiner, from Jefferson Barracks, Capt. R. E. ADKINS, Chicago.
To Cape May, N. J., from Fort Oglethorpe, Lieut. E. F. SLAVIK, Chicago.
To Chicago for instruction, from Camp Crane, Lieut. S. F. UBALA, Chicago.
To Fort Benjamin Harrison, Ind., from Fort Oglethorpe, Lieuts. G. S. BETTS, Banner; R. H. STONGER, Kankakee.
To Fort Des Moines, Iowa, from Fort Oglethorpe, Lieut. J. P. GRAF, Chicago.
To Fort Ethan Allen, Vt., from Richmond, Capt. A. T. EIDE, Chicago.
To Fort Leavenworth, Kan., from Camp Zachary Taylor, Lieut. D. B. ROTMAN, Chicago; from Fort Riley, Capt. G. W. BROCK, Atlanta.
To Fort Moultrie, S. C., from Fort Oglethorpe, Lieut. H. KATZ, Chicago.
To Fort Ontario, N. Y., from Fort Oglethorpe, Lieut. S. MANN, Chicago.

To Fort Sheridan, Ill., from Indianapolis, Capt. J. A. GOODMAN, Chicago. For instruction, from Fort Oglethorpe, Capt. F. E. CULVER, Chicago.

To Hoboken, N. J., from Fort Oglethorpe, Capt. L. B. CAVINS, Bloomington.

To Hot Springs, N. C., Capt. W. D. NAPHEYS, JR., Chicago.

To Lake Charles, La., Gerstner Field, from Mineola, Capt. G. C. OTRICH, Belleville.

To Millington, Tenn., Park Field, from Mineola, Lieut. S. M. MORWITZ, Chicago.

To Pittsburgh, Pa., from Fort Oglethorpe, Capt. H. E. PINTLER, Peoria; from Lakewood, Capt. S. R. CATLIN, Rockford.

To San Antonio, Texas, Kelly Field, from Mineola, Capt. C. M. ROBERTSON, Chicago.

The following orders have been revoked: *To Boston, Mass., from Camp Crane, Lieut. L. C. BASSETT, Farina. To Camp Travis, Texas, from Fort Oglethorpe, Capt. J. H. ELLINGSWORTH, East Moline. To Rochester, Minn., Mayo Clinic, for instruction, and on completion to his proper station, from Camp Sherman, Capt. W. C. SMITH, Chicago.*

Indiana

To Boston, Mass., from Fort Oglethorpe, Lieut. A. O. TRUELOVE, Warsaw.

To Camp A. A. Humphreys, Va., from Camp Crane, Capt. R. H. THOMAS, Indianapolis.

To Camp Benning, Ga., base hospital, from Fort Oglethorpe, Capt. S. L. EGART, Indianapolis.

To Camp Hancock, Ga., as tuberculosis examiner, from Fort Slocum, Capt. N. W. CLARK, Rossville.

To Camp Sherman, Ohio, base hospital, from Fort Oglethorpe, Lieut. H. J. PIERCE, Terre Haute.

To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Lieut. C. E. QUINN, Burlington.

To Denver, Colo., from Camp Travis, Capt. H. S. GIFFORD, Tipton.

To Fort Leavenworth, Kan., from Fort Oglethorpe, Lieut. C. C. BITLER, New Castle.

To Fort McHenry, Md., for instruction, from Fort Oglethorpe, Capt. H. A. DUENLING, Fort Wayne.

To Fort McPherson, Ga., from Fort Oglethorpe, Capt. R. C. SHANKLIN, South Bend.

To Fort Sheridan, Ill., from Camp Fremont, Major F. F. HUTCHINS, Indianapolis.

To Hoboken, N. J., from Newport News, Lieut. T. K. DAVIS, Wabash.

The following orders have been revoked: *To Camp Crane, Pa., from Hoboken, Lieut. L. G. SPRADLEY, Tennyson. To Camp Logan, Texas, from Fort Oglethorpe, Capt. C. M. DUPUY, Riley. To West Baden, Ind., from Camp Crane, Lieut. R. A. GILMORE, Michigan City.*

Iowa

To Biltmore, N. C., from Camp Crane, Lieut. M. T. MORTON, Iowa City.

To Camp Dodge, Iowa, from Camp Grant, Capt. J. H. SCHRUP, Dubuque.

To Denver, Colo., from Fort Oglethorpe, Capt. T. B. LACEY, Glenwood; from Fort Riley, Capt. J. T. PADGHAM, Grinnell.

To Fort Leavenworth, Kan., from Fort Riley, Capt. P. B. BATTEY, Independence; from Washington, Lieut. J. I. MARKER, Centerville.

To report to the commanding general, Northeastern Department, from Camp Devens, Capt. C. B. ROGERS, Earlville.

The following order has been revoked: *To Camp Abraham Eustis, Va., from Camp Custer, Lieut. J. W. MYERS, Sheldon.*

Kansas

To report to the commanding general, Northeastern Department, from Camp Devens, Lieut. G. D. RUTH, Moundridge.

Kentucky

To Boston, Mass., from Camp Crane, Lieut. W. G. COMBS, Kirksville.

To Camp Devens, Mass., base hospital, from Fort Oglethorpe, Lieut. M. C. BAKER, Louisville.

To Camp Hancock, Ga., from Camp Lee, Lieut. E. J. NESTLEY, Covington.

To Camp Jackson, S. C., base hospital, from Fort Oglethorpe, Lieuts. W. J. FLOWERS, Columbia; A. D. ECHERT, Newport.

To Camp Sevier, S. C., to examine the command for nervous and mental diseases, from Ann Arbor, Lieut. W. E. RENDER, Lakeland.

To Camp Travis, Texas, base hospital, from Fort Oglethorpe, Lieut. J. E. EDWARDS, Lancaster.

To Camp Wheeler, Ga., base hospital, from Fort Oglethorpe, Capt. L. H. KERR, Louisville.

To report to the commanding general, Northeastern Department, from Boston, Capt. R. L. WOODARD, Hopkinsville.

Louisiana

To Camp Beauregard, La., base hospital, from Camp Lee, Major O. L. POTHIER, New Orleans.

To Camp Hancock, Ga., from Camp Greene, Capt. E. HOLLOWAY, Paquemine.

To Camp Zachary Taylor, Ky., as tuberculosis examiner, from Jefferson Barracks, Lieut. P. L. QUERENS, Alexandria.

To Chicago, Ill., from Camp Jackson, Capt. R. E. STONE, New Orleans.

To Fort Leavenworth, Kan., from Fort Riley, Major R. C. P. TRUITT, Jackson.

To Markleton, Pa., for instruction, from Fort Oglethorpe, Capt. E. L. LECKERT, New Orleans.

Maine

To Lonoke, Ark., Eberts Field, from Mineola, Capt. S. E. FISHER, Portland.

Maryland

To Camp Joseph E. Johnston, Fla., base hospital, from Camp Jackson, Capt. T. P. SPRUNT, Baltimore.

To Camp McClellan, Ala., to examine the command for nervous and mental diseases, from Camp Forrest, Lieut. F. N. OGDEN, Baltimore.

To Camp Shelby, Miss., base hospital, from Fort Oglethorpe, Lieut. L. P. HOLMES, Baltimore.

To Fort Ontario, N. Y., from Fort Oglethorpe, Lieut. F. A. MILLER, Salisbury.

The following orders have been revoked: *To Camp Upton, N. Y., from Hoboken, Lieut. B. M. JAFFE, Baltimore. To Richmond, Va., for instruction, from Fort Oglethorpe, Lieut. G. E. LANCASTER, Bowie.*

Massachusetts

To Biltmore, N. C., from Camp Hancock, Major E. B. BIGELOW, Worcester.

To Boston, Mass., from Fort Oglethorpe, Capt. A. G. RICE, Springfield.

To Camp Beauregard, La., with the board examining the troops for cardiovascular diseases, from Fort Oglethorpe, Lieut. F. F. DEXTER, Long Meadow.

To Camp Devens, Mass., base hospital, from Fort Oglethorpe, Capt. E. A. CUNNINGHAM, Belmont; from New Haven, Major L. H. SPOONER, Boston.

To Camp Dick, Texas, from Mineola, Lieut. T. F. CAPELES, Haverhill.

To Camp Dodge, Iowa, as camp sanitary inspector, from Pittsburgh, Major J. WARREN, Boston.

To Camp Grant, Ill., base hospital, from Fort Oglethorpe, Capt. J. N. BOYER, Springfield; Lieut. H. C. TOOKER, Boston.

To Camp Hancock, Ga., from Camp Greene, Lieut. L. C. DURSTHOFF, Lowell.

To Camp Jackson, S. C., base hospital, from Fort Oglethorpe, Capt. H. F. DEARBORN, Lawrence; Lieut. J. L. DOWLING, Boston.

To Camp Sheridan, Ala., with the board examining the command for nervous and mental diseases, from Camp Sevier, Lieut. C. B. PARTINGTON, Framingham.

To Camp Zachary Taylor, Ky., base hospital, for instruction, from Fort Oglethorpe, Capt. W. I. CLARK, JR., Worcester.

To Carlisle, Pa., for instruction, from Fort Oglethorpe, Lieut. W. F. DOLAN, Quincy.

To Colonia, N. J., from Camp Crane, Lieut. W. K. COFFIN, West Medford; from Fort Oglethorpe, Lieut. G. C. ANTHONY, Wellesley.

To Fort Sheridan, Ill., from Fort Oglethorpe, Capt. A. H. RING, Arlington Heights.

To Fort Sill, Okla., base hospital, from Fort Oglethorpe, Lieut. B. L. ASHMORE, Palmer.

To Garden City, N. Y., Mitchel Field, as assistant to flight surgeon, from Mineola, Lieut. L. R. BURNETT, Cambridge.

To Hoboken, N. J., from Fort Oglethorpe, Lieuts. A. J. LEARY, A. S. MACMILLAN, Boston.

To Plattsburg Barracks, N. Y., from Camp Devens, Capt. R. A. GREENE, Palmer.

To report to the commanding general, Northeastern Department, from Boston, Lieuts. D. F. MURPHY, Beverly; S. L. MARNOY, Chelsea.

The following orders have been revoked: *To Carlisle, Pa., from Fort Oglethorpe, Capt. W. G. CURTIS, Wollaston. To Detroit, Mich., from Camp Crane, Lieut. N. B. McWILLIAMS, Williamstown.*

Michigan

To Camp Abraham Eustis, Va., as orthopedic surgeon, from Fort Oglethorpe, Lieut. L. B. COWEN, Detroit.

To Camp Shelby, Miss., as camp surgeon, from Camp Devens, Lieut.-Col. W. H. HUTCHINGS, Detroit.

To Fort Benjamin Harrison, Ind., from Ann Arbor, Lieut. V. ADAIR, Ann Arbor.

To Fort Dupont, Del., from New Haven, Lieut. C. M. SPENCER, Free Soil.

To Fort Ontario, N. Y., for instruction, from Fort Oglethorpe, Capt. W. J. ANDERSON, Iron Mountain.

To Fort Sheridan, Ill., from Ann Arbor, Capt. F. S. BACHELDER, Pontiac.

To Hoboken, N. J., from Fort Oglethorpe, Lieut. J. H. MULLER, Grand Rapids.

To Pittsburgh, Pa., for instruction, from Fort Oglethorpe, Lieut. W. D. BARRETT, Detroit.

The following orders have been revoked: *To Camp Crane, Pa., from Hoboken, Capt. H. W. LONG, Escanaba. To Fort Sheridan, Ill., from Camp Crane, Lieut. C. E. TRUESDELL, Detroit. To Pittsburgh, Pa., from Camp Crane, Major W. H. MARSHALL, Flint.*

Minnesota

To Camp Pike, Ark., from Fort Oglethorpe, Lieut. P. A. O'LEARY, Rochester.

To Camp Sevier, S. C., from Fort Oglethorpe, Lieut. A. H. SCHWARTZ, Duluth.

To Camp Zachary Taylor, Ky., to examine the command for nervous and mental diseases, from Camp Meade, Lieut. F. W. WHITMORE, St. Paul.

To Fort Benjamin Harrison, Ind., from Fort Oglethorpe, Lieut. W. B. MARTIN, Fergus Falls.

To Fort Des Moines, Iowa, from Fort Riley, Capt. W. H. REPOGLE, Wabasha.

To Fort McHenry, Md., from the Surgeon-General's Office, Major A. R. COLVIN, St. Paul.

To Lakewood, N. J., from Camp Crane, Lieut. H. N. KLEIN, St. Paul.

To Otisville, N. Y., from Camp Crane, Lieut. W. H. DANIELS, Crookston.

To Pittsburgh, Pa., for instruction, from Fort Oglethorpe, Lieut. G. A. MURRAY, Rochester.

To report to the commanding general, Northeastern Department, from Boston, Lieut. F. H. NEHER, St. Paul.

Mississippi

To Hoboken, N. J., from Camp Shelby, Lieut.-Col. F. S. MACY.

To Pittsburgh, Pa., from Fort Oglethorpe, Capt. J. E. WALLACE, Biloxi.

Missouri

To Baltimore, Md., from Camp Crane, Capt. F. R. MORLEY, Sedalia.

To Camp Benning, Ga., from Fort Oglethorpe, Capt. D. B. GARSTANG, St. Louis.

To Camp Crane, Pa., from Hoboken, Capt. W. L. SHARP, Little Rock.

To Camp Lee, Va., base hospital, from Fort Oglethorpe, Lieut. B. F. HARRIS, Kansas City.

To Camp Meade, Md., base hospital, from Camp Bowie, Capt. J. E. DEWEY, Springfield.

To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Lieut. D. J. ROYER, Joplin.

To Camp Travis, Texas, base hospital, from Fort Oglethorpe, Lieut. F. W. HAYNES, St. Louis.

To Camp Wheeler, Ga., base hospital, from Camp Crane, Lieut. E. V. KRING, St. Louis.

To Denver, Colo., from Camp Pike, Lieuts. W. O. FINNEY, Chaffee; M. H. SHIELBY, Charleston; from Fort Riley, Capt. S. B. HIRSCHBERG, Kansas City.

To Fort McHenry, Md., from New York, Lieut. L. E. MONROE, Bonne Terre.

To Otisville, N. Y., for instruction, from Fort Oglethorpe, Capt. G. W. KOENIG, St. Louis.

To St. Louis, Mo., from Hot Springs, Capt. J. F. POTTS, St. Louis.

To report to the commanding general, Northeastern Department, from Camp Devens, Capt. H. A. BREYFOGLE, Kansas City; A. GUNDLACH, St. Louis; Lieut. S. B. BUCK, Anderson.

The following order has been revoked: *To Fort Des Moines, Iowa, for instruction, from Camp Crane, Lieut. A. M. GREGG, Joplin.*

Montana

To report to the commanding general, Eastern Department, from Camp Devens, Lieut. C. W. BICE, Great Falls.

Nebraska

To Camp Travis, Texas, base hospital, from Camp Grant, Capt. J. F. KELLY, Dawson.

To Otisville, N. Y., from Fort Oglethorpe, Major W. N. ANDERSON, Omaha.

To report to the commanding general, Northeastern Department, from Camp Devens, Capt. F. P. REED, Weeping Water.

To San Francisco, Calif., from Fort Oglethorpe, Capt. F. H. KUEGLE, Omaha.

The following orders have been revoked: *To Camp Crane, Pa., from Hoboken, Capt. C. K. GIBBONS, Kearney. To Jefferson Barracks, Mo., from St. Louis, Capt. F. C. GENUNG, Wausa.*

Nevada

To Fort Sill, Okla., base hospital, from Fort Oglethorpe, Lieut. R. A. BOWDLE, East Ely.

New Hampshire

To Camp Dix, N. J., with the board examining the troops for cardiovascular diseases, from Fort Oglethorpe, Capt. E. A. TRACY, Keene.

To Camp Greene, N. C., base hospital, for instruction, from Fort Oglethorpe, Lieut. L. B. MARCOU, Berlin.

To Camp Upton, N. Y., base hospital, from Camp Crane, Capt. F. A. SPRAGUE, Concord.

To Colonia, N. J., from Camp Crane, Lieut. E. A. JONES, Manchester.

To Fort Leavenworth, Kan., from Fort Oglethorpe, Lieut. G. A. JOHNSON, Concord.

To Hoboken, N. J., from Fort Oglethorpe, Lieut. A. C. LISTON, North Walpole.

New Jersey

To Camp Devens, Mass., base hospital, from Camp Zachary Taylor, Lieut. P. LIVINGSTON, East Orange.

To Camp Greene, N. C., base hospital, for instruction, from Fort Oglethorpe, Lieut. J. A. DERIVAUX, Newark.

To Camp Hancock, Ga., from Camp Lee, Lieut. M. KUMMEL, Harrison.

To Camp Logan, Texas, with the board examining the troops for cardiovascular diseases, from Camp Travis, Capt. T. ALSOP, Atlantic City.

To Camp Meade, Md., from Fort Oglethorpe, Lieut. J. J. GREENGRASS, Paterson.

To Camp Wadsworth, S. C., base hospital, from Fort Oglethorpe, Lieut. H. B. EPSTEIN, Newark.

To Camp Zachary Taylor, Ky., base hospital, for instruction, from Fort Oglethorpe, Capt. J. I. FORT, Newark.

To Chicago, Ill., from Fort Oglethorpe, Lieut. H. J. PERLBERG, Jersey City.

To Fort Adams, R. I., from Fort Oglethorpe, Lieut. H. N. GOLDING, Paterson.

To Fort Leavenworth, Kan., from Camp Jackson, Lieut. H. I. REXFORD, Willard.

To Fort Totten, N. Y., from Camp Dix, Lieut. J. F. BOWMAN, Irvington.

To Hoboken, N. J., from Fort Oglethorpe, Lieut. J. D. TIDABACK, Newark.

To Plattsburg Barracks, N. Y., for instruction, from Fort Oglethorpe, Lieut. G. W. FINKE, Hackensack.

To Port Terminal, S. C., as camp sanitary inspector, from Fort Oglethorpe, Capt. F. B. MITCHELL, East Orange.

To report to the commanding general, from Camp Devens, Capt. E. L. WEST, Trenton.

To Richmond, Va., from Fort Oglethorpe, Lieut. I. S. INGBER, Secaucus.

To Walter Reed General Hospital, D. C., for instruction, from Camp Lee, Capt. M. ASHER, Newark.

The following order has been revoked: *To Camp Abraham Eustis, Va., base hospital, from Hoboken, Major L. O. TARLETON.*

New York

To Austin, Texas, University of Texas, from Mineola, Capt. F. H. LASHIER, Brooklyn.

To Azalea, N. C., from Fort Oglethorpe, Capt. L. H. FINCH, Amsterdam; Lieut. J. S. EDLIN, New York.

To Boston, Mass., from Camp Crane, Lieut. G. G. DAVIS, Arcade; from Washington, Capt. C. E. E. PANNACI, Gloversville.

To Camp A. A. Humphreys, Va., with the board examining the troops for cardiovascular diseases, from Fort Oglethorpe, Capt. P. S. SABINE, New York.

To Camp Bowie, Texas, with the board examining the troops for cardiovascular diseases, from Camp Crane, Lieut. J. D. TRASK, JR., New York.

To Camp Custer, Mich., base hospital, from Fort Oglethorpe, Capt. A. S. TENNER, New York.

To Camp Devens, Mass., base hospital, from Fort Oglethorpe, Lieuts. A. S. BLUMGARTEN, New York; R. A. ADAMS, Whitestone.

To Camp Dix, from Fort Oglethorpe, Lieut. L. L. COHAN, Brooklyn.

To Camp Greene, N. C., base hospital, for instruction, from Fort Oglethorpe, Lieut. C. W. DEMONG, Syracuse.

To Camp Hancock, Ga., from Camp Greene, Lieut. A. LACOVARA, New York; from Camp Lee, Lieut. H. J. SCHWARTZ, New York. As tuberculosis examiner, from Waynesville, Capt. H. VAN RENSSELAER, Albany. To examine the command for nervous and mental diseases, from Washington, Capt. J. F. SHANAHAN, Buffalo.

To Camp Jackson, S. C., base hospital, from Fort Oglethorpe, Capt. C. J. DILLON, New York; Lieuts. L. T. FRICKE, Brooklyn; R. P. HIGGINS, Cortland; B. EDELSACK, New York; from New Haven, Lieut. G. P. McNEILL, New York.

To Camp Joseph E. Johnston, Fla., base hospital, from Fort Oglethorpe, Capt. L. A. WING, New York.

To Camp Lee, Va., base hospital, from Fort Oglethorpe, Lieuts. S. T. HAMILTON, Elmira; N. W. GETMAN, Oneonta.

To Camp Logan, Texas, with the board examining the troops for cardiovascular diseases, from Fort Oglethorpe, Capt. J. J. KLEIN, East Aurora.

To Camp McClellan, Ala., with the board examining the troops for cardiovascular diseases, from Camp Zachary Taylor, Lieut. F. W. HOMCOMB, Palenville.

To Camp Meade, Md., from Curtis Bay, Capt. G. J. BUSCK, Westfield; from Fort Oglethorpe Capt. C. F. POTTER, Syracuse.

To Camp Sheridan, Ala., as tuberculosis examiner, from Camp Wheeler, Capt. B. S. HOROWICZ, Lieut. M. SCHAE, New York.

To Camp Sherman, Ohio, from Fort Oglethorpe, Lieut. J. H. BURKE, Brooklyn.

To Camp Upton, N. Y., base hospital, from Fort Oglethorpe, Capt. N. L. HAWKINS, Watertown; Lieuts. I. J. LEVY, L. HAMELOK, New York.

To Camp Wadsworth, S. C., to examine the command for nervous and mental diseases, from Camp Jackson, Lieut. J. MARSHACK, New York.

To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Lieut. H. ACKERMAN, New York.

To Carlisle, Pa., for instruction, from Fort Oglethorpe, Lieut. A. D. HAVERSTOCK, Brooklyn.

To Chicago, Ill., from Fort Oglethorpe, Capt. S. I. HIRSCH, New York; from New Haven, Major H. L. VAN WINKLE, Albany.

To Colonia, N. J., from Camp Crane, Capt. W. H. VEEDER, Rochester; from New York, Lieut. H. S. BULL, Auburn.

To Dansville, N. Y., from Camp Custer, Major A. S. MOORE, Middletown.

To Emmetsburg, Md., from Baltimore, Capt. E. W. BROWN, Mount Kisco.

To Fort Bayard, N. M., from Camp Grant, Capt. L. R. CORNMAN, Rochester.

To Fort Benjamin Harrison, Ind., from Fort Oglethorpe, Lieuts. L. A. BOUTON, Fonda; A. CANFIELD, New York; D. H. BLUESTONE, Syracuse.

To Fort Leavenworth, Kan., from Camp Lee, Lieut. L. E. SANFORD, Binghamton; from Fort Jay, Capt. A. T. BAKER, Elmhurst.

To Fort McPherson, Ga., from Fort Oglethorpe, Capt. H. G. DUNHAM, Lieuts. S. W. ROCK, S. STEIN, New York.

To Fort Ontario, N. Y., from Fort Oglethorpe, Lieut. S. MILBANK, New York.

To Fort Riley, base hospital, from Fort Oglethorpe, Capt. W. W. BESTWICK, New York.

To Fort Sheridan, Ill., from Fort Oglethorpe, Lieut. W. W. WOLOM, De Ruyter.

To Hoboken, N. J., from Fort Oglethorpe, Major W. H. STEWART, New York; Lieut. W. H. GALLAGHER, Niagara Falls.

To Lakewood, N. J., from Camp A. A. Humphreys, Lieut. A. E. NEERGAARD, New York.

To Madison Barracks, N. Y., from Fort Oglethorpe, Lieuts. A. R. SHIRLEY, New York; A. T. LAWLESS, Syracuse.

To Newport News, Va., from Washington, Cols. R. P. A. SULLIVAN, Brooklyn; L. A. CONNER, New York.

To Otisville, N. Y., for instruction, from Fort Oglethorpe, Capt. F. KNOWLES, New York.

To report to the Commanding General, Northeastern Department, from Boston, Lieut. H. T. BLAIR, Brooklyn.

To Rockefeller Institute, from Camp Crane, Capt. E. C. KOENIG, Buffalo.

To Walter Reed General Hospital, D. C., from Fort Oglethorpe, Lieut. W. W. ELDRIDGE, New York. For instruction, from Williamsbridge, Capt. N. E. TITUS, New York.

To Washington, D. C., from Camp A. A. Humphreys, Lieut. H. SHARP, New York.

To Waynesville, N. C., from Fort Oglethorpe, Lieut. J. B. DEUEL, Rochester. For instruction, from Fort Oglethorpe, Lieut. D. P. MACGUIRE, Staten Island.

To West Baden, Ind., from Fort Oglethorpe, Lieut. L. HAUSMAN, New York.

The following orders have been revoked: *To Boston, Mass., from Camp Crane, Capt. A. H. TERRY, New York. To Camp Abraham Eustis, Va., from Eastern Department, Capt. F. W. HUNTER, Fort Totten. To Camp Meade, Md., from Camp Crane, Lieut. J. M. McTIER-NAN, New York. To Lakewood, N. J., for instruction, from Camp Jackson, Major J. P. F. BURKE, Buffalo. To report to the commanding general, Eastern Department, from Camp Sherman, Lieut. G. W. WHEELER, New York. To Rochester, Minn., Mayo Clinic, from Camp Crane, Major J. C. MASSON, Rochester. To San Francisco, Calif., Letterman General Hospital, from Camp Crane Lieut. A. E. GORDIN, New York. To White Plains, N. Y., from Camp Jackson, Major R. H. McCONNELL, New York.*

North Carolina

To Camp Gordon, Ga., with the board examining the troops for cardiovascular diseases, from Fort Oglethorpe, Capt. C. C. ORR, Asheville.

To Camp Hancock, Ga., from Camp Greene, Lieut. L. O. GIBSON, Statesville.

To Camp Shelby, Miss., base hospital, from Fort Oglethorpe, Capt. J. I. BAREFOOT, Graham.

To Plattsburg Barracks, N. Y., from Camp Jackson, Capt. M. C. PALMER, Tryon.

Ohio

To Azalea, N. C., from Camp Crane, Lieut. H. H. LOWE, Leesburg; from Fort Oglethorpe, Lieut. A. M. ROSENBLUM, Youngstown.

To Camp Abraham Eustis, Va., as orthopedic surgeon, from Fort Oglethorpe, Capt. L. B. ZINTSMASER, Massillon; Lieut. N. J. SEYBOLD, Toledo.

To Camp Dodge, Iowa, with the board examining the troops for cardiovascular diseases, from Fort Oglethorpe, Capt. R. H. QUICK, Toledo.

To Camp Grant, Ill., base hospital, from Fort Oglethorpe, Lieuts. H. P. TIMBERLAKE, Cleveland; H. K. BECKWITH, Toledo.

To Camp Hancock, Ga., from Camp Greene, Lieuts. B. B. BRIM, J. J. SWEENEY, Toledo.

To Camp Sheridan, Ala., with the board examining the troops for cardiovascular diseases, from Fort Oglethorpe, Capt. D. W. PHILO, Fremont.

To Cape May, N. J., from Camp Crane, Capt. M. E. BLAHD, Cleveland.

To Carlisle, Pa., from Ann Arbor, Capt. W. F. MAXWELL, Toledo.

To Denver, Colo., from Fort Riley, Lieut. R. R. KERKOW, Hicksville.

To Fort Leavenworth, Kan., from Ann Arbor, Lieut. L. A. LURIE, Cincinnati; from Fort Oglethorpe, Lieut. W. H. VORBAU, Lima.

To Fort McHenry, Md., for instruction, from Fort Oglethorpe, Lieut. F. F. KRAMER, Cincinnati.

To Fort Sam Houston, Texas, base hospital, from Ann Arbor, Lieut. P. G. TAIT, Toledo.

To Fort Snelling, Minn., from Army Medical School, Capt. E. A. KLEIN, Norwood.

To Hoboken, N. J., from Fort Oglethorpe, Lieut. W. P. ULTES, Springfield.

To Newport News, Va., from Fort Oglethorpe, Lieut. J. W. JOLLEY, Morral.

To Richmond, Va., from Fort Oglethorpe, Lieut. W. J. FRANCIS, Kalida.

To Walter Reed General Hospital, D. C., from Plattsburg Barracks, Lieut. A. E. KISER, Cincinnati.

To Washington, D. C., St. Elizabeth's Hospital, from Ann Arbor, Lieut. J. H. BERRY, Lima.

The following orders have been revoked: To Camp Crane, Pa., from Hoboken, Lieut. D. W. FELLERS, Bloomville. To Fort Dupont, Del., from Camp Holabird, Lieut. R. A. ELLIOTT, Alger.

Oklahoma

To Denver, Colo., from Fort Riley, Lieut. H. M. NICHOLSON, Muskogee.

To Fort Benjamin Harrison, Ind., from Fort Oglethorpe, Lieut. F. H. CLARK, El Reno.

Oregon

To Fort Leavenworth, Kan., from Camp Lewis, Lieut. D. R. ROSS, Salem.

The following orders have been revoked: To Camp Lewis, Wash., base hospital, for instruction, from Camp Crane, Lieut. G. L. BOYDEN, Pendleton. To Camp Wadsworth, S. C., base hospital, from Camp Crane, Capt. C. E. SEARS, Portland.

Pennsylvania

To Arcadia, Fla., Carlstrom Field, from Mineola, Capt. S. H. HORNE, Philadelphia.

To Baltimore, Md., from Plattsburg Barracks, Capt. C. C. WHOLEY, Pittsburgh.

To Camp Gordon, Ga., with the board examining the command for nervous and mental diseases, from Fort Oglethorpe, Lieut. W. C. CHANEY, Philadelphia.

To Camp Grant, Ill., base hospital, from Fort Oglethorpe, Lieut. G. C. GLENN, State College.

To Camp Hancock, Ga., from Camp Greene, Lieuts. F. J. CONAHON, Morea Colliery; J. M. HIGGINS, Sayre.

To Camp Henry Knox, and to Camp Zachary Taylor, Ky., with the board examining the troops for cardiovascular diseases, from Fort Oglethorpe, Capt. C. FALKOWSKY, Jr., Scranton.

To Camp Jackson, S. C., base hospital, from Camp Crane, Lieut. J. M. FLEMING, Blairs Mills; from Camp Travis, Capt. G. P. PILLING, Jr., Philadelphia.

To Camp Logan, Texas, base hospital, from Camp Dodge, Lieut. W. E. RAMSEY, Philadelphia.

To Camp Sherman, Ohio, base hospital, from Fort Oglethorpe, Lieut. H. W. JONES, Philadelphia.

To Camp Upton, N. Y., base hospital, from Fort Oglethorpe, Lieuts. P. A. LONERGAN, Dickson City; A. LEVY, Philadelphia.

To Camp Zachary Taylor, Ky., base hospital, for instruction, from Fort Oglethorpe, Capt. H. D. JORDAN, Allentown.

To Cape May, N. J., from Fort Oglethorpe, Lieut. J. P. ROTH, Ashland.

To Colonia, N. J., from Camp Crane Capt. R. J. BEHAN Pittsburgh; from Fort Oglethorpe, Lieut. E. N. FOSTER, Pittsburgh.

To Fort McHenry Md., from New York, Lieut. C. A. LEY, Pittsburgh.

To Fort Sheridan, Ill., from Fort Oglethorpe, Lieut. D. J. MORTON, Philadelphia. For instruction, from Fort Oglethorpe, Capt. H. P. LEOPOLD, Philadelphia.

To Hicks, Texas, Taliaferro Field, as assistant to flight surgeon, from Mineola, Capt. C. W. JENNINGS, Pittsburgh.

To Hoboken, N. J., from Fort Oglethorpe, Lieut. T. A. MONOHAN, Shenandoah.

To Houston, Texas, Ellington Field, from Mineola, Capt. W. MARSHALL, Pittsburgh.

To Pittsburgh, Pa., from Fort Oglethorpe, Lieut. J. A. MALONEY, Philadelphia.

To report to the Commanding General, Northeastern Department, from Boston, Capt. R. P. SMITH, Philadelphia; Lieut. S. H. KELLER, Pittsburgh; from Camp Devens, Capt. I. E. FREYMAN, Weatherly.

To Walter Reed General Hospital, D. C., from Camp Crane, Lieut. E. L. WHISTLER, Carlisle.

The following orders have been revoked: To Hoboken, N. J., from Fort Hancock, Lieut. J. M. MONAGHAN, Minersville. To Richmond, Va., for instruction, from Fort Oglethorpe, Lieut. R. S. HINCHMAN, McKeesport. To West Baden, Ind., from Camp Crane, Lieut. B. FULTON, Pittsburgh.

Philippine Islands

To San Francisco, Calif., from Philippine Islands, Major E. T. B. WEIDNER.

Rhode Island

To Cooperstown, N. Y., from Mineola, Capt. A. W. STEVENSON, Newport.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion to Walter Reed General Hospital, from Walter Reed General Hospital, Lieut. W. J. O'KEEFE, Providence.

South Carolina

To Camp Lee, Va., from Camp Greene, Capt. E. F. ROSS, Anderson.

Tennessee

To Azalea, N. C., from Fort Oglethorpe, Lieuts. C. G. GRIFFIN, Nashville; E. A. GILBERT, St. Elmo.

To Camp Hancock, Ga., as tuberculosis examiner, from Waynesville, Capt. J. O. WOODS, Newport. Base hospital, from Fort Oglethorpe, Capt. R. W. DAKE, Nashville.

To Camp Jackson, S. C., base hospital, from Fort Oglethorpe, Lieut. H. S. SHOULDERS, Springfield.

To Camp Joseph E. Johnston, Fla., base hospital, from Fort Oglethorpe, Lieut. H. Q. FLETCHER, Chattanooga.

To Denver, Colo., from Fort Oglethorpe, Lieut. H. P. CONLEY, Memphis.

To Fort Benjamin Harrison, Ind., from Fort Oglethorpe, Lieut. T. D. CLOYD, Mosheim.

To Fort Leavenworth, Kan., from Columbus Barracks, Capt. J. P. SCHOLL, Nashville; from Fort Oglethorpe, Capt. G. A. HATCHER, Nashville.

To Hoboken, N. J., from Camp Crane, Capt. J. H. KING, Chestnut Mound.

To Lake Charles, La., Gerstner Field, as flight surgeon, from Mineola, Capt. G. E. CAMPBELL, Elizabethtown.

To Walter Reed General Hospital, D. C., from Camp Custer, Lieut. H. O. ANDERSON, Williamsport.

The following orders have been revoked: To Fort Riley, base hospital, from Fort Oglethorpe, Capt. O. J. PORTER, Columbia. To report to the Commanding General, Southeastern Department, from Fort Logan, Lieut. W. H. NILES, Tellico Plains.

Texas

To Camp Bowie, Texas, base hospital, from Fort Oglethorpe, Lieut. A. C. ROGERS, Odell.

To Camp Hancock, Ga., from Camp Greene, Lieut. T. M. JARMON, Terrell.

To Camp Henry Knox and to Camp Zachary Taylor, Ky., with the board examining the troops for cardiovascular diseases, from Fort Oglethorpe, Major E. V. DEPEW, San Antonio.

To Camp MacArthur, Texas, base hospital, from Fort Oglethorpe, Lieut. W. S. LORIMER, Handley.

To Camp Shelby, Miss., for instruction, from Camp Crane, Major W. M. WOLF, San Antonio.

To Camp Sherman, Ohio, base hospital, from Fort Oglethorpe, Capt. W. B. HUNTER, Fort Bliss.

To Dallas, Texas, from San Antonio, Lieut. D. A. MOHLER, Dallas.

To Fort McHenry, Md., for instruction, from Fort Oglethorpe, Capt. M. W. SHERWOOD, Temple.

To Fort Sill, Okla., base hospital, from Fort Oglethorpe, Capt. J. H. BRICE, Lamesa.

The following orders have been revoked: To Camp Abraham Eustis, Va., from Camp Custer, Lieut. L. PENROD, Gonzales. To Dallas, Texas, from San Antonio, Lieut. R. M. MILNER, Yoakum. To Camp Shelby, Miss., for instruction, from Camp Crane, Major W. M. WOLF, San Antonio.

Utah

To Camp Hancock, Ga., as tuberculosis examiner, from Fort Oglethorpe, Lieut. G. W. GOINS, Toole.

Virginia

To Camp Devens, Mass., base hospital, from New Haven, Lieut. G. A. L. KOLMER, Salem.

To Camp Hancock, Ga., from Camp Lee, Capt. E. W. YOUNG, McKenney.

To Fort McHenry, Md., for instruction, from Fort Oglethorpe, Capt. J. M. ROBINSON, Danville.

To Hoboken, N. J., from Fort Oglethorpe, Lieut. J. L. HANKINS, Fordwick.

To report to the Commanding General, Northeastern Department, from Boston, Lieut. J. A. LAFFERTY, McKees Rocks.

Washington

To Fort Leavenworth, Kan., from Camp Lewis, Major A. P. CALHOUN, Seattle; from Fort Oglethorpe, Lieut. J. HEHIR, Sedro-Woolley.

To Fort George Wright, Wash., Capt. A. A. MATTHEWS, Spokane.

To San Diego, Calif., Rockwell Field, as assistant to flight surgeon, from Mineola, Capt. G. W. BEELER, Seattle.

West Virginia

To Azalea, N. C., from Camp Devens, Capt. G. H. BARKSDALE, Charleston.

To Boston, Mass., for instruction, from Camp Beauregard, Capt. J. C. SCHULZ, Huntington.

To Camp Crane, Pa., from Hoboken, Lieut. J. C. LAWSON, Logan.

To Camp Hancock, Ga., base hospital, from Fort Oglethorpe, Lieut. W. S. Crawford, Follansbee.

To Camp Mcade, Md., from Camp Gordon, Major E. DAVIS, Charleston.

To Edgewood Arsenal, Md., as orthopedic surgeon, from Fort Oglethorpe, Lieut. E. B. HENSON, Charleston.

To Fort Leavenworth, Kan., from Camp Lee, Lieut. R. DODSON, Spencer.

Wisconsin

To Camp Gordon, Ga., with the board examining the troops for cardiovascular diseases, from Fort Oglethorpe, Lieut. R. E. FITZGERALD, Cudahy.

To Camp Sherman, Ohio, base hospital from Boston, Capt. J. W. POWERS, Burlington.

To Camp Wheeler, Ga., base hospital, from Camp Crane, Lieut. O. E. ISHMAEL, Mount Horeb.

To Fort Sheridan, Ill., from Fort Oglethorpe, Lieut. P. C. HODGES, Madison.

To Fort Snelling, Minn., from Fort Oglethorpe, Lieut. W. G. SEXTON, Marshfield.

To West Point, Miss., Payne Field, as flight surgeon, from Mineola, Major C. W. ANDREWS, Waupaca.

ORDERS TO OFFICERS OF THE UNITED STATES PUBLIC HEALTH SERVICE

Asst. Surg. M. C. EDMUNDS, proceed to the Reedv Island Quarantine Station for temporary duty.

Asst. Surg. M. F. HARALSON, proceed to Florence, Ala., for inspection of sanitary work now being carried on by the Service.

Acting Asst. Surg. J. J. DURRETT, proceed to Washington for conference relative to construction of a sewage disposal plant at Newport News, Va.

Acting Asst. Surg. I. R. GORROV, proceed to Washington, D. C., for conference relative to influenza work in the state of Ohio.

Sanitary Engr. C. N. HARRUB, relieved at Jacksonville, Fla., proceed to Columbus, Ga., for duty in extracantonment sanitation.

Scient. Asst. SEVERANCE BURRAGE, relieved at New London, Conn., proceed to Ayre, Mass., for duty in extracantonment sanitation.

Scient. Asst. WALLACE PURRINGTON, relieved at New London, Conn., proceed to Portsmouth, N. H., for duty in extracantonment sanitation.

Chief Sanitary Insp. W. H. GILLETTE, relieved at Jacksonville, Fla., proceed to Atlanta, Ga., for duty in extracantonment sanitation.

Chief Sanitary Insp. JOHN F. GORDON, relieved at Portsmouth, N. H., proceed to Raleigh, N. C., for duty in extracantonment sanitation.

Chief Sanitary Insp. J. L. JACKSON, relieved at Jacksonville, Fla., proceed to Columbus, Ga., for duty in extracantonment sanitation.

Chief Sanitary Insp. W. J. JOYCE, relieved at New London, Conn., proceed to Raleigh, N. C., for duty in extracantonment sanitation.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Personal.—Dr. Frank H. Pritchard, Colton, who has been seriously ill with heart disease following influenza, is reported to be convalescent.—Dr. James B. Cutter, Watsonville, has been appointed executive surgeon at the Southern Pacific Hospital, San Francisco.—Dr. Ernest Crutcher, Los Angeles, has been appointed special representative of the state board of health to take charge of the influenza situation at Blythe in the Imperial Valley.

County Medical Society Protests Discharge of Reserve Officers.—The San Diego County Medical Society has protested to the adjutant-general of the state of California regarding the manner in which physicians serving with the Medical Corps are being discharged from service on telegraphic orders. The protest states that:

Whereas, medical officers who gave up good homes and lucrative practices to enter the medical reserve corps are being discharged from the service on telegraphic orders from Washington without proper notice or customary privileges due an officer.

This council hereby protests against this manner of discharge and asks that Adjutant-General Borree communicate with the proper authorities in Washington and have such irregularities corrected.

ILLINOIS

Disqualified Physician Fined.—Dr. Samuel R. Harwood of East St. Louis, whose license to practice medicine and surgery in the state of Illinois was revoked some three months ago, has promised the authorities of St. Clair County that he will leave the state if they will permit him to plead guilty to one of the eight indictments returned against him by the grand jury of that county and pay a fine of \$500 for obtaining money under false pretenses. His offer has been accepted by the state's attorney. The eight indictments returned against Harwood for practicing a confidence game and obtaining money under false pretenses were returned by the grand jury of St. Clair County immediately following the revocation of his license.

Licenses Revoked.—At a meeting of the Department of Registration and Education of the State of Illinois, held in Chicago, Dec. 9, 1918, the license of Franklin J. Oshay, Ladd, who holds license No. 10724, issued by the state board of health, Nov. 15, 1892, to practice medicine and surgery in all their branches in the state of Illinois, was revoked. The charges against Dr. Oshay were that he was an habitual drunkard, and was careless in the writing of prescriptions for habit forming drugs. The license of August M. Unger, Chicago, No. 10546, issued by the state board of health, April 7, 1892, was also revoked. He was charged with unprofessional conduct to young women who answered an advertisement for an office girl. He was charged with telling them that under a recently passed state law all office girls working for physicians were required to submit to a physical examination before beginning their work.

MARYLAND

Personal.—It is reported that Brig.-Gens. J. M. T. Finney and W. S. Thayer have been ordered back to the United States from France.—Lieut. J. Galen Skilling, surgeon in the First Battalion, Twenty-Sixth Infantry of the First U. S. Army, formerly from Cumberland, has been reported as missing since November 7.—Health Commissioner John D. Blake has announced the appointment of Dr. Robert G. Lumpkin of Roland Park, as throat inspector for the health department. Dr. Lumpkin succeeds Dr. G. H. Woltereck, who resigned.

Bon Secours Hospital Opened.—The new Bon Secours Hospital in Baltimore, given by Mr. and Mrs. George C. Jenkins to the sisters of that order, was formally opened, December 21, by Cardinal Gibbons who dedicated the building. The new hospital is provided with the latest and most perfect appliances required in hospital service and will enable the sisters to attend surgical operations in their own hospital. Mother Urban, superior of the Bon Secours Convent, is directress and the following medical men of Baltimore are members of the staff: Dr. Thomas R. Brown, Dr. E. B. Freeman, Dr. Charles O'Donovan, and Dr. E. H. Gaither. The surgical staff is composed of Drs. Alexis McGlannan, J. C. Pound, J. K. Seegar, and M. Kahn.

MASSACHUSETTS

Want Physician for Health Commissioner.—At a meeting of the Somerset Medical Society, held December 12, a resolution was adopted recommending a change in the department of health of the city by abolishing the present board of health and establishing in its stead, a graduate in medicine as full-time commissioner of health.

Personal.—Dr. Henry M. Smith, Lee, has been appointed associate medical examiner (coroner) of Berkshire County, to succeed Dr. John J. Hassett, deceased.—Dr. Esther M. E. Sundelof, Boston, has been appointed assistant physician of the City Hospital, roentgen-ray service.—In the case of "Dr." David Wagner, Springfield, who was said to have been found guilty of performing a criminal operation causing the death of Nellie Osham, and sentenced to five years' imprisonment in the state prison at Charlestown, the supreme court has overruled the exceptions, and the authorities have been ordered to arrest Wagner that he may serve his sentence.

NEBRASKA

Action Regarding Influenza.—At a meeting at the state capitol building in Lincoln, Tuesday, December 17, called by the state board of health and presided over by the epidemiologist of the state board, Dr. W. H. Wilson, important action was taken and recommendations made regarding influenza, which had assumed a serious stage throughout the state. The meeting was addressed by the governor and by Dr. W. F. Wild, head of the state board, and a committee was appointed consisting of Dr. Wild, Dr. A. J. Jenison, a member of the state legislature, and Superintendent A. H. Waterhouse of the Omaha public schools, which made the following recommendations: That local health boards be organized as provided by law in all counties, cities and villages where such do not now exist and that all boards enforce all present laws relating to contagious diseases, especially as applied to the present epidemic of influenza, and where such local boards fail to organize or fail to carry out the laws the state board establish a health organization and carry out the laws at the expense of such communities; or if local organizations are unable to cope with the situation that outside help be obtained. Each community is urged to organize a corps of nurses to be trained along practical lines, and complete reporting of cases is enjoined on physicians. Public schools should adopt medical inspection, or, in the absence of that, the teachers are to send home every child showing signs of illness with recommendation to parents to consult a physician. All gatherings for purposes of pleasure and all other unnecessary gatherings should be discontinued. Influenza is to be considered and treated as a quarantinable disease under present state quarantine regulations.

NEW YORK

Personal.—Dr. Arnold A. Samorini, Schenectady, sailed for Italy, December 3, to engage in Red Cross work.

Oral Hygiene Number.—*Health News*, the monthly bulletin of the New York State Department of Health, for November is devoted to the subject of oral hygiene. It contains articles

on focal infections, by Meyer L. Rhein; importance of the care of the deciduous teeth, by Frederick A. Keyes; dental hygiene in the Rochester schools, by Harvey J. Burkhart; rational mouth hygiene, by Alfred C. Foncs, who presents an illustrated article on how to brush the teeth, and an article on tooth-brush drill, by Albert H. Stevenson, besides editorial and miscellaneous matter.

New York City

Personal.—Charles F. Craig, commanding officer of the Army Laboratory School, at Yale University, New Haven, Conn., who met with a painful elevator accident recently in which he fractured his left leg and dislocated the left patella, is reported to be convalescing.—The Distinguished Service Medal was awarded, October 11, to Col. Louis M. Maus, M. C., U. S. Army, Washington, D. C., retired, by direction of the President, for "Specially meritorious service on the Belle Fourche River, N. D., on Nov. 5, 1877, in that while serving with a detachment suddenly surrounded by an overwhelming force of hostile Sioux Indians he succeeded in extricating the party from the most perilous position."

The Cartwright Prize.—Announcement is made by the Association of the Alumni of the College of Physicians and Surgeons in the City of New York of its biennial Cartwright Prize of \$500 to be awarded at Commencement, 1919. Competitive essays must be presented on or before April 1, 1919, typewritten, in English, and accompanied by the usual safeguarding device or motto. They must contain records of original investigations made by the writer. In 1920 the Alumni Prize will be offered, the requirements for which are the same as the Cartwright Prize, excepting that competition is restricted to alumni of the College of Physicians and Surgeons. Essays offered for the Cartwright Prize should be sent to Dr. Henry E. Hale, secretary of the association, at 64 West Fiftieth Street, New York City.

New Diagnostic Hospital.—The New York Diagnostic Society has been organized by Dr. M. Joseph Mandelbaum. In a few days ground will be broken for the establishment of the first hospital of the Diagnostic Society, at 125 West Twenty-Second Street, which will be known as the West Side Branch of the Diagnostic Clinics of the Academy of Diagnosis. The ground and building represent an investment of \$250,000. The building will be six stories and basement in height, and will be a model in regard to equipment for diagnostic tests. The society has now a membership of more than 400, and the officers are Dr. M. Joseph Mandelbaum, president; Dr. Monroe Bradford Kunstler, vice president; Lesser B. Grossel, secretary; J. Maxwell Van Dyke, treasurer, and David Frankel, president of the board of lay governors.

GENERAL

Bequests and Donations.—The following bequests and donations have recently been announced:

Episcopal Hospital and Visiting Nurse Society, Philadelphia, each \$1,000 by the will of Edmond A. Souder.

Mount Sinai Hospital \$10,000, Hebrew Benefit and Orphan Asylum and Montefiore Home each \$1,000, and Lenox Hill Hospital, New York City, \$500 by the will of Edward Oppenheimer.

New Public Health Officers.—At the annual meeting of the American Public Health Association held in Chicago, December 8 to 11, New Orleans was selected as the next place of meeting and the following officers were elected: president, Lee K. Frankel, New York City; vice presidents, Col. John W. S. McCullough, Toronto, Ont.; Col. Victor C. Vaughan, Ann Arbor, Mich., and Dr. John D. Robertson, Chicago; secretary, A. W. Hedrick, Boston; treasurer, Dr. Guilford H. Sumner, Des Moines, Iowa, and executive committee, Drs. Allan J. McLaughlin, U. S. P. H. S., Washington, D. C.; Charles J. C. O. Hastings, Toronto; Peter H. Bryce, Ottawa; John N. Hurty, Indianapolis, Ind., and William C. Woodward, Boston.

The Work of the Rockefeller Foundation.—George E. Vincent, president of the Rockefeller Foundation, outlined recently the plans of the foundation which included an expedition to Central and South America headed by Major-Gen. William C. Gorgas, formerly Surgeon-General, U. S. Army, to conquer yellow fever which now springs from a few small areas in Central and South America; the operation of a medical university in Peking, China, which is under construction with a cost of \$6,000,000, and will be open in 1920, and which will contain eighteen university buildings, forty faculty residences, and a hospital with 200 beds, and a medical school soon to be begun at Shanghai. Subsidies are to be granted to existing missionary hospitals which will be standardized and offer internships for the university. Clin-

ical stations and subhospitals will be established over China. For this work a total expenditure of \$10,000,000 is expected, with an additional \$250,000 to \$500,000 annually for support.

Federal Aid in Rural Health Conditions.—As the result of careful study of rural health conditions, Representative Lever has come to the conclusion that rural health work should be conducted on the same basis as the Lever Extension Plan of promoting agricultural development. He has, therefore, introduced a bill embodying the principle of federal aid and advocates the prompt passage of this as a vital measure of national reconstruction. He calls attention to a bulletin just published by the United States Public Health Service embodying the results of a sanitary survey recently made. In this survey over 50,000 farm houses were visited in fifteen different counties. Of these less than 2 per cent. were equipped for the sanitary disposal of human excreta. More than two-thirds (68 per cent.) used a water supply which was obviously exposed to potentially dangerous contamination from privy contents or from promiscuous deposits of human excreta. In the majority of these the water was also exposed to pollution from stable yards and pig-sties. Only one third of the dwellings were effectively screened during the summer season, to prevent flies, which had free access to nearby deposits of human and other filth, from entering dining rooms and kitchens and contaminating foods intended for human consumption. The bill as introduced, provides an appropriation of \$250,000 for the first fiscal year, to be allotted on the half and half plan to the several states, and an appropriation of an additional \$250,000 each fiscal year thereafter until a continual appropriation of \$1,000,000 is reached.

FOREIGN

Influenza in Switzerland.—The febrile epidemic in Switzerland has kept up so that the annual meetings of the Swiss Neurologic Society and of the Société médicale de la Suisse romande, scheduled to be held in October and November, were postponed *sine die*.

Census of War Disabled.—The prefects throughout Italy have been ordered by the government to collect from every community the data regarding disabled soldiers in their precincts injured in the war. Not only the names and numbers but the pensions paid, the kind and amount of reeducation, the artificial limbs provided, and other details of each individual case are to be compiled and when collected by the prefects are to be sent to the headquarters of the rehabilitation work for the province.

Deaths in the Profession Abroad.—Prof. P. Dunant of the University of Geneva, aged 84. He occupied the chair of hygiene from its foundation to his retirement in 1889, and published numerous works on medical statistics, hygiene and demography, and always took a leading part in matters affecting the public health and welfare. He was the brother of Henri Dunant, the founder of the Red Cross.—Dr. J. Bruchi, instructor in clinical surgery and operative medicine at Ravenna, aged 45.—Prof. G. Basile, assistant to the chair of nose and throat diseases at the University of Catania, and a writer on this specialty.

Committee for Revision of French Codex.—The Commission du Codex has just been appointed. It consists mainly of professors of pharmacy in different universities, with the chief of the pharmacy service for the state hospitals. The director of the system of state higher education is president of the commission, and Professor Roger, dean of the Faculté de médecine of the University of Paris, professor of experimental pathology, is vice president. The list includes also Professors Carnot, Moureu and Desgrez, of the chairs of therapeutics, pharmaceutical chemistry and medical chemistry at the University of Paris, E. Roux, director of the Pasteur Institute, and others to a total of twenty-three.

Agitation for a Minister of Health in France.—The lack of organization and coordination of the various agencies in charge of the public health service has been rendered particularly apparent by the recent events in France, and a concerted movement is now under way to have the public health and hygiene service reorganized as a government cabinet department. Among the forces actively at work to secure this is the Comité national de l'éducation physique et de l'hygiène sociale, the president of which is a member of the lower house from Paris. They appeal to organized industries, societies, associations of any and every kind, to sign and forward to the headquarters of this organization a brief petition which has been widely published, setting forth in half a dozen lines the evils of the present scattering of the public health agencies through so many different government

departments, the wasting of effort and the overlooking of important matters between them.

Appeal from the Serbian Red Cross.—The *Policlinico* of November 17 brings an urgent appeal from the president of the Serbian Red Cross for aid to save the population which has been reduced by nearly one half, and which needs donations of clothing, underclothes, cloth, thread, needles, shoes, fresh or conserved foods, tea, sugar, condensed milk, soap, medicines and hospital supplies, besides cash. "Only by prompt donations of the kind," he says, "will it be possible to tide the populace along till the better days to follow the victory, and which the people have so fully and richly deserved. The whole Serbian nation to the depths of its great heart," he adds, "will cherish the deepest gratitude and remembrance of all those who manifest to them in their time of need sentiments of sympathy and altruism." Contributions can be sent to the R. Consulate of Serbia at Salonico or to the R. Console Generale di Serbia at Rome, Italy, via Poli, 25, addressed to the Serbian Red Cross or Croce Rossa Serba.

Two Hundred and Fiftieth Anniversary of Birth of Boerhaave.—Herman Boerhaave was born near Leyden in Holland, Dec. 31, 1668, and the profession in the Netherlands is making great efforts to celebrate the 250th anniversary of this date. In 1709 he was made professor of medicine and botany at the University of Leyden, and students flocked to him from all over Europe while he was remarkably successful as a practitioner of medicine. A story is told that he received a letter from a high official in China addressed merely "Dr. Boerhaave, Europe." The Surgeon-General's Catalogue devotes over two pages to the lists of his works and translations of them into different languages, and biographies and other works about him. He is generally considered to have inaugurated the era of scientific medicine. His "Aphorisms Concerning the Knowledge and Cure of Diseases" and his "Treatise on the Virtue and Energy of Medicines" were his principal works, but he also published several on "Venus Sickness," disease of the eyes, cancer, gallstones, etc. There is to be a festival meeting at the University of Leyden, the scene of his labors, and an exhibition of Boerhaaviana is to be open to the public for a month in the public museum. The National Medical Association and the city of Leyden have cooperated to make the celebration a worthy one. A recent bequest to the city has added materially to its collection of Boerhaaviana.

LONDON LETTER

LONDON, Nov. 26, 1918.

Plans to Check Venereal Disease on Demobilization

The National Council for Combating Venereal Diseases has brought forward proposals for meeting the danger of a large increase when the troops are demobilized. It urges that though great progress has been made in the campaign against venereal diseases, the results are lamentably inadequate, and unless strong measures are taken, there will be grave danger to the public health. There will be about 300,000 men of the army and navy under treatment and infective on demobilization. The incidence of these diseases in the army, where instruction, treatment and discipline combine to reduce infection, is put at only 2 per cent.; in the adult civilian population, where those influences do not obtain, it is estimated at nearly 20 per cent. It is urged that immediate steps must be taken to prevent the spread of disease to wives, families and others. The council makes these recommendations: 1. The Local Government Board should authorize the appointment of whole time venereal officers (a man and a woman) on the staffs of the medical officer of each county or county borough. The present hospital accommodation should be supplemented by special clinics under the supervision of such venereal officers in every town of more than 10,000 inhabitants, and also in the county boroughs, such clinics to be open for continuous and early treatment for both men and women. The military authorities are asked to free immediately as many venereal specialists as the Local Government Board may require, in order that the time before demobilization may be used to establish the clinics to be available early in the new year. 2. Hospitals and medical schools should be requested to arrange special graduate courses for the training of medical women in the modern methods of treatment. A strong appeal is made to medical women to specialize in this subject. 3. Some means should be devised to encourage physicians to diagnose venereal disease in patients and to give early preventive treatment. 4. The army act should be so amended as to enable infective men to be retained pending the completion of treatment. 5. It

should be made a statutory obligation for every individual suffering from venereal disease to obtain and to continue treatment until cured. 6. The Local Government Board should consider immediately whether some form of confidential notification of infective cases may be adopted under existing powers, and whether at a later date fresh powers may be obtained from Parliament to secure continuous treatment. 7. The minister of munitions should give instructions that all men and women working for national and controlled firms should receive adequate instruction from responsible physicians. 8. An adequate number of women police should be appointed, and the organization of voluntary women patrols should be increased. 9. Social organizations should increase their efforts to provide recreation under healthy conditions for the youth of the country, especially during the present period of rejoicing.

Simulated Diabetes

A business man, a native of Warsaw, was prosecuted and pleaded guilty of causing a solution of sucrose to be injected into his bladder with view to being rejected on medical examination for the army. He was fined \$250. A few other cases of simulated disease with the same object have occurred during the war, but most, if not all, the persons concerned were not English, but foreigners or of foreign extraction.

Sir Hermann Weber

Sir Hermann Weber, M.D., F.R.C.P., has died at his residence in London in his ninety-fifth year. He was a remarkable example not only of longevity but also of excellent health and vigor in old age. He practiced until the age of 80, and in the present year contributed a most interesting article to the *British Medical Journal* on the "Influence of Muscular Exercise on Longevity," which followed out the principles laid down in his essay on "Prolongation of Life." He was able to refer to himself as a marked example of his doctrine. He attributed his vigor at this extreme age to his practice of spending daily two or three hours in the open air and walking as a rule 30 and frequently 40 or 50 miles a week. He was the son of a German father and Italian mother. He was educated at Marburg and afterward at Bonn, where he graduated in 1848. His desire to read Shakespeare in the original led him to study English. He came to England, where he was appointed house physician at the German hospital, and married an English woman in 1854. After a period of study at Guy's hospital he became M.R.C.P., and was elected F.R.C.P., four years later. Among his circle of friends were the eminent physicians of a former generation, Addison, Edmond Parkes, Wilson Fox and Hilton Fagge. He was one of the pioneers of the open air treatment of consumption. Not without protest from the more old-fashioned physicians, he sent his patients to winter in the high valleys of the Engadine. He was himself devoted to mountain climbing, and in the interests of his patients explored the Swiss Tyrolean and Italian Alps. His affection and admiration for Parkes led him to present the College of Physicians with the sum of \$15,000 to be awarded every third year for the best essay on some subject connected with tuberculosis. He contributed articles on the treatment of phthisis to Quain's Dictionary and Allbutt's System. His unique knowledge of health resorts was embodied in a volume entitled the "Mineral Waters and Health Resorts of Europe" which was later replaced by "Climatotherapy and Balneotherapy," written in association with his son, Dr. F. Parkes Weber. Throughout the war his sympathies were cordially and wholly with his adopted country, where he had worked for seventy-five years. His younger son and all his grandsons fought in the war, and one was killed at Ypres.

Medicine in War

The fourth annual report of the Medical Research Committee has just been published. This committee owes its origin to Mr. Lloyd George, who founded it in connection with the national health insurance scheme. During the war, the committee has given its advice and services to the army in large measure, and consequently the present is largely a war report. Much of the knowledge gained in war will be available for peace, not only by means of the medical history of the war that the committee is producing, but also by means of published papers and researches. Three facts, the committee thinks, stand out today in the domain of medical research. The first is the awakened interest in scientific work and increased recognition of the value of medical research. The second is the remarkable triumph achieved by the bacteriologist in this war. Thanks to his labors, especially in the direction of preparing vaccines, thousands of

cases of illness have been prevented and thousands of lives saved. Finally, for the first time the important bearing of physiology on general medicine has received adequate recognition. "The violences offered to the human body in warfare—whether through exertion and exposure, by terror or excitement, in physical damage by lead or steel, or in chemical attacks on it by poison, and not least through the incredible stresses of flying high and fighting in the air—all these have brought many new and urgent calls for precise physiological knowledge."

The Casualties of the War

The following are the total British casualties of the war, including Dominion and Indian troops. The number killed (including those who died from wounds or other causes) is 658,704. The number wounded is 2,032,142. The number missing, including prisoners, is 359,145. In addition there have been 19,000 deaths from various causes among troops not forming any part of the expeditionary forces. Among the wounded are included those who have been disabled on account of illness.

British Prisoners and German Physicians

The recent report of the government committee, presided over by Mr. Justice Younger, on the treatment of British prisoners of war shows the same abominable cruelty with which we have been familiar since the beginning of the war. Referring to the treatment of the men who were compelled to work in mines, there is this passage: "We come finally to one of the worst points, and at the same time one of the most universal, in the management of the mining camps. The provision made for medical attention in cases of sickness and accident is slight at best, although it might in these instances be considered sufficient if it were properly administered. Each camp is visited once or twice a week by a local civilian physician, who is supposed to be responsible for the medical care of the kommando. He is not called on to treat serious cases, which are passed to the nearest regular hospital. But in all mining work, and more especially in the salt mines, constant vigilance is necessary to prevent even the lighter cases from developing serious consequences. Small accidents are common, the men are in no condition of health to be able to disregard them, and in the salt mines they suffer perpetually from eye trouble and from a distressing kind of abscess, both of which are liable to become dangerously infected in the conditions of their work. In many places the physician is clearly convicted of carelessness and perfunctory treatment." The indignation produced in the medical profession in this country by such disclosures is shown by the decision of the council of the Royal College of Surgeons to omit the universities of Germany and Austria from the list of schools from which certificates of professional education should be received. A similar decision seems about to be taken by the Royal College of Physicians.

PARIS LETTER

PARIS, Nov. 28, 1918.

Traumatic Shock

The Société de biologie has been devoting some of its meetings to the discussion of the biology of war. The first meeting of this kind was given over to the study of shock and of anesthesia of wounded men in a state of shock.

Dr. W. B. Cannon of the American army, professor of physiology at Harvard, presented an interesting report on this subject. He said that traumatic shock is a general somatic state, occurring after wounding and characterized by persistent low arterial pressure, accelerated pulse rate, pallor, sweating and rapid superficial respiration. The findings in shock may be summarized as follows: (1) Persistent low arterial pressure. This depression is particularly pathognomonic of shock; in fact, it determines the degree of shock. (2) Hyperglobulia in the capillaries. The difference in the number of erythrocytes to be found in the capillaries and in the veins may be as high as 2,500,000 per cubic millimeter. (3) The body temperature varies with the degree of shock. The blood pressure is low when the victim of shock is cold, but rises as the patient warms up. (4) Reduction of the alkaline reserve in many cases of shock. Often this reduction is sufficiently great to create an acidosis, as defined by Van Slyke. (5) Correlation between the rate of reduction of the alkaline reserve and the degree to which the arterial blood pressure is lowered in an individual who is in the state of shock. (6) Difficulties in the regulation of the circulation. If the blood pressure remains low for a long time, nothing can bring about an elevation in pressure. (7) Marked sen-

sibility of the shock victim to anesthesia with ether or chloroform, affecting the already present low pressure unfavorably. (8) Tolerance for nitrous oxid and oxygen as an anesthetic, without fall of blood pressure.

Dr. Cannon is of the opinion that shock is not due primarily to a loss of vasoconstrictor tonus, nor to fat embolism, but that it is the result of tissue traumatism.

TREATMENT

As far as the treatment of shock is concerned, loss of body heat must be prevented and the normal temperature must be restored. Keep the patient covered; give him hot drinks, apply hot water bottles to the body surface, use plenty of covering, even warm air. Raise the arterial blood pressure as soon as possible so as to avoid the harm which may ensue from lack of oxygen. Blood transfusion may be resorted to because that procedure adds oxygen carriers to the circulation. In cases of trauma to an extremity, apply a tourniquet as close to the wounded area as possible, amputate at once just below it and before taking it off. If the tourniquet applied for the arrest of hemorrhage has to be left in place a long time, it should be applied as near to the periphery as possible. The surgeon must decide whether a limb should be conserved or sacrificed, being guided by the viability of the member, the possibility of losing the isolated portion through gangrene, and the danger to the organism as a whole from the absorption of retention products. If ether is used as an anesthetic to operate on a shock patient, then, as soon as anesthesia is obtained, every effort should be made to raise the blood pressure by transfusion or by injection, repeating these procedures during the operation. Preference should be given to nitrous oxid and oxygen anesthesia, in proportions of three to one, preceded by a hypodermic injection of morphin. Care must be taken to avoid profound anesthesia and cyanosis.

NATURE OF SHOCK

Professor Pierre Delbet stated that this meeting would be historic in that it was the first time that biologists, physiologists, internists and surgeons had met together and agreed almost unanimously on the toxic origin of shock. He considered it fortunate that Dr. Cannon, as a physiologist, and hence free from a surgeon's prejudices, had reached the same conclusions as had been presented by Delbet himself as well as by Dr. Quénu. Apparently the victims of shock are poisoned with toxins which may cause death either by rapid action on the nervous system or by acting on the liver or other organs. These poisons do not combine fixedly with the nerve cells; they are eliminated rapidly, and when fresh doses of toxins do not reach these cells, a rapid cure follows. Irreparable damage to the liver is done only after the lapse of some time. There is a period during which a cure can be effected by preventing a fresh supply of toxin from reaching the nervous system, that is, by eliminating the source of the poison. The exhaustion theory of shock precludes surgical intervention. The rule has been to treat shock patients symptomatically, keeping them warm and giving various injections. The toxic theory of shock, on the other hand, demands surgical treatment, excision or removal of the infectious or toxic focus. Traumatic shock does not contraindicate the operation but calls for it as an emergency measure. However, this does not mean that other means of treatment are useless or ineffective.

Drs. P. Duval and A. Grigaut recalled that the toxic phenomena of primary shock are the direct result of intense and rapid nitrogen disintegration of the traumatized tissues. Under normal conditions the tissues store up a considerable amount of nitrogen products, the result of disassimilation, and it is the retention of these waste products which imparts to them a particular toxicity. Under the influence of trauma, the threshold of nitrogen excretion of that particular cell is lowered, and some of the toxic nitrogen reserve passes out into the circulation.

Dr. C. Vincent limited himself to a discussion of primary traumatic shock, the condition which develops immediately after the wounding, and which is connected either with the wound alone or with certain states which are characteristic of the fighting man and yet are not traumas. In spite of what has been said above, shock is sometimes met with at the regimental first aid posts, hence a careful and thorough examination should be made in every case. The fighting man, especially the infantryman, expends an almost unbelievable amount of energy, which probably paves the way for shock. Experience has shown that after several days of fighting, two thirds of the men in an infantry regiment who are not wounded are in a state of low tension, with a very low blood pressure. Only after four or five days of rest will the pres-

sure go over 12. It is quite likely that many of the men in combat are predisposed to shock, because at the time that they are wounded they are so worn out that they are unable to resist it.

Interallied Conference of Scientific Academies

An interallied conference of scientific academies was held in Paris to consider the question of international scientific relations. Delegates were present from the Royal Society of London, the Edinburgh Academy, the National Academy of Washington, the Accademia dei Lincei of Rome, the Académie royale of Belgium, the Imperial Academy of Tokio, and the Academies of Greece, of Serbia, Portugal, Roumania and Brazil. These delegates met with the French members at the Institut, in the assembly hall of the Académie française.

Influenza Contracted in Military Service

The ministry of war has issued a circular stating that influenza is a contagious disease, hence the widow of a soldier dead of influenza contracted while in service is entitled to a pension.

Return of Prisoners of War

For a long time many prisoners of war, military and civilian, have been returning to Paris from Germany. Many of them are in an unbelievable state of mental and physical depression. It is only too apparent that they have been suffering frightfully from hunger. Some of them seem to have fallen into the lowest depths of misery. Most of them are clothed in rags and are shod with wooden shoes. The civilian prisoners apparently have been subjected to greater privations and hardships than the military prisoners.

The military authorities of Paris have taken measures to expedite the distribution of the military prisoners in various hospital centers where they report for physical examination, which is very important if the spread of contagious diseases is to be avoided. A large number of centres de désinfection have been installed in Paris, especially at the Grand-Palais.

M. Mesureur, directeur de l'Assistance publique, stated that 4,000 of the whole number of beds requisitioned by the military authorities will be held for those soldiers who have or who may contract tuberculosis. There are also 1,200 beds provided in special barracks.

Spanish Medical Mission to Paris

A Spanish medical mission, headed by Professor Martinez Vargas has arrived in Paris. They are to deliver a series of lectures at the Paris medical faculty.

Deaths

Dr. Gustave Bouchardat, professeur agrégé in the Paris medical faculty and honorary professor in the school of pharmacy, is dead, aged 54 years. He has been a member of the Académie de médecine, section of physical and medical chemistry, since 1882. His published works are well known in chemical circles. He specialized on the sugars, caoutchouc and synthetic camphors.

Dr. Paul Puech, adjunct professor of obstetrics in the medical faculty of Montpellier is dead.

Gonorrhea from Military Standpoint

This subject was discussed at the recent meeting of the Congrès d'urologie. Dr. J. Janet of Paris stated that there is no doubt that the number of cases of venereal disease has increased since the beginning of the war, but when the number of soldiers in service is considered, these figures are not so startling after all. At the beginning of the war these diseases occurred more often in the zone des armées than in the interior; the opposite is now the case since the institution of sanitary measures in the former and in the zone des étapes. Gonorrhea among combatant troops can be treated only by means of balsams, the injections being resorted to during rest periods. In the evacuation and base hospitals, the customary treatment is employed. Abortive treatment is successful in two thirds of the cases, provided that it is instituted within twelve hours of the appearance of the discharge. When the treatment is undertaken later than this, success is less apt to be obtained. The urethral lesion is treated by means of injections of potassium permanganate, anterior in cases of anterior urethritis, and throughout the entire urethra if all of the canal is involved, in progressive doses from 0.05 to 0.25 gm. per thousand, depending on the acuity of the inflammation. In acute cases two injections should be given every day. The injections should be begun at once, no matter what the degree of acuity of the inflammation (in the anterior urethra alone for a day or two in

very acute cases of total urethritis). They should never be discontinued when complications arise for, far from being harmful, the injections have a very favorable influence on their evolution.

Dr. F. Cathelin of Paris discussed the importance of this infection from the military point of view and emphasized the necessity of having a more uniform method of treatment of gonorrhea by means of permanganate in the various centers of treatment. A posterior urethritis can be taken care of better after the war. Vaccine treatment is of most value in treating the complications of gonorrhea, but does not have any effect whatever on the disease itself.

Dr. Pasteau of Paris recommended the organization of a genito-urinary service for the armies. He outlined the method of procedure to be followed by these diagnostic and treatment centers, while the troops are moving as well as while they are resting. The treatment of either simple or complicated gonorrhea at the front should be easy and the results satisfactory.

INDIVIDUAL PROPHYLAXIS

So far as prophylactic treatment is concerned, those interested should be impressed with the fact that the precautionary measures provided, whatever they may be, do not absolutely protect them against all infection, either gonorrhea or syphilis. It is far better, from every point of view, to state distinctly that those who have been exposed to infection have always the risk of contracting infection, and that for their own protection, they should seek treatment at once on the appearance of the very first symptoms. The number of centers of treatment should be increased, their permanency insured and their organization improved if better results are to be obtained than is now the case.

Dr. Keyes of New York spoke of the prophylactic methods employed in the American army, and stated that among more than 60,000 cases there were only 2 per cent. of failures.

TREATMENT IN HOME TERRITORY

Dr. Escat of Marseilles discussed the question of the treatment of gonorrhea in home territory and reported the results obtained in 2,254 cases hospitalized at Marseilles; 1,208 of the men had been treated in the barracks infirmary, 692 at the *Centre de dermatologie-vénérologie* and 354 at the *Centre d'urologie*. The majority of these 354 cases were of the complicated variety. He was of the opinion that the simple cases, or those cases which are rebellious to treatment without apparent cause, might be treated best in the regimental infirmaries. The French method of treatment, by means of large injections, advocated by Janet, can be applied easily and systematically as an abortive treatment, a rapid or an intensive treatment.

Vaccines have not yielded conclusive results, thus making discussion on this subject impossible. The complicated cases should be treated in the *Centres d'urologie*. From the standpoint of therapeutics as well as discipline, it might be advantageous to put all these cases in an annex to the *Centre*. In the cases with acute glandular complications, after the inflammatory crisis has passed or after early and thorough incision, treatment by large injections is still the method of choice. In the prostatic cases, Escat stated that nonevacuating massage is useless as well as dangerous. In cases of grave epididymitis, epididymotomy is the method of choice; it facilitates the resumption of the lavages or injections. If the complications are chronic, Escat would return to duty all patients who have a chronic urethritis without stricture. All chronic cases, with follicular fistulas or cowperitis, no matter how severe, should not be invalidated but operated on and made fit for duty. In all cases of gonorrhea complicated by other lesions, such as phimosis, venereal warts, soft chancre, hard chancre, etc., marked advantage often may be gained from surgical intervention. In cases of stricture, Escat has always succeeded in making lavage and dilating the urethra with the necessary precautions.

Marriages

HENRY D. THOMASON, Col., M. C., U. S. Army, Commanding General Hospital No. 5, Fort Ontario, N. Y., to Miss Adelina O'Connor, at Fort Ontario, September 25.

JONAS JAY UNGER, Lieut., M. C., U. S. Army, to Miss Nettie Avidan, both of New York City, recently.

CHARLES FOSTER CAMPBELL, Sunbury, Pa., to Miss Grace High, at Dalmatia, Pa., recently.

Deaths

Josiah A. Powless ♂ Lieut., M. C., U. S. Army, Oneida, Wis.; Milwaukee Medical College, 1904; aged 46; an Oneida Indian, and a graduate of the Indian School at Carlyle, Pa.; who went overseas in the summer of 1918, and was on duty with the so-called "Lost Battalion," of the Three Hundred and Eighth Infantry, Seventy-Seventh Division; died, November 6, as the result of a shrapnel wound of the lung received in battle in the Argonne Forest, October 14.

Edward Cross, Kingsville, Texas; Tulane University, New Orleans, 1862; aged 82; a member of the State Medical Association of Texas; assistant surgeon of the Thirty-First Arkansas Rifles, C. S. A., and later brigade surgeon in the Confederate service during the Civil War; formerly physician to the Arkansas School for the Blind, and professor of gynecology in the University of Arkansas, Little Rock; died at his home, about December 8.

Frederick R. Burnham ♂ San Diego, Calif.; Detroit Medical College, 1877; aged 65; a member of the staff of the Agnew Sanitarium; a director of the Merchants' National Bank, San Diego; for one term harbor commissioner; president of the board of education; president of the local board of health and a member of the state board of health; died at his home, December 11, from pneumonia.

David Coles Carr, New York City; Bellevue Hospital Medical College, 1868; aged 74; at one time a member of the Medical Society of the State of New York; resident physician at the New York Orthopedic Dispensary from 1868 to 1872, and surgeon to the Harlem Dispensary from 1878 to 1882; hospital steward in the Confederate service during the Civil War; died at his home, December 7.

Michael Philip Schuster ♂ El Paso, Texas; University of Vienna, Austria, 1889; aged 59; a specialist on diseases of the eye, ear, nose and throat; for many years chief surgeon of the American Smelting and Refining Company, El Paso; president of the El Paso County Medical Society in 1905; founder and president of Providence Hospital, El Paso; died at his home, November 15.

Charles Whitney Haddock, Beverly, Mass.; Harvard Medical School, 1879; aged 62; at one time a member of the Massachusetts Medical Society; a specialist on diseases of the eye, ear, nose and throat; ophthalmic and aural surgeon to the Beverly Hospital; medical examiner (coroner) of the seventh district of Essex County; died at his home, December 13.

Edward Glenn Henry ♂ Lieut., M. C., U. S. Army, Oil City, Pa.; University of Pennsylvania, Philadelphia, 1911; aged 29; who was on duty at Camp Greenleaf, Chickamauga, Ga., from August to October, when he sailed for overseas; died in American Red Cross Military Hospital No. 4, Mossley Hill, Liverpool, England, November 7, from pneumonia.

Julius H. Jacobson ♂ Toledo, Ohio; Toledo Medical College, 1897; aged 39; professor of gynecology and clinical surgery in his alma mater; surgeon to the Lucas County and St. Vincent's hospitals; in 1918 president of the Northern Tri-State Medical Association; died in the Hotel Biltmore, New York City, December 11, from pneumonia.

Arthur Monroe Wooster, Rockford, Minn.; Minneapolis College of Physicians and Surgeons, 1911; Hamline University, 1911; aged 31; a member of the Minnesota State Medical Association, and president of the Wright County Medical Society; died at his home, November 23, from pneumonia following influenza.

Jacob F. Wollam, Jerry City, Ohio; Hahnemann Medical College, Chicago, 1893; aged 60; a member of the Ohio State Medical Association; also a druggist; postmaster of Jerry City during the administration of President Harrison; died at his home, December 5, from heart disease.

William M. Tuller, Bowling Green, Ky.; Cincinnati College of Medicine and Surgery, 1876; aged 70; formerly a

member of the city council and mayor of Bowling Green; vice president of the Wood County Savings Bank; died at his home, December 4, from cerebral hemorrhage.

Joseph Paul Aster Marin, Holyoke, Mass.; Montreal School of Medicine and Surgery, 1889; aged 57; a member of the board of health of Holyoke, and city physician in 1902; in 1898 to 1899 a member of the board of aldermen; died at his home, December 7, from pneumonia.

George William Wagner ♂ Detroit; Jefferson Medical College, 1894; aged 54; visiting physician to the Harper Hospital; assistant to the chair of medicine in Detroit Medical College; a specialist in internal medicine; died, December 15, from pneumonia following influenza.

William Edca Williams, Rockledge, Ga.; University of Georgia, Augusta, 1910; aged 33; a member of the Medical Association of Georgia; president of the Laurens County Medical Society; died at Soperton, Ga., October 16, from pneumonia following influenza.

James Page Massie, Sandidges, Va.; University of Virginia, Charlottesville, 1888; New York University, New York City, 1889; aged 52; professor of obstetrics in his alma mater in 1898 and 1899; died at his home, December 7, from pneumonia following influenza.

Cassar Smith, Olean, N. Y.; University of Buffalo, N. Y., 1891; aged 52; at one time a member of the Medical Society of the State of New York; for twenty-one years coroner of Cattaraugus County; died at his home, December 8, from cerebral hemorrhage.

Charles Edward Bradshaw, Columbus, Ohio; Cleveland-Pulte Medical College, Cleveland, 1899; aged 47; for seventeen years a practitioner of Corning, Ohio; at one time a member of the Ohio State Medical Association; died at his home, December 6.

Edward Bradford Reemelin ♂ Cincinnati; Medical College of Ohio, Cincinnati, 1904; aged 38; formerly assistant professor of physiologic chemistry in the University of Cincinnati; died at his home, December 8, from pneumonia following influenza.

John Walter Renner ♂ Lieut., M. C., U. S. Army, Hilliards, Ohio; Ohio State University, Columbus, 1912; aged 28; who entered the service, July 2, and was soon sent overseas; is reported to have been killed in action, in Flanders, November 4.

George Chrisman Rodgers ♂ Elkins, W. Va.; University College of Richmond, Va., 1900; aged 46; superintendent and chief surgeon of the City Hospital, Elkins; died at his home, October 25, from pneumonia following influenza.

Dietrich Ludwig Bartling ♂ Lieut., M. C., U. S. Army, Bloomfield, Neb.; Chicago College of Medicine and Surgery, 1917; aged 31; on duty at Fort Sill, Okla.; died at that post, October 20, from pneumonia following influenza.

Henry T. Watkins ♂ Olney, Ill.; Hahnemann Medical College, Chicago, 1883; aged 58; founder and proprietor of the Olney Hospital; died on a train between Vincennes and Washington, December 4, from heart disease.

Roscoe Howland Healy, Denver, Colo.; Northwestern University Medical School, Chicago, 1918; aged 24; an intern in Barnes Hospital, St. Louis; died in that institution, December 7, from pneumonia following influenza.

Robert H. Eanes, Taylor, Texas; Tulane University, New Orleans, 1883; aged 63; a member of the State Medical Association of Texas; for twelve years a practitioner of Waco, Texas; died in Taylor, December 9.

Jonah S. Miron, Far Rockaway, N. Y.; Fordham University, New York City, 1918; aged 24; superintendent of St. Joseph's Hospital, Far Rockaway; died in that institution, October 20, from lobar pneumonia.

John Busby Ury ♂ Capt., M. C., U. S. Army, Defiance, Ohio; Rush Medical College, 1903; aged 40; died at Fort Oglethorpe, Chickamauga Park, Ga., about December 8, from pneumonia following influenza.



Died in the Service
IN FRANCE

LIEUT. JOHN W. RENNER, M. C.,
U. S. ARMY, 1890-1918

William Hodnett Butler ♂ Fall River, Mass.; Bellevue Hospital Medical College, 1897; aged 51; a member of the visiting staff of the Fall River Hospital; died at his home, October 11, from influenza.

Henry Nicholas Barth ♂ Metamora, Ill.; Northwestern University Medical School, Chicago, 1909; aged 33; a specialist in internal medicine; died at his home, November 18, from septic endocarditis.

Harrison C. Hopper, Lawrence, Kan.; Jefferson Medical College, 1879; aged 63; at one time a member of the Kansas Medical Society; died at his home, November 29, from carcinoma of the prostate.

Charles Webster Gould, Jr. ♂ Atlanta, Ga.; Rush Medical College, 1901; aged 45; formerly a practitioner of Fairdale, Ill.; a specialist in clinical pathology; died at his home, December 1.

John Latham Seay ♂ Whitwell, Tenn.; Louisville (Ky.) Medical College, 1904; aged 36; died in an infirmary in Birmingham, Ala., November 18, from pneumonia following influenza.

James F. Fitzgibbon, Racine, Wis.; Wisconsin College of Physicians and Surgeons, Milwaukee, 1895; aged 52; died at his home, December 4, from pneumonia following influenza.

Ira Clark Guptill, Northboro, Mass.; Dartmouth Medical School, Hanover, N. H., 1875; aged 74; town physician of Northboro; died at his home, about December 5.

James A. Carson, Maquoketa, Iowa; Hahnemann Medical College, Chicago, 1881; aged 74; a veteran of the Civil War; died in Los Angeles, Calif., December 3.

Albert Charles D'Vorak, Chicago; University of Illinois, Chicago, 1918; aged 32; an intern in Michael Reese Hospital, Chicago; died December 6, from pneumonia.

Charles Henry Shelton, La Jolla, Calif.; New York Homeopathic Medical College, 1880; aged 64; formerly of Montclair, N. J.; died at his home, December 11.

Sverre T. L. Hartman, Vancouver, B. C.; University of Christiania, Norway, 1906; aged 41; died at his home, November 20, from pneumonia following influenza.

James Elwin Snyder, Versailles, Ill.; Chicago College of Medicine and Surgery, 1912; aged 44; died in Cooperstown, Ill., September 17, from carcinoma of the stomach.

August Herman DeFries, Davenport, Iowa; University of Illinois, Chicago, 1896; aged 61; died at his home, November 30, from pneumonia following influenza.

Harvey Wellington Smith ♂ Carsonville, Mich.; University of Toronto, Ont., 1880; aged 63; died at his home, November 17, from pneumonia following influenza.

Thomas McEwen ♂ Hemlock, Mich.; Victoria University, Coburg, Ont.; 1886; aged 58; died at his home, about December 4, following a surgical operation.

Elisha Bennett Burnham, Essex, Mass.; Dartmouth Medical School, Hanover, N. H., 1897; aged 47; died at his home, October 10, from bronchopneumonia.

William Turner Parsons ♂ Palmer, Mass.; Johns Hopkins Medical School, Baltimore, 1907; aged 37; died at his home, November 30, from pneumonia.

William Ellerbe Pelham, Jr. ♂ Newberry, S. C.; Tulane University, New Orleans, 1905; aged 39; died at his home, October 6, from pneumonia.

Frederick C. Cox ♂ Newby, Ky.; University of Louisville, Ky., 1904; aged 38; died at his home, October 24, from pneumonia following influenza.

Guy Halifax Wallace, New York City; University of Toronto, Ont., 1909; aged 32; a specialist in pathology; died at his home, December 9.

Joseph Ward ♂ Cortland, Ohio; Western Reserve University, Cleveland, 1885; aged 59; died at his home, December 4, from nephritis.

Edward Barney Smith, Brightwood, Va.; University of Maryland, Baltimore, 1907; aged 33; died at his home, November 13.

Thomas Allen Smith, Houstonia, Mo.; Hospital College of Medicine, Louisville, Ky., 1881; aged 66; died, recently, at his home.

Eugene Martin, Chicago, University of Illinois, Chicago, 1889; aged 62; died at his home, November 23, from nephritis.

Frank E. Burns, New Orleans; Tulane University, New Orleans, 1891; aged 49; died at his home, November 25.

Correspondence

"THE BIPOLAR BACILLUS OF INFLUENZAL SEPTICEMIA"

To the Editor:—In THE JOURNAL, Nov. 16, 1918, p. 1700, an abstract from *Policlinico*, Rome, describes the cultivation by Ciauri of a bipolar micro-organism in conjunction with gram-positive rods from the blood and sputum of cases of severe influenza. We have recently isolated from a pleural effusion following influenza a bacterium similar in some respects to the bipolar organism described by this author. The following characteristics were noted: The organism was rod shaped, often oval, gram-negative, with distinct bipolar staining and a tendency to variation in morphology. No motility was observed. It grew on plain agar best at 37.5 C., though not heavily, and aerobic conditions were more favorable than anaerobic. Acid was not produced in glucose, lactose or saccharose agar. Gas was not produced in glucose bouillon. Gelatin was not liquefied and litmus milk was not coagulated or rendered acid. Indol production could not be satisfactorily determined because of lack of growth in the peptone medium. A rabbit injected with 1 c.c. of a twenty-four hour bouillon culture intravenously survived. Intraperitoneal injection of smaller doses into a guinea-pig and several mice was not followed by death. This organism apparently falls into the hemorrhagic septicemia group, differing from most of the members of this group by lack of virulence.

EDWARD STEINFELD, M.D., Philadelphia.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

LITERATURE ON POISONOUS GASES IN MODERN WARFARE

Kindly let me know if you have on hand any literature written on poisonous gases as used in modern warfare.

S. BETAGOLE, University, N. D.

ANSWER.—

Gallo, G.: Eighty-Two Cases of Gas Asphyxia in War, *Riforma med.*, Jan. 27, 1917.

Miller, J.: Blood Changes in Gas Poisoning, *Lancet*, London, May 26, 1917.

Fiessinger, C.: Heart Accidents from Gassing, *Bull. de l'Acad. de méd.*, Sept. 25, 1917.

Tapie, J.: Galloping Phthisis After Inhalation of Asphyxiating Gases, *Progrès méd.*, Oct. 20, 1917.

Parisot, J., and Tixier, L.: Cardiovascular Disturbances with Gas Asphyxia, *Paris méd.*, Nov. 10, 1917.

Mandel, M., and Gibson, W. S.: Clinical Manifestations and Treatment of Gas Poisoning, THE JOURNAL, Dec. 8, 1917, p. 1970.

Peat, G. B.: Effects of Gassing as Seen at Casualty Clearing Station, *Canad. Med. Assn. Jour.*, January, 1918.

Treatment of Gas Asphyxia, Medical Mobilization and the War, THE JOURNAL, April 21, 1917, p. 1190.

Gases in Modern Warfare, editorial, THE JOURNAL, April 20, 1918, p. 1160.

Teuliers, M.: Eye Injuries in the Gassed, *Jour. de méd. de Bordeaux*, February, 1918; abstr., THE JOURNAL, April 27, 1918, p. 1266.

Weller, C. V.: Pathology of Gassing, *Bull. Internat. Assn. of Med. Museums*, May, 1918.

The Pathology of "Mustard Gas," editorial, THE JOURNAL, June 22, 1918, p. 1947.

Pierry: Low Blood Pressure and Tachycardia in Gas Asphyxia, *Lyon méd.*, July, 1918.

Lazenby, J. M.: Treatment of Irritant Gas Poisoning, *Brit. Med. Jour.*, Sept. 28, 1918.

Warthin, A. S., and Weller, G. R.: Ocular Lesions Produced by Dichlorethylsulphide, *Jour. Lab. and Clin. Med.*, October, 1918.

Warthin, A. S.; Weller, C. V., and Others: Treatment of Mustard Gas Injuries, *Jour. Lab. and Clin. Med.*, October, 1918.

Derby, G. S.: Effect of Mustard Gas on the Eyes, *Am. Jour. Med. Sc.*, November, 1918.

War Gases and Chemical Warfare, editorial, THE JOURNAL, Nov. 23, 1918, p. 1742.

Norris, G. W.: Toxic Gases in Modern Warfare, with Special Reference to Diagnosis and Treatment, THE JOURNAL, Nov. 30, 1918, p. 1822.

Frescoln, L. D.: Mustard (Yellow Cross) Burns, THE JOURNAL, Dec. 7, 1918, p. 1911.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALABAMA: Montgomery, Jan. 14. Chairman, Dr. S. W. Welch, Montgomery.
ARIZONA: Phoenix, Jan. 7. Sec., Dr. Allen H. Williams, 219 Goodrich Bldg., Phoenix.
COLORADO: Denver, Jan. 7. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.
DISTRICT OF COLUMBIA: Washington, Jan. 14-16. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.
HAWAII: Honolulu, Jan. 6. Sec., Dr. J. R. Judd, Honolulu.
KANSAS: Topeka, Feb. 11. Sec., Dr. H. A. Dykes, Lebanon.
MINNESOTA: Minneapolis, Jan. 7-10. Sec., Dr. Thomas McDavitt, 741 Lowry Bldg., St. Paul.
MISSOURI: St. Louis, Jan. 28-30. Sec., Dr. G. H. Jones, State House, Jefferson City.
NEW MEXICO: Sante Fe, Jan. 13. Sec., Dr. W. E. Kaser, East Las Vegas.
NEW YORK: Jan. 28-31. Albany, Buffalo, New York City and Syracuse. Mr. Herbert J. Hamilton, Asst. Prof. Exams., New York Dept. of Education, Albany.
NORTH DAKOTA: Jan. 7. Sec., Dr. G. M. Williamson, 860 Belmont Ave., Grand Forks.
OKLAHOMA: Oklahoma City, Jan. 7-8. Sec., Dr. J. J. Williams, Weatherford.
OREGON: Portland, Jan. 7. Sec., Dr. H. S. Nichols, Corbett Bldg., Portland.
PENNSYLVANIA: Philadelphia, Jan. 7-9. Sec., Mr. Nathan C. Schaeffer, State Capitol, Harrisburg.
RHODE ISLAND: Providence, Jan. 2-3. Sec., Dr. B. U. Richards, State House, Providence.
SOUTH DAKOTA: Pierre, Jan. 14. Sec., Dr. P. B. Jenkins, Waubay.
UTAH: Salt Lake City, Jan. 6. Corres. Sec., Dr. G. F. Harding, 405 Templeton Bldg., Salt Lake City.
VERMONT: Burlington, Feb. 11. Sec., Dr. W. Scott Nay, Underhill.
WASHINGTON: Spokane, Jan. 7-9. Sec., Dr. C. N. Suttner, 415 Old Nat'l Bk. Bldg., Spokane.
WISCONSIN: Madison, Jan. 14. Sec., Dr. J. M. Dodd, 220 E. 2d St., Ashland.

Missouri October Examination

Dr. George H. Jones, secretary of the Missouri State Board of Health, reports the written examination held at Kansas City, Sept. 30-Oct. 2, 1918. The examination covered 14 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 24 candidates examined, 21 passed and 3 failed. Fifteen candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery	(1917)		80.3
Loyola University	(1916) 81.4; (1917)		86.1
Northwestern University	(1918)		86.6
University of Kansas	(1917) 88.5; (1918) 81.1		83.7
Central Medical College of St. Joseph	(1899)		75.3
Marion-Sims Beaumont Medical College	(1903)		75.7
National University of Arts and Sciences	(1918)		75.2
St. Louis College of Phys. and Surg.	(1913) 81.1; (1918)		75.6
76.8, 80.3, 80.9, 81.5.			
John A. Creighton Medical College	(1918)		79.7
Meharry Medical College	(1918) 80.2, 81.1, 84.1.		
Fort Worth School of Medicine	(1896)		75.1

FAILED

St. Louis College of Phys. and Surg.	(1918) 70.1, 72.7
Meharry Medical College	(1917) 65.4

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
University of California	(1891)		Penna.
Bennett Medical College	(1914)		Illinois
Chicago College of Medicine and Surgery	(1915)		Illinois
Rush Medical College	(1882)		Iowa
State University of Iowa College of Medicine	(1910)		Iowa
Kansas City Hahnemann Medical College	(1910)		Kansas
University of Kansas	(1911) (1915)		Kansas
Tulane University	(1910)		Louisiana
Michigan College of Medicine and Surgery	(1891)		Michigan
University Medical College of K. C.	(1908)		Kansas
John A. Creighton Medical College	(1915)		Nebraska
Medical College of Ohio	(1889)		Kentucky
Jefferson Medical College	(1898)		Penna.
Meharry Medical College	(1916)		Tennessee

Connecticut Homeopathic November Examination

Dr. E. C. M. Hall, secretary of the Connecticut Homeopathic Medical Examining Board, reports the written examination held at New Haven, Nov. 12-13, 1918. The examination covered 7 subjects and included 70 questions. An average of 75 per cent. was required to pass. Two candidates were examined, both of whom passed. The following college was represented:

College	PASSED	Year Grad.	Per Cent.
N. Y. Homeo. Med. Coll. and Flower Hosp.	(1916) 87; (1918)		89

Book Notices

WALTER JAMES DODD: A BIOGRAPHICAL SKETCH. By John Macy. Boards. Price, \$1.50 net. Pp. 64, with illustrations. Boston: Houghton Mifflin Company, 1918.

Walter James Dodd came to America from England at 10 years of age, and after holding various odd jobs became assistant janitor in the Boylston Chemical Laboratory at Harvard. His chief interest was not in "janitoring," for he followed carefully the work in chemistry with the students regularly enrolled, and was easily able to pass the examinations in the various courses. Later he was appointed assistant apothecary at the Massachusetts General Hospital, continuing his studies in chemistry, and finally passing the state examination and becoming a registered pharmacist. In addition to dispensing prescriptions, the apothecary was official photographer of the hospital, so that Dodd became an expert photographer.

In 1895 were published the first obscure reports of the discovery of the roentgen ray. Mr. Dodd became interested in this work, and was coadjutor in the early work with Dr. Walter B. Cannon on the subject. When Dodd began to work with the roentgen ray, like many other early workers he suffered numerous burns of the hands, and for the next twenty years his hands continued to become more and more crippled and mutilated. It was not learned for several years that the roentgen ray might produce malignant reactions in the tissues. In 1900, Mr. Dodd entered the Harvard Medical School, studying one year, and later continuing his studies at the University of Vermont, where he was graduated in 1908. After his graduation, Dodd was appointed roentgenologist of the Massachusetts General Hospital. In June, 1915, he went to France as roentgenologist with the first Harvard medical unit. Before leaving, it was necessary for him to undergo an operation because of his earlier work with the roentgen ray. He returned to Boston in October, 1915, and seemed to be improving. He lost weight, however, developed enlargement of the glands, and died, Dec. 18, 1916. The laboratory of roentgenology in the Massachusetts General Hospital, it is indicated, will be called the Walter James Dodd Memorial.

The experience of Dr. Dodd is typical of that of most of the early workers in this new field. It is evidence, furthermore, of the way in which men with the true scientific spirit have been wont to surmount great obstacles in their search for scientific advancement, many of them being in every sense of the word martyrs to their professions. The biography of Dr. Dodd is stimulating.

THE MEDICAL RECORD VISITING LIST OR PHYSICIAN'S DIARY FOR 1919. Leather. Sixty Patients per Week. Price, \$1.75. New York: William Wood & Co., 1918.

THE PHYSICIAN'S VISITING LIST FOR 1919. Sixty-Eighth Year of Its Publication. Leather. Price, \$1.25. For 25 patients per week. Philadelphia: P. Blakiston's Son & Co., 1919.

These visiting lists conform to the usual style. They are very handy for the keeping of brief records of visits made, engagements for the future and ordinary memoranda. As these books are well known to the profession, it is hardly necessary to do more than state that each is up to its customary standard.

DENTAL AND ORAL RADIOGRAPHY. A Textbook for Students and Practitioners of Dentistry. By James David McCoy, D.D.S., Professor of Orthodontia and Radiography, College of Dentistry, University of Southern California. Second edition. Cloth. Price \$2.50. St. Louis: C. V. Mosby Company, 1918.

This book deals with the history of roentgenology, including the nature of the roentgen ray and its discovery by Roentgen. The Crookes tube, induction coil, and other apparatus used in producing roentgenograms are described and illustrated. The technic of exposures to secure the best results, with valuable hints on interpretation of dental and oral plates and films, is given. This part of the book is profusely illustrated. The book evidently is intended mainly for the dentist who aspires to become his own roentgenologist, and with this thought in mind the author directs his teaching to

the beginner, rather than to the experienced roentgenologist. With this view of the book, it may be recommended without hesitation.

Medicolegal

Death from Pricking Pimple an Accident

(*Lewis v. Iowa State Traveling Men's Association (U. S.), 248 Fed. R. 602*)

The United States District Court, in Iowa, holds that where a man insured by the defendant association died from intentionally pricking a small pimple on his upper lip with a gold scarf pin that he took from his necktie, his lip at the place becoming immediately infected with staphylococcic infection from the scarf pin, which infection spread and caused his death in a few days, it must be considered that he died as the result of bodily injuries received "through external, violent and accidental means," within the terms of his insurance policy. The court says that it may be taken as settled by the great weight of authorities that, under language of this kind in a policy, it is not sufficient that the result shall be accidental, but the "means" must be accidental, as well as the result, which the court thinks was true in this case. If the injury resulted from the pin alone, and there was no proof that the pin was infected, the accidental result would not be covered by the policy; but the insured clearly used something that he did not intend to use. He used not only the pin, but an infected pin—a poisoned pin. This infection was such that it could not, in the nature of things, be discovered by him without perhaps a microscopic investigation. In the court's opinion, the means were clearly accidental. Nor was the defendant exempted from liability under its general covenant to pay, by a provision in its by-laws that the "association shall not be liable . . . for accidental death . . . resulting wholly or partially, directly or indirectly, from . . . local or general infection" (except when such infection or inflammation results from a visible or open wound caused by external, violent and accidental means). The fact that the cocci entered the wound in its making, as agreed by the parties, ought not to make any difference in the construction of this provision of the contract.

Illegal Prescribing of Narcotics

(*Commonwealth v. Noble (Mass.), 119 N. E. R. 510*)

The Supreme Judicial Court of Massachusetts, which holds that a verdict of guilty returned against the defendant on all the counts must stand, says that the defendant was charged in ninety-six counts in the indictment with unlawfully prescribing narcotic drugs, including morphin, cocain and heroin, when not obviously needed for therapeutic purposes, to persons known to the defendant to be habitual users of such drugs, in violation of Section 2 of Chapter 187 of the Statutes of 1915. The commonwealth offered evidence that any method of treating a drug addict not under the complete control and supervision of the physician, by prescribing narcotic drugs to be administered by the patient, had no justification in the practice of medicine, and that under such a course of treatment the patients were free to go from one physician's office to another and thus secure a supply of such drugs as they desired. There was also evidence that the defendant prescribed morphin and cocain combined, that cocain was prescribed for habitual users of that drug, and that such methods of treatment were improper and without justification; that the doses prescribed were excessive in amount and contrary to the legitimate practice of medicine; that the system followed by the defendant was to prescribe 50 or 60 grains of morphin sulphate to each patient as the initial prescription; and every few days thereafter a similar prescription, calling for a single grain less than the preceding prescription, would be issued to the patient; and that in many prescriptions a quantity of cocain would also be prescribed and reduced in the same manner. Testimony of the defendant, in support of which he offered expert testimony, that the treatment he gave was obviously necessary for

therapeutic purposes, was met by the testimony of experts who said that in their opinion such a prolonged reduction treatment was not necessary; that even a sudden withdrawal of the drug was not dangerous, and that they had never known of a case resulting fatally therefrom.

The defendant contended that, being the attending physician in the cases referred to in the indictment, he was the only person who could then determine the obvious necessity for the therapeutic treatment after examination and history of the patient; that his judgment in the matter was conclusive and could not be reviewed or inquired into in a court of law in a trial of an indictment of this kind; and he requested the court so to rule. The presiding judge refused so to rule, and the only question presented for the determination of the supreme judicial court was whether the defendant was entitled to the ruling above referred to, which this court holds that he was not; that the presiding judge rightly refused his request.

The statute provides, in Section 3, for the protection of reputable physicians who act honestly and in good faith. And while the question whether the drug is or is not obviously needed for therapeutic purposes in a given case is a question for the attending physician, and he is not to be held liable for a violation of the statute if he acts in good faith, it does not follow that his judgment in the matter is conclusive and cannot be reviewed or inquired into in a prosecution for an alleged violation of the statute. In the case at bar, on conflicting evidence and the reasonable inferences to be drawn therefrom, it was a question of fact whether the defendant believed the drugs prescribed by him were obviously needed for the treatment of the persons for whom he so prescribed, or whether he was engaged in the business of issuing prescriptions to habitual drug users at \$2 each, solely for his pecuniary gain and without reference to the question whether such drugs were obviously needed or not by those who obtained them. The question whether the defendant exercised his honest professional judgment and acted in good faith, or whether he intentionally violated the statute, was a question of fact for the jury, to be determined by them as men of practical sense and sound judgment.

Infirmiry Not Liable for Negligence

(*Cook v. John N. Norton Memorial Infirmiry (Ky.), 202 S. W. R. 874*)

The Court of Appeals of Kentucky affirms a judgment in favor of the defendant, which was sued for damages because, through the alleged negligence of the defendant, its nurses, agents and servants, a patient fell from a window and sustained injuries resulting in her death. The court says that an examination of the authorities has convinced it that a purely charitable institution, such as the defendant's hospital was described in the pleadings to be, is not amenable to its patients, although paid ones, for any damages they may have sustained growing out of alleged negligence, although such negligence might consist in the violation by the hospital of some duty imposed by either an express or an implied contract. Some of the cases relieve the defendant of liability on the ground that the doctrine of respondeat superior, or let the master or superior answer, does not apply to purely charitable institutions; but this court has not dealt with that feature of the case, since the conclusion it has reached renders it unnecessary. Neither has this court overlooked the fact that some of the cases relieving the institution of liability impose on it the duty of exercising care in the selection of its servants, which, if it should negligently fail to do, it would be liable. But this court has found it unnecessary to consider that proposition, because there was no allegation presenting that issue. Nor does this court pass on the question of the liability of such institutions for conduct purely tortious, affecting members of the public who are strangers to them. This court would also not be understood as holding that such institutions would not be liable on their contracts made for the purpose of protecting, looking after, and taking care of their physical property, or in supplying themselves with those necessities required for their continued maintenance, since on such contracts they are liable, as are other individuals and corporations.

Society Proceedings

COMING MEETINGS

Society of American Bacteriologists, Boston, Dec. 30-Jan. 1.

AMERICAN ASSOCIATION FOR THE STUDY AND PREVENTION OF INFANT MORTALITY

Ninth Annual Meeting, held at Chicago, Dec. 5-7, 1918

(Concluded from Page 2102)

The Springs of A Nation's Life

DR. EDWARD P. DAVIS, Philadelphia: To secure a healthy infant population, it is absolutely essential that the conditions of life be such that early marriage can be encouraged. A living wage, sanitary and comfortable means of dwelling, civic sanitation, including a pure and reasonable food supply, and all those agencies which make for physical, mental and moral hygiene are of the utmost importance. No greater curse on the nation in the care of its infant population could be devised than the presence of a large standing army. In continental Europe, marriage is forbidden to men of military age unless they possess a certain stipend. The result has been indiscriminate immorality, and in order to save its population the state is obliged to care for the mothers in hospitals and to rear the children in foundling asylums. The crying need in the prevention of infant mortality is better obstetrics. In order to make improvement in obstetrics possible, the economic and other factors referred to must be present; but without better obstetrics, these factors will be of little value. The encouragement of early marriage in healthy individuals is a step of primary importance; marriage among those physically unfit is to be discouraged, and, if possible, forbidden. It may not yet be possible to require physical examination of men and women before marriage, but the need for such examination is evident.

Education of the laity, nurses and physicians in matters concerning the increase and care of the population is of paramount importance. Why should not a brief, clear statement of symptoms of dangerous conditions arising in pregnant women be posted in rooms used only by women? Why should not the attention of expectant mothers be called to the dangers of miscarriage and convulsions and hemorrhage occurring during pregnancy? Much has been done to educate medical students and physicians for better obstetrics; but economic conditions and lack of hospital facilities have been such that physicians cannot afford to do, in a large private practice, the careful work accomplished in good hospitals. The modern obstetric trained nurse has saved the lives of thousands of infants.

DISCUSSION

DR. JOSEPH B. DELEE, Chicago: No matter how much improvement we make in a housing community, social service, etc., unless we are able to teach the public the necessity for better obstetrics and to get most of the people thoroughly acquainted with the needs of the child-bearing woman, we shall fail to produce any remarkable reduction in infant mortality. The prevention of fetal deaths during pregnancy and labor may be summed up in the words "better obstetrics." Grace Meigs' investigation of the U. S. census report shows that child-bearing is as dangerous now as it ever was within our memory, and that the deaths from child-bearing are second in number only to those from tuberculosis.

Conservation of Life of the Unborn and Newly Born Child

DR. RUDOLPH W. HOLMES, Chicago: It would be desirable that every college for young men and women should have compulsory instruction on the influences of heredity, and give instruction on the general principles of the rights of the unborn. The legislative control of marriages of those afflicted with inheritable disease, requiring a medical certificate from one or both parties, is theoretically correct; in practice it is of questionable value. At present, control of mental defectives is abhorrent to the uneducated mind. Conferences

should be held covering the general problem of eugenics; suggestive courses should be given to prospective mothers and to young fathers, that they may meet their responsibilities with intelligence and knowledge. I would have a properly equipped maternity hospital with divisions covering the various needs of the prospective mother and her child before and after its advent into the world. I doubt the expediency of having independent centers.

An ideal center would comprise these divisions: (a) There should be a social investigator who should visit the home and determine the true economic need of the family. (b) Opportunity and encouragement should be given to all prospective mothers to avail themselves of the antenatal clinics. (c) At the time of labor the record of the patient should be transferred, or at least made available, to the maternity department. (d) Every woman, before leaving the maternity, should receive positive instructions for her return for a postpartum examination—for recommendations for her own welfare. (e) There should be an infant welfare department, including an adequate department for the preparation of foods for infants. (f) Systematic courses of lectures should be instituted covering all the phases entering into the questions of personal hygiene, marriage relations, matters cognate to the bearing of children, the care of women in pregnancy, and the care of children thereafter.

The Minnesota Plan for the Establishment of Infant Welfare Clinics in Small Towns

DR. E. J. HUENEKENS, Minneapolis: The Division of Child Conservation of the Minnesota State Board of Health has been in existence for six months. In June, 1918, at a meeting attended by all the pediatricians of the state, it was recommended that this division be established and that infant welfare clinics be begun in the smaller communities of the state. Well organized clinics had been in existence for a number of years in Minneapolis, St. Paul and Duluth, so that these places did not have to be considered. It was deemed advisable to establish clinics only where there was a local demand and some kind of local organization that could make the preliminary preparations. This is our method of procedure: When a request for a clinic is received, the head nurse of the division visits the community, explains the object of the work, advises what is necessary in the way of equipment, meeting place, volunteer assistants, etc., and a day is set for the clinic. The advertising of the clinic is left to the local people, and consists of notices in the newspapers, posters, announcements in the churches and schools, and occasionally a house-to-house canvass by block workers. On the day before the clinic, the head nurse again visits the community to make sure that all preparations have been made. In a letter to the local physicians, inviting them to attend the clinic, the director has carefully explained that healthy babies, as well as sick ones, up to the age of 5 years, will be received, though children over that age will not be excluded; advice will be given as to proper diet, especially as to the value of breast feeding, and directions as to clothing and general hygiene; if any pathologic conditions requiring medical or surgical care are found, the patient will be referred back to the family physician for treatment.

Until the next legislature meets, the plans are on a temporary basis, the director being paid per diem, and two full time nurses employed. The budget to be placed before the next legislature, which meets in February, calls for a director on a half time salary and an assistant director on full time salary, three full time nurses and a stenographer and clerk, a total of \$15,000 a year. One of our difficulties is to obtain nurses with public health training for these communities. The University of Minnesota and the Minnesota Public Health Association are now cooperating and have established a special four months' course in public health nursing for registered and senior nurses. Until we have sufficient graduates from this course, we intend to have one of our nurses spend several weeks initiating the new community nurse in her duties. The ideal solution for the future would be the establishment in every county, or even smaller units, of full time health officers, trained in infant welfare work, as a part of their public duties.

Rural Work for Infant Welfare in Canada and Other Countries

DR. MAURICE MACDONALD SEYMOUR, Regina, Sask.: In the provinces of Canada the effort to reduce infant death rates in the rural districts has consisted of: 1. The establishment at rural points of municipal hospitals subsidized by the government. 2. The appointment of medical men at a salary by municipal councils to serve the rural communities. 3. The conducting of child welfare clinics and exhibits, lectures, etc., at rural centers, more particularly in connection with fairs, when most publicity can be secured. 4. Wide distribution of literature dealing with the care of the baby. 5. The adoption of a system of rural public health nursing, which will be greatly increased in the near future. 6. A government maternity grant to expectant needy mothers in rural districts. 7. Education of the public and wide distribution of literature on the subject of infectious diseases, particularly with regard to the venereal diseases.

In order to improve the situation, the adoption of these measures is to be strongly recommended: 1. A system of dominion-wide training, registration and thorough supervision of midwives. 2. A general system of rural public health nursing, with particular reference to child welfare and prenatal care. 3. The providing of free treatment for all syphilitics by means of cooperation between government and municipal authorities. 4. A more general provision for government aid for maternity cases.

AMERICAN PUBLIC HEALTH ASSOCIATION

Forty-Sixth Annual Meeting, held in Chicago, Dec. 8-11, 1918

(Continued from page 2100)

Organization of Forces Against Influenza

DR. M. NICOLL, JR., New York: The general mortality caused by this unknown disease has never been equaled in the country as a whole. This unknown disease kills by secondary pneumonia, usually of a peculiar bronchopneumonic type and due to a variety of organisms, including probably the so-called influenza bacillus. The uncomplicated disease causes a marked leukopenia, together with a profound toxemia, with a tendency toward the production of hemorrhage. The age of special susceptibility is that of young adult life. Among pregnant women it is especially fatal. Those who go to bed and remain there, even with ordinary nursing care, until at least a week after the establishment of full convalescence, will in the large majority of cases recover. Strict quarantine of groups of people has been successful in keeping out the disease.

DR. WILLIAM C. WOODWARD, Boston: The following measures have been adopted for the prevention and spread of influenza: reporting of the disease, the use of masks, the use of vaccines, hospitalization, regulation of the use of common drinking cups in restaurants, lunchrooms, etc.; restriction of crowding; education.

Reporting the disease gives a clue to its prevalence in times of epidemic and serves as a guide in taking measures for the prevention of the disease.

DR. W. O. SHERMAN, Pittsburgh: I believe that there is sufficient evidence at hand to warrant us in believing that from a prophylactic standpoint there is some virtue in the use of vaccines in reducing the severity of influenza.

DR. JOHN DILL ROBERTSON, Chicago: Many places of amusement were closed during the epidemic of influenza to give the people of Chicago more sleep. I believe sleep is the greatest regenerating agent known to mankind. The better class of theaters were not closed, because in them ventilation was good, and such places were used as centers of education for instructing the public regarding the epidemic.

DR. H. O. JONES, Chicago: The consensus of opinion is in favor of keeping the public schools open during an epidemic of influenza for the following reasons: A better knowledge of existing conditions can be had when the schools are made a source of information as to sickness among the children and their families. It would be possible to supervise the

children and keep many of them under better conditions during the school hours than if they were allowed to stay at home and run in streets and alleys, or play on premises where persons sick with the disease lived. We have an organized staff of physicians and nurses for medical inspection of schools.

DR. ROYAL S. COPELAND, New York: At the peak of the epidemic the death rate in Philadelphia was 140, Baltimore 120, Boston 82, Buffalo 80, Newark 55, and New York 47. For the combined weeks of the epidemic Philadelphia had 55 per 1,000, and New York had 25. So, after all, bad as it was, with 21,000 people dying in our city, it might have been worse.

One Sunday, as I sat in my office, one of the wealthy men of the city and owner of a large department store called me on the phone. He said, "Is this the health commissioner?" I replied, "Yes." He said, "If you do not close the schools and theaters tomorrow you will be indicted." I asked him why I should close the schools and theaters, and he replied, "You must think I am a fool"; and I said, "I am sure you think I am one if you think I should close the schools without good and sufficient reasons." I told him that if we closed the schools it would be equally necessary to close the department stores with their insanitary subbasements, their bargain counters, their overloaded elevators, etc., and the conversation ended. You will be interested to know that after I gave my reasons to this gentleman who differed with me, on last Sunday I dined with him, and he assured me that I was the greatest health officer the world has ever known. As a matter of fact, we did not close the schools and theaters. The very night that this department store man called me up Mr. Hearst called me and said, "This man, who is a large advertiser, wants me to make an attack on you. Will you tell me why you did not close the schools and theaters?" This is what I told Mr. Hearst: The most important part of disease control is the public school system. We have a million schoolchildren in New York, and 700,000 of them come from tenement homes, the poorest homes on earth. It will be better for these children to be permitted to go to school where the schoolhouses are sanitary and are under the strict regulation of the everyday system of disease control than to permit them to linger in the school yards or in the basements, etc. It was better for these children to be attending school than to be at home under unpleasant and unhygienic surroundings. If any child showed symptoms or signs which indicated the possibility of influenza, that child was put in a room by himself until examined by a nurse or by a doctor to discover whether he or she had influenza, and if found to have the disease he was sent home under the care of the board of health, and a board of health doctor or nurse would find out whether the family had a family physician, and if so, whether there was a possibility of isolating and protecting other members of the family. If not, the child was to be placed in a hospital where it could be given care. It is a great deal better to care for children in this way than to turn them loose on the streets to play where they will.

As regards theaters, I never had any doubt about them except the moving picture show. We put a padlock on the unventilated show and used the first-class theaters as places for public health education. Each night some one appeared before the curtain and delivered a short talk to the people, telling them there was no necessity to be frightened, but that coughing and sneezing were the ways by which the disease was transmitted to others, and that they must not cough and sneeze in these places. If they did, they were to be ushered out of the theaters. We made use of these talks to great advantage in promulgating public health education.

A concrete problem in the city of New York is that of the subway. We had conferences with all of the big merchants of New York City and decided to "stagger" hours of travel; that is, we opened and closed places of business according to a certain system, varying the hours of opening in the morning and closing in the evening in different establishments, and this materially reduced the peak of travel in the subway and undoubtedly lessened very materially the number of cases of the disease.

The Rôle of the Hand in the Distribution of Influenza

COL. CHARLES LYNCH and LIEUT.-COL. JAMES G. CUMMING, Washington, D. C.: The causal organisms of sputum-borne diseases, resident in the mouth and nose, leave the body of the infected through these orifices and enter the noninfected through similar channels. The vehicles for the transfer of germ-laden saliva from and to the mouth and nose are the hands and eating utensils. Crowd diseases have their origin, to a large extent, in the constant accumulative contamination of intermediate objects, which are the distributing centers of the infection for many hands and many mouths. Food may be infected by contaminated hands and then spread the sputum-borne infections, as well as the intestinal-borne infections. In all infectious diseases there are major and minor routes of transmission from the sick to the well. In military life the mess-kit wash water has proved to be the major route, and intermediate object conveyors by hand touch the minor route. Droplet infection is subsidiary to both, because explosive outbreaks do not result from droplet infection, and as far as mouth pathogens are concerned, 18 inches is about the maximum distance that plates on a level with the mouth can be infected by droplets expelled through the act of coughing. Moreover, since the weight of these droplets (even the finest spray) is such that they fall rapidly, the probability of infection by the flight of organisms is remote. It is true that the chain of both direct and indirect transmission may be broken in several ways; one of these is by wearing the mask. This acts in two ways: It prevents droplets from being expelled from the mouth and it also prevents the hands from being put into the mouth. On this basis the value of the face mask may be emphasized. Its value, however, lies in the fact that it serves as a barrier between the hand and the mouth rather than between the mouth and the outside air. The relative importance of this face mask to clean hands is just about the same as in the case of the surgeon who would wear a mask but neglect to wash his hands. In order for the mask to be effective, the wearer must wash his hands before it is removed.

DISCUSSION

DR. W. H. KELLOGG, San Francisco: Gauze masks were given a thorough trial by an ordinance enforcing their use in San Francisco. Beginning with the use of these masks there was a rapid decline in the number of cases of influenza. The experience of Los Angeles has proved that the wearing of masks is a great preventive of the disease. In that city, where they did not use masks, they had a much larger number of cases than in San Francisco. A properly made mask affords efficient protection against droplet-borne infections.

DR. WOODS HUTCHINSON, New York: The San Francisco people were asked to wear masks in the interest of public health and for public safety. They cooperated with the public health authorities with the result that there was a great reduction in the number of cases of influenza.

DR. A. J. McLAUGHLIN, Assistant Surgeon-General, U. S. P. H. S., Washington, D. C.: I feel that the question of organization by the federal health forces in this country to meet this great national crisis and to face the situation presented has some extraordinary features. In the first place, if we search the history of this country we shall not find a parallel in the appalling loss of life either in its morbidity or mortality in any epidemic of any kind that has visited the United States. An epidemic of yellow fever with the loss of 1,000 lives spread over considerable territory would throw the whole country into a panic. A dozen cases of plague in a seaport town would cause the same kind of excitement; but it is remarkable to see the placidity with which the people generally have taken the almost sudden loss of 300,000 lives.

In facing the problem of public health, the first consideration is the distribution of the disease, and in considering an epidemic it is very essential to have a trained personnel to assist us in the prevention of the spread of the disease. In this epidemic a remarkable characteristic was that the great majority of availables, medical and nursing personnel, were already in the Army or Navy, so that the available personnel from which to draw was limited. Our next difficulty was

the lack of accurate knowledge of the cause and transmission of this disease, and we may as well admit it. There is also a lack of biologic agents with which to prevent the disease, and until we have exact knowledge of the etiology and transmission of the disease we shall not be able by laboratory methods to develop those biologic agencies for prophylaxis, diagnosis and treatment of the disease. We have not acquired sufficient knowledge to know the cause of the disease and then develop in our laboratories some biologic products or agencies that will tell us which man is immune and which is not immune; nor have we an agency that will make people immune or an agent that will cure the disease after a man has become infected. These things are possible only when we get an accurate knowledge of the cause and transmission of the disease.

Our lack of knowledge of the etiology and transmission of the disease makes quarantine measures peculiarly futile. Maritime quarantine is the most exact of quarantine procedures with diseases such as Asiatic cholera. Maritime quarantine is not, as was called in the old days, a sieve but a dam to the entrance of infection. Quarantine against influenza, of which we do not know the cause, makes it possible for carriers to pass any quarantine. Quarantine of the ill is the obvious thing to do. By making the ill individual safe we are quarantining the least active and dangerous of the carriers of the disease. For one ill individual there are hundreds of others not quarantined. We are wearing masks as a protection to individuals. They are worthy of trial.

Many of the measures that have been suggested are not practicable. Restrictive measures, which have been criticised by some, although pretty generally employed by three fourths of the health officers to restrict gatherings of people, are based on sound general principles, and in the absence of any definite knowledge, such as we have of measures against cholera or yellow fever or plague, I would ask you to act on general principles in considering this as a contagious, communicable disease, and educate the people in personal hygiene, to prevent gatherings of people in close contact where greater spread of the infection will occur. We are forced to this by our lack of accurate knowledge. During this epidemic there were sections of the country that were absolutely stripped of physicians, especially in agricultural states, like Nebraska and North and South Dakota, where the small medical population had been taken into the Army. In those states it was necessary to bring in physicians from the outside; but we tried to avoid robbing Peter to pay Paul by organizing federal forces on state lines, so that in every state there was a representative of the United States Public Health Service, either a state health officer acting in that capacity or an officer of the service serving with him in the state capital, to handle relief which the federal government was able to give. With the state health officer and public health officer we had a representative of the American Red Cross appointed for each state. It was necessary to have this kind of organization in order to utilize the limited personnel to the best advantage, because from a central point like Washington it was quite impossible to estimate the relative urgency of calls two or three thousand miles away, whereas the man on the spot knew and could investigate the urgency of these calls and distribute his personnel to the best advantage.

The primary necessity of public health campaigns of this kind is to get accurate knowledge of the prevalence of this disease. Influenza should be a reportable disease, and in epidemic times it is not so essential to depend entirely on physicians. If you establish headquarters or branch headquarters in number according to the population of cities, the calls will come in; and if you have your medical nursing and other relief forces available at headquarters, you will be kept very busy in some places and do a good deal toward preventing the spread of the disease. It is good policy to institute house-to-house inspection and make a canvass for the sick. In the city of Detroit they used 200 schoolhouses when the schools were closed and used the schoolteachers for making house-to-house visits, and in three days these schoolteachers made 2,000 visits in getting information, and reporting to the physicians, which is a very slender reed to

lean on when the physicians are so busy and are not getting time to sleep. By this organization of the public health service, while it was largely limited to the extension of sick relief and nursing relief, we were able to do the best that could be done under the circumstances, and at that time the work went along quite smoothly by utilizing the state health officers in cities where we had no representative except the appointment of a field director under the Public Health Service.

DR. LOUIS I. HARRIS, New York: The reorganization of the various health forces of the country for future emergencies and for protecting and caring for recrudescing cases of influenza is very essential. There should be adequate appropriations of money by federal, city and state organizations, so that the work of prevention and treatment can be carried out on a scale commensurate with the importance of the problem.

The Work of the Illinois Influenza Commission

DR. C. ST. CLAIR DRAKE, Springfield, Ill.: From the onset of the epidemic, up to and including November 30, reasonably accurate reports from 1,348 Illinois health jurisdictions, within which is embraced 60 per cent. of the total population of the state, show 193,885 reported cases of pneumonia and influenza, 53,000 of which were in Chicago. In the same areas the reported deaths numbered 13,466, of which 9,129 occurred in Chicago.

It was found that no preventive vaccine had been used in twenty-one counties, and that it had been employed only to moderate extent in seventy-two counties. Only four counties in the state claimed its general employment. In addition to the vaccine furnished by the Illinois Influenza Commission and the Chicago Health Department, ten others were used.

As to whether or not these vaccines had served to prevent the spread of infection, nineteen counties offered no definite opinion, twenty-nine answered in the affirmative, twenty-seven were of divided opinion, and sixteen regarded the vaccines as of no preventive value.

Regardless of definite opinions as to the general value of vaccines, based on the experiences of these counties, the following figures were gleaned from these very interesting but highly unreliable questionnaires: counties in which there were no cases after vaccination, 23; counties claiming partial protection, 7; counties in which the severity of the disease was decreased by vaccination, 21; counties claiming prevention of pneumonia but not of influenza by vaccination, 1; counties reporting influenza after vaccination, 24; counties claiming pneumonia after vaccination, 4; counties claiming deaths after vaccination, 4; counties claiming absolutely no preventive value, 4; counties claiming disease increased by vaccination, 2.

Influenza at Great Lakes Naval Training Station

DR. OWEN J. MINK, Great Lakes Naval Training Station, Ill.: When influenza arrived at the Great Lakes Naval Training Station, the incidence increased with explosive violence for about five days. For about four or five days it reached the peak, and for about five or six days more it began to decline, and in two weeks the epidemic began and ended. I have plotted the curves of three of the largest Army camps and they have followed exactly the same curve. These curves indicate that in the average fatal case of influenza the patient lives about seven days before the end. It was very evident that this condition of affairs was not going to occur in civil life. The epidemic explodes in the big military camps, but it does not pursue this course in civil life. The rest of the curve is more gradual; the peak is held slightly longer, and the decline is much more gradual. A cure that covers two weeks in a military camp covers probably two months in civil life. From our figures you can refute almost any theory with regard to influenza that any one wants to advocate. It has been said, for instance, that influenza depends on the number of men in the unit in which the men live. Our camp is composed of units of three in a tent or seventy-five in a barracks, and between these two extremes we have units of twelve who are in contact with no one else outside, that is, men in detention. We have units of twenty-four, sixty, seventy-five, and some units of 150. Taking the several regi-

ments, the largest incidence rate for the epidemic falls roughly between 200 and 300 of 1,000-man regiment, and before the epidemic was over, between 200 and 300 would contract the disease. One tent camp had an incidence of 300 per thousand; one camp composed of seventy-five men (a barracks) had an incidence of a little over 200.

I have no criticism of the mask, as Dr. Weaver intended it probably should be used. My figures are on the mask as it is used. The question came up as to the use of masks among our hospital corps who attended the sick. The medical officer of the regiment handles his own affairs, so that if he was an advocate of the mask he would have the hospital corps men use it. If he did not believe in the mask he did not have the hospital corps men use it. I asked him to keep track of those who used the mask and of those who did not and then to tell me what number of the hospital corps men developed influenza and what number did not. Of the men who used the mask, 8 per cent. developed influenza. Of those who did not use the mask, 7.75 per cent. developed influenza. I should not want to put the blame of the extra 0.25 per cent. on the mask, but the point I wish to bring out is that the mask seemed to have very little influence on the incidence of the disease. Another point of importance in connection with the mask is that long before the influenza epidemic began at the Great Lakes, it became the habit for dentists while operating to put on gauze masks, presumably for the protection of the patient, so that before and during the epidemic our dental officers wore masks, the ordinary influenza mask, and as near as we could determine, and these men had no particular association with the disease, certainly not as much as the hospital corps men, these dental officers developed influenza to the extent of 30 per cent. It is unfortunate that I cannot give you something constructive about the mask, but I believe it is better for you to know these things than not to know them.

Appointment of Committees

Four committees were appointed and presented tentative reports. One committee considered administrative measures; the second administrative measures for relief during the influenza epidemic; the third considered the use of biologic products or vaccines, and the fourth considered the history and statistics of the epidemic.

After a thorough discussion of the papers and reports submitted during the meeting, the following committee was appointed by the association and instructed to prepare a final report for publication as soon as possible as a guide for health officers and physicians generally: Dr. William A. Evans, Chicago, chairman; Dr. D. B. Armstrong, Framingham, Mass.; Dr. W. C. Woodward, Boston; Dr. William H. Davis, Washington, D. C., and Dr. Edward W. Kopf, New York.

Report of the Committee on Administration for Relief During the Influenza Epidemic

DR. WILLIAM C. WOODWARD, Boston: Your committee was charged with the formulation of certain principles for the guidance of health officers in communities for administrative measures and for the relief of epidemic conditions with special reference to influenza. Under general rules the committee suggests compulsory reporting of cases so far as it enables the relief measures to be directed to particular cases that may be reported, and in mentioning compulsory reporting we refer to the matter of isolation and placarding, calling attention to the fact that so far as isolation is compulsory it may lead to a diminished efficiency in reporting, so that while the committee recommends isolation by cooperation and education, it recommends that it be carried to a point where it does not diminish the willingness of the physician to report, and the same principle holds true with respect to placarding. Under preliminary measures the committee recommends the distribution of resources, including physicians, nurses, social workers, nurses' aids, clerks, domestics, laundresses, automobiles, and volunteers of all kinds. The local authorities should keep in touch with state and national agencies.

Report of the Committee on Bacteriology and Vaccines

DR. WILLIAM H. PARK, New York: Your committee reports that the epidemic disease known as influenza is believed to

be due to an undetermined organism which causes an infection that lowers the resistance of the body as a whole and of the respiratory organs in particular. This allows the invasion of other pathogenic organisms. The most important complicating infections are due to influenza bacilli, different strains of pneumococci, different strains of streptococci, etc. In each case one or several micro-organisms may be present. In different portions of the country a dominating variety of organism has been found to differ.

Assuming that the cause of the epidemic is an unknown virus, it does not seem possible at present to prevent the primary disease by vaccination with known organisms. Against the secondary infections there would seem to be theoretical basis for the use of vaccines prepared from organisms responsible for the complications that may develop in various localities at various times.

DISCUSSION

DR. JAMES W. INCHES, Detroit: The wearing of masks by the laity on the streets and in public places is of doubtful value. I regard the wearing of masks on the streets as a pure fake. Detroit was closed up for sixteen days during the epidemic. When the theaters and other places were closed in Detroit it deprived the board of health of the opportunity of affording the people education in regard to the epidemic. When everything was wide open the number of cases of influenza was less.

DR. JAMES A. HAYNE, Columbia, S. C.: On receiving a telegram from Surgeon-General Blue regarding the pandemic of influenza, the state health officers of Virginia, North Carolina, South Carolina and Georgia held a conference and issued simultaneously an order for closing, so that every single school, church, theater, moving picture show, etc., was closed, and the closing of these places materially lessened the number of cases of influenza and the death rate. When people assemble in large crowds there is certainly a greater conveyance of droplet infection than if they do not. Eighty per cent. of the population of America is rural, and it is no easy proposition to formulate rules and regulations for the different rural communities. I heartily approve of closing in times of epidemic.

DR. ROY K. FLANAGAN, Richmond, Va.: In Richmond, we closed the schools, but what was accomplished by it, I do not know. The results in Richmond compare favorably with other cities in regard to death rate. The death rate was lower in Richmond than in most cities on the Atlantic Seaboard. It was 3.8 per thousand in August and 4.2 per thousand of deaths in the months of September, October and November. There is an epidemic prevailing at present, but the second exacerbation is milder.

DR. CHARLES V. CRASTER, Newark, N. J.: The association should be slow in condemning the use of the gauze mask, because its value has been demonstrated in many instances in preventing bacteria from entering the upper respiratory tract. It is advisable to stop persons from crowding together. Droplet infection is minimized by keeping people apart as much as possible. Rational closing measures should be adopted when epidemic diseases prevail.

DR. J. O. COBB, United States Public Health Service, Chicago: Dr. Hayne is right, as there must be rules and regulations for the health officer in the sparsely settled municipalities and communities; but cities like New York, Chicago and Detroit must have some other methods of dealing with the public during a terrible scourge like influenza. The problem must be looked at purely from what one can do and not what might be ideal. One can do in Chicago what he could not do in South Carolina. The prevention of the spread of influenza can be controlled by a properly made and worn mask. The schools should be kept open in all large cities and business allowed to go on as usual.

DR. THOMAS E. MALONEY, Fall River, Mass.: Does closing close? Do masks mask? I am prompted to ask this question after the important statement made by Colonel Vaughan that influenza is a hand to mouth disease. So far as I have observed, in many of the rural communities in New England the incidence of the disease is much greater in rural than in industrial communities.

DR. W. E. MOORE, Sioux Falls, S. D.: When the epidemic started in my city we closed up everything for seven weeks, and when we opened wide we had an explosion of the disease, and now we are having more cases than ever. I advise the use of masks for nurses and others who are brought into intimate contact with patients suffering from influenza. An important question is, How long will the disease last? Schools and theaters and other places could not be closed forever.

DR. J. L. FOLKSTON, S. D.: I agree with Dr. Inches. After the influenza began we secured a supply of the Rosenow vaccine from the Mayo Foundation, and with the free use of this vaccine we have lost only one patient. In regard to the mask, I have told my people not to wear them. I believe that masks are just as filthy a thing as a big, long mustache.

DR. H. DELAMATER, St. Joseph, Mo.: The first case of influenza in St. Joseph came from the Great Lakes, September 15. We realized that influenza is a contact disease. We isolated our cases from the start. We do not advocate the use of masks. The mask has been abused and damned by many members. If the mask is condemned for influenza, then why not condemn it in cases of diphtheria, scarlet fever, etc.?

COL. H. S. CUMMING, Newport News, Va.: I believe in the value of the mask. It acts as a barrier between the hand and mouth rather than between the mouth and the outside air. Influenza as a crowding disease is a misnomer. When individuals have gathered together in large crowds for the purpose of commercial exchange or theater parties, the incidence of the disease has not markedly increased; but when people have gathered together in large crowds for the purpose of eating, there has generally been an explosive outbreak.

DR. FREDERICK MONTIZAMBERT, Montreal: I believe in the use of the masks for nurses and others who come in contact with the sick. After the mask has been used for a certain time, the circle opposite the mouth becomes moist; and moist surfaces will not receive droplet infection. The droplets will not dry off, and consequently they are sucked into the moist surfaces and protection is not afforded. A dry mask will stop droplet infection. Masks should be frequently changed. Another point in connection with the wearing of the mask is the possibility of infection from the conjunctiva. It is not sufficient to protect the nostrils and mouth, and nurses and others who are stooping over in influenza cases are exposed to droplet infection and should wear masks with transparent eye pieces.

DR. MILBANK JOHNSON, Los Angeles: I should like to speak of frequent hand shaking in America as a possible factor in conveying the disease. Americans can profit by the custom of the Chinese to shake their own hands as a greeting rather than those of others. If influenza is a contact disease, it makes no difference what kind of a micro-organism is causing the trouble. Doubtless the shaking of hands is a factor in causing its spread and a method of conveying respiratory diseases. I would urge the members to follow the Chinese custom and see if there is anything in it; it does not cost anything.

Treatment of Influenzal Pneumonia with Plasma of Convalescent Patients

LIEUT. FRANK W. HARTMANN, U. S. Navy: To be published in THE JOURNAL.

DISCUSSION

DR. S. R. PIETROWICZ, Chicago: My experience has been limited to several hundred cases seen at the Cook County and St. Mary's hospitals, but I believe there is an era of awakening regarding this form of treatment for respiratory diseases. Many physicians still suffer with aiophobia and keep their patients in hot rooms, but at the Cook County Hospital the first thing done was to place the patients in rooms with open windows, keeping them well covered, and we found that fresh air is the cornerstone of therapy. Even patients who were cyanotic were greatly benefited almost immediately by this treatment. This has convinced us that fresh air has certain specific properties. First, it is a tonic, then a sedative, a stimulant, and finally an antipyretic. I am sure that its chemical value, its physical value, its respiratory and cutaneous value cannot be overestimated, and this method

of treatment should be used more extensively. The contraindications for this treatment are very few—old age, extreme youth, and patients with profuse hemoptysis.

DR. A. A. GOLDSMITH, Chicago: I have been under the impression that every man has a different treatment for influenza and pneumonia, and yet has obtained practically the same results, except perhaps at the Great Lakes and other cantonments where the mortality was very high. I thought that certain of the cases were doomed from the start and no treatment, unless perhaps the serum, is of any value. I believe in the fresh air treatment and quiet conditions and think that aside from these one has very little power over the course of the disease. Often patients are continuously stimulated and go on to a fatal termination when, if they had been left alone, many would have recovered. During the last ten years I have tried to leave my patients alone, allowing them to rest as much as possible, giving codein for the cough, if it was necessary, and occasionally morphin, but not bothering about the stimulation. If the toxemia can be combated, that is all that is necessary; and if patients are kept quiet and allowed to sleep, the mortality will be lowered.

DR. H. N. BUNDESON, Chicago: The serum treatment of pneumonia and influenza I believe is of great value, just as like procedures have given similar results in scarlet fever and diphtheria. From the reports of various workers it appears to be almost a specific. The doses should be large, 200 c.c. of convalescent serum given very slowly over half or three quarters of an hour. If there is not a quick drop in the temperature within a short time, another 200 c.c. should be injected. I believe one cause of failure in this treatment is that patients coming from one part of the country are injected with serum from a man from another part of the country, and the serum is probably of a different type. The best results can be obtained from the same type of serum in the same hospital. I believe the serum treatment is efficient only when given early, which is true also of the antidiphtheritic serum.

LIEUT. L. R. MELNIKOFF, Great Lakes Naval Training Station, Ill.: The conclusion at the base hospital at the Great Lakes is that the so-called wonderful cures that have been reported outside of the Army and Navy camps have not been cures of influenzal pneumonia, but of straight influenza or acute cold. On the postmortem table there was no normal tissue left in the lungs in the cases of influenzal pneumonia. The serum treatment has been tried early in the epidemic with very little success, but it is not the same method as that used by Dr. Hartmann. Venesection cannot be successfully done because the circulation in our cases was practically nil and the blood clotted too rapidly. Pneumonia patients did better in the hospital units than those in tents, and most cases were treated in that way. Calomel and salts were given, and in the early cases, some acetylsalicylic acid; but this was soon discontinued, as it was found to be a depressant. If the pulse was over 100, we gave 15 minims of digitalis every three hours. Codein was given in very small doses for the cough and fluid was given frequently, but very little catharsis was employed. Whisky should very seldom be given except as nourishment. Of 3,000 cases at the base hospital, from 20 to 30 per cent. developed pneumonia, and of these about 20 per cent. resulted fatally.

DR. A. C. TENNEY, Chicago: I wish to mention a modification of the vaccine treatment as a preventive measure, thinking that the members may be interested in the results of several years' experimentation and observation, checked by laboratory tests. The idea is simply to furnish an excess of nucleinic acid in the region where the vaccine is introduced. The tissues must be thoroughly massaged after the hypodermics are given. The vaccine selected is introduced in the usual manner, and centrally from that point a dose of nucleinic acid is introduced. I recommend this procedure to those who wish to prevent pneumonia and influenza or a mixed infection from which so many people are suffering. Veratrum viride is not a new remedy. Four years ago it was shown to increase the opsonic index, and this drug in connection with hexamethylenamin has been my mainstay in the treatment of the present epidemic.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Orthopedic Surgery, Boston

September, 1918, 16, No. 9

- 1 Cystic and Fibrocystic Disease of Long Bones. Report of Cases. H. W. Meyerding.—p. 253. (To be continued.)
- 2 *Practicability of Equalizing Unequal Legs by Operation. F. J. Fassett.—p. 277.
- 3 Organization of Division of Orthopedic Surgery in U. S. Army with Expeditionary Force. J. E. Goldthwait.—p. 288.
- 4 *Treatment of Club Foot in Infancy. E. L. Scott.—p. 290.
- 5 *Rational Treatment of Bone and Joint Tuberculosis. S. A. Twinch.—p. 295.
- 6 Case of Congenital Deformities of Arms and Legs. C. A. Parker.—p. 302.

2. **Equalizing Unequal Legs.**—Seven cases are cited by Fassett in which unequal legs were equalized by operative shortening or lengthening. In several instances, three-quarters of an inch was added to the length of a femur, but at a cost of time and hardship too great in comparison with the gain. The bone was divided in a Z-shaped manner—as is done in tendon lengthening. The reason that no more than three quarters of an inch could be gained was not the danger to vessels and nerves, but the fact that these structures are all too well protected by the great strength of the fibrous tissue of the leg. Fassett is of the opinion that if the problem were to be further studied along this line it would seem that the hope of greater gain would lie, not in the application of greater force, but in the clean division of more tendons, fascial bands, or intermuscular planes. Two inches and a quarter and, probably, three inches may be subtracted from the length of a femur without serious loss of muscle tone. This procedure was employed in three cases. If the subtraction method is chosen, the simpler the technic the better. Much was hoped by Fassett from a pattern of osteotomy in which the bone was split first by two longitudinal saw clefts in planes at right angles to each other, and transverse cuts made at two different levels so that four interlocking "fingers" were formed. In the model and in the cadaver, this allows a telescoping movement of the fragments which seems compatible with great firmness. But in the elastic bones of children and young adults Fassett found that this device is not worth the time required to use it in the operation. The operation of choice would appear to be the removal of a simple cylinder of bone of proper length and the fixation of the approximated fragments by a bone splint or Lane plate.

4. **Treatment of Club Foot in Infancy.**—Assuming an infant with a positive degree of talipes equino varus, the procedure as suggested by Scott would be as follows: At ten days, even much later in most cases, without an anesthetic, the foot is gently manipulated against the resisting structures. Moderate force is used. With the thigh flexed on the abdomen and the leg flexed on the thigh, a tight adhesive plaster strapping is done to the foot, going in the usual way. Shingle straps are applied over the long piece of plaster to insure adhesion. This should correct, to some extent, the inward torsion. The foot is left in this position for about an hour. Then a plaster-of-Paris cast is made of the foot and leg. In the prehardening stage, the thigh is again flexed on the abdomen and the leg on the thigh, the foot is firmly grasped and a forced position, giving as much correction as possible, is taken and held until the plaster is fairly rigid. As soon as expedient, the plaster cast is removed. The original adhesive strapping is removed from the foot, new straps are applied, and the child dismissed for a day.

The plaster model is now corrected by sawing and fitting to conform to the cast of a normal foot. Having corrected the principal elements, equinus and varus, and having overcome the outward bowing of the tibia, the model is shaved off under the outer metatarsals, sandpapered, covered with stockinette, and a cast, of desired thickness, is applied very tightly. By heating and drying, a very strong, light cast is obtained. This is applied to the child's foot and held in place by three straps of adhesive plaster, one at the top, one

around the ankle joint, and one across the heads of the metatarsals. These casts can be renewed each ten days. No pressure points or excessive constriction being allowed, the child wears the cast with comfort after a few hours. By measurements of the foot, taken by direction, changes can be made in the model for each cast.

5. Tuberculin Treatment of Bone and Joint Tuberculosis.—Twinch records his experiences with the tuberculin treatment of bone and joint tuberculosis. Under modern tuberculin treatment his recoveries have averaged 68 as against 34 per cent. when treated without tuberculin. In addition, the period of treatment of recovered cases averaged only eleven and a half months, while the average time of treatment of recovered cases without tuberculin was five and one-fourth years. Twinch ascribes his good results to the fact that tuberculin acts favorably on the primary focus of infection in these cases. Tuberculin checks the local process, the individual also regaining and maintaining strength not attained by treatment alone on general hygienic and orthopedic lines.

Annals of Surgery, Philadelphia

October, 1918, 68, No. 4

- 7 *Radium Treatment of Tumors of Superior Maxilla. H. H. Janeway.—p. 353.
- 8 Surgical Treatment of Trifacial Neuralgia. W. Sharpe.—p. 371.
- 9 *Surgical Treatment of Certain Diseases by Splenectomy. J. Sherren.—p. 379.
- 10 Surgical Aspects of Right Subphrenic Abscess. J. Burke.—p. 383.
- 11 Case of Hypernephroma of Falciform Ligament of Liver. A. H. Harrigan.—p. 395.
- 12 Low Lateral Incision and a Method of Nerve Block for Appendectomy. L. F. Watson.—p. 397.
- 13 Surgical Pathology of Human Prostate. O. S. Lowsley.—p. 399.
- 14 Human Seminal Vesicles at Birth. Their Fetal Development. E. M. Watson.—p. 416.
- 15 Transverse Ectopy of the Testis with Masculine Uterus, Report of Case. T. Kimura.—p. 420.
- 16 Case of Giant-Cell Growth of Bone and Tendon Sheath. L. W. Ely.—p. 426.
- 17 Intestinal Obstruction Produced by Evagination of Ileum Into Urinary Bladder. W. H. Barber.—p. 429.
- 18 Surgical Closure of Wounds. G. Dehelly.—p. 430.
- 19 Physical Factors Influencing Infection. W. Martin.—p. 436.

7. Tumors of Superior Maxilla.—Fifty-five cases of tumor of the superior maxilla, treated by radium, assisted when necessary by a conservation operation, are analyzed by Janeway. These tumors included eight benign tumors and forty-seven malignant growths, of which four were sarcomas and forty-three epitheliomas. Of the forty-three patients with carcinoma of the superior maxilla a complete retrogression to date has been obtained in eight. Only one of these eight patients has not been traced. Two are within a few months of the three-year period. The other five have passed a little over one year since their treatment was administered. Janeway emphasizes the fact that a percentage of clinical cures to date of 16.2 per cent. in a series containing many advanced and inoperable cases promises a more favorable result by the method used than can be obtained by operation alone.

9. Surgical Treatment of Diseases by Splenectomy.—Fourteen splenectomies for disease were performed by Sherren with one death—a boy of 14 on whom the operation was performed for advanced cirrhosis of the liver. The remaining cases were distributed as follows: splenic anemia and Banti's disease, nine; Gaucher's splenomegaly, one; hydatid cyst of spleen, one; splenomegalic jaundice, two.

Bulletin of Johns Hopkins Hospital, Baltimore

November, 1918, 29, No. 333

- 20 Development of Human Verumontanum. E. M. Watson.—p. 241.
- 21 *Electromyographic Studies of Clonus. S. Cobb.—p. 247.
- 22 Lavoisier and History of Physiology of Respiration and Metabolism. Contemporary Views of Life Processes. J. C. Hemmeter.—p. 254.

21. Electromyographic Studies of Clonus.—A few cases were studied intensively by Cobb by means of the string galvanometer and the results seem to show that clonus gives a typical electromyogram, the details of which, perhaps, throw light on the nature of clonus. Beginning slowly, the periods between contractions soon shorten to a constant

length, and this periodicity then varies not at all with fatigue, and only slightly with change of muscular tension. Clonus was kept up for half an hour in one case. In different individuals the average length of these periods varies only by a few hundredths of a second, the shortest being 0.12 second and the longest 0.17 second. The apparatus used for recording the action currents of the muscles studied was the string galvanometer designed by Dr. H. B. Williams. This is a standard machine such as is used in "heart stations" for electrocardiographic work. The optical system and recording camera were also the stock type, except that a special gear was introduced to give greater speed to the film; with this addition a speed of from 20 to 27 cm. per second was obtainable. Five patients were intensively studied; two of these had patellar clonus alone, two had ankle clonus alone, and one had both patellar and ankle clonus.

Florida Medical Association Journal, Jacksonville

October, 1918, 5, No. 4

- 23 Treatment of Gonorrhea in Male. J. H. Coffee.—p. 60.

Georgia Medical Association Journal, Atlanta

October, 1918, 8, No. 6

- 24 Goiter, Results in Seventy Operated Cases. W. S. Goldsmith.—p. 111.
- 25 Roentgen Diagnosis in Empyema Simulating Other Diseases. W. A. Cole.—p. 114.
- 26 *New Incision for Surgery of Gall-Bladder and Ducts. C. Usher.—p. 118.
- 27 Treatment of Lobar Pneumonia. J. W. Palmer.—p. 118.
- 28 Veratrum Treatment of Pneumonia. S. T. R. Revill.—p. 121.

26. New Incision for Surgery of Gallbladder and Ducts.—The incision Usher advocates is the Judd modification of Bevan's incision, except that the peritoneum is cut at an angle of about 45 degrees, or along near the borders of the ribs. The advantages are said to be that the peritoneum is strong in this locality, in fact almost a muscle. Sutures do not tear out readily, as sometimes is the case when the peritoneum is cut straight up and down; there is little likelihood of cutting the diaphragm, an accident that might happen when the peritoneum is cut straight up and down.

Journal of Immunology, Baltimore

September, 1918, 3, No. 5

- 29 *Complement Fixation Reaction in Tuberculosis. M. A. Wilson.—p. 345.
- 30 *Id. H. von Wedel.—p. 351.
- 31 Role of Immunity in Conduct of Present War. J. A. Kolmer.—p. 371.
- 32 Mode of Action in Vitro and Preparation of Hemolytic Antibodies. A. K. Balls and J. H. Korn.—p. 375.
- 33 *Bleeding Guinea-Pigs and Preserving Sheep's Erythrocytes. J. J. Wenner.—p. 389.
- 34 *Studies in Pneumonia. Skin Reaction to Pneumotoxin. C. Weiss and J. A. Kolmer.—p. 395.
- 35 *Method of Preparing Bacterial Antigens. J. C. Small.—p. 413.
- 36 Saponin Hemolysis. T. Furuhata.—p. 423.

29. Complement Fixation Reaction in Tuberculosis.—Wilson describes a technic which she believes has increased the efficiency of this test. It has to do with the standardization of the guinea-pig's serum to determine the value of the complement. Not all guinea-pigs' serums are efficient for tuberculosis complement fixation. Therefore, the serum from each guinea-pig should be tested for fixability with tuberculosis antigen plus tuberculosis serum before pooling the complement for diagnostic tests. The method of standardizing the complement, the preparation of our tuberculosis antigen, and the diagnostic test, are described in detail.

30. Complement Fixation Reaction in Tuberculosis.—Wedel made 1,078 complement fixation tests on 200 specimens of blood serum taken from persons with no clinical history of tuberculosis, and from persons with active, inactive and primary pulmonary tuberculosis. The technic employed was similar to that originally used by Wassermann with slight modifications. The complement fixation results on serums from positive cases made the first day after taking the specimens were negative or weakly positive in a very large percentage of cases; while in most instances, seven days later these same serums gave a strongly positive reaction and continued to give this strongly positive reaction week

after week with unvarying regularity. None of the non-tuberculous serums gave a positive reaction the second, third, or fourth week after the specimen had been obtained from the patient. Of all positive serums in the series, only twelve gave a 3 or 4 plus reaction the first day tested. After being preserved in the ice-box under sterile precautions for seven days, forty-nine serums gave 3 or 4 plus reactions. Of eighty-two serums from tuberculous cases of all types that gave negative or doubtful reactions the first day, the results on the seventh day were positive in thirty-seven. The reactions apparently did not change after the sixth day.

Wedel's experiments confirm those reported by Wilson (see Abstract 29) but are in disagreement with all of Corper's conclusions. First, because in Wedel's series of cases there were twenty-six specimens from patients that gave positive Wassermann reactions but offered no physical symptoms of tuberculosis. None of these gave any cross fixation with the Wilson tuberculosis antigen. Second, in no instance did Wedel obtain a positive reaction using double the regular amount of sterile patient's serum in his entire series of known nontuberculous cases. Third, he never found the Wilson antigen to be anticomplementary in four times the dose used in the test, if the antigen is heated at 55 C. for one half-hour just before being used. Fourth, his tests in the active tuberculous cases gave 98 per cent. of positive reactions. Fifth, the very slight turbidity produced by the antigen in no way interferes with the reading of the results. Wedel insists that pooled complement from at least six guinea-pigs should be used in making the tests, or the complement from single pigs should be tested for its complement fixation value with known positive serums. Double the original Wassermann amount of patients' serum should be used. No report should be made until the serum has been tested after having been kept under sterile conditions in the ice chest for from four to six days, preferably six days. Wedel's results seem to indicate that with these modifications of the original complement fixation tests, 100 per cent. of nontuberculous cases will give absolutely negative results; nearly 100 per cent. of the primary and active cases will give positive results, with the exception of the dying persons; and about 25 per cent. of the partially inactive and inactive cases will give only weak positive results.

33. Preservation of Sheep Corpuscles.—For the preservation of sheep's erythrocytes, Wenner collects the blood in a sterile bottle containing shot or glass beads, and at once defibrinates it. It is then filtered through sterile cotton into another sterile bottle and the quantity of fibrin-free blood is estimated. This estimation is made readily in a previously graduated bottle; it is often more convenient to determine the quantity by measuring an equal amount of water placed in a similar bottle. One part of 40 per cent. aqueous solution of formaldehyd is added to 800 parts of blood. This formaldehyd-treated blood is kept in the ice box as a stock supply. Whenever erythrocytes are needed, the necessary amount of blood is removed and centrifuged, and the corpuscles washed three times with 0.85 per cent. saline solution.

34. Skin Reaction to Pneumotoxin.—The work reported by Weiss and Kolmer is a part of the studies on the properties of pneumotoxin and its probable rôle in the pathology of lobar pneumonia. Guinea-pigs previously sensitized with sublethal doses of pneumotoxin or with the serum or lung exudate of dogs suffering from experimental lobar pneumonia, reacted to the intracutaneous injection of 0.1 c.c. of the toxin by a local erythema and hemorrhagic edema in the subcutaneous tissue overlying the muscle. The skin reaction to heat-killed pneumococci was negative in most of these animals, and when positive, was of a suppurative type, marked by less edema and more leukocytosis. Control animals gave uniformly negative results. Among human adult cases of lobar pneumonia the reaction (which was characteristically that of a local edema and erythema) was elicited as early as the fifth and as late as the thirteenth day of the disease (two days before and six days after the crisis, respectively). In children it was demonstrable about the same time, but was negative immediately or one or two days after the crisis. Patients recovering by lysis reacted as late

as the thirty-second day. In general, the test was positive in all active cases, that is, throughout the toxemia. Cases earlier than the fifth day of the disease were not available. Control patients, suffering with bronchopneumonia or with acute or chronic infections not of pneumococcic origin, as well as healthy adults and children did not react. The reaction is regarded by the authors as indicative of a state of allergy to pneumotoxin.

35. Preparing Bacterial Antigens.—A chloroform-ether extraction was used by Small to remove the fat-like substances from dried bacteria. After thorough extraction the residue was freed from traces of these solvents and suspended in sterile salt solution. The principles concerned in complement deviation are left behind in this extraction, and the extract contains substances that interfere with the complement-deviation reaction, hence this separation is, in itself, highly desirable. A further advantage is that the chloroform-ether extraction uniformly affects all cells by removing water-insoluble substances and so breaks up the integrity of the individual as to facilitate subsequent aqueous extraction. Complete extraction of the water-soluble fraction cannot be assured since the cellulose fraction left unchanged in the bacterial cell may be so distributed as to impair aqueous extraction. The use of the whole suspensions of this chloroform-ether extracted bacterial residue appears to supply any incompletely extracted bacterial particles to the complement deviation reaction, so that incomplete extraction does not entail a dead loss of the complement deviating substances. To obviate bacterial contamination, which seems to be in some way responsible for a sudden anticomplementary change, the bacterial residue was dried after the last washing with ether, and intimately mixed with eight and one-half times its weight of sodium chlorid. This bacteria-salt mixture was reduced in a mortar to a very fine powder. For use this powder is suspended in distilled water, 0.95 gram per 100 c.c. of water making the right proportions. This is shaken until, on solution of the salt, an evenly distributed, slightly opalescent suspension of the bacteria is effected. Prepared in this manner it yields a 0.1 per cent. suspension of bacteria in normal salt.

Journal of Parasitology, Urbana

September, 1918, 5. No. 1

- 37 Iguana Tick, Amblyomma Dissimile, in Panama. L. H. Dunn.—p. 1.
- 38 Study of Parasitic Protozoa. R. Kudo.—p. 11.
- 39 Acanthocephala of Subfamily Rhadinorhynchinae from American Fish. H. J. Van Cleave.—p. 17.
- 40 Two Species of Nematodes [Gongylonema Inguvicola Ransom, 1904, and Capillaria Strumosa (Reibisch, 1893)] Parasitic in Crop of Chickens. L. D. Wharton.—p. 25.
- 41 Two New Nematodes Common in Some Fishes of Cayuga Lake. M. Wigdor.—p. 29.
- 42 Development of Gregarines and Their Relation to Host Tissues: (II) in Cephaloidophora Delphinia (Watson) M. W. Kamm.—p. 35.
- 43 Life Cycle of Fowl Cestode, Davainea Cesticillus (Molin). J. E. Ackert.—p. 41.

New York State Journal of Medicine, New York

November, 1918, 18. No. 11

- 44 Differential Diagnosis Between Chronic Gastric Ulcer and Carcinoma of Stomach. S. Basch.—p. 427.
- 45 *Incidence of Peptic Ulcer and Carcinoma in Duodenum. J. A. Lichty.—p. 433.
- 46 *Surgery vs. Radium in Treatment of Carcinoma of Bladder. B. S. Barringer.—p. 436.
- 47 War A School of Surgery. S. Smith.—p. 430.
- 48 Epidemic of Typhus in Roumania. R. H. Rulison.—p. 443.
- 49 Problem of Venereal Disease Control. A. N. Thomson.—p. 451.
- 50 Recent Factors in Control of Venereal Diseases in State of New York. M. Nicoll, Jr.—p. 455.

45. Peptic Ulcer and Carcinoma in Duodenum.—Analysis of a series of 486 patients with duodenal lesions showed that six were cancerous and 480 were benign ulcers, a ratio of one to eighty. In a series of 780 patients with gastric lesions 240 were found to be cancerous and 540 were benign, a ratio of one to two and a fourth. In reviewing his own cases, Lichty found but six cases of carcinoma of the duodenum, and about 240 cases of carcinoma of the stomach, a ratio of one to forty. These diagnoses of gastric carcinoma

were largely verified by necropsy or operation. When neither necropsy nor operation was done, the diagnosis was confirmed by the inevitable course of all cancer cases. Reviewing over 1,000 cases of peptic ulcer, collected during the same period in which the cancer cases were collected, Lichty found a diagnosis of ulcer of the duodenum had been made 480 times, whereas ulcer of the stomach was diagnosed 540 times.

Another interesting observation of this study was the location of the carcinoma in the duodenum. Most reports seem to be of growths which come directly from the pyloric ring or immediately from or about the papilla of Vater. This fact is confirmed very strikingly in the six cases of cancer of the duodenum which Lichty reports. None were found in that area which is most frequently the seat of peptic ulcer. Lichty wonders, if carcinoma of the stomach arises so frequently (50 to 70 per cent., according to some) from a peptic ulcer, why does not carcinoma occur more frequently in the duodenum where peptic ulcer abounds? He throws out the suggestion that the etiologic and determining factor of carcinoma of the stomach may be something entirely independent of peptic ulcer.

46. Surgery vs. Radium in Cancer of Bladder.—Barringer maintains that if surgery could cure fifteen cases in 100, radium could cure twenty cases. He reports seven cases, in five of which a cure was effected with radium.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Nov. 9, 1918, 2, No. 3019

- 1 Influenza Epidemic in British Armies in France, 1918. Committee of Advisory Board to D. G. M. S., France.—p. 505.
- 2 *"Spacing Out" in Prevention of Military Epidemics of Cerebro-Spinal Fever. J. A. Glover.—p. 509.
- 3 *Case of Subacute Infective Endocarditis. B. Hudson.—p. 512.
- 4 *Case of Intestinal Obstruction. J. M. W. Morison and L. White.—p. 513.
- 5 Pyloric Stenosis with Accompanying Spasmodic Dysphagia. E. B. Barton and H. H. C. Dent.—p. 514.
- 6 Inequality of Pupils. T. S. Barric.—p. 514.

Nov. 16, 1918, 2, No. 3020

- 7 *Investigations on One Thousand Consecutive Cases of Peripheral Nerve Injury. J. Le F. Burrow and H. S. Carter.—p. 535.
- 8 Past and Future of Crusade Against Tuberculosis. M. Morris.—p. 539.
- 9 Treatment of Ante-Natal and Post-Natal Syphilis. J. Adams.—p. 541.
- 10 *Method of Overcoming the Adherence of Tendons After Suturing. P. C. C. Fenwick.—p. 542.

2. **"Spacing Out" as Influenza Preventive Measure.**—Glover urges that when a unit shows a high carrier rate, a distance of at least 2½ feet between the beds should be enforced. This is the "spacing out" referred to in the title.

3. **Subacute Infective Endocarditis.**—The remarkable features about Hudson's case were the insidious and slow progress (eight weeks), the absence of any definite cardiac symptoms, and the fact that the heart never became enlarged, in spite of the severity of the aortic lesion and the long duration of the case. This is attributed to the fact that the large vegetation prevented any real leaking of this valve. The patient was never really "cardiac"; there was no dyspnea or edema, and the pulse maintained a steady, regular, slow beat till the end. He was in a "typhoid" state throughout the disease, and died eventually of a slow toxemia.

4. **Intestinal Obstruction.**—The case reported by Morison and White was an instance of intestinal obstruction due to the healing process of old tuberculous ulcers of the bowel, possibly secondary to a lung infection. Forty years elapsed between the primary attack, and the period during which the patient showed symptoms and was extremely ill.

7. **Peripheral Nerve Injury.**—Burrow and Carter describe in detail their method of examination of nerve injury cases. Their observations after nerve repair point to the following general facts: Trophic and vasomotor functions recover first. Trophic ulcers may heal surprisingly quickly after repair of peripheral nerves. Deep sensibility recovers next, and usually

in the order of sense of pressure, perception of movement in joints, etc., and then roughness and pressure pain. Accurate gaging of position and range of movements are slower in their reappearance. Localization of tactile pressure recovers earlier. Radiating, ill-localized sensations, referred to wide areas and usually associated with tingling, appear next; they have a high threshold value, and conform largely to the "protopathic sensation" of Head and Rivers. Next in order come accurate perception of light touch with a gradual disappearance of radiating sensations and a gradual lowering of the threshold value of the stimulus required to obtain responses from the patient. Last of all, and very imperfectly as so far observed, appear the discriminating sensations—that is, stereognostic sense, etc., and lowering of threshold value to those of normal skin. Voluntary movement appears in the highest members of a group of muscles first, and gradually extends downward, as a rule. Motion usually follows the return of "protopathic" sensation. It is present long before the radiating ill-localized sensations are abolished.

10. **Overcoming Adherence of Tendons After Suturing.**—Fenwick cites a case in which he wound thick catgut around each reunited tendon to prevent adherence to the scar and surrounding tissues. The result was excellent.

Edinburgh Medical Journal

November, 1918, 21, No. 5

- 11 Habitual Constipation. J. Ritchie.—p. 253.
- 12 *Treatment of Splenomegaly with Anemia in Syphilitics. J. Eason.—p. 258.
- 13 Teaching Obstetrics to Under Graduates. J. H. Croom.—p. 268.
- 14 Id. A. H. F. Barbour.—p. 274.
- 15 Id. F. W. N. Haultain.—p. 280.
- 16 Reasons for Present Defective Education in Obstetrics, with Suggested Remedies. E. H. Tweedy.—p. 283.
- 17 Teaching Obstetrics and Gynecology. J. S. Fairbairn.—p. 286.
- 18 Id. V. Bonney.—p. 290.
- 19 Id. N. T. Brewis.—p. 291.
- 20 Id. J. H. Ferguson.—p. 294.

12. **Treatment of Splenomegaly.**—A case of splenic anemia is recorded by Eason in which the Wassermann test was positive and antisyphilitic treatment produced definite improvement. The Wassermann test remained positive. The results obtained from specific and surgical treatment are compared by reference to seven collected cases. The late result in one operation case is also noted. The rationale of the surgical treatment is briefly considered. With regard to the management of such cases of syphilitic origin simulating Banti's complex, Eason believes that in the first instance all cases should have very thorough antisyphilitic treatment. No great harm and much improvement may result from this when carried out with care while watching the effect of each injection on the blood. If this has been done, and the Wassermann test still remains positive, operation then becomes almost as necessary as for cases of the orthodox Banti type. The need for operation would not be quite so urgent if from time to time renewed specific treatment were known to re-arrest activity. As this prospect is meantime based solely on hypothesis, the indication for operation is practically the same as in Banti's disease, if specific treatment has already failed.

Lancet, London

Nov. 16, 1918, 2, No. 20

- 21 Principles of Neurology. H. Head.—p. 657.
- 22 *War Nephritis. Clinical Study of Early Cases. H. B. Day.—p. 660.
- 23 Nephritis in Relation to Recent Epidemic of Influenza. C. P. Symonds.—p. 664.
- 24 *Tuberculous Disease of Hip-Joint. Sign of Pathological Activity. H. J. Gauvain.—p. 666.
- 25 *Treatment for Septic Sores and Nile Boils. H. W. Crowe.—p. 667.

22. **War Nephritis.**—The result of Day's inquiry in fifty cases confirms Abercrombie's statement, founded on 500 cases, that the onset of war nephritis was almost invariably attended or preceded by fever. The first symptoms of actual nephritis are an increasing breathlessness and the appearance of edema, generally with more or less cough, headache and pains in the back and legs. Urinary symptoms are only complained of in the special lower tract type. It is impossible to judge of

the severity and outcome of the disease from the nature of the early symptoms. The first sign of approaching recovery is the spontaneous appearance of a diuresis which quickly reduces the edema. This event may occur within a week of the onset in mild cases or be deferred for a month or longer in other patients, while severe cases may reach a tardy convalescence without sudden polyuria. If percussion is employed as well as palpation a definite increase in the size of the spleen can be made out in most cases of trench fever, although it is impossible to feel the organ when it was only moderately enlarged. The use of this combined method, when daily examinations are made, gives most interesting results in trench fever. In all cases where a previous enlargement was excluded the spleen showed alternate advances and recessions at regular intervals of five or six days (rarely four and a half days). This phenomenon occurred in every form of the disease, whether the fever was relapsing or continuous, and in cases where no definite febrile relapse followed the initial bout a second descent of the spleen was evident at the usual interval. The signs of periodicity of this disease evidently are closely related to the accompanying changes in the spleen.

As to complications, bronchitis is very common in the early stages, particularly in patients with considerable edema, or who are suffering from a winter cough—so common in the trenches. As a rule it disappears with the subsidence of edema, but may develop into a septic process with purulent sputum and slight fever. It has been suggested that the relapses seen in war nephritis are due to complications in most cases. Day's experience does not support this view. Other complications, such as uremia, retinitis, cerebral hemorrhages, etc., may occur as in other forms of nephritis. Day believes that the seasonal incidence of war nephritis points to cold and exposure as predisposing agents.

24. Active Tuberculous Disease of Hip-Joint.—The most constant and most marked evidence of activity of this disease Gauvain says is spasm of the muscles about the affected joint. As the disease becomes less acute spasm becomes increasingly difficult to demonstrate, until eventually it completely disappears. It may last be elicited in the following manner: If the femur, on the affected side, be grasped firmly in the region of the condyles, the head of the bone may be rotated gently within the acetabulum, either inward or outward, through a varying but often considerable angle. When the disease is active, a further slight sharp rotation is instantly followed by spasmodic muscular contraction, not confined to muscles about the joint but extending to the abdomen and visible in the abdominal muscles, or still more easily demonstrated if the palm of the hand is placed on the abdomen between the iliac spines. Quite a gentle and painless but sharp rotary movement is sufficient to provoke this reflex spasm of the abdominal muscles. In those cases where doubt exists as to the activity of the disease, Gauvain has found it to be a sign of the utmost value. Confirmatory evidence of activity, as indicated by muscular spasm, may at the same time be demonstrated in the following manner: In a child, a finger and thumb of the hand not engaged in grasping the femoral condyles may be applied simultaneously to the two anterior superior iliac spines. During the first rotation of the femur on the affected side no movement is conveyed to the iliac spines. When, however, rotation has been checked and is sharply but gently continued, exaggerated movement in the same direction is transmitted to the iliac spines. With a healthy joint this type of movement is not apparent, with a hip-joint affected with declining but still active tuberculous disease it is very striking, even when the disease otherwise appears to be quiescent.

25. Septic Sores and Nile Boils.—A vaccine prepared from a large number of strains of streptococci isolated from septic sores, combined with a similar series of a peculiar staphylococcus isolated from Nile boils, when given in frequent small doses, in conjunction with surgical measures of which the most important is the early incision of boils, Crowe claims to be of great assistance in the cure of these diseases. Increasing the dose of vaccine after cure is complete prevents relapse.

Bulletin de l'Académie de Médecine, Paris

Oct. 29, 1918, 80, No. 43

- 26 *The Germans at Lille. A. Calmette.—p. 382.
27 Colloidal Arsenic and Silver in Influenza. M. Capitan.—p. 388.
28 *Artificial Pneumothorax for Gangrene of Lung. P. E. Weill.—p. 393.
29 *Gas Gangrene in 1918. Sieur and R. Mercier.—p. 394.

26. German Inhumanity at Lille.—This protest was mentioned in the Paris Letter, page 1929. It is signed by four members of scientific organizations besides Calmette, and specifies a few of the *actes de barbarie* which they witnessed during the occupation of Lille by the enemy. "To list them all," they say, "would fill a volume." The sixty-fourth regiment of Pomeranian infantry, in charge of General Zöllner, during one week last spring selected and deported 10,000 girls and young women from private homes. Almost all the boys from 14 to 18 and the men of 60 to 65 were sent to build dugouts and roads at the front, carry munitions, etc., and the health of many of them has been wrecked, while many died. Leading men and women, to a total of 1,000, were carried off as hostages, Jan. 6 to 12, 1918, the men to Poland, the women to an internment camp in Brunswick. Among the twenty-five who died the first week was Professor Buisine, chief of the chemistry institute. He had heart disease, but the medical major (Dr. Krug) refused to exempt him, saying, "That is not contagious for the German army."

The protest continues: "The high command in Germany willed the war, but the people in arms approved it, and resolutely waged war with the most ferociously cruel means, even the physicians with the army doing the most odious acts without a word of excuse, regret or pity."

28. Pneumothorax in Treatment of Gangrene of the Lung.—Weill has found the outcome infinitely better with a gangrenous process in the lung when air is allowed to enter the chest. This causes the lung to retract, and the contents of the gangrenous focus are expelled in a vomica, after which recovery rapidly proceeds. The pneumothorax should be applied under screen control, and be completed and renewed a few days later. In a few cases he injected nitrogen, but usually air sufficed. It is extremely important to detect and thus treat a gangrenous focus of the kind before it has progressed to invade adjoining tissues, as the pneumothorax is impotent against this eventuality.

29. Gas Gangrene.—Sieur and Mercier report that the improved methods of rapid evacuation of the wounded and early surgical intervention have brought the cases of gas gangrene down to 0.29 per cent. of the wounded at the advanced posts; 0.19 per cent. in the intermediate zone, and 0.30 per cent. in the interior. Gas gangrene developed in the hospitals of the interior only in 0.068 per cent. of the men who had been operated on before. Aside from the wounded lying too long on the field untended and those with shock too severe to permit operation, it seems that gas gangrene can be avoided, even without specific serotherapy. Among the improvements realized is the recognition that crushing of muscle tissues invites gas gangrene, as also ligation of too many arteries. Surgeons now do not shrink from long incisions and extensive resection of lacerated tissues in such cases. Antigangrene serotherapy has already given encouraging results, and it offers legitimate hopes for prophylaxis.

Paris Médical

Oct. 5, 1918, 8, No. 40

- 30 Mild Secondary Syndrome of Measles. P. Nobécourt and C. Richet, Jr.—p. 261.
31 *Early Mobilization in Cases of Wounds. P. Kouindjy.—p. 262.
32 Vaccine and Serotherapy of Epilepsy. P. Guiraud.—p. 265.
33 *Albumin in Urine. L. Bauzil.—p. 269.
34 *Sugar Infusions. L. Duprat and A. Demolon.—p. 270.
35 Cancer of Greater Omentum. M. Haller.—p. 271.
36 Trophic Disturbances in Skin of Legs. R. Weill.—p. 274.
37 *Electric Treatment of Exophthalmic Goiter. Olivier.—p. 275.

31. Early Mobilization After War Wounds.—Kouindjy deplors that joints are still left to grow stiff when the slightest attempt at using the joint might have warded off the ankylosis or the atrophy. In a typical case described, a barbed wire wound of the hand resulted in a felon, and this was given thorough treatment with sunlight and other

measures, but no one heeded that the arm was being carried in a sling unduly long. By the fifth month fibrous ankylosis of the elbow had developed and has proved rebellious to date. Some of the fingers and the wrist are also stiff, and there was considerable atrophy but these have been remedied with time. He has also witnessed cases of ankylosis of the shoulder, after fracture of the radius, and of the ankle after a seton wound of the thigh. On the other hand, he cites some typical instances which demonstrate anew the advantages of early manual mobilization, and how it stimulates consolidation instead of retarding it. Here is a man with merely a felon on one finger, still crippled after five months, while another man with the shaft of the humerus shattered rejoined his company at the front in four and a half months. The shoulder, elbow and wrist were systematically exercised, with traction on the tendon of the biceps, and the different muscles in turn, except the biceps and those of the forearm and hand, were massaged under a jet of hot air. The arm was exercised further with a double pulley and different weights. No mechanotherapy, either active or passive, was applied as this seems to do more harm than good, when there is a tendency to early ankylosis, as in this case.

33. **Albumin in Urine.**—Bauzil determines the proportions of albumin in the urine by comparing the opacity, after addition of trichloroacetic acid, with that of some test solutions.

34. **Sugar Solutions for Infusion.**—Duprat and Demolon spare the kidneys the work of passing through them the large molecules of sugar by having the sugar inverted before it is infused. This ensures also its assimilation, as saccharose or any C_{12} sugar is not utilized but is passed into the kidneys in toto. By inverting the sugar, it can be utilized. In one case of grave insufficiency of the liver, 200 gm. of the isotonic sugar solution was entirely utilized. The formula they give for an isotonic "sugar serum" is as follows: Saccharose, 5.4 gm.; distilled water, q. s. to 100 c.c.; normal solution of hydrochloric acid, 6 drops per 100 c.c. The hypertonic "sugar serum" is the same except that the amount of saccharose is doubled. It is sterilized at 100 C. for forty minutes and then at 110 C. for fifteen minutes. He sterilizes at the same time ampules containing 8 drops of a normal solution of sodium bicarbonate to 1 c.c. As the sugar serum is to be used, the contents of an ampule are added to it, thus neutralizing with 1 c.c. of the bicarbonate solution to each 100 c.c. of the sugar serum.

37. **Electric Treatment of Exophthalmic Goiter.**—Olivier reports two cases for which he bespeaks interest on account of the extreme gravity of the cases—death from inanition or heart failure was only a question of weeks—and the intensity of the electric treatment applied. The applications were with 60 volts and 80 milliampères, with large electrodes fitting well to back and neck. One patient took twenty-seven half hour sittings, the other forty-two, daily at first and later with intervals of a week. The women of 26 and 42 were soon restored to clinical health, and the younger has been successfully carrying on a large farm during the husband's absence with his regiment. Olivier tells them to take occasionally a pill containing a little ipecac, digitalis and opium at times of greatest strain.

Presse Médicale, Paris

Oct. 31, 1918, 26, No. 60

38 *War Nephritis. A. Gouget.—p. 553.

39 Copper Sulphate in Therapeutics. De Hérain.—p. 555.

Nov. 7, 1918, 26, No. 61

40 *Immediate Treatment of Spinal Injury. C. Villandre.—p. 561.

41 Indications for Transfusion of Blood in War Surgery. H. Costantini and M. Vigot.—p. 563.

38. **War Nephritis.**—Gouget analyzes his own experiences with 140 cases of nephritis among 7,256 men that passed through his hospital near the front between October, 1914, and March, 1918. Of the total nephritis contingent, seventy-four came from the infantry; seventeen, artillery, and six were hospital orderlies. Among the ninety-three recent cases, a third were evidently secondary to recent typhoid, gonorrhea, syphilis or chilling, and in five cases it had followed after vaccination against typhoid. In fully two-thirds no special cause could be discovered. This is about the same proportion

as with nephritis in peace times. There is nothing in the clinical course or ultimate evolution of the cases in which they differ from nephritis under other than war conditions.

40. **Wounds of Spine.**—Villandre protests against the pessimistic views held by many in regard to traumatic injury of the spinal cord. A fracture of a vertebra is often assumed to be a severing of the spinal cord, and it is held impossible to send the man to a specialist center. Fracture of a vertebra impairs but very little the solidity of the spine, so that immobilization is not indispensable. The man should be taken to some point where he can get the collaborating care of a neurologist, surgeon and radiologist. From the very first all medical means should be applied to ward off eschars and urinary infection, and at the earliest possible moment everything liable to press on the cord should be cleared away.

Progrès Médical, Paris

Oct. 5, 1918, 33, No. 40

42 Intravenous Injection of Camphorated Oil in Treatment of Shock. F. Ferrari.—p. 337; G. Jeanneney.—p. 340.

Oct. 12, 1918, 33, No. 41

43 *Flatulent Dyspepsia with Exophthalmic Goiter. M. Loeper.—p. 345.

44 Quinin in Prophylaxis of Influenza. R. Tricoire.—p. 347.

45 *Physicians and Poetry. P. Voivenel.—p. 348.

43. **Flatulent Dyspepsia with Hyperthyroidism.**—Loeper states that in four of forty cases of exophthalmic goiter, there was diarrhea and in thirteen cases pronounced dyspepsia. In ten of this latter group there was a tendency to spasm of the esophagus, at different heights. The efforts at swallowing caused much air to be swallowed, and this induced flatulence and meteorism. The air in the stomach may impede its functioning, and there is always a possibility of direct toxic action on the stomach from the disease. Thus both mechanical and toxic factors may cooperate in inducing the type of flatulent dyspepsia in these cases. Improvement is realized by combating the aerophagia and also by operations on the thyroid or other measures to control the hyperthyroidism.

45. **The Nervous Potential.**—Voivenel theorizes that all men are born with an equal *sensibilité, affectivité* or *potentiel nerveux*. It manifests itself in different ways, but, like sap, it has to come up. Charcot, Janet and Freud have shown us the evil consequences of "blocking of the Affect." When the excitation, the potential energy does not find a natural outlet, when it cannot be dissipated in the ordinary routine of life, it finds expression in hobbies, in fads of one kind or another. In physicians, it often finds vent in poetry. "The number of practitioners who tickle the muses is legion." . . . "Most of them hide their identity when they do this, but the physician of the day is a philosopher, a *littérateur* or a poet in heart if not in outward manifestation." Voivenel gives a long list of living French confrères who have won recognition as playwrights, novelists or poets. He concludes his list with Prof. Charles Richet who, he says, "washed off anaphylaxis by plunging into poetry, and carried off one of the best academic prizes from under the noses of the professional poets." . . . "These side issues serve as a drain to their nervous potential. It does not go beyond this *menstruation de l'affect*." . . . "One plants roses, another plants cabbages. Which is worth most? It is a matter of opinion. Ask the caterpillars."

Correspondenz-Blatt für Schweizer Aerzte, Basel

Oct. 26, 1918, 48, No. 43

46 *Resection of Stomach. H. Iselin.—p. 1425.

47 Organotherapy of Menstrual Disturbances. O. B. Socin.—p. 1431.

48 *Tardy Mercurial Exanthem. M. Umansky.—p. 1435.

49 Clinical Demonstration of the Nerve Fibers in the Retina. J. Strebel.—p. 1442.

46. **Resection of the Stomach for Chronic Ulcers.**—Iselin refers in particular to callous ulcer of the lesser curvature and other ulcers nearer the cardia than the pylorus. He is convinced that only a radical operation will guarantee a permanent cure, while this is the only means to ward off malignant degeneration. He reports transverse resection done in thirteen cases, and while de Quervain applied the Billroth II technic and its modifications, Iselin preferred to restore

the stomach to its approximately normal outline, joining the halves left with a circular suture all around. In his seven cases the technic was entirely successful, and he cites similar experiences from the literature, as also experiences with recurrence of disturbances after mere gastro-enterostomy, and especially malignant degeneration. In eight of Iselin's total twenty-one cases the tumor already showed signs of cancer in the resected piece although, in some, clinically and macroscopically there had been no suspicion of malignant disease. In 1915 he resected the stomach for known cancer in nine cases, and in three the cancer had evidently developed from an ulcer, while an exploratory operation in another presented the same findings. There had been disturbances in these cases from six to twenty-four years. One woman after transverse resection in 1914 died later from cancer of the liver; necropsy revealed a carcinoma at the pylorus although the microscopic findings in the excised ulcer had been those of simple ulcer. It is possible that if the Billroth technic had been followed, this other cancer might have been removed also, so that with known cancer the Billroth II or I might be given the preference. It is possible further that the malignant nature of the excised ulcer might have been recognized if a larger piece had been examined under the microscope.

48. Tardy Mercurial Eruption.—Thirty-three days after a vigorous course of mercurial and arsphenamin treatment had been concluded, the man of 33 developed a generalized and severe dermatitis with high fever. By this time there were only traces of mercury in the urine, showing that the eruption could not have been due to cumulative action. Umansky believes that the previous treatment had modified the skin in such a way that an idiosyncrasy developed, although intercurrent functional disturbances of internal organs may have cooperated.

Policlinico, Rome

Oct. 6, 1918, **25**, No. 40

- 50 *The Epidemic of Influenza. T. Pontano.—p. 941.
51 *Epidemic Lethargic Encephalitis. G. Dragotti.—p. 952.
52 The Bipolar Influenza Bacillus not a New Type. M. L. della Vida.—p. 954.

Nov. 10, 1918, **25**, No. 45

- 53 *War Wounds of Nerves. M. Fasano.—p. 1077. Conc'n.
54 *The Bipolar Influenza Bacillus. R. Ciauri.—p. 1080.
55 *Activation of Malaria. E. Vecchia and M. Segre.—p. 1081.
56 *Soldering of Wire for Osteosynthesis. G. Egidi.—p. 1082.
57 *Technic for Cystoscopy. G. Egidi.—p. 1083.

October, 1918, **25**, Medical Section No. 10

- 58 *Medical Treatment of Dysenteric Abscess in Liver. T. Pontano.—p. 289.
59 *Clinical Forms of Malaria. A. Borgherini.—p. 308. Conc'n.

50. Influenza.—Pontano reports from the medical clinic at Rome, in charge of Ascoli, that the bacteriologic findings were negative both in blood and sputum except for the ordinary germs of the air passages. Inoculation of animals was negative. The influenza bacillus was not found. He thinks that the unknown, probably ultramicroscopic, germ of influenza modifies the lungs in such a way that other germs find ready access to the predisposed soil.

51. Lethargic Encephalitis.—The fact that the epidemic of lethargic encephalitis coincided in 1890 with the pandemic of influenza, suggests that it is a localization on the brain of the influenza virus. The disease has appeared anew in the last few months along with pandemic influenza. Both the encephalitis and the influenza commence with a similar onset of catarrhal rhinopharyngitis. Dragotti regards it as identical with the disease known as nona, which was prevalent in Italy at the time of the last pandemic of influenza.

53. War Wounds of Nerves.—Fasano concludes from the experiences in the Italian military hospitals that no time should be lost in thorough examination of men with painful paralysis. Operative relief should be given at once, as this wards off atrophy and ankylosis. When there are no pains, then it is open to discussion whether the gains compensate the disadvantages of operating before the wound is completely healed. During the entire operation, the nerve itself must be continuously flushed with tepid physiologic serum. It must never be left in contact with raw surfaces, but sound muscle or fascia must be drawn around to cover it.

54. The Bipolar Bacillus of Influenza.—Ciauri reports the results of further research on the diplomorphous hemoseptic bipolar bacterium which seems to be connected with influenza as described in these columns recently, p. 1700. Among its peculiarities is the long incubation; sometimes five days elapse before the colonies become unmistakable. The *a* form, gram-positive, stains violet with fuchsin, while the *b* form, gram-negative, stains red. These bacteria were cultivated from sputum, blood and urine from the patients and from agar plates breathed on by the patients at 25, or 40 cm. distance. The only animals tested were rabbits, guinea-pigs and fowls. Some of them developed a slow septicemia and the guinea-pigs showed hypothermia, the rabbits slight hyperthermia, but no macroscopic changes in the viscera. The bipolar bacillus proliferates after exposure to dry heat at 80 C. for one hour, and to the freezing point for five hours. The bacillus shows no further development after an hour of moist heat at 100 C. or exposure to 55 C. for five hours. No effect on the bacterium was evident from fifteen and three minutes' contact with 1 per 200,000 or per 100,000 mercuric chlorid solution. These findings although practically negative in the animals tested, yet harmonize with the epidemiology of the disease and suggest means for prophylaxis. The air around the patient contains the germ even in the absence of droplets, and the disease is shown to be septicemia. The practical conclusions are the necessity for free ventilation through the sick room, and redoubled vigilance, with masks, for the physicians and attendants.

55. Strychnin Activates Malaria.—Vecchia and Segre have noticed that a malarial attack is liable to follow a dose of strychnin, just as it follows chilling or other cause of abrupt reduction of the defensive forces. They found in Albania that men with old latent malaria had a flare-up attack when given strychnin, and that many of them under quinin then seemed to throw off the disease permanently. In certain others, not suspected of malaria, the strychnin brought on a malarial attack. The strychnin was being given for other reasons, mostly to combat asthenia. It stimulates the tissues throughout, and the malaria bacilli seem to be driven out of the tissues by the strychnin. They are thus exposed more effectually to the action of quinin, so that it seems logical to combine strychnin with quinin in treating old rebellious cases of malaria. Their success in twenty such cases they report as particularly interesting. They say in conclusion that a few large doses of strychnin would decide the question finally whether the malaria was absolutely cured.

56. Soldering the Wires in Osteosynthesis.—By this term Egidi means the rebuilding of the shattered bone by fitting all the parts into place and holding them with an encircling wire. The ends of the wire are usually twisted or knotted together, and he here makes a plea to have the ends soldered together instead of twisting them. In all mechanical work, wires are soldered, and nowhere would the advantages be more conspicuous than in the encircling wire of a reassembled bone. To solder a silver wire, he touches the ends where they cross with a pledget barely moistened with zinc chlorid. On this is placed a scrap of tin, and the thermo-cautery is touched to the tin. It melts at once and the wire is firmly soldered. The projecting ends are cut off; if any sharp point is left this can be buried, too, in a droplet of tin. Or a wedge shaped piece of copper can be heated in the flame and the tip pressed on a block of ammonium chlorid and then on a lump of tin. It melts enough of the tin, which sticks to it, and this is then transferred to the wire to be soldered, already treated with the mordant. There are no twisted ends to compress tissue or break at the weakest point. This soldering of the wire has proved especially useful in cases of fracture of the jaw.

57. To Transform Street Electric Current for Cystoscope.—Egidi gives an illustration of a simple home-made device to serve as a rheostat.

58. Medical Treatment of Dysenteric Abscesses in the Liver.—The complete failure of surgical measures, in some cases in Macedonia, encouraged Pontano to rely on medical measures alone. His success in some typical cases related has amply demonstrated that with an ameba abscess the

resulting necrosis of liver tissue must be regarded differently from the ordinary pus of a bacterial process. The products of the protozoan process are reabsorbed under the influence of emetin. His cases illustrate the rapid and complete reabsorption of a vast abscess in the liver, even in a case in which there was known associated colon bacillus infection. In this case the liver was reduced from 22 to 12 cm. above the costal arch in twelve days; the leukocytes dropped from 19,000 to 7,500, and repeated examinations of the stools since seem to indicate that the amebic dysentery and the abscess have both been cured. Exploratory puncture in this case had revealed the colon bacillus while encysted amebas were common in the stools. He reiterates in conclusion that "no operation should be attempted for a dysenteric abscess in the liver until a massive course of emetin treatment has been put through."

59. Clinical Forms of Malaria.—In concluding this long article Borgherini warns that malaria of a pernicious type, as severe as in the tropics, is encountered now in the near Eastern campaign. The attempt to segregate troops with malaria has failed as the numbers are too large for this.

Rivista di Clinica Pediatrica, Florence

October, 1918, **16**, No. 10

- 60 *Morbid Associated Movements in Children. P. Busacchi.—p. 505.
61 Growth and Pathology of Twins. A. Borrino.—p. 521. Commenced in No. 9, p. 474.

60. Synkinesis in Children.—The case of associated movements described was in a boy of 6 with postdiphtheric paralysis. The muscles of the face and hands were drawn up and distorted with each syllable he tried to speak, even the simplest words. There was no lesion in the cortex, and the synkinesis was bilateral—in both of which points the case differs from others on record, Busacchi remarks. The diphtheric toxin while it paralyzed some of the nerves, seemed to have rendered others more excitable. He describes in detail the probable mechanism of pathologic associated movements in such cases, and reviews the literature.

Gaceta Medica de Caracas

Sept. 15, 1918, **25**, No. 17

- 62 Organized Prophylaxis of Venereal Diseases. E. Ochoa.—p. 175.
63 Present Status of Intravenous Bacteriotherapy of Typhoid. E. P. de Bellard.—p. 180.

Revista de la Asociación Médica, Buenos Aires

August, 1918, **29**, No. 165

- 64 *Perforated Chronic Gastric Ulcer. C. I. Allende.—p. 143.
65 Memoirs of Medical Hygienist. E. R. Coni.—p. 158. Cont'n.
66 *Action of Epinephrin on Frog Heart. C. F. Flores.—p. 207.
67 Radiologic Ambulance. C. Heuser.—p. 212.
68 *Lingual Goiter. J. M. Jorge, Jr., and J. Layera.—p. 246.
69 Disarticulation for Chondroma of Femur. N. Tagliavacche.—p. 289.
70 Reflexions on Tuberculosis. J. J. Vitón.—p. 299. Cont'n.
71 Vagotomy. A. Austregésilo.—p. 312.

64. Perforated Chronic Gastric Ulcer.—The four cases analyzed by Allende presented as the principal element for the diagnosis the sudden intense pain in the epigastrium, usually in the midst of apparent health. Insistent questioning will generally reveal symptoms in the past suggesting possible ulceration. The pulse may keep normal or a little below for the first few hours, which may prove misleading. He advises pouring ether into the peritoneal cavity in concluding the operation, with ample drainage.

66. Epinephrin and the Frog Heart.—Flores relates that the heart of the common Argentine frog displays certain physiologic differences from similar animals in Europe and North America. He describes research with epinephrin.

68. Lingual Goiter.—Jorge and Layera report in detail two cases of an aberrant thyroid gland at the base of the tongue. Both patients were young women, and the tumor was resected in each. They discuss the literature on the subject, and tabulate the forty-six other cases on record. During the day there is only slight if any interference with breathing, even when the epiglottis is pushed aside by the tumor. But at night, when the muscles of the tongue relax in sleep, there may be episodes of suffocation in certain positions. The

tumor may escape detection unless an effort is made to arch the tongue at its base; this throws the tumor into view. The laboratory will exclude syphilis and tuberculosis. With any aberrant goiter, it is necessary to determine whether there is any tendency to thyroid deficit before attempting to remove any or part of the tumor. They regard this as so important that they advise an exploratory incision of the normal thyroid before venturing to remove an aberrant thyroid tumor. Whatever technic is followed for removal of the tumor, tracheotomy seems to be indispensable not only to maintain the respiration but for information in regard to the natural thyroid. Two of the total fifty cases were in infants; there was recurrence after operation in six cases, and postoperative myxedema developed in seven. A colored plate shows the aspect of the lingual thyroid in one case. It contained patches of calcareous degeneration in the one case in which the tumor was removed through an incision. In the other case, it was removed through the mouth under local anesthesia. In two cases the natural thyroid was lacking, and symptoms of myxedema contraindicated any operation.

Semana Medica, Buenos Aires

July 18, 1918, **25**, No. 29

- 72 Uterine Fibromas. C. A. Castaño.—p. 69.
73 Multiple Nipples. (Politelia.) C. Lanza.—p. 79.
74 Dynamic Retinoscopy. J. L. Pavia.—p. 88.

July 25, 1918, **25**, No. 30

- 75 Mycotic Flora of Female Genitals. F. A. Deluca.—p. 97.
76 Technic for Film Treatment of Burns. J. M. and M. E. Jerez.—p. 112.
77 Vaccine Treatment of Acne. H. Dasso.—p. 114.
78 Physiologic Phenomena in the Newborn. U. Fernández.—p. 115.

Hospitalstidende, Copenhagen

Oct. 16, 1918, **61**, No. 42

- 79 *Cartilaginous Exostoses. B. Agerholm.—p. 1425. Commenced in No. 41.
80 *Lipomas as Cause of Ileus. J. Lambrechtsen.—p. 1433.

79. Intermittent Painful and Febrile Cartilaginous Exostoses.—The case reported by Agerholm is the fourth case on record in which there were recurring attacks of pain, with fever. Nine cases are cited from the records in which the exostoses were painful and tender at times. It is possible that there may be a very mild process of osteomyelitis involved. In Fischer's case, in a boy of 5, each new exostosis as it developed was accompanied by high fever and pains in the bones. In Pels-Leusden's case the first exostosis developed at the age of 28, each new one appearing with fever, pains, loss of appetite and vomiting (unless the patient exaggerated).

80. Lipomas as Cause of Intermittent Ileus.—Lambrechtsen states that a submucous tumor on a long pedicle obstructed the lumen at the ileocecal junction, causing intermittent ileus in the unmarried woman of 38. In a second case a man of 62 for six years had been having peculiar recurring pains in the abdomen, and vomiting. The intervals were finally only three or four weeks, and the attacks lasted a few hours or days. The symptoms indicated incomplete ileus, and an operation revealed chronic invagination of the upper part of the jejunum entailed by a polypous mucosa tumor. Fully 90 cm. of the bowel were involved in the invagination. He has found records of only fifty-seven similar cases on record, and only thirty-nine were operative cases; the others were casual discoveries. About 50 per cent. were in the large intestine. In a few cases the tumor sloughed off and was eliminated in the stools. In Ninaus' case a stretch, 120 cm. long, was evacuated spontaneously and the patient recovered. The ileus was grave in many cases and from 40 to 50 per cent. succumbed. The prognosis is more favorable when the large intestine alone is involved. In one of his cases there was occult bleeding.

Ugeskrift for Læger, Copenhagen

Oct. 24, 1918, **80**, No. 43

- 81 Habitual Constipation. VII. T. E. H. Thaysen.—p. 1691. To be continued.
82 Papillomatosis in Rudimentary Urethra with External Female Pseudohermaphroditism. P. Vorning.—p. 1701.

JOURNALS ABSTRACTED IN THE CURRENT MEDICAL LITERATURE DEPARTMENT, JULY-DECEMBER, 1918

The following journals have been abstracted in the Current Literature Department of THE JOURNAL during the past six months. Any of the foreign journals, except those starred, will be lent by THE JOURNAL to subscribers in the United States and to Fellows of the American Medical Association for a period not exceeding three days. Only one journal may be borrowed at a time. Requests for periodicals should be addressed to the Library of the American Medical Association and six cents in stamps should be enclosed. This covers the average expense of mailing a journal. Domestic journals can be obtained by sending the approximate amount direct to the respective publishers. Thus most of the journals indexed are accessible to the general practitioner, no matter where he may be located.

- Acta Scholae medicinalis universitatis imperialis in Kioto. Irregular. 1.50 yen. Kioto.
- Amazonas medico. Q. Manaus.
- American Journal of Anatomy. Bi-m. \$7.50. 36th St. and Woodland Ave., Philadelphia.
- American Journal of Diseases of Children. M. \$4. American Medical Association, 535 N. Dearborn St., Chicago.
- American Journal of Insanity. Q. \$5. Johns Hopkins Press, Baltimore.
- American Journal of the Medical Sciences. M. \$5. Lea & Febiger, 706 Sansom St., Philadelphia.
- American Journal of Obstetrics and Diseases of Women and Children. M. \$5. William Wood & Co., 51 Fifth Ave., New York.
- American Journal of Ophthalmology. M. \$10. 7 W. Madison St., Chicago.
- American Journal of Orthopedic Surgery. M. \$4. 126 Massachusetts Ave., Boston.
- American Journal of Physiology. M. \$5. Johns Hopkins Medical School, Baltimore.
- American Journal of Public Health. M. \$3. 126 Massachusetts Ave., Boston.
- American Journal of Roentgenology. M. \$5. 69 E. 59th St., New York.
- American Journal of Syphilis. Q. \$5. C. V. Mosby Co., St. Louis.
- American Review of Tuberculosis. M. \$3. 2419 Greenmount Ave., Baltimore.
- Anales de la Facultad de medicina, Montevideo. Bi-m. \$2. Montevideo.
- Anales de la Facultad de medicina, Universidad de Lima. Bi-m. 6 soles. Lima, Peru.
- Anales del Instituto Modelo de clinica medica. Irregular. Gratis. Buenos Aires.
- Annaes Paulistas de medicina e cirurgia. M. 15 milreis. São Paulo.
- Annales de gynécologie et d'obstétrique. M. 22 francs. Paris.
- Annales de médecine. M. 23 francs. Paris.
- Annali d'igiene. M. 20 lire. Rome.
- Annals of Medical History. Q. \$6. Paul B. Hoeber, 67 E. 59th St., New York.
- Annals of Surgery. M. \$6. J. B. Lippincott Co., 227 S. 6th St., Philadelphia.
- Annals of Tropical Medicine and Parasitology. Q. \$5. Liverpool.
- Archives of Internal Medicine. M. \$5. American Medical Association, 535 N. Dearborn St., Chicago.
- Archives des maladies de l'appareil digestif et de la nutrition. M. 14 francs. Paris.
- Archives des maladies du cœur, des vaisseaux et du sang. M. 22 francs. Paris.
- Archives médicales belges. M. 18 francs. Paris.
- Archives de médecine des enfants. M. 18 francs. Paris.
- Archives de médecine et de pharmacie militaires. M. 40 francs. Paris.
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- Archives of Ophthalmology. Bi-m. \$5. G. P. Putnam's Sons, 2 W. 45th St., New York.
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SOCIETIES

A.—Association.
Acad.—Academy.
Am.—American.
Coll.—College.
Conf.—Conference.
Cong.—Congress.
Conv.—Convention.
Dist.—District.
Hosp.—Hospital.
Internat.—International.
M.—Medical or Medicine.
Nat.—National.
Phar.—Pharmaceutical.
Phys.—Physician.
Ry.—Railway.
S.—Society.
Surg.—Surgical, Surgeon or Surgery.

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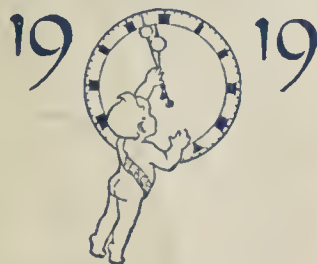
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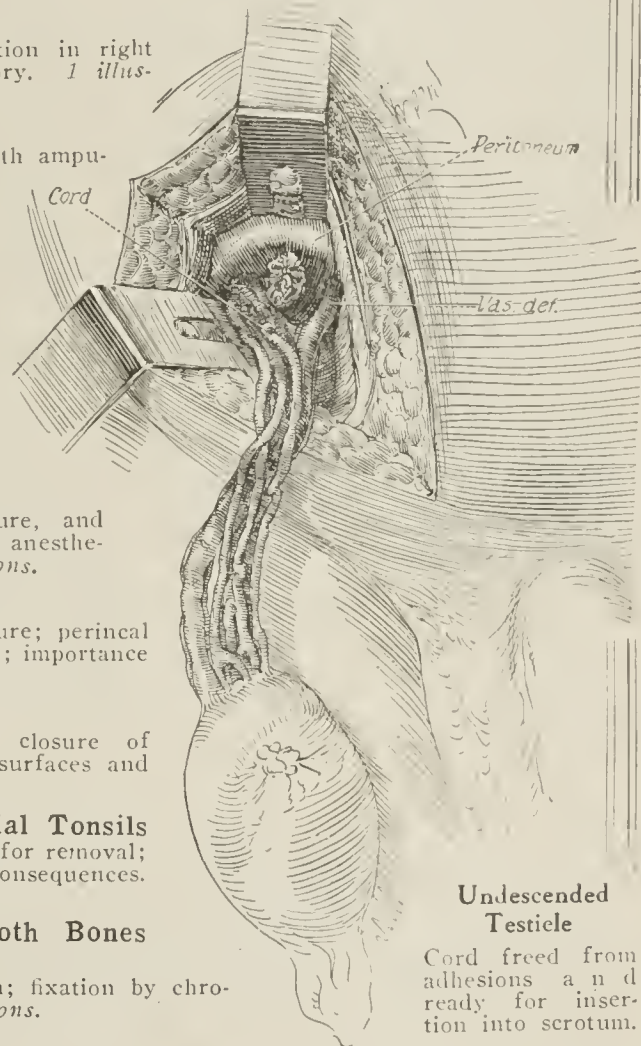
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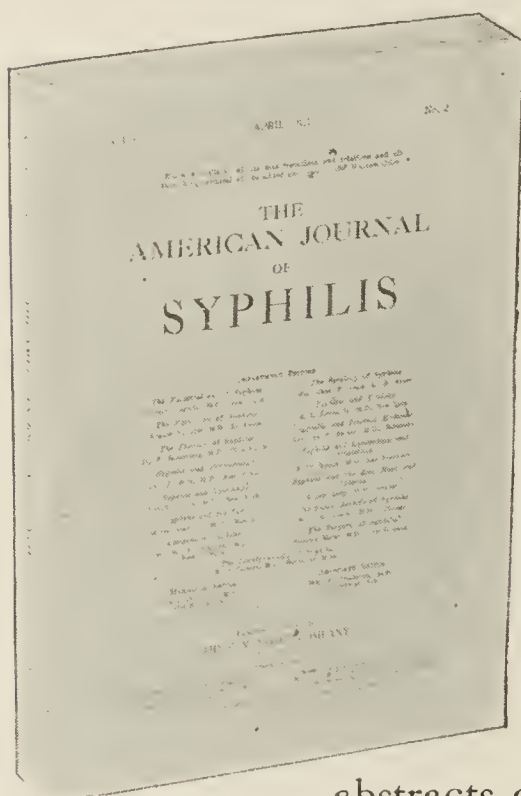
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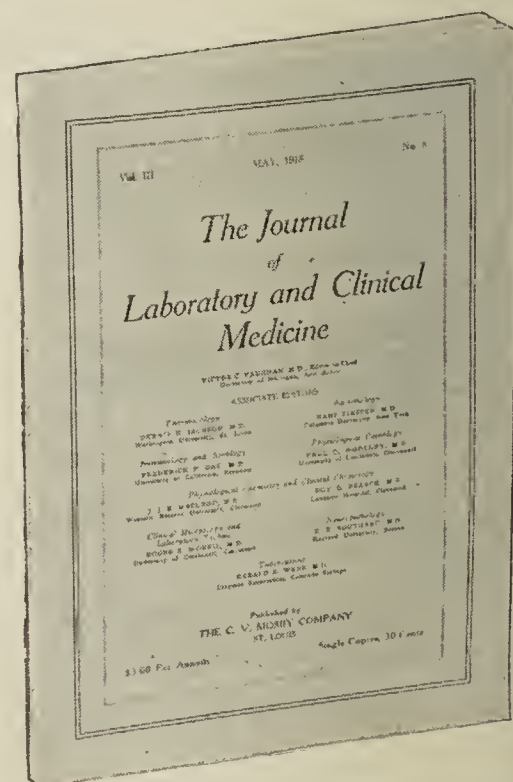
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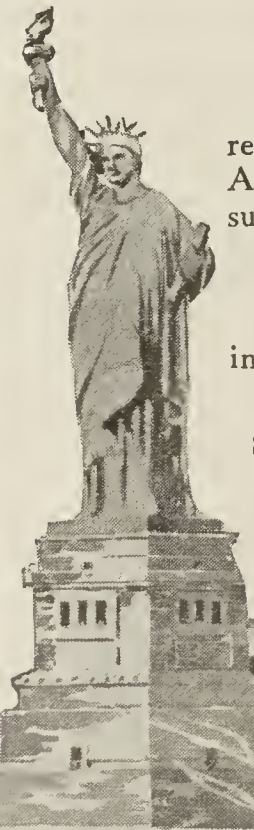

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Arizona Medical Association.....	Wm. A. Holt, Globe.....	D. F. Harbridge, Goodrich Bldg., Phoenix....	Little Rock, 1919
Arkansas Medical Society.....	E. F. Ellis, Fayetteville.....	C. P. Meriwether, 309 S. Tr. Bldg., Little Rock	Santa Barbara, 1919
California, Med. Soc. of the State of	C. Van Zwaluwenburg, Riverside..	Saxton Temple Pope, Butler Bldg., San Francisco	Denver, 1919
Colorado State Medical Society.....	F. H. McNaught, Denver.....	Crum Epler, Pueblo.....	Bridgeport, May 21, 22, '19
Connecticut State Medical Society..	Charles J. Bartlett, New Haven....	J. E. Lane, 59 College St., New Haven.....	
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Florida Medical Association.....	Frederick J. Walter, Daytona.....	Graham E. Henson, Jacksonville.....	Miami, May, 1919
Georgia, Medical Association of.....	J. W. Palmer, Ailey.....	Wm. C. Lyle, 105 Capitol Sq., Atlanta.....	Atlanta, Apr. 17, 1919
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Idaho State Medical Association...	William F. Smith, Boise.....	Ed. E. Maxey, 204 Idaho Bldg., Boise.....	Peoria, May, 1919
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Indiana State Medical Association..	Wm. H. Stemm, North Vernon....	Chas. N. Combs, Terre Haute.....	Des Moines, May 7-9, 1919
Iowa State Medical Society.....	Max E. Witte, Clarinda.....	T. B. Throckmorton, Equitable Bldg., Des Moines	
Isthmian Canal Zone, Med. Assn. of	F. F. Monroe, Ancon.....	L. M. Drennan, Ancon.....	Ottawa, 1919
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Maine Medical Association.....	George H. Coombs, Waldoboro...	B. L. Bryant, 265 Hammond St., Bangor.....	1919
Maryland, Med. and Chir. Faculty of	Wm. S. Halsted, Baltimore.....	John Staige Davis, 1211 Cathedral St., Baltimore	Boston, June 10-11, '19
Massachusetts Medical Society.....	Samuel B. Woodward, Worcester	W. L. Burrage, 42 Eliot St., Jamaica Plain, Boston	1919
Michigan State Medical Society....	A. M. Hume, Owosso.....	F. C. Warnshuis, 531 Powers Bldg., Gr. Rapids..	
Minnesota State Medical Assn.....	G. D. Head, Minneapolis.....	Earle R. Hare, 730 LaSalle Bldg., Minneapolis..	Hattiesburg, 1919
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Nebraska State Medical Association.	J. M. Banister, Omaha.....	Jos. M. Aikin, 466 Brandeis Block, Omaha..	June, 1919
Nevada State Medical Association...	Henry A. Brown, Reno.....	H. J. Brown, Goldfield.....	1919
New Hampshire Medical Society...	Chas. P. Bancroft, Concord.....	D. E. Sullivan, 7 No. State St., Concord....	1919
New Jersey, Medical Society of....	Thos. W. Harvey, Orange.....	William J. Chandler, South Orange.....	
New Mexico Medical Society.....	John W. Kinsinger, Roswell.....	R. E. McBride, Las Cruces.....	Syracuse, May 6, 1919
New York, Med. Soc. of the State of	Thos. H. Halsted, Syracuse.....	Floyd M. Crandall, 17 West 43d St., N. Y....	Pinehurst, Apr. 15, 1919
N. Carolina, Med. Soc. of the State of	Cyrus Thompson, Jacksonville....	Benjamin K. Hays, Oxford.....	Grand Forks, 1919
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South Carolina Medical Association.	James A. Hayne, Columbia.....	Edgar A. Hines, Seneca.....	1919
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Utah State Medical Association....	G. W. Middleton, Salt Lake City	Wm. L. Rich, Boston Bldg., Salt Lake City....	
Vermont State Medical Society....	Clayton W. Bartlett, Bennington.	W. G. Ricker, St. Johnsbury.....	
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West Virginia State Med. Assn....	Robt. J. Reed, Wheeling.....	J. Howard Anderson, Marytown.....	
Wisconsin, State Med. Society of...	D. J. Hayes, Milwaukee.....	Rock Sleyster, Waupun.....	Thermopolis, Sept. 10-11, '19
Wyoming State Medical Society...	W. V. Gage, Worland.....	J. R. A. Whitlock, Powell.....	

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WANTED — ASSISTANT PHYSICIAN IN A state hospital for the insane, Middle West; Class A graduate, single; salary \$1,200 per annum and maintenance; good opportunity for advancement. Add. 5285 B, % AMA.

PHYSICIANS WANTED

WANTED — STAFF PHYSICIAN FOR state hospital service; please state age, school of graduation, experience, references and nationality in first letter. Add. 5278 C, % AMA.

(Continued on next page)

WANTED—PHYSICIAN AND SURGEON for Chicago manufacturing establishment; an exceptional opportunity for capable man; preferably man about 30 years of age and one who has recently completed hospital internship; give references and complete information in first letter. Add. 5253 C, % AMA.

WANTED—PRACTITIONER FOR NORTH Cape, Wis.; unopposed; nothing to buy; leaving account health; excellent opportunity for permanency; last two years between \$4,000 and \$5,000; collections excellent; come immediately. C

WANTED—PHYSICIAN — ABLE-BODIED man, eye, ear, nose and throat work in institution; at times help general practice; registered New York or reciprocate or take board due time; satisfactory salary, permanent position; state training, experience, religion, age, whether married or single; full particulars first letter. Add. 1732, % F. V. Kniest, Bee Bldg., Omaha, Neb. C

WANTED—A THOROUGHLY QUALIFIED internist to take charge of the department of internal medicine in a hospital of 170 beds located in an industrial city of Pennsylvania; clinical laboratory attached to the department; good salary and fine prospects. Add. 5252 C, % AMA.

WANTED — PHYSICIAN AND SURGEON in town of 1,000, 50 miles from Chicago; county seat; in wealthy farming community; succeeding practice of 40 years; good drug stores; comfortable modern office on ground floor; good optical business can be included; some office equipment can be furnished; give particulars first letter; age, family, school, how soon locate. Call on or write to Mrs. R. A. McClelland, Yorkville, Ill. C

WANTED—PHYSICIAN TO LOCATE IN mountain town; altitude 3,850 feet; good tuberculosis resort; population 500 people, not including surrounding territory; good opportunity for some doctor wishing to locate in a healthful climate. For further information add. H. M. Bascom, Mayor, Highlands, N. C.

WANTED—RESIDENT PHYSICIAN, SIN- gle, at Milwaukee County Hospital for Mental Diseases; salary \$120 a month and maintenance. Apply Superintendent, Milwaukee County Hospital, Milwaukee, Wis. C

WANTED — IOWA TOWN OF 16,000— Physician for eye, ear, nose and throat practice; nothing to buy, but must be competent and furnish first-class references; strictly modern and well-equipped office; practice will amount to about \$25,000 yearly; partnership to start; prospects of assuming entire practice; fine schools, churches; good roads; two hospitals; reason for contemplated change, poor health. Add. 5214 C, % AMA.

WANTED — LONG ISLAND COLLEGE Hospital, Brooklyn, N. Y.; a resident fellow in the department of genito-urinary diseases and syphilis (60-bed service); vacancy to be filled at once; salary \$600 a year and maintenance; must be a hospital graduate with surgical training. Add. H. H. Morton, M.D., 32 Schermerhorn St., Brooklyn, N. Y. C

WANTED — PHYSICIAN — FIRST-RATE opportunity in central Pennsylvania town of 14,000 for a physician, particularly for a woman, to continue practice of a woman physician permanently disabled by accident; opening is not for sale, but is without cost. See adv. under Apparatus for Sale signed: Accident, Box 214, Carlisle Pa. C

WANTED — UROLOGIST CAPABLE OF doing cystoscopic work in a progressive city; state qualifications and salary desired; position open immediately. Add. 5210 C, % AMA.

WANTED—PHYSICIAN IN MINNESOTA town of 500 and large rich country; modern improvements; on main road; practice established 15 years; nothing to buy; runs \$5,000 yearly; collections good. Add. 5188 C, % AMA.

WANTED — RECENT GRADUATE OR young man leaving army to take over part of a village and country practice in New England for one or two years; nothing to furnish except automobile; offices and equipment, including light and heat, free; give age, married or single, nationality, first letter. Add. 5193 C, % AMA.

INTERNS WANTED

WANTED—JUNIOR RESIDENT — \$600 A year and maintenance. Add. Sanatorium of the Jewish Consumptives' Relief Society, Edgewater, Colo. D

(Continued on next page)

Tonics and Sedatives

*Each year some swear off drinking
And shout, "I've had enough!"
Before July has come around
They're trifling with the stuff.
This year again they'll take the pledge,
And swear off as of yore.
But they won't drink booze next July—
There won't be any more!!*

One More and Three Less

From the Zealring (Ia.) News

Last Tuesday while Mrs. Henry Hoberland was standing on a chair reaching for something on a shelf the chair tipped and struck her in the side, one rib was broken and three others were cracked. She has been suffering much pain since.

THE OLD SAYING

Dyer—"Is Dr. Deum well up in his profession?"

Ryer—"What he doesn't know about medicine would fill a cemetery."—Judge.

The Evil of Personal Nomenclature

From the St. Peter (Minn.) Tribune

David Ross Purrier peacefully passed to his eternal rest on Monday evening at 7:42 at the home of his wife's parents, Mr. and Mrs. R. W. Lamberton in St. Peter. The immediate cause of his death was hemorrhage of the stomach, superinduced by Hopkin's disease.

WINTER

*Winter brings the snow and sleet;¹
Winter brings the smoky smell;²
Winter brings us frigid feet—³
Isn't winter hell?⁴*

1. Not yet.
2. Lots of it.
3. Literally speaking.
4. I'll say so.

A GOOD PROGNOSIS

"And what did you say the patient did," asked the doctor, "when you ripped off the dressing?"

"Swore, doctor!" exclaimed the nurse. "He swore frightfully!"

"Splendid, nurse! I reckon you can let him sit up to-morrow!"—*Richmond Times-Dispatch.*

SOLDIERLY TALES

From Judge

THE LIBERATOR

By Sea. Bill McIntyre, U. S. N.

She (going through base hospital at Pelham Bay)—What happened to that poor sailor who has his arm in a sling?

Wise Hospital Apprentice—Oh! he broke his arm trying to lift the quarantine off the camp.

APPLIED LOGIC

By Pvt. Kenneth Huffaker, 8th Ord. Supply Co., Raritan, O. T. C., N. J.

A colored sergeant while drilling a squad of dusky-hued lads at Camp Jackson had one boy who could not or would not stand at attention. After exhausting his patience and vocabulary on the erratic one, he secured a two-by-four from a woodpile nearby and started toward the boy.

"Man!" cried the lad. "Whut yo' gwine do wid dat stick?"

"Niggah, I'm either goin' to stand you to attention, or lay you to attention!"

TONGUE LIMITATIONS

By Corpl. T. W. Cullen, Prov. Field Hospital, Co. C, Ft. Riley, Kansas

Officer (at medical inspection)—Say a-a-a-ah!

Tony—No speak-a de English!

(Continued on next page)

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R. B. H. Gradwohl, Director.

TONICS AND SEDATIVES

(Continued from preceding page)

SOME RESOLUTIONS THEY
WON'T KEEP

- The Lawyer.*—To take only cases which he is sure are just.
- The Minister.*—Sermons limited to fifteen minutes.
- The Doctor.*—To prescribe only medications which he knows have definite action.
- The Pretty Girl.*—Not to look in her mirror more than twice daily.
- The Stenographer.*—To look up every word which she can't spell.
- The Office Boy.*—Not to whistle.
- The Apothecary.*—Not to offer something just as good.
- The Golfer.*—To be accurate as to score and distance of drive.

*A wise old bird was Freddy Jacks,
On solemn things intent;
He'd listen long to hear the facts,
But short for argument.*

As She Is Written

Reports on Spanish Influenza published in the Province of Quebec

One of the most severe epidemy in the history of Canada is now raging in our province. Everywhere our medical men, victims of duty, fall in its path.

Professors in medical schools, internes in hospitals, city, country and military physicians, nurses, in all our ranks, death sweeps without respite.

Desolated with all these loses, we nevertheless bow before the inevitable, ever ready to sacrifice our lives for the sake of others.

The Executive Board of the College of Physicians and Surgeons of the Province regards it as a duty, at this critical time, to enumerate briefly a few scientific truths, often times recalled by the Central Board of Health, and to give its members a few practical advices, hastily gathered by the most authorized physicians, during this epidemy.

There is really no special prophylaxis against that disease, except antiseptics of mouth and nose.

* * * * *

The germs carry at arms length and seldom further: on that account crowds and congested places should be avoided.

* * * * *

The germs leave the body by direct or indirect contact.

As soon as fever has lowered, and it invariably does after the first cares have been given, insist upon patient staying in bed following the same liquid diet (broths, milk, pure or diluted or curdled, infusions, waters, numeral and plain, strained soups, brewis,) during at least eight days from the time the temperature has become normal.

The chill of convalescence and the recrudescence of symptoms appear only in those, who, thinking they are cured, get up too soon to go back to work, or simply to take a walk.

Clinical experience establishes the fact that the majority of fatal cases were not so at the start.

* * * * *

In these times of epidemy we must redouble with prudence.

Is it necessary to add that rest is not for us, at these times?

*Ring out the old,
Ring in the new;
Ring in the cold,
Ring out the "flu."*



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Those interested in perfecting surgical skill in minimum time should write for descriptive folder.

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Covering diagnosis of Tumors and Uterine Curettements; lectures to be illustrated with stereopticon and practical exercises on 500 slides. Reservations for this course should be made in advance. First lecture in the course will be given Jan. 6, 1919

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100, 45c; 500, \$1.75; 1000, \$3.25

Calcreose and Iodin Tablets.

100, 45c; 500, \$1.85; 1000, \$3.50

Calcreose-Iodin Infant Tablets.

100, 23c; 500, 70c. 1000, \$1.30

The Maltbie Chemical Co., Newark, N.J.

(Continued from preceding page)

WANTED — TWO WOMEN INTERNS— Splendid opportunity to learn obstetrics, pediatrics, medicine and surgery. Apply Surgeon-in-Charge, Amer. Hosp., 850 Irving Park Blvd., Chicago, Ill. D

WANTED—LARGE GENERAL HOSPITAL, Central West, over 300 beds, all departments represented, 70 per cent. surgical, rotating service of one year, has vacancies for resident interns; six months junior, six months senior; latter term with expense allowance. Add. 5280 D, % AMA.

WANTED — INTERNS — AT LYING-IN hospital of city of New York; outdoor service; graduates of recognized medical colleges or students who have completed the fourth year and are awaiting a year of hospital service before graduation; four months' service; \$45 monthly and full maintenance. Apply to Superintendent, 307 Second Ave., New York, N. Y. D

APPOINTMENTS

New York Eye and Ear Infirmary

Examinations for the following vacancies will be held at the NEW YORK EYE AND EAR INFIRMARY, Second Avenue and Thirteenth Street, Friday, Feb. 7, 1919, at 3 p. m.

OPHTHALMIC DEPARTMENT

Junior Assistant to House Surgeon; service sixteen months, with living in the Infirmary.

AURAL DEPARTMENT

Junior Assistant to House Surgeon; service sixteen months, with living in the Infirmary.

The examination will cover the ground of general medicine and surgery.

Candidates having general hospital experience are preferred.

THE NEW YORK EYE AND EAR INFIRMARY is the oldest and largest Institution in the city devoted to the special treatment of eye and ear diseases, as is shown by the following statistics:

Average number of eye cases treated annually, 31,000.

Average number of ear cases treated annually, 16,000.

Average number of operations performed annually in the Eye Department, 5,500.

Average number of operations performed annually in the Ear Department, 4,500.

For application blanks address THOMAS K. ROBERTSON, Superintendent, 218 Second Avenue, New York City.

EXAMINATIONS WILL BE HELD AT the Woman's Hospital, New York City, Jan. 22 and Jan. 23, 1919, for six appointments on the house staff, the successful candidates to report for duty Feb. 1, 1919. Candidates must be graduates of medicine, preferably with hospital experience, and must present satisfactory credentials. Term of service one year, divided as follows: 4 months junior assistant house surgeon; 4 months senior assistant house surgeon; 4 months house surgeon. The junior assistant house surgeons serve two months in the obstetrical department. For further information applicants should apply to Dr. Dougal Bissell, Secretary of Medical Board, Woman's Hospital, 141 West 109th St., New York City.

OVERSEAS MEDICAL SERVICE — THE

Committee for Armenian and Syrian Relief is sending an expedition to Turkey for reconstruction work. Many hospitals are to be rehabilitated and a staff of 25 physicians is required, a few vacancies still remain. Salary equivalent to maintenance and expenses. The expedition will sail about the middle of January. Service, one year. Only those with hospital experience in surgery and medicine and interested in war reconstruction work are desired. Apply at once, giving full particulars as to age, experience, training. Only native-born American citizens can secure passports. Dr. George E. Washburn, 238 Commonwealth Ave., Boston, Mass. A

DENTISTS WANTED

WANTED — SPLENDID OPPORTUNITY for qualified dentist; no objection to young man if he is a hustler; a fine large agricultural territory in northeastern South Dakota. E. J. Stoebe, White Rock, S. D.

(Continued on next page)

PRIZE ESSAY

THE CARTWRIGHT PRIZE OF THE ASSOCIATION of the Alumni of the College of Physicians and Surgeons, Medical Department of Columbia University, New York. This biennial prize of \$500, open for universal competition, will be awarded at Commencement, 1919. If no one one of the competing essays is deemed sufficiently meritorious, the prize is not awarded.

An essay, in order to be held worthy of the prize, must contain the original investigations made by the writer. This prize is not awarded to an essay which is the work of more than one author, or which is at the same time submitted for another prize, or which has been previously published in any form either in whole or in part. It must be on a medical, surgical or kindred subject. Each competitor is required to send with his essay a statement that these requirements have been complied with. Essays in competition for this prize must be sent to the undersigned on or before April 1, 1919. Competing essays must be in typewriting and they must be in English, marked with a device or motto, and accompanied by a sealed envelope similarly marked containing the name and address of the author. The payment of the prize money to the successful essayist will be made on his filing with the treasurer of this association a printed copy of the essay. In 1920 the Alumni Prize will be offered. The requirements of this are the same as those of the Cartwright prize, excepting that competition is restricted to P. & S. Alumni: H. E. Hale, M.D., Secretary of the Association of the Alumni of the College of Physicians and Surgeons, 64 West 50th St., New York City.

LAB. TECHNICIAN WANTED

WANTED—MAN OR WOMAN FOR X-RAY and laboratory work; also an experienced superintendent with executive ability. St. John's Hospital, Fort Smith, Ark. V

WANTED — TECHNICIAN FOR X-RAY laboratory, Hamilton General Hospital, Hamilton, Canada; state experience and salary expected. Add. W. F. Langrill, Medical Superintendent. V

NURSES WANTED

NURSES FURNISHED FOR ANY KIND work any where. Quick service; also attendants, institutional employees, office help, etc. F. V. Kniest, Bee Bldg., Omaha, Neb.

WANTED — SUPERINTENDENTS — SURGICAL and general duty nurses, etc.; send for free book. Aznoe's Central Registry for Nurses, 30 N. Michigan Blvd., Chicago.

LOCATIONS WANTED

WANTED—LOCATION BY ROENTGENOLOGIST with first-class qualifications; good personality; expecting discharge from the army; will go anywhere and work in hospital or with company of doctors; references exchanged. Add. 5256 E, % AMA.

WANTED—LOCATION — BY PHYSICIAN 35 years old; also consider position or assistantship. What have you to offer? Prefer practice with some appointment, but consider others; consider Indiana, Illinois, Michigan, Ohio, Kentucky, Pennsylvania, Missouri; give full particulars of what you offer in first letter. Add. 1728, % F. V. Kniest, Bee Bldg., Omaha, Neb. E

WANTED — PHYSICIAN RECENTLY RELEASED from government service desires location in Wisconsin city 20,000 or over; would consider buying some equipment but no real estate; give full particulars. Add. 5259 E, % AMA.

WANTED — SUITABLE LOCATION FOR small private sanitarium and institute of physiologic therapeutics in middle western states; might rent or buy institution now operating. Add. 5262 E, % AMA.

WANTED—TO PURCHASE IN WESTERN state, practice which carries insurance or contract work; no real estate; describe fully roads, surrounding country; competition and amount and character of practice. Add. 5272 E, % AMA.

WANTED—LOCATION—WILL SOON BE out of the army; am looking for good location or contract work; graduate A1 school; 2 years' hospital; aged 32, married; can do major surgery. Add. 5254 E, % AMA.

(Continued on next page)

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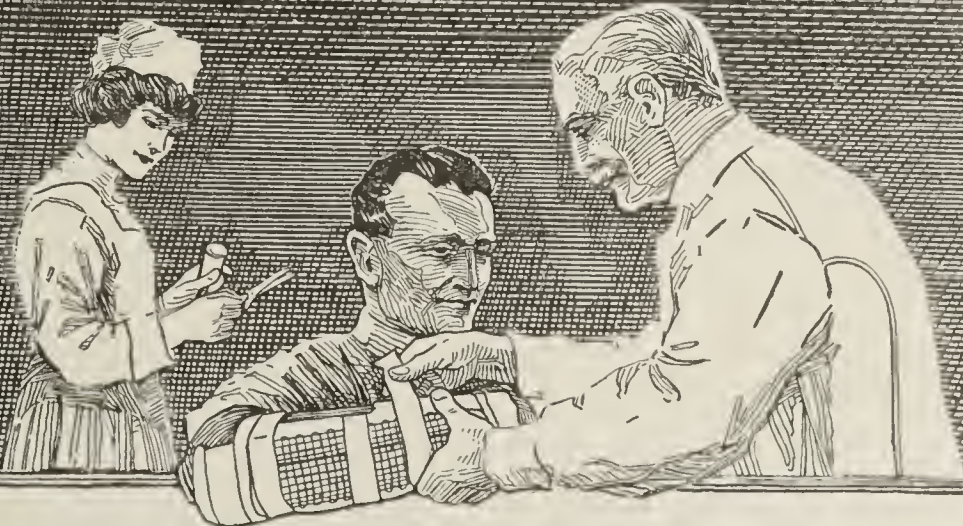
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WANTED — LOCATION BY DERMATOLOGIST; practice limited to dermatology, syphilology, therapeutic x-ray; eminently qualified, extensive experience; sixteen months chief service dermatology and syphilology army base hospital; will consider affiliation with organization of physicians. Add. 5261 E, % AMA.

WANTED—LOCATION—WISCONSIN, INDIANA OR ILLINOIS; physician, aged 40; first-class university graduate; 2½ years' internship A1 hospital; 10 years' experience one locality; surgery and general practice. Add. 5246 E, % AMA.

WANTED — MONTANA — LIEUTENANT in Medical Corps, retiring from Army, wishes a location in Montana town with good surrounding territory, where a physician is needed; willing to buy auto and some equipment; licensed in Iowa, North Dakota and Montana. Add. 5264 E, % AMA.

WANTED — EYE, EAR, NOSE AND throat practice; ready to buy at once if suited; also consider a partnership or assistantship in that line of practice. Add. 1726, % F. V. Kniest, Bee Bldg., Omaha, Neb. E

WANTED — GEORGIA LOCATION IN town of 2,000 to 10,000 inhabitants; have been in general practice 15 years; reason, change of climate. Add. 5258 E, % AMA.

WANTED — NEW JERSEY LOCATION, with practice, in exchange for bearing grove in lovely southern Florida, where there is a good opening for physician. Add. 5196 E, % AMA.

WANTED — CONTRACT — PHYSICIAN and surgeon; industrial surgery; 10 years' experience x-ray and mine surgery; employed at present by large coal company; best references; aged 37. Add. 5243 E, % AMA.

WANTED — EYE, EAR, NOSE, THROAT practice or partnership in Wisconsin or Illinois; will consider property. Add. 5186 E, % AMA.

WANTED—BY ARMY CAPTAIN, LOCAT- ion in Wisconsin or Iowa; general practice, institutional or contract work; particulars in first reply. Trauman Apt., No. 2, 14th and Park Road, Washington, D. C. E

WANTED — CONTRACT OR PRIVATE practice in Utah, Nevada, Colorado, Kansas, New Mexico, Texas, Oklahoma; aged 40; reference best; do surgery; prefer mining; available after 10th; state price first letter. Add. 5158 E, % AMA.

HOSPITALS WANTED

WANTED—GRADUATE NURSE WISHES to lease small hospital in state of California. Add. 5249, % AMA.

PARTNERS WANTED

WANTED—PARTNER TO BUSY MAN IN general practice, with view of taking over all general work; expect to specialize; population 30,000; location Arizona; send photograph and all particulars in first letter. Add. 5237 G, % AMA.

PARTNERSHIP WANTED

WANTED — CHIEF OF SURGICAL SER- vice large war hospital desires partnership with general surgeon; eighteen months in army and seven years in civil hospital; rank major. Add. 5266 H, % AMA.

WANTED—BY EXPERIENCED SURGEON, association with group or with well-established physician, California preferred; proposition must be a good one; no real estate sales considered. Add. 5277 H, % AMA.

WANTED — PARTNERSHIP WITH SUR- geon or physician doing surgery; will consider assistantship with surgeon; am just out of army; aged 32, graduate 1912 A+ school; also college A.B.; Protestant, married, no children; 6 foot; perfect health; internship; large hospital; year with surgeon; working knowledge all laboratory work. Now doing post graduate work. Add. 5274 H, % AMA.

WANTED—PARTNERSHIP OR LOCATION with group of physicians in need of competent eye, ear, nose and throat man; would consider buying practice; one year hospital training; capable operator; laboratory experience; will come for interview and demonstrate work. Add. 5209 H, % AMA.

Qui Vive

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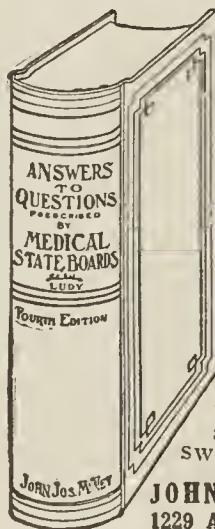
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"Credit to whom credit is due," is a good rule in answering advertisements.

WANTED — PARTNERSHIP OR LOCAT- ion. Major, chief of service large war hospital desires association with ophthalmologist as otolaryngologist; do also brain and neck surgery. Add. 5267 H, % AMA.

SITUATIONS WANTED

WANTED — BY YOUNG WOMAN WITH several years' experience in general and dental radiography, position in hospital as x-ray technician; central or western states preferred. Add. 5257 I, % AMA.

WANTED—POSITION — CAN REGISTER in many states; aged 35; graduate Class A school; internship 16 months; about two years' general practice; accident work experience; do some major surgery; able to practice among foreign element if necessary; total abstainer drugs, liquor, tobaccos; do ordinary laboratory work; give anesthetics. Add. 1728, % F. V. Kniest, Bee Bldg., Omaha, Neb. I

WANTED—BY WELL-TRAINED WOMAN physician who has been doing war work, permanent position to do medical work for women employees of large incorporation in the east; all or part time; first-class experience and references. Add. 5282 I, % AMA.

WANTED—PHYSICIAN, 48, GRADUATED 1892, 1903, desires salaried position with lumber or mining company or tuberculosis sanatorium; best of reference; general practitioner 18 years; 4 months' infirmary practice in Medical Corps; Tennessee or reciprocity. Add. 5250 I, % AMA.

WANTED — ASSISTANTSHIP TO GEN- eral surgeon; plenty work; opportunity for advancement; preferably some western state; do major surgery; 14 months' active service; pleasing personality; Catholic, aged 28, married; registered Montana; best reference. Add. 5284 I, % AMA.

WANTED—POSITION — M.D. AND B.A. degree, aged 53; registered three states; reciprocity in others; good health, good habits; do general surgery; fine accident and emergency surgery; experience; had one position 15 years and looked after 3,000 men; can handle almost any kind of assistantship; married; one child. Add. 1733, % F. V. Kniest, Bee Bldg., Omaha, Neb. I

WANTED—WOULD LIKE THE CARE OF private patient south for the winter; have had experience; also general practice and sanatorium work; can give good reference. Add. W. T. Barver, Hilbourne Club, Katonah, N. Y. I

WANTED — LABORATORY POSITION BY woman technician, familiar with routine work, including urinalysis, cultural diagnosis, blood counting and tissue sectioning. College graduate. Army experience. Add. 5273 I, % AMA.

WANTED—POSITION AS CORPORATION surgeon, assistant to surgeon, roentgenologist, locum tenens; eighteen months surgical internship; 6 months special instruction roentgenology; five years practice; army sixteen months; married; age 32. Add. 5271 I, % AMA.

WANTED — ASSISTANTSHIP TO EYE, Ear, Nose and Throat man, graduate A1 school; 14 years' experience in general practice and eye work; good refractionist. Add. 5269 I, % AMA.

WANTED — SURGICAL INTERNSHIP, three months busy service; had one year general internship, five years general practice; prefer eastern state; registered middle west. Add. 5268 I, % AMA.

WANTED — POSITION AS DIRECTOR industrial corporation; teaching and administration of personal hygiene, first aid, accident prevention, original methods, reduce rates of mortality and morbidity profitably; do routine; all qualifications and recommendations. Add. 5248 I, % AMA.

WANTED—POSITION AS PATHOLOGIST —Eight years' experience in general pathology, autopsies, surgical diagnosis, bacteriology, serology, clinical microscopy, research work, teaching; graduate of A plus school; third classification of draft; prefer moderate sized hospital. Add. 5087 I, % AMA.

WANTED—POSITION AS ASSISTANT OR partner; graduate from A1 school; one year internship in general hospital; five years in mining contract work; references given. Add. 5116 I, % AMA.

(Continued on next page)

WANTED — SALARIED POSITION OR contract work by P. A. surgeon in Navy; Pennsylvania or Florida preferred; aged 38, married; out of active service soon. Add. 5238 I, % AMA.

WANTED — POSITION — BACTERIOLOGIST and serologist; woman physician, graduate A plus college; several years' excellent experience, including considerable research; pathology, roentgenology and public health work. Add. 5217 I, % AMA.

WANTED—POSITION BY DOCTOR EX-perienced in mining camp practice; working knowledge of Spanish; prefer Arizona, California or New Mexico. Add. 5219 I, % AMA.

WANTED—POSITION WITH LARGE IN-dustrial concern in Chicago or vicinity; have had valuable experience and am interested in industrial work; \$2,400 to start. Add. 5106 I, % AMA.

WANTED—SITUATION — INDUSTRIAL or hospital position; at present with industrial hospital; good dispensary experience and all-around man; 28 years old, reliable and capable; replies confidential. Add. 5207 I, % AMA.

WANTED—SITUATION — YOUNG PHYSI-cian just released from army desires position; graduate Class A school; 2 years' internship surgical division, general hospital, New York; able to do major surgery. Add. 5179 I, % AMA.

WANTED—PHYSICIAN, AGED 41, GRAD-uate of A1 school, class 1905, desires salaried position in hospital or sanatorium; best of references; services available at once; mild climate preferred but not essential. Add. 5154 I, % AMA.

WANTED—SALARIED POSITION WITH lumber or mining company in Wisconsin or Michigan; graduate of Jefferson Medical; single; good personality; experienced in hospital and contract work. Add. 5159 I, % AMA.

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WANTED — GRADUATE NURSE SPEAK-ing English and Scandinavian, desires position institution or assistant to surgeon; can furnish references and photo if necessary; well experienced as superintendent, general and surgical nurse; wish to know salary, population, character of work, size institution, number beds, character of work offered and full details. Add. 1727, % F. V. Kniest, Bee Bldg., Omaha, Neb. W

WANTED—BY GRADUATE NURSE WITH 12 years' experience in hospital management, position as superintendent in small hospital; salary less than \$85 per month not considered. Add. 5281 W, % AMA.

WANTED — GRADUATE REGISTERED nurse with executive ability desires position as superintendent of small hospital; references exchanged. Add. 5235 W, % AMA.

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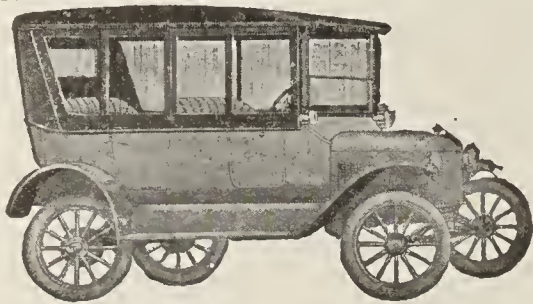
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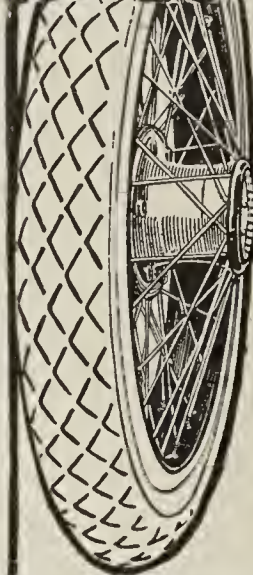
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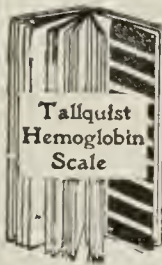
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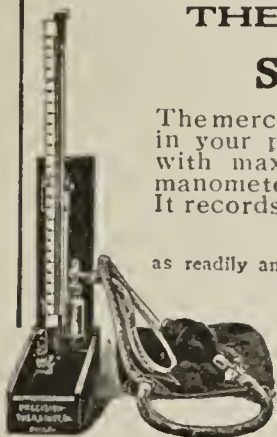
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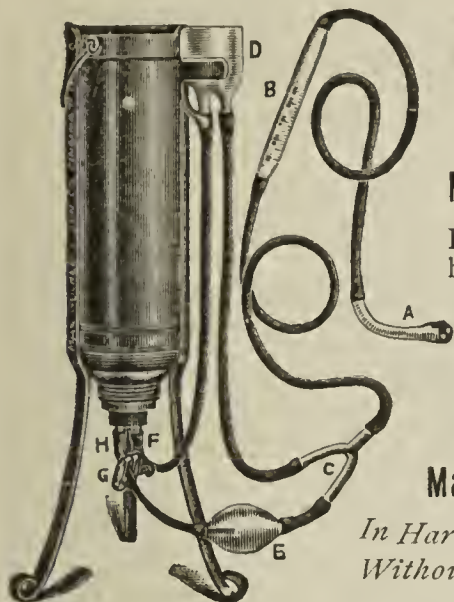
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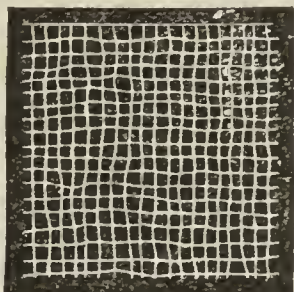
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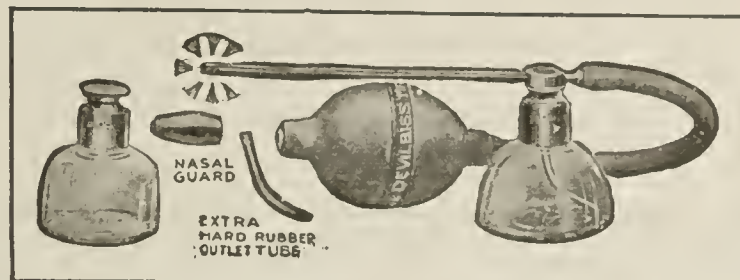
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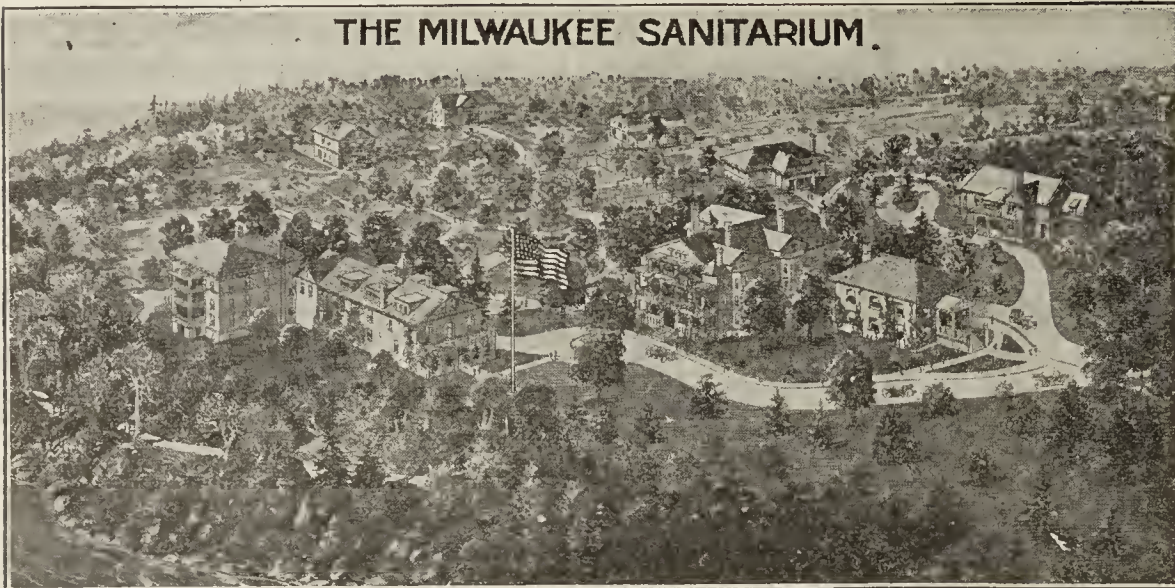
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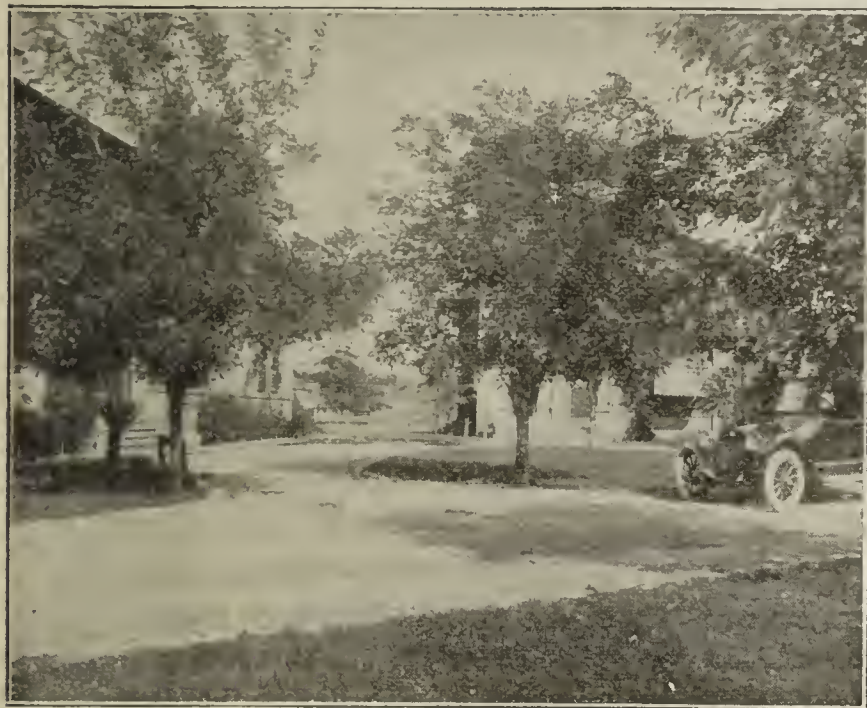
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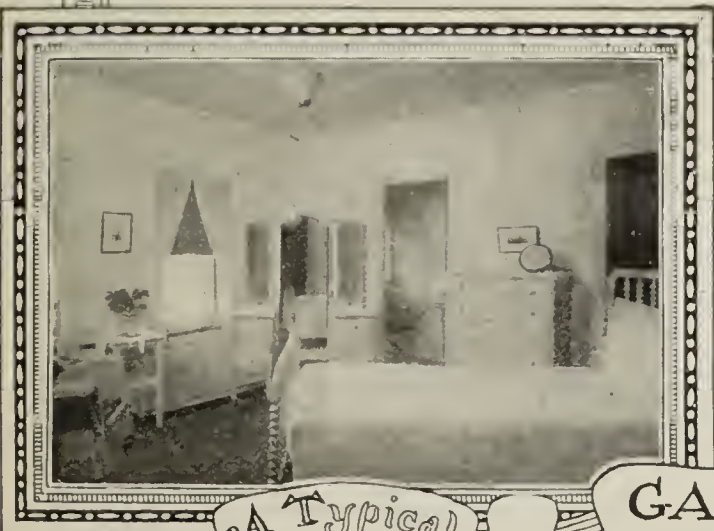
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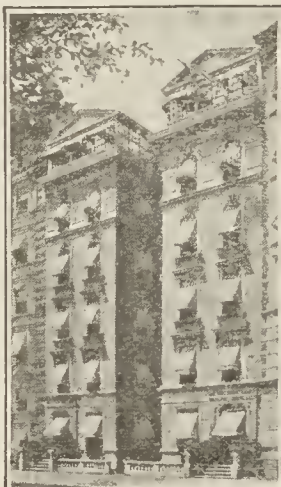
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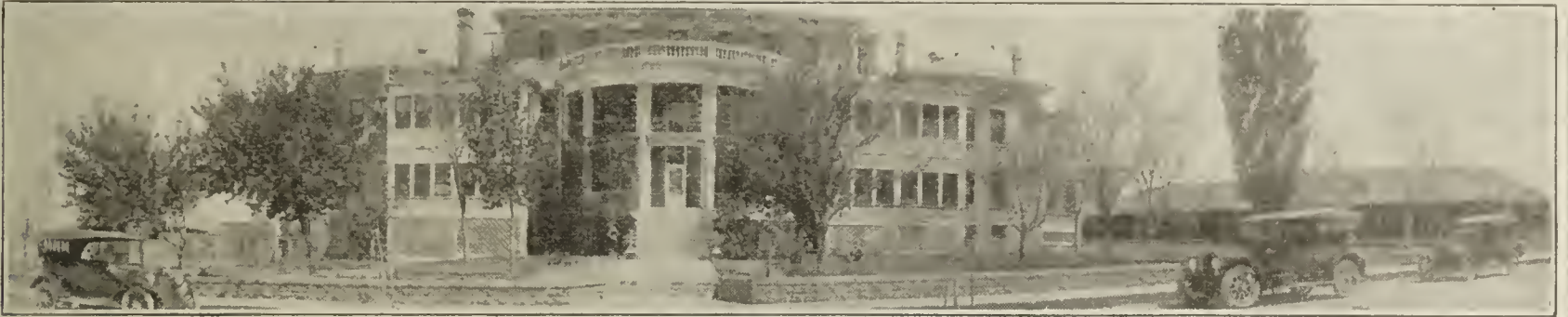
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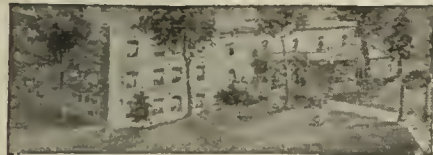
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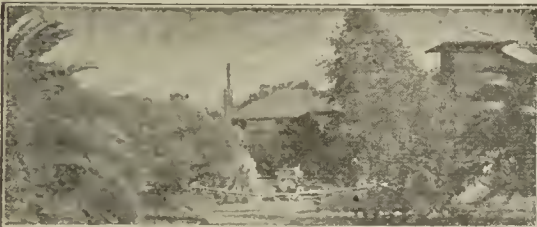
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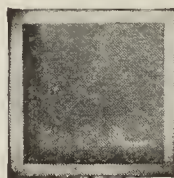
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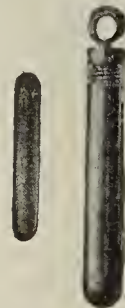


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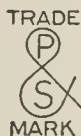
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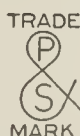


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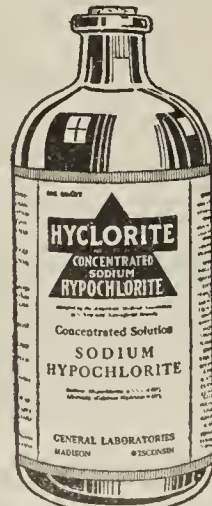
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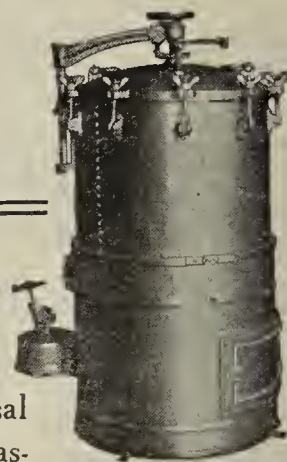
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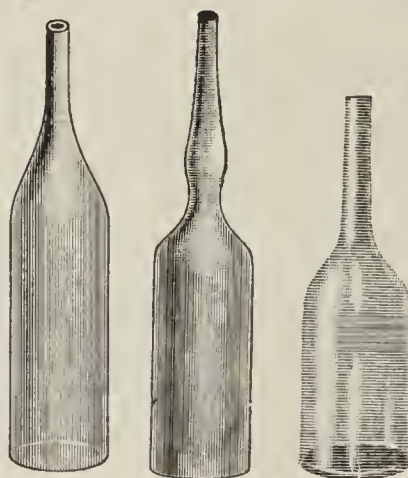
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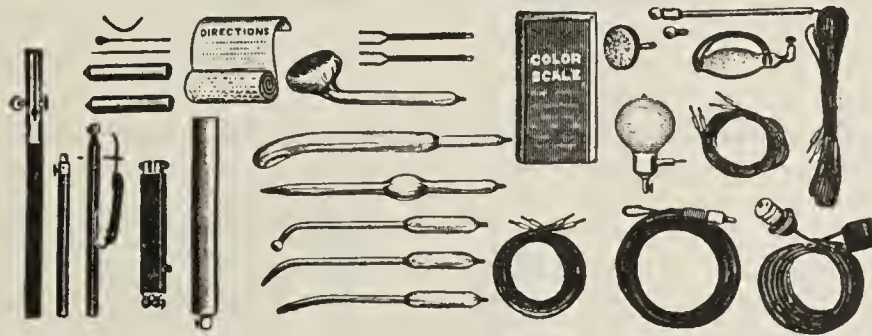
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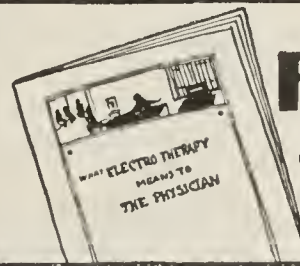
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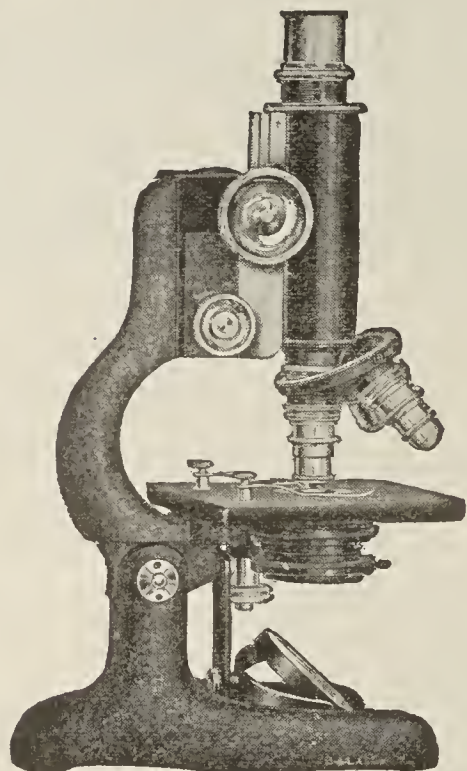
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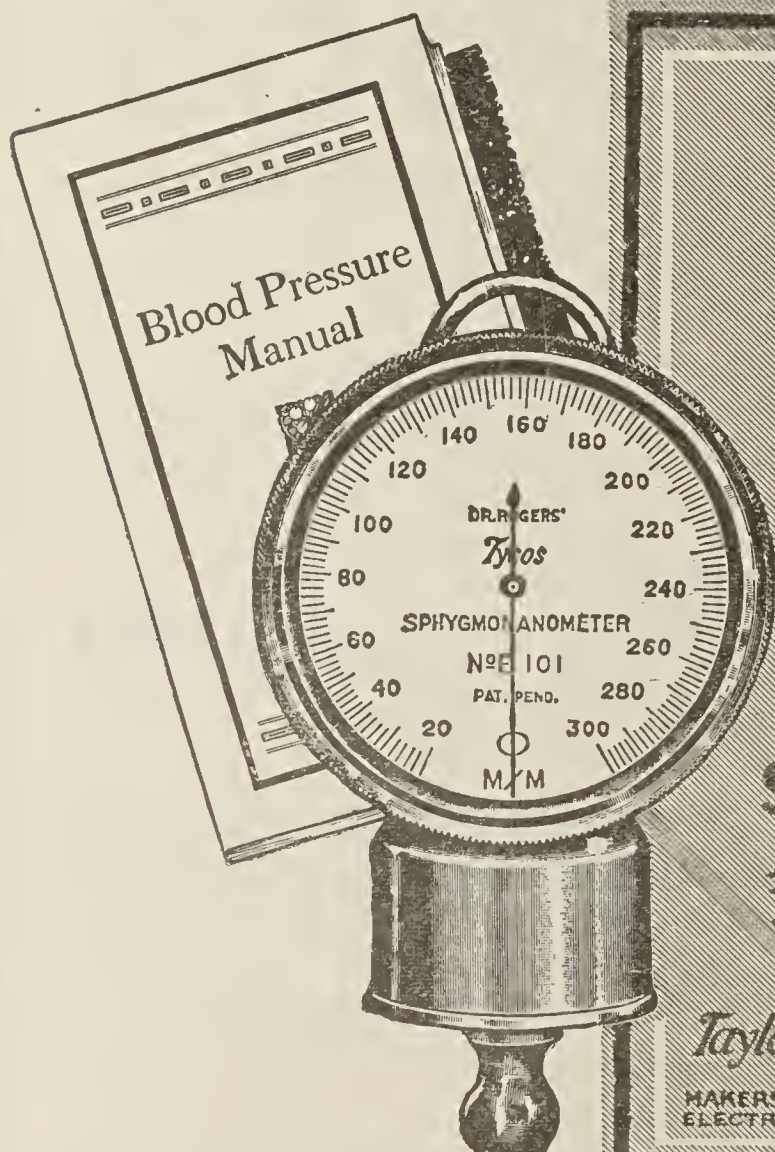
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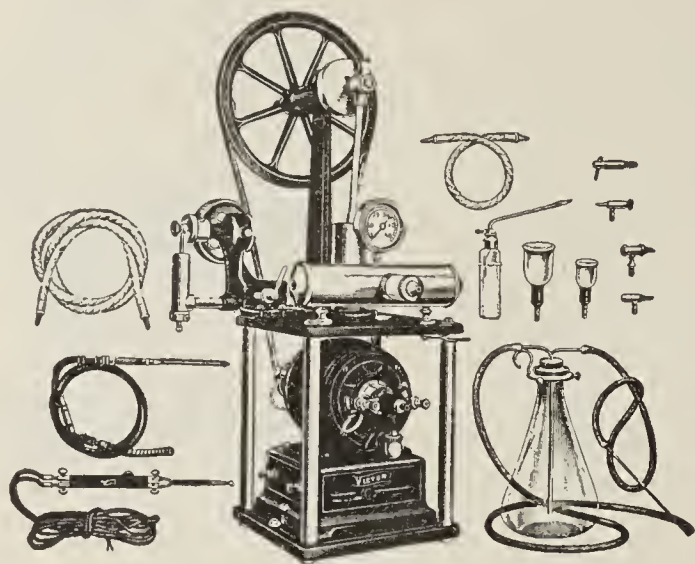
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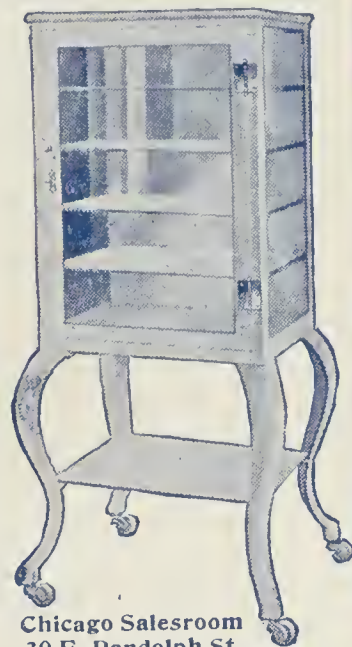
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